

This is a summary of the career of Holmes Rolston III across forty years at Colorado State University, his teaching, travels and invited lectures over all seven continents, his interactions with students and colleagues, his numerous wilderness adventures on every continent. The document herewith extends several hundred pages, and can be scanned and searched. Rolston was a celebrated naturalist, the first and for decades the only University Distinguished Professor at CSU who was not a scientist.

keywords: Holmes Rolston, science and religion, environmental ethics, intrinsic, instrumental, inherent, systemic values in nature, natural history

Rolston over the years.

1956-1958. Edinburgh letters

1956-1958 — Summary

Holmes Rolston, III, an American, was a Ph.D. candidate at New College, University of Edinburgh, from October 1956 through December 1958, when he was awarded the Ph.D. degree. His advisors were Thomas F. Torrance and John McIntyre; his thesis was later published as *John Calvin versus the Westminster Confession* (1972). He and his wife, Jane, lived at 17 Abercromby Place, a basement flat in the then Dutch consulate, where she worked.

Jane wrote letters home to her mother and father almost daily, the six-pence air letters of that period, where one wrote on both sides of a single lightweight sheet, which folded to become an envelope. Those letters are reproduced on DVD disk in digital (.jpg) scan, each letter with a side A and side B, over 275 letters, in numbered sequence, sometimes with brief descriptors. There are also some photos and diary materials. She recounts their impressions of life in Edinburgh, life at New College, Scottish and American friends, and her husband's interactions with Tom Torrance, John McIntyre, James Stewart, John Baillie, and other faculty. Holmes was a regular pulpit supply in diverse Scottish churches. In March 1957, they took a trip to the Holy Land, Jordan and Israel. Summer 1957, they toured England and Scotland, Summer 1958, they toured Europe. There is an introductory summary and overview of the letters.

1958.

I was awarded my Ph.D in late 1958,

I climbed "the Priest" just off the Skyline Drive in spring 1959, with Ernie Thompson, who had just finished UTS and taken a more or less temporary pulpit at Colonial Heights just south of Richmond.

Extensive description of how to get there and the difficulty of this scramble is in the Washington and Lee Outdoor Club Guidebook.

1965

San Juan Wilderness with Bill Clements. ten day horseback packing trip in Durango area. Silverton to Wolf Creek Pass across mountain ridgetops.

1967

Grand Canyon run
Philmont Scout Ranch

1968.

We moved to Colorado, August 1968

1968. Nov. 28, 1968. Thanksgiving. Light snow night before. Ft. Collins to Denver, west from Denver to Berthoud Pass, in light snow fall. 2 ft. of snow at the pass, and skiing there. Road snowpacked. To Winter Park and watched skiing there, including jumping. Moffat tunnel west portal is here.

To Granby and Kremmling in Middle Park. Road variously snowpacked or not. Saw shorttail weasel, in white, black tip tail on roadside. No motel open in Kremmling. Muddy Pass (8,772) is easy climb. Represents Divide here as it runs on Rabbit Ears Range. Not far onward is Rabbit Ears Pass in Park Range, divide again. Rabbit Ears Peak is notable here.

Beyond Rabbit Ears Pass is exquisite stretch of upland country mixed coniferous forest and upland meadow. Some 2-3 ft of snowpack here. Then long descent into Yampa River Valley and Steamboat Springs.

1968. Nov. 29, 1968. Temperature was 15 below and car wouldn't start. Lovely day, trees in area are coated with rime. Drive back up Rabbit Ears Pass, much more of a climb from this side. Through North Park to Walden, lunched there. Country is well snow covered. Lovely view of Park Range, including Mt. Zirkel on west, and Front Range, including Medicine Bow Range on east.

On to Laramie, crossing lower region of Medicine Bow Range in extensive upland, coniferous forested, similar to that of the Rabbit Ears area.

1968. Dec. 1, Sunday. Three hour walk up Empire, Devil, and Labeau Gulch, west of Horsetooth. Up Jeep Trail as indicated. New road built in here not shown on topo map gives more ready access

to the area, which is posted. Cottontail rabbit. Rocks are sedimentary, but further in igneous and metamorphic, with much metamorphic float in the streambeds - probably.

1968. Dec. 7, Saturday. Hike up West White Pine Mtn with Don Crosby. Lovely Day. 1 1/2 hours to Buckhorn Ranger Station, started hiking about 8.30. Auto road up sometimes snowpacked but no problem. Crystal Mountain Road probably impassable without four wheel drive. Jeep road to firetower, easy climb, but toward summit with about 1 foot of snow, more in drifts, made walking up difficult. Coming down no problem. There is a spout spring about halfway up in open area.

Sign in saddle indicates Flowers Trail. Excellent view from firetower; panoramic. Most prominent is Mummy Range; also Long's Peak and Meeker, probably Twin Sisters. Lookout and Crystal Mountains more adjacent. In the far distance, most probably the Park Range, across North Park. Horsetooth is clearly visible, and also out into plains, though hazy here.

Roadside driving up: two cottontail rabbits. Many tracks of deer, rabbits, and small mammals; also some tracks probably fox or coyote. Chickadees, jays, flushed one grouse.

Carried light packframe with down jacket up; wore ski, jacket and sweater. Atop used down jacket in 40-50 mph wind, and wore it down. Worked well. Taped heels in advance & used long cotton socks and over that wool socks. No blisters, about six miles.

1968. Dec. 13, 1968. Stuck on Crown Point Road, with Don Kisiel. No snow on roads lower elevations, but got into considerable snowpack about 9200 ft., 2 miles above Salt Cabin Park. Got stuck about 8.30 a.m, worked till noon getting it out. Succeeded by jacking car up so that the wheel in the ditch had level or down-hill grade out, and similarly with the front wheel. Lovely day but cold, though not objectionably so. Lunch at Salt Cabin Park, then returned uphill about one mile to Jeep road up to mine prospect, and on over, down, then up to open summit at 9135 (see topo).

North side of hills had up to a foot of snow, south sides much less. Windy on top. Good view of local terrain, back to Grayrock and out over the plains. East and West White Pine Mountains visible from here, also Crown and Grown Point (but not higher Mummy Range, e.g. Commanche and Fall). Some of Rawah's visible. Uneventful return. Cottontail rabbit, deer and probably coyote (or dog) tracks, half dozen red squirrels, crows, maybe ravens, Stellar's Jay.

1968. Dec. 14, 1968, Saturday. Snowshoeing in Rocky Mtn National Park, with Jane, and Don and Charlotte Crosby. Showshoed up to Dream Lake from Bear Lake, round trip 2 miles. Snow in drifts of several feet in places; other places little or no snow. Trip could have been made on foot without trouble.

end 1968

1969

1969. January 11, 1969. Saturday. Halfway to Signal Mountain. To Drake and thence to the Glen Haven area, turning off and a gate prior to the North Fork Picnic Ground. Hike made with Sierra

Club. Jim Wagener, from Oregon, is president. National Forest service has access to the land this way. See other access on map. Dirt road up Dunraven Glade to a saddle where Signal Mountain Trail leaves. Go through another gate halfway up the glade and reach a saddle with locked gate and open area for parking.

Hike was originally scheduled for Lookout Mountain, but group did not want to make the drop from Bulwark Ridge down into Miller Fork and then climb again to Lookout (See Indian Trail switchbacks on map). So we took the Signal Mountain Trail. There was no significant snow to the top of Bulwark Ridge and signpost, about 1 mile, but thereafter snow became increasingly deep and retarded travel considerably. We went perhaps three of the five miles toward Signal Mountain, ate lunch atop a lookout rock and returned.

Rocks are notable for large and coarse xtals, including some of tourmaline 3-4 inches across and 6 inches long. One member of group found a freshly shed deer antler in excellent condition. The aspen in this area, especially where we first reached the top of Bulwark Ridge are much scarred by elk, and there were fresh barking scars both on standing trees, and more notably on blowdowns. See pix, Contor, Bighorn, Elk, Deer in RMNP, p. 28.

1969. January 18, 1969. Rocky Mtn N. P. Spent day there deciphering the peaks. Mostly late afternoon saw 32 mule deer, few or no bucks, and 61 elk, many bulls. The elk were 24 in Little Horseshoe Park, and the remainder in Horseshoe Park. Seen about dark. Some majestic bulls.

1969. Jan. 25, 1969. Drove to Ben Delatour Scout Camp and hiked in that area. Broken woods, mesas. Ponderosa pine, sage. Same sign of elk, rabbits. Light snow cover. Nice view of perched hawk, later soaring. Probably a rough-legged hawk.

1969. Feb. 1, 1969. Hike up Hewlett Gulch, from Poudre Park, to Bidwell Mining Claim. Gentle to negligible climb. Sage-Ponderosa belt. One adit open and easily accessible. The mine seems to be worked enough to keep the claim open.

1969. Feb. 8, 1969. Short hike along South Lateral Moraine with Jane. We tried Bierstadt Lake trail but it was too deep in snow. Eight deer afield, one a buck that had lost one antler but not the other.

1969. Feb. 15, 1969. Hike up Prohibition Mtn, 9,140 ft. Road clear of snow above Rustic, but towards latter part of stretch up Prohibition Mtn drifts across road. Parked car at last switchback, where the road is deeply drifted, but there are by-passes. Over the highest part of the road there are northern exposures with drifts across road, perhaps impassable. Short hike up Prohibition Mtn.

View from top is good, West White Pine Mtn, Signal Mtn, Stormy Peaks, and Sugarloaf. Other Mtns apparently obscured with cloud cover. White-breasted nuthatch and mtn chickadee? One hawk. Ponderosa and limber pine on top. Returned to explore mines in vicinity. Ore uncertain. Much hornblende, considerable epidote.

1969. Mar. 1, 69. Rocky Mtn. N. P. with Dr. Dave Harris, geology dept., CSU. Left in time to arrive at daybreak. 29 elk in Horseshoe Park area, some near road. 32 deer in small groups of up to a dozen,

mostly in morning. Clear sky earlier in day, clouding up by noon. Earliest clouding was thin wisps condensing over the high peaks. No deer had antlers. Shed them?

Studied the peaks in mid-morning, with topo sheets and relief maps. In addition to skyline west of Longs, noting Little Matterhorn, The Gable, and Castle Rock, also noted Bighorn Mtn, Dark Mtn, and MacGregor.

Met Dr. Harris at 11.00 a.m, and stopped at North Lateral Moraine, noting faceted boulder(s). Object of trip was a roche moutonnee in center of Moraine Park. South and North Lateral Moraines do not abut the bedrock walls presumably because there was ice on either side; they are medial moraines. Subsequently drove to Bear Lake. Lake was frozen, considerable snow cover, and you could walk out on it. Typically 3' of snow here, drifts to 6'.

Returned via Devil's Gulch and Glen Haven. Tourmaline xtals abundant at roadside, but not easily dislodged from rock.

Half dozen mountain bluebirds in Moraine Park (not a winter resident?); magpies, Stellar's Jays, Rocky Mtn Jay, raven, woodpecker. Gray squirrel, with very prominent tassel ears. (Later: Abert's squirrel, probably.)

1969. March 8, 1969. Day's drive thru Pawnee National Grassland, western half. 2-4" of snow afield, and drifting in roads which were generally passable, but at points I had to re-route. Cold day. Horned larks by the hundreds of thousands. Some mallards, green-winged teal, and pintails on one lake. Many hawks, tough to identify. Jackrabbit flushed from brush at one point. No antelope seen. Get better maps of this area before returning.

1969. Apr. 5, 1969. Field trip with ornithology class. Return later in day in car; first time on bus. Out on Colo. 14 to RR, then turn left (north). 1st pond about 2 1/2 m. north. Later to three ponds north of Cobb lake; then to prairie dog colony; first road north of 3 ponds, turn east and go gently uphill, half mile. Burrowing owls here, and prairie dogs. Last stop a marshy area further north still, on Nunn Road.

I. Surface feeding ducks

1. Shoveller. several hundred seen. 5 alternating areas
dark (head), white (breast), dark (cinnamon sides) white (patch toward rear) dark tail.
2. Mallard - dozens seen
3. Gadwall - dozens seen
white wing patch - 'speculum'
4. Pintail - dozen seen
long 'pin' tails, white line up neck

5. Baldpate = Am. Widgeon several seen
white 'bald' stripe on head
green patch on side of head

Teal, included in surface feeding ducks ducks of half size.

3 of these:

6. Green-winged Teal
white mark in front of wing
7. Blue-winged Teal
blue wing patch; white crescent in front of eye
8. Cinnamon Teal
cinnamon red; blue wing patch

II. Diving Ducks

1. Lesser Scaup - thousands of these seen skaup - as in "saw"

scaup are ducks
black at both ends and white in the middle

2. Greater Scaup

3. Bufflehead - few seen
smaller duck; notable white patch on head
4. Golden-eye - 'whistler' from sound of wings
white spot between eye and bill

5. Redhead
grey with red head

6. Canvasback
white with red head

Gulls:

five here, all nest inland, 3 white-headed

1. California Gull
2. Ringbill Gull

3. Herring Gull

2 with black on head

4. Franklin's Gull - in great numbers in fall

5. Bonaparte's Gull

Other water and shore birds:

Coot - slate grey, whitish bill

Grebes:

1. Pied-billed Grebe - 'pied' 2 colored

2. Eared grebe

3. Western Grebe - later in the migration

Killdeer

Virginia Rail - call is conspicuous in evening; secretive birds

Sora Rail

Sandpipers

Plovers Greater

Yellowlegs

Lesser Yellowlegs

Dowitcher

Other birds:

Burrowing owl - in prairie dog colony. Diurnal. They use prairie dog holes (tho they do not prey on them), and though they can dig their own holes.

Short eared owl - might also be seen daytime.

Great Horned owl - sometimes seen perched in day.

Redwing Blackbirds - males come in in migration before the females, and as the females come in they flash more red in the wing.

Pine Siskins - 300 seen here recently

Common Goldfinch

Greenbacked Goldfinch

Sparrows:

Savannah sparrow - on prairies

Song Sparrow - prefers marshy area here.

Pheasant - couple dozen seen

Kingfisher

Meadowlark - males arrive a few weeks before the females and establish a territory.

Muskrat seen at first pond.

Hawks:

commonest three:

(1) Marsh Hawk - Harrier - white rump, low over ground, long tail, slim bird. V wings.

(2) Swainson's Hawk - common in summer. White at base of tail (above) wide dark breast band.
underside of wings: light front linings; darker rear flight feathers

(3) Am. Roughleg - here in winter; moves to Alaska in summer.
white at base of tail (above) black belly
black wrists on wings.

(4) Redtail

Accipiters:

Cooper's

Sharpie

Falcons:

Sparrow Hawk - Kestrel - some rufous

Pigeon Hawk - Merlin - small, robin-sized - no rufous.

Prairie Falcon - black patches where wings join body

Peregrine Falcon - Duck Hawk - rarer; dark colored.

1969. Apr. 12, 1969. Return to ponds north of Cobb lake.

pheasants - half dozen

meadowlark

robin

house sparrow

magpie

redwing

muskrats - several

starling

squirrel

kingfisher

blue winged teal

green winged teal

cinnamon teal
bufflehead
pintail
redhead
gulls: ring-bill
California
herring
gadwall
shoveller
mallard
scaup
coot
yellow headed blackbird
cottontail
western grebe
Am. merganser - here and later in Poudre Canyon
Canada goose
avocet
widgeon
kildeer
pied billed grebe
prairie dogs
marsh hawk

Circle route up Poudre Canyon and return via Stove Prairie and Rist Canyon. Pasque Flower frequent and in full bloom. Willows budding. Alder catkins down, but not a great deal of signs of spring. Cloudy day, with moderately heavy rain at summit of Rist Canyon. Zoom scope performs well on a day like this, no heat waves to distort high magnification.

1969. Apr. 20, 1969. Sunday evening. Ponds n. of Cobb Lake.

Calif. gull
coot
avocet
white-faced ibis
great blue heron
cinnamon teal
blue winged teal
green winged teal
yellow headed blackbird
redwing blackbird
gadwall
shoveler
scaup
mallard

pintail
bufflehead
pheasants
sora
marsh hawk
muskrats - several and tame
jackrabbits - 6 or 8

Heard sora call, a plaintive ker-wee, with rising inflection. On record, q.v.

1969. May 6, 1969. Two coyotes in field behind 1712 Concord. They crossed the field in a period of about 20 minutes, entering from west and casually investigating a number of things as they went. Gray with some rusty, narrow noses, and tail down when trotting. Climbed the haystacks to look out from the top. Lost sight of them about the creek. Watched thru scope. Rainy day after 24 hours of rain.

1969. May 3, 69. Raccoon dead on roadside.

1969. May 69. Coyotes subsequently heard howling on several nights.

1969. May 10, 69. Geological Society trip to Crystal Peak, Florissant area. Found some fragments of large orthoclase (or microcline xtals); also petrified wood. Little vegetation out at this elevation, mountain bald cactus.

1969. May 17, 69. Early a.m., field trip with ornithology class. Cold and foggy. At Laporte Lions Park:

blue jay
house wren
flicker
great blue heron
dove
chickadee
thrush - Swainson's? Gray checked?
magpie
kingfisher
warbler - myrtle?
kildeer
western tanager
goose
mallard
At Bingham Hill: lark sparrow

At Watson's Lake:

evening grosbeak
spotted sandpiper
yellow warbler
cliff swallow
violet green swallow

Subsequently drove up Rist Canyon, then up Buckhorn Canyon, and return via Pingree Park road and Poudre Canyon. Less and less vegetation in evidence yet, and at Pennock Pass virtually winter condition. Some snow left at this elevation. Clear day with lovely views. Two deer in Buckhorn Canyon. Marmot. Prairie dogs?, raven? approached very close.

Collected and subsequently keyed:

Pussy Toes	<i>Antennaria</i> sp.
Western Wallflower	<i>Erysimum aspergum</i>
Whiskbroom Parsley	<i>Harbouria trachypleura</i>
Wild Onion	<i>Alium textile</i>
Mouse-ear Chickweed	<i>Cerastium arvense</i>
Nelson's Larkspur	<i>Delphinium nelsonii</i>
Golden Corydalis	<i>Corydalis aurea</i>
Wolf's Milk	<i>Euphorbia esula</i>
Common Shadbush	<i>Amelanchier alnifolia</i>
Snowball Sanlfrage	<i>Saxifraga rhomboidea</i>
Foothills Penstemon	<i>Penstemon virens</i>
Skullcap	<i>Scutellaria britonii</i>
Veiny Dock	<i>Rumex venuosus</i>
Blue Clematis	<i>Clematis columbiana</i>
Common Harebells	<i>Campanula rotundifolia</i>
Death Camas	<i>Zygadenus venuosus</i>
Sand Lily	<i>Leucocrinium montanum</i>
Common Lupine	<i>Lupinus argenteus</i>
Prairie Evening Primrose	<i>Oenothera alibaculis</i>

1969. Apr. 26, 69. Cobb Lake and Poudre Canyon, return via Red Feather Lakes Rd. At Cobb Lake area:

coot
gadwall
shoveler
Calif. gull
Am. Widgeon
white faced ibis
scaup
western grebe
pintail

redhead
mallard
bufflehead
cinnamon teal
pheasant
blue winged teal
meadowlark
green winged teal
white capped sparrow
yellow headed blackbird
shrike
magpie
barnswallow

female marsh hawk - very close in, cry like tin whistle.

Enroute up Poudre:
sparrow hawk
mtn. bluebird
mourning dove

Snow flurry at head of climb above Rustic at Pingree Hill. A few early flowers out here - Pasque Flower; Spring Beauty, Draba; Cut-leaf Daisy. Prairie dog colony of considerable size between Manhattan and Scout Ranch, not far after turnoff east. Several deer seen here. Cooper's hawk.

1969. May 25, 69. Hike up Greyrock Mtn., with Jane, Don and Bonnie Kiesel. Picnic lunch in Ft. Collins Water Plant area, then afternoon hike. Girls went half-way up. Trail climbs in stream side area, at this time lush with vegetation and much like a similar area in eastern mtns. Spring vegetation at prime. Later, trail leaves stream and rises up canyon wall, then arrives at a large flats, broken forest, with nice view of Greyrock above.

Trail then proceeds with more difficult climb up west side of Greyrock with final approach from north. Several interesting ponds close to top. (could be used for drinking water if boiled?). Notable view from top of plains, environs, and distant mtns. Threatening thunderstorm when we were on top. Time to climb: about 2 hours; return about an hour and a half.

1969. May 24, 1969. Field trip with ornithology class. Ft. Collins waterworks.

Bullock's oriole
hummingbird - notable tail flutter sound
Lazuli bunting
song sparrow
spotted sandpiper
Virginia's warbler
siskin
canyon wren - notable descending call

Western kingbird
Rufous sided towhee

1969. May 28, 69. Field trip with Ernest Wolff & Mac McCallum & geology students. To Masonville. Over Horsetooth, you descend thru the sequence, Dakota, Morrison (a grey, weaker rock just past summit going westward; the famous dinosaur formation, tho none here), then into a Lykins Valley. The Lyons is next; a ridge maker, famous for building stone; CSU is built of it. Next is Santakna, a little valley maker, seen here, then Ingleside, a ridge maker.

The Fountain follows, a big valley maker. But the Fountain at Boulder and Colo. Springs, forms the flatirons, and Garden of Gods respectively, a notable ridge maker. Here the cement is different. Then you enter preCambrians. Horsetooth is pre-C. But the section is repeated in the Masonville vicinity due to faulting.

Up Buckhorn creek toward the pinching out of a fault there. Stopped at notable here, walked over toward highline ditch, walking out of sedimentaries, and across the contact to good metamorphic exposure. Notable for s1 and s2 surfaces, also, but less obvious s3. the s1 is presumed to be relict bedding; the s2 is more obvious, and elsewhere is the only obvious surface.

To Big Thompson Corner, and then over on canal to look at a zenolith exposure. The country rock is a quartzo-feldspathic schist, tho it seems a quartzite, dark. It does not split, is massive. But schist need not split; the thing is not to have layers of unlike material (gneissic). Some would call it a semi-schist. Meta-quartzite would not get it; as it is 30% feldspar.

At this location a tonalite (= quartz diorite) has invaded the quartzo-feldspathic schist, and great chunks of the schist are zenoliths in the tonalite.. Cross the canal just above tunnel for this location.

Return to location on canal n. of highway. Here is a graded bed series, now metamorphosed. White cattle are Charolais.

Country rock in Big Thompson Canyon is quartzo-feldspathic schist, with injected tonalite.

Morrison is well exposed beyond Ted's Place.

Above Drake, in pegmatite area. Hiked up stream with various float, and bedrock. Sillimanite and andalusite? are metamorphic minerals here, tho for the most part now altered to mica, etc. Darker rock has ilmenite and clinozoisite in it. At upper reach of hike, a staurolite-amphibolite. Staurolite porphyroblasts. The sillimanite and andalusite form clots in the metamorphic rx, even tho penetrated with mica. Sizeable beryl xtals not far above road, locate by dead tree.

Andalusite is unaltered at head of Cedar Park road (see topo); in road cuts.

East to West

Dakota - ridge maker, the first one
Morrison - under it, still the ridge
Lykins - the first valley

Lyons - ridge maker, the next ridge
Santana - under the Lyons, and a little lower ridge
Ingleside - still a ridge maker

Fountain - lesser valley maker

Breakfast with Jim Frumm. Chuck Beverly did rocks in Rustic area, M.A. thesis

1969. June 5, 69. Hike up Signal Mtn, with Don Crosby. Left 8.00, started hiking 9.30. Climb to crest of Bulwark Ridge and then up the ridge. Lunched at over-look some 3 miles up; then on to summit. Open areas prior to summit make latter part of hike more interesting. Some flora out, but still somewhat winterish.

Several sizeable snow drifts yet in last mile of walking, provided snow to quench thirst. This could have provided water for camp, also there were several run off meltwater streams. Nice view atop. Found two elk antlers dropped, both in vicinity of summit. Much elk sign. First hike with Voyager boots; did very well brand new. Round trip about 12 miles. Ptarmigan ? on return. Return about 5,30

Later: No: Blue Grouse. Ptarmigan do not venture far below timberline, and are smaller.

Collected:

Mtn Caraway	<i>Aletes acaulis</i>
Rock Primrose	<i>Adrosace septentrionalis</i>
Alpine Primrose	<i>Primula angustifolia</i>
Alpine Forget Me Not	<i>Eritrichium elongatum</i>
Marsh Marigold	<i>Caltha leptospeala</i>
Globe flower	<i>Trollius laxus</i>
(Drummond's) Rockcress	<i>Arabis drummondii</i>

1969. June 9, 69. Up Poudre Canyon to Manhattan area with Mac McCallum. He was giving instructions to student mapping in Seven Mile Greek Area for master's thesis. Old gold mining and prospecting in this area. Halfway up the climb from Rustic, and again right at top are tertiary intrusives, a rhyo-dacite. Hard to be sure about what the ground mass is here.

Most of this area is Log Cabin granite, a batholithic intrusive from pre-Cambrian time, intruded into pre-Cambrian rx. gneiss & schist.

It is not greatly altered since pre-Cambrian times. The ridge north of Goodell Corner, parallel with

road to Manhattan is a silicified shear zone core, now more resistant than the surrounding area.

Lower Poudre Canyon rx are a biotite sillimanite schist. Some good sillimanite can be found in road cut near Pingree Park turnoff. The whole canyon area is in the sillimanite zone. The Log Cabin granite is characterized by good Carlsbad twins in the orthoclase.

The Poudre Canyon follows in the upper reaches a shear zone, here weaker than surrounding rx. Where there are flats the canyon is in the shear zone, but the narrows are typically entrenched meanders. Notable landslide area seen enroute.. This is too low down to have been Wisconsin glaciation.

Bellvue Dome (Goat Hill) domes n-s, in Bellvue area.

1969. June 13, 1969, Friday. Trail Ridge Road, with Jane. Heavy cloud cover when we left Ft Collins, a rainy period for 3-4 days. Persisted until Estes, when there were many open views, with much recent snow in high mtns. Lovely views in and out of cloud until Forest Canyon overlook. Lunched here in spitting snow. Heavier snow and hail onward in the afternoon, limited visibility at Fall River Pass.

Return in snow and snow mixed with rain as far as Loveland. Predicted danger of frost tonight. Almost no flora out at timberline and above on this drive. Long's Peak is bathed in snow and ice equipment (axe and crampons) required for climb.

1969. June 20, Friday. Hike alone to Ypsilon Lake. Round trip 10 miles. Easy walking up good trail. Little flora out at lake, but much is out at lower elevations. Half dozen elk seen in upper Horseshoe Park. Audubon's Warbler.

1969. June 28, Saturday. Saw bighorn sheep near Poudre Lakes at Milner Pass, with Clements. Two adults, presumably ewes, and one lamb. Brief view of them running from us, 100 yards distant. Beaver at Glacier Basin.

1969. July 1-5. Trip with Clements to Great Sand Dunes, Mesa Verde, Durango.

1969. July 10, 69. Thursday. Hike alone to Chapin, Chiquita, and Ypsilon. Round trip about 8 miles. Hard hike, seem to have been affected by altitude, and total climb of 3,200 ft, all above 11,000 ft. Left Fall River Pass Road to ascend to Chapin Pass, thence over several knolls upward to the hogback of Chapin. Climb here about 11,000 ft to 12,400. Went to west summit of Chapin only. Descend to saddle connecting Chapin and Chiquita, about 400 ft, then climb from saddle (12,000 ft) to summit of Chiquita (13,100, about 1,100 ft climb. Descend to saddle between Chiquita and Ypsilson, at 12,800, then climb to summit of Ypsilon, 13,500. Return contouring to minimize re-climbing.

Return trip somewhat more difficult walking across fell fields. 6 elk at timberline between Chiquita and Chapin Creek. Several conies, one quite close.

1969 July 15, 69. Tuesday. Hike alone to Specimen Mtn. At Gore Range Overlook on way in saw elk herds as follows. 95 elk on broad ridge below Specimen Mtn; 23 elk in Forest Canyon Pass area, and 11 elk in area southeast of that.

In hike up Specimen Mtn saw 4 bighorn rams, first on s.e. ridge, then on the Crater. Carried scope and got nice views. The sheep did not seem especially spooky here. 3 rams were about half curl, one smaller. Watched at considerable length both enroute up and on return. Good many people on this trail later in the day, but the rams were still there. Elk again visible from the top. 4 miles return, easy hike except for some reason a little hard on the feet. 1,800 ft climb to 12,500 ft.

1969. Sept. 5, 69. Hike to Flattop Mtn with Don Kisiel. From c. 9,500 (Bear Lake) to c. 12,300, i.e. 2800 ft climb. One deer enroute to Bear Lake, and two more at the Lake. Good climb, very windy atop and we were somewhat cold, warmed up later on descent, and hailstorm as we finished. Wore new size 12 hiking shoes. Passed a dozen persons enroute. Lunched over Tyndall Glacier. Water Pipits ? feeding on insects on the snowbanks. Note pipit call. Basically no aspen yet turned; a few limbs yellow here and there.

1969 Sept. 11, 69. Drive in RMP with Davenports. At higher elevations aspen are beginning to turn in considerable numbers. Very noticeable change since Sept. 5. 3 deer. Interesting play of sun on summits around Bear Lake at sunset filtering thru heavy cloudiness, though generally the day was fair and exceptionally calm.

1969. Sept. 17, 69. Hike to Chasm Lake with Jane. 2400 ft climb, about 11 miles round trip. Left about 9.00. Nice day. In elevation this is about half the Long's Peak Climb. Longs Peak is by now icy on cable route and snow covers the narrows so as to make climbing questionable. Talked with one who had attempted the summit and turned back. Met A. Thielen, Cincinnati M. D., who hikes here every fall at Lake. Presbyterian elder. Shelters at Chasm Lake and Jim's Grove.

1969. Sept. 28, 69, Sunday. Drove with Jane into Wild Basin, hiked short distance to Copeland Falls. Aspen are colorful. Bracken along this trail, also later just above Glacier Gorge Junction near Bear Lake. Keyed Bearberry Honeysuckle, *Lonicera involucrata*, from this trail. Aspen are fantastic on side of Bierstadt Moraine, and the whole Bear Lake road is lovely. Picnic supper at Visitor Center parking area. Spent dusk trying to hear elk bugle over noise of traffic! At overlook over Little Horseshoe Park heard coyotes howl, then in Horseshoe Park area heard elk about a dozen times.

1969. Oct, 3, Friday. Snowed all day in Fort Collins!

1969. Oct. 4, Saturday. Snow continues, 10-12" in Fort Collins, though never more than 2-3 inches on the ground. Up to 8" on the ground in Denver. Went in the p.m. to Rocky Mountain National Park, with increasing amounts on snow on the ground on the drive in. In Bear Lake area 15' to 24" was lying on the ground and still snowing moderately hard. Hiked out from Glacier Gorge Junction for about a half-mile. Snow is especially laden on the aspen, which still have leaves for the most part. Then hiked around Bear Lake. Beaver swimming in the far end of the lake, seen at close range. Half dozen deer at various places. Heard elk bugle in the evening in Horseshoe Park area. Clear and warmer on Sunday (though much steam fog).

The earliest measurable snow in the fall occurred Sept. 8?, 1961 - 4.2 inches. The latest first snow of the fall was on Nov. 14, 1944 - 0.1 inches. The average date of the first trace of snow in the fall is Oct. 7 and the average date of the first measurable snow in the fall is Oct, 21. Rocky Mtn News, Oct. 6.

1969. Nov. 6, 1969. Shonny arrives.

1969. Dec. 6, Saturday. Hiked about 3 miles in Beaver Meadows area, RMNP. Some light snow on ground. Clear but windy. Later about 2 dozen elk in Little Horseshoe Park and Horseshoe Park.

1970.

Climbed Long's Peak with Dick Baker
bobcat growling at me
Mt. Evans with mother and daddy
Mt. Audubon solo

1972

1972. Jan. 15, 1972. Cross country ski clinic at Woods Landing turnoff (Laramie River Road). Road blocked further up toward Chambers, though Laramie River Road was open further up.

1972. Jan. 27, 1972. Story on wolves in Coloradoan. In Nov. 1970 in Laramie River country in Larimer Co. a wolf was trapped and shot, and the pelt sold for \$ 14. Before the trapper killed it, he heard others whining in nearby woods. Two pups with a female have been seen in the Rawah Wilderness Area on several occasions. The trapped wolf may have been one of the pups. Tracks have been photographed in the snow.

In the 1969-1970 hunting season a wolf was spotted in Archuleta County between Pagosa Springs and Durango Colo. These are the first reports of wolves in Colo. since 1944. In 1916, 18 were seen. In 1917, 11 were reported, and in 1918, 9 were reported. In 1919 the figure jumped to 22, in 1920, 17, and in 1921 26 were spotted. In 1922 the total dropped to 11, and to 8 in 1923. One wolf was seen in 1924, another in 1926, another in 1929, another in 1938, and one in 1944. The 1969-1970 sightings were the first since 1944. - Mike Stone, conservationist for Colo. Game, Fish, and Parks Division.

1972. Feb. 18, 1972. Crocus sprouts have been up a week or ten days, and seem to come

equally, whether covered with pine mulch or not. Almost overnight one has flowered, though not fully opened, in a spell of warm weather. Perhaps a half dozen jonquils are poking through, one 1"-2" high.

1972. Feb. 12, 1972. Brief hike from CSU foothills campus up to Horsetooth Reservoir, after looking at old waterworks.

Last part of Feb. 273 crocus plants in bloom. Spell of warm weather in here.

1972. March 1-8. Weather continues warm. Some buds opening up. A little forsythia at CSU is in bloom. 1st jonquil at front of house in full bloom March 8. Tulips just beginning to appear above ground in back of house.

1972. March 4. Skied to Albert's Falls and to Nymph lake in Rocky Mountain N.P. About 10 deer. One tassel-eared squirrel (Abert's squirrel).

1972. March 12. Pasqueflower in bloom at Ft. Collins waterworks in Poudre Canyon. Perhaps 50 of them on hillside next to road across bridge. Maple in flower and alder catkins down here. Nothing else out. 3 jonquils at home. Is there a flower the size of the Pasque Flower in bloom by March 12 in the East?

1972. March 15-23. Trip East. In Richmond spring was notably in progress. Forsythia out, and some flowering trees appeared while I was there. Spring weeds in evidence, the small ones. But in the woods outside Richmond there was not a great deal of evidence of spring. No flowers found, besides the European weeds, in hike at presbytery Camp.

1972. March 25. Skiing at Cameron Pass and Zimmerman Lake. Left about 7.00 a.m. Bighorn ram - half curl - about 2 miles below Trout Ponds, perhaps a mile below the Home Moraine turnout. I saw him roadside, stopped the car some 30 yards past and watched, him at roadside. He was eating grass. Later watched him above the road a little, and through binoculars, though he was too close to need binoculars. Did not spook easily. Two bluejays at Laporte Lions Park.

To my surprise the road was plowed all the way to Cameron Pass. Typically 4-5 or 6 feet of snow on each side of road. Parked car some ways above Joe Wright Reservoir, tried to ski, and ended up walking up to the pass. Lunched there. Skied down rather successfully to the point where the Zimmerman Lake trail takes off, and climbed this to an overlook over the main road.

Lost the trail/road eventually, but found it for the first half mile or more, until the terrain opened up. Tracks - perhaps a coyote. Returned to car about 4.00. Waxing troubles, compounded by sun and shade show conditions.

Alder catkins are down below Arrowhead. Easily a thousand Pasque Flowers - and perhaps a hundred spring beauties at Ft. Collins Waterworks. No Mertensia in bloom, but found one or two in bud. Pair of American mergansers. Kingfishers.

1972. March 30, 1972. Giles arrives.

1972. May 20, 72. Stroll up Arthur's Rock trail.

1972. May 28, 72. Striped skunk prowling roadside, enroute to Nunn.

1972. May 31, 1972. Hike to Fern Lake and Odessa Lake with Mike McCullough. Five deer from car on way in. Left trailhead and hiked past Arch Rocks to Pool. Return trail to Cub leads eastward, and runs along the break of the flats to the mountain here. Another trail into the flats soon returns to main Cub Lake trail. Fern Lake Trail slabs south of a hillside, forested above and open below. I had earlier lost this trail (on snowshoes here) because I went up and over a saddle here.

Steady but reasonable climb on to Fern Lake, past Fern Falls. Reached snow about Fern Lake. Good camping areas at Fern Lake. Several cabins. One, an old lodge, is open and could be used for winter shelter. A ranger station is locked.

Fished Fern for about an hour and a half with only one strike. Saw marten carrying off a slice of bread from somebody's lunch. Several parties camping here.

Hike on to Odessa was with more snow underfoot than ground, and many deep drifts. Odessa was still frozen, but the ice was mushy. Notchtop, Little Matterhorn, and the Gable are prominent here.

1972. June 4, 72. First poppies in bloom.

1972. June 8, 72. Greyrock and Wintersteen Trail. Nice, but uneventful climb to foot of Greyrock. Spring flora in prime and much bird activity. One deer. Wintersteen trail is difficult to locate, but takes off eastward from south end of flat area. Soon pick up some cairns and blazes. Trail is followed with difficulty by a combination of map, blazes, and stone cairns, often pole cairns. Sometimes it is clearly a trail, but in open areas you have to cast around for it.

Cairns do pretty well as far as junction with Jeep Road to Brinkhoff mine. Jeep road enters in a grassy area, and is hardly noticeable as a road until you explore it a little, but soon becomes definitely a road either way. Jeep road proceeds across grassy saddle, narrow and conspicuous saddle, and onward to Brinkhoff mine. Mine is notable area of diggings.

Collected crystalline mineral here (Later: garnet). Good feldspar and mica of both kinds. Lunched here.

Route (not road) continues, cairns are fair in here, and comes to high saddle with good reservoir view. Descends down open hill crest by some salted ground in a couple of spots, and at a metal sign (Salt Ground # 1) turns left for steep descent. Pick up 3 strand wire fence in here. Arrive at lower grassy saddle, where I terminated hike in November 1971 in from other end. Stock tank and spring in below here.

Returning, I walked half mile or more downward on Jeep trail toward Long Draw. In spots this is hardly more than a route across open areas, but becomes definitely a road, and probably could be followed without difficulty. Second deer in p.m.

1972. July 8, 1972. Mummy Pass. Drove to CSU Pingree Park Campus. Usual route (maybe only route) is as follows: Go into CSU Camp, and go up a road marked North Dorm. This is the one on the topo sheet that leads into the long parallel road. Road into Ranch at upper end of Pingree Park is blocked with gate at point just above CSU camp where Stormy Peaks trail takes off. This, incidentally, is marked as a trail head. (I did not see sign marking Signal Mountain Trailhead lower down, but it may be there.) This road, up Fall creek, is locally called the Cirque Road. Good 4WD road, and sedan might make it. Some high slung cars were using it.

Uneventful walk to Mummy Pass Trail turnoff. This is clearly marked and is at a sort of campground, not far past where the road crosses the creek. Trail is blazed with little blaze over a big one, fairly intensively thru the timber, and this route would probably not be difficult to find in winter. Joined a party of four from CSU Institute at Pingree Park, and remained with them till lunch.

Ascend to timberline, then cross Park Boundary and ascend to a brow which yields to a flat area. Trail then rises and falls off and on, past small ponds to Mummy Pass. The Pass was not marked and is a broad open pass.

Typical alpine day and good flora. Noted pika scat, like BB shot. A ropey soft earth ground formation caused by gophers that tunnel in the snow; and pack the tunnel solid? Check this.

Uneventful return. Round trip about 11 miles. Trip would be only 8 miles from 4WD end point. Cairns are intermittent above timberline. With much snow cover, trail might be a problem. Route to pass could probably be found, due to surrounding topography for reference. especially Fall Mountain. CSU Camp is at 9,000 ft. (500 ft lower than Bear Lake). What kind of snow is in here in winter? Get a Blue Book, and Forester's Book that describes the natural history, etc., of the area.

1972. July 12. Picked first ripe tomato.

1972. Aug. 21, 1972. Donner Hill Trail. Left home 5 a.m. Deer in dawn at Horsetooth. On trail 7.00 a.m. At Donner Pass, as before, about 9.00. Descend for about 3 hours, longer than I would have supposed, and finally broke out to Miller Fork.

Jumped two or more elk in brush. Trail descends as noted on topo sheet as best I can tell, and is not shown on printed map. It joins the Miller Fork Trail, on which I was formerly lost, perhaps $\frac{1}{2}$ mile above the nice campsite where the Signal Mtn trail first hits Miller Fork. Very easily missed in here, and not marked. There is a Lookout Mtn sign about 200 yards below which is uninformative as there is no junction there. About 200 yards above this, you must leave the Miller Fork Trail, which is the more obvious trail, and take a sharp right to ascend Donner Pass Trail.

Some $\frac{1}{2}$ mile above this there is a three-way trail junction in a saddle: (1) Donner Hill, (2) Miller Fork and (3) trail out to Glen Haven. Some nice lookouts on rocks, and nice spires above here. Good water in August. Saw Blue Grouse well on return, rather tame. Many chickarees.

Return by steady hike out, about 5.45 p.m. Long hike, 16 miles round trip. Cabin in open area as noted earlier, had burned. Met four packers who had missed the trail like I did. Rare Oakfern, Phegopteris, in here.

1972. August 24-26, 1972. Backpack trip to Lost Lake, RMNP. Got backcountry permit and left trailhead about 9.30 a.m. This trailhead (head of Dunraven Glade) was reworked last summer, and you no longer go to the top of the saddle. Parking, area built just before the last rise to the saddle.

Trail Ridge Road was closed the night before due to snow, and remained closed until up in the day. It had rained hard all night, and was raining as I set out.

Ascend briefly, then drop to North Fork Big Thompson. Proceed upstream to Cheeley Camp (closed when I went by). Continue to Deserted Village (a single cabin), and on to North Fork Ranger Station. Had coffee and lunched with Trail Crew taking shelter from rain there.

Many ouzels, and squirrels. Snow was visible on mountains above timberline.

After lunch, rain ceased, but increasing snow underfoot kept it a wet walk. About 4" of snow at Lost Lake. Camped at sheltering rock. Clear by night, but the night was cold. Ice around

in the morning. Fished the lake without success in the a.m., then lunched at camp, and hiked to Lake Husted to fish. Caught one brookie which I ate for breakfast, and let several others get away.

Cool but clear in a.m., and increasing cloudiness in p.m. Little rain. Elk sign. Party of four came in about supper time.

1972. Second night less cold, and clear in a.m. Hiked out, stopping to fish a little at beaver ponds just upward from Ranger Station. Rained hard beginning during lunch and continuing for several hours. Feet got wet. Cleared by time I got out about 3.30. Round trip, including trip to Husted 21 miles. Parka seems to leak. Waterproof it.

Later: Returned to this area again, August 1987, August 1999, and, up the North Fork backpacking, and to Stormy Peaks, September 2001.

1972. August 28-30, 1972. Climb of Mt. Meeker. Left Copeland Lake on Sandbeach Lake Trail about 9.00 a.m. Leisurely 4 miles in, with lunch enroute. Nice lake with sandy beach. Mixed weather, but often fair. Uneventful evening, Rose early a.m., and had breakfast, but weather was so bad I went back to bed. About 8:30 weather improved, and I set out for Meeker.

Climbed as suggested in Trail Guide to Park. Contoured around from where Sandbeach Lake trail turns south toward Lake. Went north, and crossed Hunter's Creek, shortly in open, and long climb up toward Dragon's Egg Rock. Bear left and on up to a prominent weeping rock. Ptarmigan here, two of them, and tame as chickens. Took photos. Took false route up, and got too steep, so backtracked and took another route to ridge, and then climbed ridge on to summit.

True summit, which I reached, is west. A lower summit is east. Summit is rather narrow and knife edged, in contrast to Long's. Nice view of Long's and weather was co-operative.

Uneventful descent, very slow on account of a bruised toenail. Got confused in wooded portion, and had to descend Hunter's creek to where it crosses the Sandbeach Lake trail, bushwhacking. Back to camp about 7.00. Mild evening.

Next morning was windy, but clear, though nice cumulus clouds over the peaks. Meeker at 13,911 feet is second highest peak in the park. Chief's Head is 3rd. Total trip, 20 miles, plus some unnecessary ramblings.

1972. Sept. 4-6, 1972. Mirror Lake Trip. Got stuck on Long Draw Road, in middle section. Boy, this is messy after a rain. Four Wheeler pulled me out after a while, and no troubles on upper part of road, though ran over a big bump trying to turn around on Long Draw Campground road and had to jack out.

Parked at junction of road and corral Creek and descended foot trail to Poudre River. Corral Creek shortly joins, Poudre Pass Creek. Good footbridge and marked trail over Poudre Pass creek, and shortly above this is the Poudre River.

National Park Boundary sign at Poudre Pass creek. A quarter mile or so above this is mouth of Hague Creek (and campsite), marked. But apparently there is no footbridge southward, up Chapin Creek trail, but you have to use the footbridge over the Poudre River mentioned, above.

Followed Mummy Pass Trail up Hague's Creek, then it ascends steeply and goes over (with little drop) into Cascade Creek drainage. Mirror Lake trail turnoff well marked. Arrived at Koenig cabin site about 1.30 p.m. Old cabin in here, still provides some shelter. Fished in creek and caught two, which I ate for breakfast the following a.m. Decent weather and fair night.

Later: cabin was gone in 1989.

Fished early a.m., and caught two more, but then it began to rain. After breakfast, fished Mirror Lake, caught one. Biggest of these, all brookies, about 9". Returned to lunch, and went up Comanche Peak. Good blazed trail, though turnoff, at Cabin site, is not marked. Above timberline, there are cairns, but distantly spaced, and a good deal of trouble to follow. I eventually lost them, and made for the peak. Went first to the 12,681 summit, then down the saddle to Comanche Peak, 12,702, Thought I had more time than I did, as my watch was running an hour late. Uneventful return, though 4 elk on meadow's edge below. Deer, the day before when I arrived at campsite.

On return tried to go up to Mirror Lake to fish, but this was a mistake. It rained, and was getting dark sooner than I expected, since my watch was an hour wrong. Cooked supper in dark, and flashlight gave out. Carry extra batteries. Went to bed under clear skies, but soon rained much of night. Little sleep.

1972. Started snowing at daybreak and was still snowing mid-morning, so I decided to come out a day early. Caught one trout, the seventh, that a.m., but was too cold to fish comfortably. Packed out without incident, though the drive back down Long Draw road was hairy. A sea of mud. Up slope conditions made rainy cold weather several days here. About 20 miles.

1972. Sept. 8-9, 72. Trip to Pawnee Buttes. Drive out Fri. a.m., with many prowl stops. Lunched where I was later to camp, at a rather bleak wayside north of Raymer. Spent most of p.m. in walk to the Buttes, climbing the East Butte, scaled by means of hand and footholds carved in the north side. About a three mile hike in here from where I parked the

car to the Buttes. Returned to wayside to camp, and uneventful evening.

1972. Returned in a.m. to Kalouse (road junction) and noted site of brown jasper. Lunched in Stoneham, and went on to barite site north of there, as described by Pearl. Collected nice barite xtals, including one esp. good xtal group. Returned to Stoneham, and a rodeo there. Collected a number of plants and several grasses. Found the birds rather confusing, despite some effort to pin them down. Many marsh hawks. One herd of 24 antelope. See story on the buttes in Colorado Outdoors, Nov.-Dec. 1971.

1972. Oct. 29, 1972. Very late fall, and no really killing frost to date. There have been several frosts and some things are nipped, but nothing is killed. Still have roses, many of them, and a clematis is in bloom, also a columbine, and a delphinium is about to bloom. Tomatoes are about gone, but have not frozen, though I have regularly covered them. Many chrysanthemums. Trail Ridge Road was closed for the winter today, later closure than usual.

1972. Dec. 6, 1972. Record cold. -18 in Ft. Collins at CSU station. My thermometer read -20, and radio station read -21. Had several cold snows lately, and snow has been in shade trimline of house since before Thanksgiving.

Record low in Ft. Collins was -41 on Feb. 1, 1951.

1972 end

1973.

1973. Feb. 10, 1973. Snowshoed with Jennings Bunch about 2/3 way to west White Pine Lookout Tower, Buckhorn Canyon. Solid snow underfoot all the way, to 2' deep often on trail. Buckhorn Road snowpacked virtually all the way from the bottom, and Pennock Pass closed at Golden Eagle Store about 1/2 mile up from Ranger Station. Snowfence across the road. Ranger apparently lives in this house here now. First trip this far with Scout. Two weeks ago I drove a ways up the canyon in 14" of unbroken snow.

1973. Feb. 19, 73. First crocus comes into bloom literally overnight, and within a few days nearly a hundred are in bloom.

1973. March 17, 73. No Pasque Flowers at Ft. Collins water works. Alder catkins down,

1973. March 20, 73. Skiing with Don Crosby at Medicine Bow. Clear dry road to about 4 miles above Centennial, after a blizzard in Wyoming the week before. Much snow in mtns, and often on plains, though some of the plains were bare.

Lovely spring day, but skiing was tough. Never seemed to get the right wax (tried mostly purple and red), and had little control. Road is closed about 2 miles past turn off to Commercial ski area. Maybe 73 antelope enroute, often close to the road, and about 40 deer largely in the open. Violet at the porch is in bud. Might have a jonquil open in a day or two.

1973. April 1, 73. Yellow plains violets and Lesquerella below cliffs on road to Horsetooth, above Dixon's Reservoir, but only this in southwestern exposures. Is this a late spring? Crocus, jonquils, and a violet or two at home, but Forsythia are not opening yet, though a few other things are.

1973. June 26, 1973. Appalachian Trail in Virginia. Packed in to Sawmill Run, only half a mile off the Blue Ridge Parkway. Nice to be back in the hardwood forest. Several deer. Lean-to has small, but satisfactory spring. Jumped a fox on the way in, heard him bark, and got really nice views of him up the trail from the lean-to about dusk. Gray fox, pretty much as pictured in Burt & Grossenheider. Birds, chipmunks, etc., as usual. Four others in the lean-to.

1973. June 27, 1973. Hiked in to Rip Rap shelter, on circle trail, coming in on southern half of the loop. Trail satisfactory and well marked. Many were hiking here in shorts, but said that in N.C. and Tenn. they had not been able to. No mosquitoes. Nice pool at Rip Rap, took a dip. Water cold. Ruffed grouse. Two Scout troops in here, one up out of earshot, the other in the lean-to, coming in later in the day. Rained all night, but no trouble. Clearing and lovely in the a.m. Total trip about 10-12 miles. About a dozen deer. New to me and prominent was Turkeybeard, Xerophyllum, lily with inconspicuous flowers in sizeable head. Filiform leaves, three feet high or so.

Also much in evidence was Goatsbeard, Aruncus.

1973 July 8, 73. Poudre River Nature Area with Shonny. Sizeable turtle on way in, and two red headed woodpeckers. Many mosquitoes.

1973. July 11. Signal Mtn. Hike. Took Scout up Old Ballard Road to junction with Donner Pass Trail. Thence to Donner Pass. Signal Mtn. trail rises abruptly for a while, then becomes a gentle dry woods trail, double blazed. No trouble to follow the blazes, though the trail is little built. Yellow-bellied Sapsuckers. Arrive at junction with road, which I later followed out. Follow road half mile or so to its terminus, and signs indicating the Signal Mtn. Trail, also the Pennock Creek Trail.

Abrupt climb to Signal Mtn. Lovely day, flora out, but not dramatically so. Return and

followed road out. Just how this comes out I do not know. Met two boys earlier who had hiked it out and come out on Ballard Road. But I came out on Greer Road. See notes on map, indicating probable hookup of these roads. A little more hike than I was in condition for. About 12 miles.

1973. July 12. Picked first tomato. An Early Boy.

1973. July 21. Black Lake with Bill Brice. Left about 7.30, after three days of rain, and in a good fog, but it broke up enroute to Estes and had lovely day. Delightful, but uneventful hike in. Trail as before to Loch Vale Junction, then to Mills Lake.

Two wood bridges in here. Might find this trail in winter, and might not. Went upstream another two miles to Black Lake. Rather wet underfoot, and fair trail, but no highway. Very well might not find it in winter, though you could hardly get lost in the valley. Lovely views of Longs, Pagoda, and Chief's Head, later on up, of McHenry's.

Stone Man of Stone Man Pass is obvious in here, a rock pillar visible from some distance away, diminutive from a distance, but rising above horizon and notable.

Spearhead is visible on the way in, and further up, Arrowhead is prominent. Black Lake is in too much of a cirque to see the Long's side, so we climbed up some more. With binoculars, could see the trail tracks in the Trough in a snow field there, and saw two hikers there. No wildlife, except chipmunks. Few birds.

Good water all the way. Saw fish break in Black Lake and saw fish in the water at Jewel. 10 miles.

1973. July 27-29. Family Camp at Wesley Swan Ranch. First camping out with Shonny & Giles. Packed Scout and went up Friday p.m., to Wesley Swan Ranch about 5 miles short of Red Feather Lakes. Church Family Camp has been here for several years. About 30 people, many of them church staff - Bairds, Fairchilds, James Hawthornes, Norstadts, Steigmillers, Comps, Ed. Carrolls. Campfires Fri & Sat nites, two family sessions on Saturday, and Church on Sunday.

1973. Hiked to Lady Moon Lake on Saturday nearby, and again on Sunday. Ducks there, also snake - grass snake or something like that - maybe 18" long, at 8300 ft. Baby muskrat was quite tame and fascinated Shonny. Myriads of frogs in the pond adjacent to the camp. Typical tho slim birdlife. Swan has been in this country since 1902, on this ranch since 1948, also owns one at Livermore.

1973. August 4. Stormy Peaks. Hiked alone. Left parking area & trailhead above CSU

Forestry Camp about 9.00 a.m. Though sign says 3 miles, it is a good 5 miles to the pass. Good trail, double blazed below, though in many spots hardly a graded trail and in open areas might well be lost in winter, except for the double blazes. Reach good water in 2-3 miles, and then abrupt trail turn, with change of distant scenery (see map) and turn from s.w. trend to s.e. trend. Shortly cross Park Boundary Signs, and soon emerge above timberline.

Above timberline there is hardly, a trail, but a cairn marked route, small cairns, but can be followed with attention, stays considerably out of the valley bottom, up below the peaks on the n.e. side. Trail looks good on past the pass, and one party I met said there was no trouble following it. Little wildlife, but flora was good, especially the alpine.

1973. August 7. Rollins Pass. Left 9.00 a.m. in Scout with the family. Good day, often lovely, one or two showers. Went to Boulder, Nederland, Rollinsville and up the pass. Lunched on way up at a place where the show shovels used to be housed. On up to timberline, tunnel at ridge end, over two trestles and to top. Returned from there. Flora was prime. Three ptarmigan chicks roadside on return. Several by-roads and trails leave from here and could be explored.

1973. Aug. 10-11. Lake of the Clouds. Left 6.30 a.m. with Fred Johnson. Left Phantom Ranch about 10.00 a.m. Hiked up Red Mountain Trail to Grand Ditch, thence to Big Dutch Creek. Good bridge across Grand Ditch here, and trail up Hitchens Gulch. Trail continues to an open area, with small pond, filled with weeds. See map. One trail continues, presumably out of timber in flat rock field ahead. Another turns down and left to descend shortly to long shaped lake on creek with marked National Park Campsite. Trail ends here and continue with rock scramble up the 800 foot drop-off from Lake of the Clouds. Perhaps two dozen elk below Specimen Mountain, and a few deer enroute.

Pitched tent below lake to escape wind. Cooked on gas stove. Caught one very nice cutthroat trout on a spinner, but no further success. Could see many fish in the lake, all large, and one party left with about a dozen large cutthroat. Rain in the night, and some quick showers, but good weather. Return beginning about noon, out by 3.30 p. m.

1973. August 28. American Lakes, Thunder Pass, Lulu Mountain. Left 6.00 a.m. about daybreak. Two coyotes in Sleeping Elephant Mountain Area, at edge of pasture. Watched them several minutes in binoculars. On to Cameron Pass, and then to American Lakes Road. This is Colorado State Forest and marked.

Good road (passable by car) to old Willey Lumber Camp Area, rougher after that but no trouble in Scout. Road is blocked about where it bends back southwest, in an area where there is an old stock shelter.

1973. Two miles to American Lakes, 2.5 to Thunder Pass. Hiked up alone, but was joined by Jim Puckett, a geologist from Univ. Utah, with M.A. from CSU. Area has been mapped by a study by Crockett, maybe from Idaho State. Walked mostly over Tertiary materials, kin to those from Specimen Mountain. West of Thunder Pass is an andesite (my specimen no. R29.2), east is a rhyolite, and supposedly another rhyolite (my specimen no. R7.1), a volcanic plug, in area of summit of Lulu Mountain, but we never identified this. Climbed to summit of Lulu Mountain. Ptarmigan hen with two chicks, the chicks identifiable but of some size. Lovely day. Round trip on foot maybe 6 miles.

Puckett's M.A. thesis was on diatremes (volcanic pipes) north of Fort Collins. There are some Silurian sedimentary inclusions in them, with fossils, the only Silurian known in the area. Look this up sometime and check it out.

1973. Sept. 8, 73. Chasm Lake & Mills Glacier with Frank Vattano. Left 6.00 a.m. On trail 7.30 a.m. Cloudy and overcast on plains, but clear and shining in Estes and on trail. No evidence of frost at campground elevation, but some frost burn began to appear about timberline. Flora was mostly past, burnt, but not really frozen out, and not especially brown. New campground has been put in at Goblins Forest, in a mile or so. Uneventful, but grand climb to Chasm Lake.

From Shelter Cabin to Chasm Lake is really an easy scramble. Keep left, behind shelter, and in toward wall. Only one place really requires hands. Four climbers on the East face, in the general area of Stettner's Ledges. Made way around lake to right and to west side of . Here, about at lake terminus westward) but above the lake is a natural shelter cove, which you are pretty much funnelled by. Lunched a little above this, then went on up to Mills Glacier. Not a bad climb, mostly a rock scramble. Spectacular view of the East Face & Diamond. Picked out many of the climbing routes.

Return, and conversation with ranger named Fricke at Shelter Cabin. The Cabin is now to be locked, to discourage dependence on it, especially in winter. Fricke has written a technical climbing guide to the park. He says a good guide can get a seasoned, but ordinary hiker up Kiener's Route; this is their stock in trade.

Lower route is up the Lamb's Slide or maybe on the rock left of it. Route way left can be used, but is full of talus. In July or early August you can kick steps in the snow, but later on it gets icy and you use crampons. Guide will go above you and rope you in. Then up South Broadway to the snow patch. They will use rope right above this for a couple hundred feet, and then free climb to the top,

He also says McHenry's is a "hike," not a climb. He wouldn't take rope. Go late in the

summer and there will be no snowfield below Stone Man Pass, and the snowfield above the pass will be small enough that you can get around it. Half dozen marmots on top so tame you had to shoo them away. Several ravens about the East face. Perhaps 80 parties had signed the trail register, and many made the summit not yet iced up. Cables on the north face were removed for safety reasons, and to comply with the wilderness ideal (no artificial installations).

Average date of first killing frost in Fort Collins is Sept. 29 - from USDA, Climate and Man, cited in Coloradoan.

1973. Oct. 10, 1973. Heard Elk calls in RMNP. Hiked up lower Lawn Lake Trailhead about dark, & counted 110 calls, plus coyote calls. Bright moon and hiked out without flashlights. With Fred Johnson. Also saw about half a dozen elk, including two bulls charging, thru binoculars, at some distance across the valley.

1973. Dec. 10, 1973. Ski trip to Deadman Lookout Tower. Dry road to Red Feather. Deadman Road was open for logging. It is often closed at a cattle gate and National Forest Boundary Sign not far past the Catholic Church. Plowed, but entirely snowpacked at the upper end, and if not plowed it would have been impassable. No problems going in the Scout.

Skied in to Deadman, 3 miles, and return, 6 miles, in about 3 hours, 10 a.m. to 1 p.m. Lovely day and ideal skiing. Windy on top. On return a large logging truck passed, and I slipped into snowdrift passing him slowly, and he promptly pulled me out. But I got stuck a little more readily than I thought, but the road underfoot here was very slippery.

end 1973.

1974

1974. Feb. 12, 1974. First crocus in bloom, a single one near the sidewalk.

1974. Feb. 24, 74. A hundred or so crocus in bloom. Maple tree in church parking lot is flowering a little - pistils out. Pasque Flower at the s.e. corner of the house is two thirds out in flower. Discovered, under spruce branch cover, 5 violets in bloom - *V. odorata* *semperflorens* - at s.e. corner.

1974. April 21, 1974. With Jane & family to Ft. Collins waterworks. Several sets of goslings at Terry Lake. At the waterworks Pasque Flower, *Mertensia*, *Claytonia*, *Draba nemerosa*, *D.*

reptans (Carolina Whitlow Grass), and Arabis fendleri.

1974. March 30, 1974. With Shonny and Kelly Brice at Ft. Collins waterworks. Pasque Flower, several hundred but not really out yet. A few Claytonia. Very dark beaver in the river. Mergansers. Pat McKee saw a bald eagle at Virginia Dale.

Jane was hospitalized thru here.

1974. May 18, 1974. Coyote in fields south of town, on drive back from Timnath and lower down on Poudre River. Watched him several minutes. Also muskrat in the river. Keyed Cardaria draba, Whiteweed.

1974. May 29, 1974. With Kevin Keane to Cherokee Park State Wildlife Area (on Cherokee Park Road, not Red Feather road). Drove to Lower unit, and went down pickup road to Middle Fork Rabbit Creek. Walked down to single lonesome cabin, then old ranch site. Golden eagle seen from the Scout enroute. Typical birds, tho saw catbird here - first 1 have seen in Colorado. Hawk, probably Swainson's, apparently nesting in cliffs, and with notable alarm call. Flora is dry and disappointing.

Proceeded to Middle unit, and drove to Halligan's Reservoir for lunch. Good pickup road. Then return to entrance and up road to Turkey Roost. Good climb but o.k. in Scout. Past fence with warning for 4WD only, and steep descent to old prospect and N. Fork Poudre River. Latter part a walk on private lands, leased for hunting. River is clearly impassable in spring run off. No game seen.

1974. June 12, 1974. Cherokee Park Wildlife Area, Upper Unit (on Diamond Peak Quad). Drove to Sheep Creek Campground in Sec. 27 without incident. On N. Fork Poudre. Good sedan road in here, but watch it after hard rain. Hiked up trail roughly following Cornelius Creek. 2 golden eagles. This is jeep road (Acme Creek Road), but locked off. Saw coyote in meadow and called him with caller. He and his mate came running at once but spooked at maybe 30 yards, after coming from 200 yards. More coyote scat and tracks in here than I ever remember. Also much elk and deer sign. Flora in rather good shape, but not exciting. Later: Again, Nov. 13, 1994.

1974. June 22, 1974. Middle Bald Mountain with Don Crosby. Left 6.00 a.m. On trail at North Fork Poudre Campground at 8.00. Easy, uneventful, and delightful climb up Killpecker Creek first mile and a half. Then emerge in clearcut area, and rise to very good road. Fairly near the creek, about as indicated on topo sheets trail can be found proceeding south. New blazes are mixed with old blazes throughout hike so far.

Continue, mostly on older blazes to spring. Watch route here. Follow old blazes (small

blaze over long, blaze) on to open area. Some cairns in here, and abandoned camp. Large tarp, gasoline cans, old barrel stove. Nearby is a second road. Clearcut area, which we found trail across with difficulty. Where you break out to the road, there is (going downhill) the word trail, carved and written in red paint down a tree. From here a blaze can be seen on a tree surviving the clearcut, tho we missed it on way up. There is rough trail south and up the clearcut, and one or two more blazes surviving on standing trees.

Leave clearcut, follow old blazes with difficulty, and emerge on very large open area as mapped. Good view of Rawahs. Some pole cairns in here, inc. one where you turn south into timber out of meadow. Follow blazes with difficulty till you break out with commanding view of Middle Bald Mountain. No trail here only a route.

We climbed Middle Bald Mtn. for lunch. Pole cairn where you emerge from timber, and also cairns were found as mapped toward trail junction and South Bald Mountain. North, Middle, and South Bald Mountain are all notable here, and you should get from one to the other without too much difficulty. View of Rawahs is unexcelled. Also Never Summers, and to the South beyond Crown Point, Mt. Ida and Specimen Mtn. Remaining Rocky Mtn. Park area was obscured by clouds. Also Wyoming Medicine Bows. Uneventful return, tho we had to pick the route back even with some care.

Come in here on other trails. Find where the two main roads in here terminate. Both looked virtually passable by sedan here. On return the lower trailhead of the North Lone Pine Trail was located. Not marked, go carefully, but it is there and looks o.k. Passed a backpacker who expected to come out here. One deer on return. Alpine flora is out, but not full on yet.

1974. June 26, 1974. Greyrock and Livermore Mtn. Country. Left 6.00 am. At the foot of Greyrock Mtn. about 8.30. There is a trail down to Greyrock Meadow, terminating in a cairn at a dead tree about as shown on map. Route out to n.e. in Sec. 25, tho shown as a jeep trail, is very old road, hardly discernable at points. But there is little trouble finding the route.

Arrived at ruin in s.w. corner sec. 19 about 10.00. Road down the creek s.e. and back into sec. 30 is very obscure. At drainage fork is old abandoned car, and I initially missed the road back up to Wintersteen Trail. Went on down the drainage quarter of mile or so, marking trail, a trifle uncertain where I was.

Returned and found road back up to Wintersteen Trail and hiked it up far enough to confirm it. This road is not as good as I remembered it, and my impression was that some 4WD had been in on it, but I do not now see how they got from ruin to abandoned car.

Returned and hiked the trail running to Long Draw. Formerly a road, and can be followed with no trouble, but it is somewhat obscure. Cabins are as marked. Stopped at 1.00 at

saddle beneath Livermore Mtn, with good view out to Livermore Forks.

Return was tough, but uneventful, returned via Wintersteen Trail. No problems. Carried 12 oz. cola, which was frozen, and delightful for lunch, canteen, and half gallon of water. Crossed water often, but stock had always been in it. Dry. Little wildlife, and flora so-so.

1974. July 1974- July 1975 - Sabbatical year; Marblehead, Massachusetts, and Harvard University Center for the Study of World Religions. Lived on Bartlett Street

1974. Sept. 1974, just after Labor Day. Pack trip into lower Shenandoah National Park. Bad weather, cold and rained out. Lean-tos here have been closed and camping forbidden nearby. But in hard night's rain, I slept on table top in lean-to. Next day walked into Big Run, then out.

1974. Sept. 14, 1974. 2 adult bald eagles at Hawk Mountain, Kempton, Pa. With Jennings Bunch. Also c. 50 broadwings, some sparrow hawks and Cooper's. Eagles seen clear and lovely.

visited Walden Pond, Concord, fall 1974, with leaf colors prime.

end 1974.

1975

July 1974 - July 1975. Sabbatical Year, Marblehead, Massachusetts, and Harvard University Center for the Study of World Religions

1975. May 1975. Several days in Vermont-New Hampshire with spring flora. Delightful, especially the trilliums. Several days in Cape Cod area, inc. National Seashore.

1975. August 1, 1975. Crown Point with Giles. No problems and good road to where Browns Lake road turns off. Blocked to 4WD from here, though you could proceed onward on Crown Point Road, how far is unknown. Easy hike with Giles up to Crown Point, old jeep road runs just below summit, and on down into meadow, over another summit, then begins to drop into Browns Lake. We walked to where the drop off into the Lake begins. In Scout, coming over into Pingree Park, saw yearling coyote running along road. Got out to see him longer just below roadside. Re-checked a number of flowers from here and two new

species.

1975. August 9, 1975. Lake Agnes and Mt. Richthofen with Don Crosby and Suk Koo Lee. Snowshoe rabbit at Chambers Lake area. You can drive, even in sedan though with difficulty, easy for 4WD about halfway to Lake Agnes, to parking lot. Blocked to 4WD beyond, and new hiking trail cut in. About 45 minutes to lake. Beyond is scramble. Went right-side of lake going up, left side (with scree) coming back, and scree side is easier. Long rock scramble to saddle below Richthofen. In upper part, we went just at top line of talus in bedrock, but it was still loose and many bad areas. Descent was from middle of saddle over bedrock area supporting some talus at center in upper part, then skirting snow fields midway down, finally down in semi-forested area, with stream to lake edge. Descent seemed easier route than upward, and would clearly be better in lower part. In higher parts with more snow it would not work, nor is it always easy to see ahead and you could get into a route impasse. Talus is passable up to a certain point, but then gets so steep and loose it becomes difficult, even dangerous. Tough on feet also.

Beautiful day and lovely scenery. From the saddle Lead and Cirrus are visible beyond Tepee. Typical flora and wildlife.

1975. July 23, 1975. Nymph and Dream Lake with Jane, Shonny, Giles.

1975. Sept. 20. Hike to Chasm view with Pat McKee. Left Long's Peak Ranger station about 9.00. Easy and uneventful climb to Boulderfield. The scramble up to Chasm View was not bad until the last few hundred feet, with enough ice underfoot to make it queasy, especially toward top. Went right up the middle, not off to the left as sometimes before. Also was getting fatigued by then. Cold at Chasm view, though the day was not noticeably cold on the way up. Clouded over on descent with spitting snow, but nice day. Two ptarmigan, very tame; below Granite Pass, perhaps 1/3 way down to trail junction with Chasm Lake. They were getting a good deal of white in their feathers. Watched them right at trailside only a few feet away, almost like chickens in a barnyard. There was water in the Boulderfield, though in many spots it was frozen up.

The trail up Long's Peak was open and we talked to one or two who had been up, said it was no problem until the upper part of the Homestretch, which was too icy for comfort. Ranger said it was touch and go but they were about to close out for the season. Passed perhaps ten parties out for the night and various climbs. Mostly staying in Jim's Grove, some in Boulderfield. Return about 5.00. Well worked out, but not hurting.

Flora degenerating but not really wiped out below with frost; pretty well killed above timberline, some still in flower in protected locations. Frost in Ft Collins, Sept. 18, 19, and 20. Tassel-eared squirrel.

1975. Oct. 2. Bierstadt, Pool, Fern, Bear Lake circuit in aspen with Frank Vattano. Left Bierstadt parking lot 9.00 a.m. Absolutely gorgeous aspen up Bierstadt Moraine to top, under clearest blue sky ever. Much deer sign. Heard but did not see deer (or elk) at Bierstadt Lake. Easy trail, no aspen to Mill Creek Basin, and in this area gorgeous aspen again. One mile out to Halowell park, and 4 good campsites in here. Would make good aspen campsite, or short hike in. Modest climb in good aspen, then steep descent to Pool. Overlooks Cub Lake and this looks very good for water lilies. Good aspen lower part of this route.

Lunch at Pool. Up to Fern Falls, Fern Lake with modest aspen little beyond Fern Lake. But beautiful day and this is exquisite scenery. Delightful weather and, though clearly autumn, not a great deal of sign of severe cold in here. Some fresh snow now and again in shadows. Heard elk bugle three times in high area before descent to Bear Lake. Talked with two who had been up Matterhorn, and caught ride from Bear Lake back to Bierstadt Parking Lake with them. 12 miles. Out about 4.00 p.m.

1975. Dec. 27, 1975. West White Pine Mtn Lookout Tower. Left 7.00 a.m. alone. The country has broken snow cover to Buckthorn, then increasing snow, but south sides bare. Much snow pack to Ranger Station, but road had been plowed and no problem. Had expected to snowshoe, but there was not enough snow and I stashed the shoes after half a mile, rest of day on foot. Pretty day, windy, ground blizzards on peaks visible from here. Apparently you can jeep to saddle in summer; road is chained there after. Jays, boomers, chickadee. Elk sign, one coyote sign. But little out. Would have used snowshoes, had I carried them in that far, from saddle to tower, but not too much trouble on foot. Easy return, after lunch at tower. Some rabbit sign.

Drove toward Paiwanic Pass, turning around just short of pass. Worsening road, but some were coming through, even sedans. Crystal Mountain Road and Old Ballard Road both open, looked iffy for 4WD, but had seen some recent traffic.

About 500 crows in field up from Masonville. Six miles. Monument Gulch Road was open, above Box Prairie and Ranger Station; try this sometime, on foot or 4WD. (There was no sign, as before, at West White Pine-East White Pine saddle showing Flowers Trail, but blazes seen.)

end 1975

1976. Jan. 10, 1976. 6 Bald eagles at Empire Reservoir, near Riverside Reservoir, east of Greeley. With Giles, lunched at Riverside Reservoir, frozen solid over surface. No life here at all. Afterward went to Empire, and walked in a hundred yards or so from Route 34. Saw

two large birds, and two in flight, the latter immatures. The other two out on the ice which I couldn't identify with binoculars.

Returned for scope, and one flew about the time I got back, an immature. The other was a fine adult, and stayed alight on the ices for half an hour. Though at considerable distance, there was no doubt about white head and white tail. Watched several other immatures in flight here. The white in the wing linings was very distinctive in these birds. There were hundreds of geese, also on the ice; and there may have been some broken water or open unfrozen areas at this distance; I couldn't tell; all that I could see seemed to be walking or sitting on ice,

One immature eagle perched in a tree for this half hour. Giles and I walked down the beach and flushed both the adult on ice and the immature in the tree. Total at least six, four were seen at one time. Only one adult.

Many other hawks during the day. In the light phase, the rough-leg is not too hard to tell, black tips, black wrists, black belly.

1976. Jan. 15, 76. Skied up Pennock Creek toward Signal Mtn. with Don Crosby and Fred Johnson. Only got the Scout halfway between Lazy D Ranch and Pennock Pass load. Drift there, we might have made with chains, but decided to stop and walk in. Scout had already done some pretty good drifts. Pennock Pass road appeared open, and there was one truck in here, but no one went further than the drift that stopped us today. Pennock Creek trail up Signal Mtn easy to find, and no problems. Rather poor skiing, due to old snow and rocky.

But this would be nice trail in summer. Though the land is marked Private, it was not posted as such, and the Forest Service corner A is marked with two small signs visible from main road. Little wildlife in evidence. About 7 miles round trip.

1976. Feb. 15, 76. Hike on ridge above Dixon Reservoir. Owl pellet. Keyed Virginia Creeper & a few others.

1976. Feb. 17 - first crocus.

1976. Feb, 21. Keyhole on Devil's Backbone. Walked in from below, but best access is up a road marked Green Mtn, and you can drive right to base. This is apparently Dakota formation, here a hefty conglomerate, with notable pebbles in it. Country back (east) of keyhole is bleak and uninhabited. Might make walk here sometime. Pheasant in snow roadside, also a very light, and nice rough-leg hawk soaring.

1976. Feb. 25, 1976. To see Dan Zeluff in Estes Park. Drove to Bear Lake. Later, after

leaving him, saw 25 deer, and 11 elk. Elk were on hillside above Horseshoe Park, seen from opposite and higher, but then later I saw them from below. Antlers seen on one elk only. One raven in campground.

1976. Mar, 7 - walk below Horsetooth Reservoir, end of Horsetooth Road. Should be good area for summer birding. Pond and creek in here. What is the cocklebur-like plant, evident in winter in the flats here? Also cocklebur and burdock both in here.

1976. Mar. 20. 7 bald eagles at Empire Reservoir. Left with Giles after breakfast. Stopped first at Riverside. Very windy and the lake was almost like an ocean, waves spraying over the dam. A few hawks in here; marsh hawk and rough-leg. Went in east end of Empire and had lunch; not too good access here, tho this would be interesting area to return to. Farm house is on lake visible from here and posted.

Drove south in poor road, to Interstate. Access here, and then returned up interstate, to exit marked Orchard Road. Dirt road goes north from here to bathing area right on lake. Marked Private, but very isolated and no one would bother you here in winter. One slightly bad spot on way in, but you would probably get winter access here.

Immature bald eagle seen in flight, walked down shore area with Giles, and saw beautiful adult close on return. Flying out over lake. Later saw four in air at one time when some disturbance raised them and hundreds of ducks. Two adults and two immatures (presumably including the preceding birds). Good observation from Scout out over lake is down a ways, near blue and white picnic and bathing platform.

Drove round to east access, in past a warehouse or storage barn, and short walk up to dam. Saw one adult light, hunted it up with scope and watched it half hour. Nice in scope, tho could not use high power, and it was too near looking into evening sun. This adult was joined once by an immature, and then later by a second adult. The two adults were watched quite a while.

This area they were in, with hundreds of ducks swimming below, was somewhat out of the wind, now also somewhat abated. Presumed count: 7 eagles, though it is possible that the last three duplicated the first four; I was not too sure about the lay of the shorelines in here.

Many great blue herons in here, have also a 6' wingspread, but wholly different profile.

1976. Mar. 27. Skied and sledded with children in Rocky Mtn Park. 2 deer. No signs of spring in vegetation. Bluebirds and robins.

1976. Mar. 31. One jonquil in backyard. Forsythia is pretty well out in town, not here. Corner violets doing well, crocus in yard is out. Some Blue Mustard and Cranesbill (Storksbill) in town. Alder catkins down and aspen catkins have been coming down a week or so.

1976. Apr. 4, 76. Greyrock Trail stroll at lower end, after being turned away from Ft. Collins waterworks. Refused permission. Several hundred Pasqueflowers, a couple hundred yards in and off to the left. Mertensia, spring beauty, and one Microsteris. Thunder and a good rain in the night on Apr. 5.

1976. Apr 10-24. Good forsythia, many tulips, pansies, violets, shrubs leafing out; many nice days, a few spells of unsettled weather and some snow flurries.

1976. Apr. 24, 76. Cobb Lake area in early a.m. Many doves, several great blue herons, grackle, red wings, yellow-headed blackbirds. Ducks: pintail, gadwall, shoveller (not many), coots, mallards, many teal, including green-winged, blue-winged, and cinnamon, redheaded ducks, also pheasant, Western grebe. Drove to cattail area on Nunn Road first, and this was best area, full of activity. While watching ducks through scope, spotted coyote in field adjacent.

Marvelous scene; the coyote was loping along with a large rabbit in her (?) mouth, likely returning to a den. Possibly a jackrabbit. I watched half a minute, and in good sun and with good magnification. Then the coyote disappeared over an irrigation ditch.

Some activity at Cobb Lake lookout. Many avocets at shallow pond south (near Kimberligns). Rabbits and ground squirrels. Some hawks unidentified.

1976. Apr. 26, 76. Elk in Horseshoe Park, RMNP. Very rainy and foggy day, poor visibility. 15 elk in 2-3 groups at reasonably close range, one was a bull. Scene thru the scope in falling snow was a nice one. 3 deer roadside. Thousands of Pasqueflowers out in Big Thompson Canyon below the Loveland waterworks in open areas between there and the Narrows.

Attended Session meeting at Community Church of the Rockies that night, and drove home in spitting snow. Following week was solid rain and cloud cover.

1977. January 1977. Mountain lion attacks a young boy snowshoeing near Rye, Colo., below Canon City. The boy escaped after stabbing the lioness; the lioness was later found and killed, and found to be blind in one eye; and perhaps did not know what she had

attacked. There are estimated to be 1,200 mountain lions in the state, possibly 2,000, one of the healthiest mountain lion populations in the country, and increasing substantially in the last decade. Another mountain lion in a nearby town seized a poodle and carried it up a tree, and was preparing to eat it when shot.

1977. Feb. 6, 1977. With Giles, the Fort Collins arboretum (so called) north of town, at the Poudre River. Not much to show here. Best access from Martinez Park. Found *Fuligo septica*, a myxomycete, with large aethalium on cottonwood log. White crusted with lime, dark black spore mass inside.

1977 Feb. 12. Up Young Gulch, above Ansel Watrous Campground. With Shonny and Giles.

1977. Feb. 20. Alone, up an unnamed draw just north of Fossil Creek, and south of the Horsetooth Road. Back to two stock tanks in here, with small spring - spout spring. Coyote tracks and deer tracks in here. Keyed Indigobush, *Amorpha fruticosa*, in winter condition. 1977. Feb. 26-27. Twenty bald eagles at Empire reservoir. Drove out Saturday and went into Riverside. Nothing, except one large red tail in very close in the cottonwoods at the dam. Enormous flocks of redwings feeding on some spilled corn on the dirt road in. At Empire, the land where I have been sighting the eagles has been identified by sign as state land. Nine eagles on Saturday, all perched, though several flew in low and - about while I was there, 2 adults and two immatures, one of the immatures was much blotched with white. Then drove on to Eckley, where I spent the night with Larry Gardners, preached at Eckley and Wray on Sunday.

On return, there were many eagles perched. Counted nineteen in one sweep of the scope, ten adults and nine immatures. Then back on the main road, I saw one soaring at other end of reservoir, almost surely another individual. Weather was nice and observing conditions good. One adult, in particular, sat on the northernmost snag on the island-peninsula that they frequent, and was an exquisite sight on the snag and against the wintry sky. Chickadees and white crowned sparrows, one pheasant.

Several skunks dead roadside. I saw one in town alive, prowling the roadside at dusk last week.

1977. March 5, 1977. Sheep Creek and Moody Hill Trail in lower Buckhorn, with Shonny and Giles. Up over Rist Canyon, and thence via Stove Prairie Road to lower Buckhorn. The signs I remembered in here have been washed out or are otherwise gone. Hiked up the lower mile and a half or so of the Moody Hill (Sheep Creek) Trail. A Jeep Wagoneer was stuck wildly up the hill, and on return 3 CSU students were getting it out with a come-along.

He had lost his brakes, presumed he snagged a brake line. This road is not so bad as a whole, but 3-4 skittish places in it, as far as we went. Hiked on up, lunched, and went some more, uneventful return.

Gathered some mosses and the children played with delight on the frozen creek surface. This is excellent moss area. There are 1-2 camper sites at the creek, and a makeshift trail up the creek itself quite a ways. One or two tent sits upstream too. Would be nice with Giles, maybe with family) in early spring - May, when it is too soon to go higher.

Raccoon prowling roadside on return from Estes.

1977. March 19, 1977. Hike alone up Horsetooth. Parked below the crest of the highway and went up draw to avoid posted sign. But signs here only say No Hunting, and seems a semi-public route. Gain a 4WD road in a half mile of climb, and follow this, through some zig zags, into forest, and on into area of Horsetooth proper. The road is first good, then becomes weaker as it ascends a hill, then joins a rather better road, that swings round north in descent. Explore this sometime.

This road in ascent very soon crosses a fence, and not long after that you must leave it, following instead a good track (not a road) that makes its way toward the Horsetooth, with a good view of them. But this track soon becomes fainter and scattered, (I left cairns for return). Make your way round to the west, to a sort of west, or northwest vantage point at the base of the teeth. Then pick a route up, noting it for return with care, this is a rock scramble.

Many Easter Daisies (*Townsendia Exscapa*) in flower on the lower flanks of the mountain. Several bluebirds. Many pigeons about the summit, and a few ravens. Some deer sign, and one ground squirrel was out.

1977. March 25, 1977. Friday. Scout drive with Giles to Eaton Reservoir and Sand Creek Pass area. Road was clear for sedans to about Trout Creek (2-3 miles below reservoir), and then a sign road closed. Proceeded for about a mile and a half of intermittent drifts, the Scout taking some that I did not think it would, until we were eventually stopped about a mile below the reservoir in an open area, where the road had drifted with snow. With difficulty this might have been passed, and a flat area above that bypassed in the sagebrush to the north of the main roadbed, which was thoroughly filled with snow. I had thought I might make the Tie Siding Road.

Nice golden eagle just as we were rounding one bend, so large on the side of the road that I first thought it was a coyote. A second golden eagle later, soaring. Nice red tail. Dozens of bluebirds. Collected a number of mosses from the area at the junction of the Prairie Divide

and Cherokee Park roads. Prairie Divide road marked closed. Hiked with Giles a little ways up the Trout Creek area, but the snow was too much for him to manage. With 4WD access, this might make a good summer camp in here. Not posted and no fences. Some cattle in here, even in winter.

1977. April 2, 1977. Pasqueflowers on lower Greyrock Trail. This trail was really torn up in the flood.

1977. May 6, 77. Young's Gulch from Ansel Watrous Campground to Stratton Park. Excellent day. Jeep road continues up the Gulch for some while at streamside, then swings sharp left and up a hill and shortly peters out; lesser road, soon a footpath, continues upstream. The stream then makes a rather sharp right, then left (see map) in an area that can be noticed. Shortly after a footpath leads up a hill, but the main trail continues upstream. The divide in the fork between Stove Prairie and Stratton Park forks is right at trailside, and the main trail goes out to Stove Prairie - try this sometime. Barely a footpath continues up the fork to Stratton Park, little trouble to follow as the stream is so close, but often faint trail. Come out at Crickett cabin with pond, and see map for the other details out to main Rist Canyon Road.

Blue grouse at close range. I have not seen these much. Pair of red tails; the usual spring birds. Flora pretty well out. Found a liverwort: *Contocephalum*. Large hillsides at streamside are covered with *Hypnum*.

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1977. June 18, Saturday, Hiked out, several more deer. One redbelt. The one-way mileage, Poudre Canyon to Milner Pass must be nearly 30 miles, round trip 60 miles.

Explore the Mummy Range - Flowers Trail, Zimmerman Trail between this country and Crown Point.

Also there seems to be a good trip up the Roaring Fork, from Kinnikinnick. The Zimmerman trail comes out at the old Home site; a house here now, and there is a bridge across the river, but it is posted.

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1977. January 9, 1977. Bald eagles at Empire Reservoir. Stopped in on return from Akron, on a very cold day with solid snow cover. Reservoir frozen solid. Four mature bald eagles on the point seen from the east end of the reservoir, and one immature. Seen both perched and in air, mostly perched. All of them very clearly identified. Later, around on the main highway, one more seen, an eagle but unidentified as to mature or immature. Coyote near Brush. Pheasants.

1977. January 23, 1977. Again, six bald eagles at Empire Reservoir, returning from Akron. These were perhaps the same birds as seen January 9. Four adults seen perched, under

very ideal conditions. Weather was fair, sunshine clear, and wind calm. Two adults in scope field at once. Also one immature in field with one adult at once. Later, one adult seen from the main highway, first perched, and then flying. Pheasants, and several other hawks.

1977. January 30, 1977. No eagles at Empire Reservoir.

1977. January 1977. Mountain lion attacks a young boy snowshoeing near Rye, Colo., below Canon City. The boy escaped after stabbing the lioness; the lioness was later found and killed, and found to be blind in one eye; and perhaps did not know what she had attacked. There are estimated to be 1,200 mountain lions in the state, possibly 2,000, one of the healthiest mountain lion populations in the country, and increasing substantially in the last decade. Another mountain lion in a nearby town seized a poodle and carried it up a tree, and was preparing to eat it when shot.

1977. Feb. 6, 1977. With Giles, the Fort Collins arboretum (so called) north of town, at the Poudre River. Not much to show here. Best access from Martinez Park. Found *Fuligo septica*, a myxomycete, with large aethalium on cottonwood log. White crusted with lime, dark black spore mass inside.

1977. Feb. 12. Up Young Gulch, above Ansel Watrous Campground. With Shonny and Giles.

1977. Feb. 20. Alone, up an unnamed draw just north of Fossil Creek, and south of the Horsetooth Road. Back to two stock tanks in here, with small spring - spout spring. Coyote tracks and deer tracks in here. Keyed Indigobush, *Amorpha fruticosa*, in winter condition.

1977. Feb. 26-27. Twenty bald eagles at Empire reservoir. Drove out Saturday and went into Riverside. Nothing, except one large red tail in very close in the cottonwoods at the dam. Enormous flocks of redwings feeding on some spilled corn on the dirt road in. At Empire, the land where I have been sighting the eagles has been identified by sign as state land. Nine eagles on Saturday, all perched, though several flew in low and - about while I was there, 2 adults and two immatures, one of the immatures was much blotched with white. Then drove on to Eckley, where I spent the night with Larry Gardners, preached at Eckley and Wray on Sunday.

On return, there were many eagles perched. Counted nineteen in one sweep of the scope, ten adults and nine immatures. Then back on the main road, I saw one soaring at other end of reservoir, almost surely another individual. Weather was nice and observing conditions good. One adult, in particular, sat on the northernmost snag on the island-peninsula that

they frequent, and was an exquisite sight on the snag and against the wintry sky. Chickadees and white crowned sparrows, one pheasant.

Several skunks dead roadside. I saw one in town alive, prowling the roadside at dusk last week.

1977. 11977. March 5, 1977. Sheep Creek and Moody Hill Trail in lower Buckhorn, with Shonny and Giles. Up over Rist Canyon, and thence via Stove Prairie Road to lower Buckhorn. The signs I remembered in here have been washed out or are otherwise gone. Hiked up the lower mile and a half or so of the Moody Hill (Sheep Creek) Trail. A Jeep Wagoneer was stuck wildly up the hill, and on return 3 CSU students were getting it out with a come-along. He had lost his brakes, presumed he snagged a brake line. This road is not so bad as a whole, but 3-4 skittish places in it, as far as we went. Hiked on up, lunched, and went some more, uneventful return.

Gathered some mosses and the children played with delight on the frozen creek surface. This is excellent moss area. There are 1-2 camper sites at the creek, and a makeshift trail up the creek itself quite a ways. One or two tent sits upstream too. Would be nice with Giles, maybe with family) in early spring - May, when it is too soon to go higher.

Raccoon prowling roadside on return from Estes.

1977. March 19, 1977. Hike alone up Horsetooth. Parked below the crest of the highway and went up draw to avoid posted sign. But signs here only say No Hunting, and seems a semi-public route. Gain a 4WD road in a half mile of climb, and follow this, through some zig zags, into forest, and on into area of Horsetooth proper. The road is first good, then becomes weaker as it ascends a hill, then joins a rather better road, that swings round north in descent. Explore this sometime.

This road in ascent very soon crosses a fence, and not long after that you must leave it, following instead a good track (not a road) that makes its way toward the Horsetooth, with a good view of them. But this track soon becomes fainter and scattered, (I left cairns for return). Make your way round to the west, to a sort of west, or northwest vantage point at the base of the teeth. Then pick a route up, noting it for return with care, this is a rock scramble.

Many Easter Daisies (*Townsendia Exscapa*) in flower on the lower flanks of the mountain. Several bluebirds. Many pigeons about the summit, and a few ravens. Some deer sign, and one ground squirrel was out.

1977. March 25, 1977. Friday. Scout drive with Giles to Eaton Reservoir and Sand Creek

Pass area. Road was clear for sedans to about Trout Creek (2-3 miles below reservoir), and then a sign road closed. Proceeded for about a mile and a half of intermittent drifts, the Scout taking some that I did not think it would, until we were eventually stopped about a mile below the reservoir in an open area, where the road had drifted with snow. With difficulty this might have been passed, and a flat area above that bypassed in the sagebrush to the north of the main roadbed, which was thoroughly filled with snow. I had thought I might make the Tie Siding Road.

Nice golden eagle just as we were rounding one bend, so large on the side of the road that I first thought it was a coyote. A second golden eagle later, soaring. Nice red tail. Dozens of bluebirds. Collected a number of mosses from the area at the junction of the Prairie Divide and Cherokee Park roads. Prairie Divide road marked closed. Hiked with Giles a little ways up the Trout Creek area, but the snow was too much for him to manage. With 4WD access, this might make a good summer camp in here. Not posted and no fences. Some cattle in here, even in winter.

1977. April 2, 1977. Pasqueflowers on lower Greyrock Trail. This trail was really torn up in the flood.

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Long Draw seems really some sort of geologic extension of the Colorado River Drainage (Kawuneeche Valley) as it sweeps right around in the same arc - the Lulu City Trail. The Poudre drainage in the upper part is parallel to it, and of similar proportions and arcs

around symmetrically with it, with the Poudre going north, the Colorado south. In this sense La Poudre Pass Creek is the analog to the upper stretches of the Colorado River.

1977. June 21-24, 1977. Climbs up Mt. Elbert and Mt. Massive, Leadville area.

Tuesday, left and drove to Leadville, via Eisenhower Tunnel, and I-70. Dirt road to Half Moon Campground, and drove on a mile or more further to the Trailhead, clearly marked. Camped a little beyond here in the Scout, near some pitched tents, which nobody attended the whole time I was there.

A beaver in the pond-stream was active in the night, and later seen a number of times while there. Much given to slapping his tail in the water, a notable sound at night.

1977. Wednesday, hiked up Mt. Elbert. Good trail, but I was soon led astray by its not being marked. Well-worn trail leads up a nearer, cutoff but much steeper route, up a nearer ridge. Upwards this becomes mostly a route, sometimes hand over fist, though nothing technical. Reached summit about noon, very good day. Returned by the longer and usual route, which goes down an easier ridge toward Hamilton Creek, and then joins the Main Ridge Trail (which runs some great distance through here). But this route is a long one. It is 5 miles from the junction of the Mt. Elbert Trail with the Main Ridge Trail to the road-trailhead, and must be nearly 3 up Mt. Elbert. Returned about 5.00. Mt. Elbert is highest in Colorado, 2nd highest in nation, at 14,433. Half Moon Campground is 9,900, and the trailhead somewhat higher, but the elevation gained on the hike is about 4,500. The elevation gained on the Long's Peak Climb is 4,865. However on the Mt. Elbert hike you gain and lose elevation several times. The hike is a walkup, but strenuous for the 16 miles and the high elevation, and would be exhausting if not in shape.

1977. Thursday, hiked up Mt. Massive. Mt. Massive has seven peaks or summits, the highest 14,421. Trail goes up the Main Ridge Trail 4 miles, then at a marked sign, cuts west for the climb, another 4 miles, about a mile in timber, and about 3 above timberline. Again, a strenuous climb. Good trail soon becomes a route, marked with cairns, colored with aging orange paint. Had some trouble finding the cairns, as I was unsure which route was being taken, or whether the cairns were reliable. After coming well up into a ridge that is rather flat and broad, the route swings across a hollow and climbs first to a far ridge, and then goes up that ridge. Had to cross snow only twice - no problem. Crossed no snow on the Mt. Elbert Trail.

Weather threatened several times, and I was sometimes doubtful of whether I would make the summit, but it faired up while I was on top, and ate lunch. Lovely views from both summits - a sea of snow dotted peaks. Returned and was not down too long, 45 minutes, before the summit clouded over. Uneventful return, in some rain.

1977. Friday, visited mines in the Leadville area, including the shack and mine - Matchless Mine - operated by H. A. W. Tabor and Baby Doe Tabor. Drove up Jonny Hill, which goes up above timberline in the Mosquito Range and passes a dozen or more mines, all now defunct. Ate lunch at the Ibex Mine, operated by "Leadville Jonny" Brown of Unsinkable Molly Brown fame. Stopped at Climax Molybdenum Mine. Mount of the Holy Cross is visible from the tailings pond, though not the cross - a rugged looking mountain.

Car burned now far north of here and I was delayed. Returned and saw 2 female bighorn sheep, or young males, roadside of I-70, quite close to the road.

1977. July 14-16, 1977. 3-day camper trip to Pole Mountain and Vedawoo Rocks area. Camped at Yellow Pine Campground, nicest of 4 campgrounds all close together - Upper Tie City, Lower Tie City, Yellow Pine and Pole Creek Campground. Only one other party in the campground Thursday, and only a handful Friday night, none during the day Friday. Drive to Vedawoo Rocks picnic area (a small campground is there) on Friday for lunch and hiked around there, driving up the Happy Jack Road and back on the interstate.

Area was first used by Union Pacific RR for ties and the gangplank effect, and one of the first telephones in the West was laid up Telephone Canyon (where the Interstate is climbing up from Laramie). Area was formerly a military installation. Hawk at beaver ponds.

1977. July 29, 30, 31. Camping at Glacier Gorge in Rocky Mtn National Park. In camper with family. First night good rain. Coyote calling in camp in the night, rather close. Saturday, drove Trail Ridge leisurely and went to Holzworth Ranch on other side. Sunday, came out early to preach at Milliken. Campgrounds crowded.

1977. Aug. 6, Saturday. Hike to north end of Mummy Range with Steve Gies and Tim Bartley. Left about 7.00, at Peterson Lake at 9.00. Good rains the day before, but there was no problem to Peterson Lake, tho one slick spot.

Took trail, on far side of lake down to the river, crossed on footbridge of Big South-Trail, and shortly down-river picked up the Mummy Range Trail. These trails have been cleared since I was in here earlier in the summer. Ascended on Mummy Range Trail, uneventfully. Clear and lovely day, after clearing from rain the day before. Nearing timberline the trail arrives at a junction not shown on topo maps, with sign Big South Fork 3 - seems to go down to the Big South (try this sometime).

Main trail continues to timberline, marked Flowers Trail, just about timberline, arrive at junction, marked, with Mirror Lake Trail. We continued on Flowers trail to Zimmerman Trail junction. Good, high stone cairns, which had just been repaired, and there seem to be signs at the crucial spots thru here. Lunched at the Zimmerman fork, then climbed to an

unnamed summit (11,859) on topo sheet, and descended. Not great deal of wildlife sign, some elk. Flora is sorta past, though Campulas were splendid above timberline.

Steve Gies saw a mountain lion a couple years back in Seaman Reservoir area, the last draw or canyon before you get to where the reservoir narrows to the North Fork. (This must have been the two draws, one of them, headed east in sections 28, 27 on topo sheet. (And not a great distance from where I saw the bobcat).

1977. August 10-17, 1977. Trip to Yellowstone in Camper. Left Wednesday, 6.00 a.m., about daylight. Uneventful drive to Rawlins. Good rest area is at Fort Steele, before Rawlins. Several campgrounds thru here. Lunched at Split Rock, former Pony Express Station, named for a prominent mountain landmark. Buffalo Bill rode through here, riding 300+ miles in one day. Nice picnic area. 37 antelope. Drove on that afternoon to Dubois, and to Falls Campground, 23 miles n.w. of Dubois on Route 287. A falls is here, adjacent to campground. Good and big campground, with plenty of space; did not fill; maybe 2/3 full by dark. Rain in the night.

Thursday. Good getaway, left by ten of 7.00 a.m., and drove up Togwatee Pass, not a lot of climb from here, but would be more of a climb out of Jackson Hole. Lovely clouds, hanging low on the mountains, clearing after rain. Drive into Yellowstone, and found campsite in Grant Village Campground, about 9.30. Several campsites available, but filled up by 11.00 or 12.00. Ate a good dinner-lunch, and went off to Old Faithful area, where we spent the afternoon. Saw Old Faithful go off several times and walked down to Morning Glory Pool. Riverside Geyser was finishing an eruption. Picnic supper in an area returning to Grant, about where Lone Star Geyser Trail is. Cold night, with frost thoroughly covering the car the next morning.

1977. Friday. To Madison and Norris. First to Biscuit Basin, Sapphire Pool is especially lovely here. Then Midway Geyser Basin. Picnic lunch in area just off main road on Firehole River road. Nice area, and midway through lunch we discovered an elk lying in the grass in the river; later she got up and walked around. Drove to Madison, and museum. Drove to Norris Geyser Basin, and walked the loop by Little Whirligig Geyser, nice area. Also walked out to Steamboat Geyser; returned and had picnic supper in same area as we had lunch. 8-10 elk here; one picture of bull elk lying down.

1977. Saturday. Fishing Bridge. Lunched at Sand Point Picnic area - on, or above the Yellowstone Lake, and after lunch walked down to the lake, with the children wading in the water. Gnats bothered Jane and the children at lunch. Went to Fishing Bridge, looked up Cabin 23, where we had stayed with Shonny several years before, and then to museum and visitor center there. Drove out to Pelican Creek, and saw two moose, one at a distance, and one you could walk out close too. Picture of Shonny with moose beyond. Drove up Hayden

Valley a little way. One buffalo, and moose. Drove back to camper for supper.

Sunday. Canyon and Tower Falls. Drove to Canyon, lunched in the campground, after a look in at the south rim, Artist's Point. After lunch, drove the north rim, Inspiration Point, and then walked to Lookout Point, and then walked some distance down to the Brink of the Lower Falls. Pictures here. Returned to car, and drove to Tower Falls; this is a high road, up, over, and down to Tower Falls. 3 moose on mountain side; children slept most of the way, and did not wake at the Falls. Returned and had picnic supper at area just north of Canyon, about where the Cascade Lake Trail is. After supper drove through Hayden Valley, good wildlife. 2 pelicans on the river; moose, 2 buffalo, elk. Just south of Fishing Bridge a very large bull elk was at the roadside; lovely view out car window, about twilight; too dark for pictures.

1977. Monday. Grand Tetons. Stopped first at Colter Bay area; picnic lunch at lakeside here. Lake is low. Drove on to Jenny Lake area, and took boat ride over and back across the lake, hiking about half a mile to Hidden Falls on the other side. Did the Grant Village Visitor center that morning. Returned to camper for supper.

1977. Tuesday. Left Yellowstone for Cody and Thermopolis. Reached Cody about 11.00 and went to Buffalo Bill Museum and Museum of Western Art there. Road out is a slow one, especially in Yellowstone, faster in Shoshone Canyon. The Russell collection in the Museum is especially good; many Remington's, lots of them unfinished. A few Bierstadts. Bierstadt's paintings were worth much in his own lifetime. Russell traded his off for a meal or a night's lodging. Lunch in the town park, and on to Thermopolis. Mangy but free State Park Campground, and took a swim in a private pool, with hot pool area. Supper in the camper, and milkshake after supper, and walked around Big Spring. Herd of Buffalo is here.

1977. Wednesday. Returned to Fort Collins. Wildlife counts: 2 buffalo, with a herd of 24 in Thermopolis. 19 elk, lots of bulls; 12 moose; 4 deer, one fawn; 55 antelope; 2 pelicans. But no bear. One bear had torn into the storage area in the back of a motor home of a man we talked too at Sand Point Picnic area. Lots of geese and ducks. One muskrat.

Falls Campground seems as good a way as any to go in and beat the crowds. It could also be used after a day in the Tetons on return. Another possibility would be to get a camping reservation at Flagg Ranch, or Huckleberry Hot Spring areas between the parks (John D. Rockefeller, Jr. Memorial Parkway) and then go on into the park the next morning. There is a KOA not far from Moran Junction. By moving early in the day; you can move around within the park.

Middle and South Teton are walkups, but only from midsummer on, safer in August. Grand is a technical climb. Upper and Lower Wind River Campgrounds, s. of Thermopolis are

much better than anything in town.

1977. Sept. 22-23, 1977. Aspen trip to RMNP. Went up Friday afternoon in camper, very windy; camped in Moraine Park somewhat out of the wind, and spent a very good night. Water in taps seemed clear enough when drawing it, but turned brown on heating, and had to go elsewhere in campground to get water. Saturday, strolled around Bierstadt Moraine in aspen, and lunched below here at a picnic table near the creek. Tried the elk that evening to no avail, owing to wind and too many people and traffic. Sunday, hiked up to the Pool, nice hike, lovely colors. But the aspen, while good are not great.

Red crossbills in camp; also bluebirds; a very tame rabbit on the trail to the Pool. Glacier Gorge campground usually closes weekend after Labor Day; it is packed right up to Labor Day, and the weekend after; though idle much of the week after Labor Day. Moraine Park usually closes 3rd weekend in September, or just after it. It had snowed some in Moraine Park the morning before we came, but did not stick. Plenty of space in Moraine Park this weekend, about half full.

Raccoon at roadside returning from Estes at night, Sept. 25, Tuesday.

Chris Cable (neighbor) saw a mountain lion on the Long Draw Roadside, late August, returning from a bow hunt. Below Corral Park on the lower part of the road.

No frost in September, and no clear frost by Oct. 9, though it has pushed frost a number of times, and clipped a pumpkin; and things are pretty well dying back anyway.

1977. Oct. 16, 77. Hike to Mill Creek Basin, from Hallowell Park, after aborted Specimen Mtn. hike with Jennings Bunch. Left about 7.00. Coyote upon entering the park in Horseshoe Park, running across the open area, disappearing in the willows of the creek, nice view. 6-8 elk bugling calls. Drove over Trail Ridge Road, lovely drive, but there was increasing snow westward, and by the time we reached the Specimen Mtn. trailhead, there was pretty solid snow cover. Jennings was not prepared with shoes for this sort of hike, so we turned back.

Drove to Hallowell Park and walked up to Mill Creek Basin; no snow at all here, a few traces from a snow last Monday. Warm and pleasant. Beaver have cut some very large aspen in here, but not recently.

Returning through Moraine Park, from car, spotted coyote nearby, and watched him some 40 minutes through binoculars and spotting scope. He was hunting in the meadow, and did not for a while seem to mind being watched. Crouched and pounced several times; once with a great leap, his own length and more, came up with a ground squirrel, which he gulped

down in 3-4 gulps, the entire animal consumed, and not really much chewed up in the process. A memorable sight. This coyote seemed quite fat, compared to others I have seen. He gradually seemed to shy back and move over toward the cabins west of the park. But the earlier part of this was in plain view, filling the field of view of the scope. Later pounces seemed to produce nothing, although he may have been eating grasshoppers or insects.

1977. Oct. 23. Hike behind Howard Haise Cabin. Originally scheduled to carry a battery operated TV set up to see if you could get Denver stations. But others had tried this. Hiked it anyway. There is a considerable valley behind, of Sheep Creek (not the other Sheep Creeks in Buckhorn, Zimmerman trail, etc.)

Shirtsleeve weather on the way up, wore sweater on the way down. 2 rabbits; much deer sign. Deer had been snagged in the fence on the Poudre Canyon road on the way up, died, and was being eaten by a raven. Many Stellar's jays about the cabin.

1977. Nov. 1, 77. Muskrat in the morning eating aquatic plants in irrigation canal near Prospect Green; also a skunk killed in same area.

1977. Nov. 5, 1977. Buckhorn Methodist Camp, Rist Canyon, with Giles. Drove up stopping for the hackberry grove near Whale Rock. Small grove up from Whale Rock, on north side of road, south facing slope. Good red-tailed hawk.

Drove into Methodist Camp. Go through 3 gates, all unlocked, through adjoining private property, but no problem. Spoke to a caretaker, who lives there all year, and is seldom snowed in. Camp is winterized for 40-50; in summer 90-100. Picnicked out in shirtsleeve weather. Then hiked generally locating the trails south, on both sides of a 7864 low summit. A bit confusing in the area of an old farm (summer home, though rough, and a small sawmill; cattle still in here); but I think this could be located. Road goes far south toward Christ Mountain and Horsetooth area. 5-6 wildflowers yet in bloom, in protected areas; some fall composites, bluebells, and some mustards, Veronica. Nice views from some parts of this road, into Fall Mountain, Comanche Peak, etc. All with daddy much on my mind. Late fall, and it's dying time.

1977. Nov. 21, 1977. Daddy died, & trip to Virginia.

1977. Dec. 11, 1977. Hike up Well Gulch, near Arthur's Rock in State Park west of Horsetooth. Sign at bottom, Well Gulch, 2 miles (presumably to the sign at the summit, see below). Hiked up alone, first in light snow underfoot, but upwards the trail was nearly clear.

Mild day, left about 2.30 p.m. Uneventful climb. The trail crosses the draw several times, many switchbacks, but is nicely graded to the saddle at the top. One trail joins about 1/3 way up, presumably the Timber Trail, going on over to a more northern picnic area (see map). At the summit, reach a flat saddle, and join a jeep road, with sign indicating Arthur's Rocks, 1 mile, and Timber Trail 4 miles. The jeep trail had fresh tire tracks in the light snow. Seems to go west a while and connect with the road that comes back around, north, and down into Soldier Canyon subdivision. Deer tracks. Siskins, chickadees. A fellow passed on the way said there are turkeys in here. 11 deer, all doe, on roadside on return in Scout. 2 rabbits.

1977. Dec. 17, 77. Christmas count of Audubon Society, with Ron Ryder and Mrs. Teale (Audrey Ryder's mother). Spent morning in his area to canvass, vicinity of Lindenmeier Lake.

Canada goose - thousands
redwings - dozens
starling - too many
English sparrow
mourning dove - rare for the winter
flicker - a dozen or so
magpie - dozen or so
coots, on lake
widgeon - whistling call
common goldeneye
horned lark, and call
northern shrike
Great horned owl - in tree at Myrle Payne's, n. of Plummer School. A pair nests here.
kestrel - not too common in winter. Denver has more.

bald eagle - at the top of the ice on Lindenmeier, and later on the upper end, feeding on something, probably a dead duck or goose. Much white in this bird, an older immature, 3rd year or so. Later seen closely, both on ice and in air.

meadowlark
white-crowned sparrow
tree sparrow
house finch

There are cardinals in summer along the Platte, Empire and Riverside Reservoir areas, and eastwards. Also bobwhite year round. Also white-tailed deer. There are mockingbirds around farms in eastern Colorado. Some nest in Fort Collins.

Tamarack Ranch, very near Crook, is good birding area. The State owns this, with 20 miles of river front. Red Lion area, state owned, is also good, near Julesburg. (Crook-Julesburg, Sedgwick area).

Rough-legged hawk seems big headed compared to the redtail, and the rough leg and black belly can often be seen when perched. Rough-legged and redtail are the common ones here in town area.. Ferruginous can be found at Pawnee Grasslands. Harlan's hawk is now included in Redtail.

Short eared owl, in winter, flies low over medium grass in twilight, looks like an overgrown moth.

Great Horned owl will stay in same location many years, if habitat doesn't change. Prairie falcon flies like an overgrown pigeon.

There is a great blue heron colony at the Fossil Creek Reservoir, north shore about center. Black-crowned night herons are usually there too. Rarely snowy egrets. Usually a cormorant or two, in summer.

After the Canada goose, the snow goose is next most common. White fronted and Ross's goose more rare. Blue Goose is considered color variation of the snow goose? Three whistling swans have been alternating between College Lake and Watson Lake lately. They are often seen at Fossil Creek and Boyd Reservoir, and at Duck Lake in between them.

Song sparrow bobs its tail when flying.

1977. Dec. 22, 1977. Skied South Bald Mountain Trail. With Don Crosby, Ken Freeman, Bill Slausson. Left about 7.30 in Ken's Blazer, on trail about 9.15. This trail leaves from about, .2 mile below the Bellaire Lake Campground Road (though that would also connect with it, but at much more distance). Description follows pretty much as in Hagan write up, which see. This should make some good summer hiking, and perhaps a Scout drive up this road. The parallel road up S. Fork Elkhorn Creek, 1/4 mile south connects upwards, and would make a good circuit hike for the children, or for wildflowers. What is the Bellaire Lake Campground like? 8 miles roundtrip. No wildlife, some sign.

Some pinyon pines have been discovered in Hewlett Gulch. (Bill Slausson)

end 1977.

1979. January 6, 1979. Rocky Ridge lake area, north of town. State Wildlife area, 3 ponds in

here, looks like good prowl area close to town, although somewhat open and uninteresting. Snow covered and cold. Many rabbit tracks, odor of skunk strong in one place. Many geese overhead.

1979. January 27. Wellington Wildlife area, with Giles. Cold and not much activity.

January and December combined are the coldest two months on record in Fort Collins, in about 100 years of record keeping.

1979 February 3, 1979. Empire and Riverside Reservoirs. 6 bald eagles. One immature in flight in the vicinity of the crossing of the S. Platte just before reaching Riverside. Later, one very good adult not so far away, at the river crossing. I had parked at one end of the bridge and had it in the scope, perched in a tree nearby. Some large hawk flew at it several times, and screeched at it, but it dodged and did not fly. Later it flew off, down river a ways and perched again. (Helped pull a fellow out who was stuck in his pickup truck down a road nearby).

Lunched at the State wildlife area at Empire, but nothing here. Water is down, no water in the bay area where I have so often seen them, and everything is frozen up in any case. Drove up the riverside area toward Orchard, one immature in here. Also a very nice rough-legged hawk, perched, and good in scope. Black belly and black strips up a lighter breast. Returned up the riverside, as nearly as the road goes. Two immatures out over the river woods enroute. One more adult back at the bridge, which could have been the same one seen in the morning. Many horned larks, magpies, crows, redwings, tree sparrows. About a half dozen marsh hawks, and several unidentified hawks.

1979. March 9-19, 1979. Trip to Alabama and hikes about the farm.

1979. April 22. Hike to the "A" foothills below Horsetooth Reservoir.

1979. April 28. Range Science Field Trip with Dr. Clint Washer. Substituted for a canceled trip to the Grasslands to see eagle and hawk habitat there with Audubon Society.

Went to six sites, to identify the components of the community there. These would make good places to return to for short winter outings, knowing about what to look for, as below.

Site # 1. Out from CSU Solar Village, toward and on the flank of the low hogback, first to West. Just below (south) of the line of shrubs on the hogback. Soil is a clay, and here holds more moisture than that just below it, and hence can have some tall grasses.

Little bluestem (*Schizachyrium scoparium*) - standing up at you in clumps

Big bluestem (*Andropogon gerardi*) - fills in the patches in between. Both abundant.
Side oats gramma (*Bouteloua curtipendula*) - smaller, common. Hairs on margins of leaf.
Needle and Thread (*Stipa comata*) - V notched ligule
Buffalograss (*Buchloe dactyloides*) - a little here
Red Three Awn (*Aristida longiseta*) - a little
Western wheatgrass (*Agropyron smithii*) - a little.

Forbs:

Yellow parsnip (*Mulsineon divaricatum*)
Wild parsnip (*Lomatium orientale*)
Bastard toadflax (*Comandra pallida*)
Candytuft (*Thlaspi alpestre*)
Oxytropis sericea (White locoweed)
Dried, left over from last season.

Sunflower. *Eriogonum* - a tall, deep brown stem

Site # 2. In front of (north of) the Solar Village, up (east of drive in), south of the main road here.

This is an upland loam, very exposed.

Blue gramma (*Bouteloua gracilis*)
Needle and Thread (*Stipa comata*)
Western Wheatgrass (*Andropogon smithii*)
Townsendia exscapa (= sericea), Easter daisy
Threadleaf sedge (*Carex filifolia*)
Aster ericoides (Heath aster)
growing; a little further up the hill:
Eriogonum effusum, Wild buckwheat. Often found more on the plains
A common weed in the lower, grassy area here is *Artemisia dracunculus*, Wormwood (a sagebrush) grows in clumps, midst the rather closely cropped grass.

Site # 3. Horsetooth at the dam. Rock-studded foothills. Pull into the first parking area south, and walk up over a fence and down over the cliffside a little. There is more rock here, but the rest of the soil has more water. Deeper moisture.

Big bluestem (*Andropogon gerardi*)
Little bluestem (*Schizachyrium scoparium*)
Needle and Thread (*Stipa comata*)
June-grass (*Koeleria cristata* = *gracilis*)
Canada Wild-rye (*Elymus canadensis*)

Porcupine grass (*Stipa spartea*)
Agropyron albicans griffithsii
Sideoats gramma (*Bouteloua curtipendula*)
Blue gramma (*Bouteloua gracilis*)
Carex heliophila (Sunsedge) - earliest flowering Carex on outer foothills
Wild parsnip (*Lomatium orientale*)
Potentilla fissa (Sticky Cinquefoil)
Wild rose (*Rosa woodsii*)
Squaw currant (*Ribes cereum*)
Opuntia polycantha, Starvation Cactus. This one has many spines. Another which is also common is Opuntia humifusa (= rafinesquei), with few spines.
Artemisia ludoviciana, Louisiana sagewort. (The reference is to "old" Louisiana, i.e. the territory of the Louisiana purchase).
Artemisia frigida, Fringed sage.
The trees can grow where they get moisture from crevices deep in cracks, beyond the pull of evaporation.
Sand Cherry, Prunus besseyi. In cracks on the rocks on tip of the hill, nearly in flower.

Site # 4. Rist Canyon. Drive up past whale rock, to about the first place to pull off to the right. A new home is under construction on the south side. Rock-studded mountain loam. Ponderosa Pine-Douglas fir zone. There is a tree and shrub overstory here.
Bitterbrush

Mountain mahogany
Eriogonum umbellatum, Sulphur-flower.
Mountain Muhly, Muhlenbergia montana. Bunch grass. papery ligules, 1 cm.
Agropyron albicans griffithsii
Little bluestem (*Schizachyrium scoparium*)
Carex heliophila (Sunsedge) - more abundant here than in previous site.
Leucopoa (= Hesperochloa) kingii, King's Spike-fescue. (Named for Clarence King), a larger, coarse one, blades come up early & green through the clumps.
Aster spp.
Nelson's larkspur
Death Campus and Larkspur are prominent early & green. But poison, and you can put stock out too early, or they will favor this and become sick.

Site # 5. Owl Canyon. Parked below and walked up to the Pinyon Grove.
At the highway side three were noted:
Agropyron cristatum. Crested wheat-grass. Asiatic species commonly planted to stabilize soil.

Bromus inermis. Also planted to stabilize soil. Noted by a leaf pattern like a MacDonald's M, halfway out the blade. Results from the way it is crimped in the bud. Other Bromes may have this, but this one is especially noted so.

Canada Wild-rye (*Elymus canadensis*)

Further up, and walking parallel (south) a ways, in a pinyon cluster.

The top of the rim here is, Engleside limestone, Lyons is below, it. Why are the pinyons here? Not known. One theory is that Indians camped here and left a cache of nuts. But it may have to do with the limestone. In limestone soil, often tings, can grow further north than elsewhere; seems to make it warmer in some way. The soil is shallow here and there is little water, and little grass.

Shrubs:

Cercocarpus montanus, Mtn. mahogany

Rhus trilobata, Skunkbush

Forbs:

Viola nuttallii, Nuttall's violet. yellow

Helianthus pumilus, Little perennial sunflower

Harbouria trachypleura, Whiskbroom parsley

Grasses:

Needle & thread, *Stipa comata*.

Indian rice-grass, *Oryzopsis hymenoides* - under the bushes

Sideoats Gramma, *Boutelous curtipendula*

Blue Gramma, *Bouteloua gracilis*

Red three-awn, *Aristida longiset*

Site # 6. Salt flat. Turn East on the road from Owl Canyon, into sections 6 and 5. At a crossing of a creek, with some cottonwoods off to the north (probably just east of a spring shown in section 6. State land is in the vicinity.

Off in the distance is the Santanka formation, being mined. This is loaded with gypsum crystals.

There is salt accumulation here. A loam.

Notice the big hummocks or tussocks, makes it hard to mow.

Alkali Sacaton, *Sporobolus airoides*. A grass. In big hummocks. The top of the inflorescence breaks off and becomes a tumbleweed

Salt-grass, *Distichlis*. In between the big hummocks.

Tansy Mustard. *Descurania*

Kochia iranica (sometimes called *K. scoparia*). Burning-bush. Summer cypress.

Agropyron smithii, Western cheat-grass

Four-wing Saltbush, *Altriplex canescens*. A larger shrub (2-3 ft. high) nearer the road.

Below, in the marshy area, at the creek

Carex nebraskensis. Nebraska sedge. With a whited leaf. Large plant, deep rooted.

Down the road toward Owl Canyon is some Winterfat on the roadside.

Gifford Lectures 1997-1998

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Rolston gave the Gifford Lectures at Edinburgh in 1997-1998, published as *Genes, Genesis and God* (Cambridge University Press, 1999). He was Templeton Prize Laureate in 2003.

This is the only case of a mentor (Torrance) and his student (Rolston) both winning this prize. Rolston became University Distinguished Professor and Professor of Philosophy at Colorado State University.

Copies of the letters, on disk, have been placed at New College Library, University of Edinburgh. There are also disk copies of the contents of the separate letters (in .jpg format) in both DVD format and on a flash drive in Colorado State University paper archives. There are similarly disk copies in both DVD format and on a flash drive in the Rolston library in the Eddy Library, first floor of Eddy Hall at CSU.

Jane and Holmes Rolston - Letters from Edinburgh 1956-1958

start 1980

1980. February 23, 1980. Bald eagles at Empire Reservoir area. Left with Giles about 8.00. 21 antelope near roadside about 2/3 of way out. Went to Riverside, then Empire, lunched at Empire. One good adult in the air over Empire. Then up the river, two adults sitting, one watched with scope for half an hour, nice view. Two immatures in the air, total of 5. Several Great Blue Herons. Giles and I walked about a mile along the road.

1980. February 29, 1980. Lunched with F. J. Hermann, bryologist, who has returned to Fort Collins. Met him for first time.

1980. March 8, 1980. Cross Country skied into Wild Basin with Shonny and Giles, their first time on skis, really. Before lunch played around on hillside over lake, and afterward skied

up the road into the Ranger Station. The road is blocked off about 1 mile up, and we skied another mile or so in. Nice trail here, lots of people on it, and it was virtually a groomed trail, and easy skiing.

1980. March 15. North of Owl Canyon, Pinyon Grove, into Spring Gulch below Campbell Mountain, with Giles. Warmest day since fall, and the snow has pretty well melted off of the open country. Nice day in arid country, no game. Crossing the canyons can be a problem in here. Several old cars in the flat expanse of the gulch, and Giles and I lunched at one of them.

1980. April 26. Well Gulch, with Giles. Left about 8.45, leisurely stroll up, pleasant day. 15 kinds of wildflowers out, spectacular spring beauties, hundreds of thousands. Hundreds, perhaps a thousand Pasqueflowers. Yellow plains violets, Canada violets, Draba, Mimulus, some Ranunculus, a few shrubs, lower down, not higher up. Walked on past the summit, oppositely to the Arthur's Rock Trail, and ran into two boys hunting turkeys, in an open area, probably the head of Soldier Canyon.

One very nice, immature, golden eagle watched soaring on way up, with a stick in his talons. Returned about 1.30, to get Giles to soccer.

1980. May 3, 1980. Eagle Rock Audubon Sanctuary, Rockport CO (north of Nunn, CO). Field trip, led by Ted Bodner. With Giles, Mildred Johnson and Dottie Russell rode in Scout. Drove to Nunn, and 2 miles short of Rockport, turn east, 4 miles on dirt road, then north 3 miles on 4-wd, or poor sedan track, the last 3 miles across Pawnee Grasslands (owned federally). Locked gate, and no unauthorized access to Eagle Rock Sanctuary, a ranch leased by Audubon Society for \$ 1 per year. Wholly primitive area.

Drove about 2 miles west along sanctuary line, then into Chalk Cliffs area, and parked. Hiked about 2 miles circular route. Prairie falcon, with black armpits, defending an eerie, but not yet nesting. Cliff swallows. White throated swift. (There is also a colony on Goat Hill.)

Say's Phoebe. Rock wren. Mountain plover (which-has nothing to do with mountains), an endangered species in Colorado. Another colony is in North Park. Brewer's blackbird.

Great Horned Owl flushed from nest in Cliffs. Swainson hawk seen on route in, but they nest only in trees, not cliffs, and are not common here, a treeless area. Prairie falcons also have to have holes in cliffs. Owls, eagles, raptors will nest in cliffs or trees. The ferruginous hawk, though buteo-sized is more eagle-like in behavior. Prairie falcon and Great Horned Owl hate each other and attack each other, but are commonly found in same area.

Highlight of trip was Golden Eagle's nest. The female was flushed from the eerie as we

arrived, the male flew out from below shortly. Remaining was a week old chick, seen about 20 feet away, looking down over the cliff edge. Nest is built primarily of yucca.

Extraordinary sight.

The adults flew off out of sight and did not seem disturbed.

Bodner and associate band-eagles in early June (7-10-weeks old) and may get to 12-24 nesting sites, the upper limit (24) about all that are known in n.e. Colorado. They rappel down to them. Usually 2 chicks, sometimes 3, sometimes 1. There is one eagle's nest on the west side of Horsetooth, and another on the east side of Arthur's Rock (which can be made out from the road on the east side of the reservoir).

Horned larks in large numbers, loggerhead shrike. Lark sparrow. 29 antelope, several rabbits. There were bloody, fragments of some animal in the eagle's nest.

Returned through Rockport and Carr, and tried to get to Owl Canyon. But we lost the lead car. Little flora out; this is a late season.

1980. May 20, 1980. Summit view Trail (Sheep Mountain) from Loveland Mountain Park. Left 8.00 a.m., after many rains the previous week. Follow the jeep road as shown on map, and shortly Summit Ridge Trail divides from Nature Trail, at good sign. Steady climb on good graded trail, after crossing aqueduct. Trail is about as shown on topo (and not as Hagen shows it). Good foothills country, good views, steady climb. Levels out and slabs ridges further up; crossing some very interesting rocks. Pothole pylon rock is in middle of trail and there are some natural cuts, at the largest I found grass fern and Polypody.

Reach broken pipe spring, with good flow, but this has been a wet season. Many streamlets in here at present, one just past the biggest rock cut looks perennial. Shortly cross a creek (perhaps intermittent) which drains n.w. into Cedar Cove. Climb to ridge saddle with many Pasqueflowers. I searched for a trail (shown on some N.F. maps from the saddle down to Saddle Notch Gulch, but found none. But it looks as though you could bushwack, mostly open descent. Steep though, and there is already plenty of climbing on this trail.

Cairned route continues to summit, good cairns, good steady climb. Summit is rounded, half open timber, large cairn and some old signal installations or something of that kind on top. Lunched on top, a little below with good view of Longs, Trail Ridge, and Mummies. Uneventful descent.

Bullock's Oriole, McGillavry's warbler, raven, robins, some sparrows, flora out somewhat but this is a late season. Good rains should bring it out in abundance shortly. Massive display of spring beauty, and good pasqueflowers.

1980. May 28, 1980. Buckhorn Ranger Station to Stove Prairie (Twin Cabin Gulch Meadow). Left Ranger Station about 8.45. Sign at large gravel pile just east of Ranger Station, Stove Prairie, 7 miles. But how far is this? Rigged foot trail, blazed, cuts uphill and over to jeep road coming up across private land (but it is not posted below). Jeep trail seems drawn wrong on topo here, see notes on topo, but it soon picks up right. Continued as noted on map, gradually climbing to small rock lookout at 9,000 ft (in section 2). Then descend, and cross flat area, and begin descent to Twin Cabin Gulch area - but here the trail goes down the unnamed tributary at the bottom of section 1. Reach Twin Cabin Gulch meadow, a nice, broad meadow - which is posted, but mildly. The road shown on the topo, more or less on the line between section 1 and section 12 does exist, and comes in as shown. Walk it out sometime.

Lunched in the meadow, and explored a bit the possibility of a trail down Twin Cabin Gulch to the Buckhorn Road. I had earlier seen that there appears to be a trail below. Looks like you can go through here, but not in high water. Probably not also in hunting season, as the meadow area is private property. Should be possible to spend a good low country day gathering mosses in here. Also walk out the jeep trail shown and go over to Harlan Gulch and Flowers Road. One doe, one elk. Nice day, with handpack - back was taped up for allergy tests.

1980. June 6, 1980. Trail Ridge Road with Mary Frances Forbes & family. Four bighorns at Sheep Lakes in RMNP. Two rams were up the hillside, resting, nice view in scope. Two ewes were down in the meadow, and stayed there half an hour. Two elk later, two deer.

1980. June 12-15. Copeland Lake in camper, with Shonny. Hiked up to Ouzel Falls on Friday, and tried to make it to Sandbeach Lake on Saturday, but turned around at Hunter's Creek, too much snow for Shonny in tennis shoes. The Sandbeach Lake trip is much higher than the Ouzel Falls trip, which passed relatively little snow. Collected a number of mosses, including some in raincoat under the spray of the falls.

Good birding in this area, including the pines and willow thickets of the river, although the area is somewhat uninteresting. Swallows around the lake, nesting in the trees. Warbling vireo especially prominent, pygmy nuthatch. Nice weather. A good many new backpack sites have been put in here, some hardly yet used.

1980. June 21, 1980. Climbed Elliott's Knob, near Staunton, Va., with Mary Jack (Thompson), Jimmie Thompson, and Giles. About 3 miles up, steady climb up a road, used for access to a microwave tower not far below the top, the last few hundred feet is on an older, rougher road to a firetower at the top, no longer used. Lunched at the tower. Good spring about quarter of a mile below, at a pond. This is the highest point in this area.

We pulled into the trailhead area, with Mary Jack drivinng. She pulled forward as though to go up the gated road, then backed up into an open area opposite the gate. Giles famously remarked. "I know what you're going to do. You are backing up so you can go forward and get some speed to bust through the gate." Various chuckles about the philosophy of backing up to bust through, afterward.

1980. June 29-July 2. Bellaire Lake to Bald Mtns to Roaring Fork (Nunn Creek), and return via Swamp Creek Cutoff. Up the trail-road paralleling Elkhorn Creek as before when skiing. The road passes closer to Elkhorn Creek than shown on the topo. At the top the road passes close to the open area that trends s.e. to South Bald Mountain, and I lunched at a 10,670 lesser summit, from which South Bald could easily have been climbed. Trail continues to climb and passes signs indicating North Lone Pine Creek Trail, which I scouted out. Weak cairns at first, but it looks passable. I rebuilt the cairns in the upper part.

Continue over saddle and begin descent. Sign at Kilpecker Creek Trail, but this sign was 100 yards too far up - misleading. The blazed trail - weak blazes, scouted on return - is below. Here I met a party in a Scout, coming up on better lumber roads below. Pass through clearcut area, and afterward the old trail-road is upset by new roads through clearcut areas, which I figured out only on return. The old road descends off the lumber road after the first clearcut and can be walked (which I did on return) with very little evidence of the clearcut; it returns at the edge of it to cross the lumber road and then, descends through meadow. See notes on map. On descent, I walked the lumber road. Cross culvert, and here abandon the lumber road and pick up the old road which goes down the creek, nice walk, and not too far to the Roaring Creek meadow, where I had reached before. Camped here. Too many mosquitoes. Sphagnum moss in the arm of the meadow that goes north.

1980. Returned June 30, lunched at saddle, and then walked down the Swamp Creek cutoff. Route is clearly marked, but there are many blowdowns. This seems anciently to have been a built route in lower parts; many large stones have been moved to make a trail. Below a rock outcrop (see topo) it becomes an old road, but things become confused in lumber roads in old clearcuts, now half regrown. I didn't know where I was, and was expecting more of a creek for Swamp Creek. No creek at all was in evidence where I had thought I might be and might camp (and later proved to be about where I was).

New lumber road descends off this one to the S. Fork Elkhorn and I camped here, in a fair campsite, too many mosquitoes.

1980. July 1 - hiked up and out, back down to Bellaire Lake. Flushed large blue grouse at my feet. Then got in Scout and drove route to figure out where I had been. See notes on map. Good road - sedans and camper - to crossing of swamp creek, where I camped (after

scouting on the other roads). Clearcut areas nearby but this is still nice area, excellent birding, wet, aspen, but still there is very little creek showing here, just a trickle across the road. Rain in the night, while listening to stereo music! Some call at dusk, like an owl. or a goatsucker - what is this. I have heard it before. 30 miles hiking here. (Nighthawk in a power dive??)

1980. July 2. Two deer - young bucks in the early morning. Looked around the swamp area down the road. Good access here from the road. Nice area in here.

1980. July 2-3. Flowers Road, Beaver Meadows to Crown Point. Drove Scout on over to Pingree area, stopping here and there. Water snake at Bennett Creek Picnic area. Drove up Jacks Gulch road. For the first half mile-mile of this there are many throw-down campsites, some picnic tables, and on return (prior to July 4) there were many campers & trailers in here. Possible sedans to Bedsprings Spring, but only in dry weather. Continued in Scout up to about the last meadow, and then parked Scout, and continued on foot. Rough 4WD above here. Nice redbill hawk. About three miles on old Flowers Road to Beaver Park - two men on motorbikes

here - had been up the Flowers Road above timberline. Camped here; awaked in night by some rodent trying to get in some tuna I was saving for breakfast. Rain after supper.

1980. July 3. 17 miles on foot!. Left at 7.00 am. and did the 7 miles up to Crown Point and contact of the Browns Lake Trail by a little after 10.00. Steady climb up old road, now impassable especially below by 4WD. Upper part is cairned route across timberline area, essentially good cairns, but I got turned around here and there. Three elk. Lovely day. Reached the Browns Lake trail at the old cabin. No trouble with snow at all, but if there were not the south and east sides of the mountain there would be. Returned, lunched above timberline enroute, and back at Beaver Park by 1.45, out at Scout by 3.00 and home.

1980. July 7-11, 1980. Buchanan Pass and Arapaho Pass, from Monarch Lake Trailhead, western side. Left home 5.30 am. Over trail ridge road, 9 elk, 9 marmots. Stillwater Campground seems to be the best of those along Lake Granby. Grand Lake to Loveland is 78 miles. About a four hour drive to Monarch Lake Trailhead. Ranger station here now. Left ranger station about 9.30-10.00 a.m. on Buchanan Pass Trail. Lunched at Hell Canyon crossing, and climbed in afternoon to "Thunderbolt Meadow," lovely area, camped here. No mosquitoes. In the morning climbed to Fox Park, lovely park carpeted with trout lilies and spring beauties. Climbed on to Buchanan Pass, very windy, almost too much wind to stand up. Lunched in the lee of the wind on top. Big snowfield on the east side. Can you cross here easily by this time of year? Returned to the Scout that night at Arapaho Bay Campgrounds.

Later: Climbed Buchanan Pass from east side, July 25-28, 1982.

1980. July 9, 1980. Wednesday, left for Arapaho Pass. Lunched at the first tributary about a mile and a half up the Arapaho Creek canyon, but 3-4 miles from trailhead. Climbed that afternoon to Coyote Park, too many mosquitoes, but lovely park. Wetter than most, and not easy to find dry camp. The trail crosses the Creek twice in a short range; both these bridges were out and crossings a little tricky.

1980. Thursday. Climbed to Caribou Lake and then Arapaho Pass. Mild weather, and went on to Lake Dorothy and a little way on the Caribou Trail, formerly a road, really carved into the side of a mountain here. The easiest access to Arapaho Lake is from Meadow Creek side; you can drive to what is now Meadow Creek Reservoir; not shown on topo, and hike up from there. Later talked to a ranger whom I saw there from a distance; he had hiked in day-hike from Columbine Lake. But where the Caribou Trail crosses snowfields between Lake Dorothy and Caribou Pass was a little tricky, especially if you had a backpack on.

Arapaho Pass is also a fairly easy access from the East side, and many come in from there. Perhaps 2-3 parties a week cross it in season. But rangers were unsure whether either Buchanan Pass or Arapaho Pass were used by horses to any degree anymore.

Lunched back at Caribou Lake, and hiked back to Coyote Park, picked up pack, and returned about halfway. Camped at a massive boulder and massive spruce trees, slept in the protection of the big boulder.

1980. Friday. Hiked out. Lunched at Scout, and drive back over a stormy Trail Ridge Road.

Four snakes on this trip; water snakes? Ruby crowned kinglet, singing, at close range, with red crest. Wilson's warblers, Audubon's warblers. One deer, no elk. There is a good deal of *Lycopodium annotinum* on the upper part of the Arapaho Pass Trail, also found two stations of *Polystichum lonchitis*, one, a large clump, between Caribou Lake and Coyote Park, the other, a small clump lower. There is a good deal of *Kalmia polifolia*, Swamp Laurel, in full bloom, in Coyote Park and in Caribou Lake area. Good deal of *Chimaphila umbellata*, Pipsissewa, along this trail. Thimble-berry, *Rubus parviflorus*, is quite spectacular in areas here. Also *Mitella stauropetala* is frequent.

Pine Grosbeak, male and female above Coyote Park; the male is reddish like a finch; the female is yellow crowned. Nice Swainson's thrush at close range. Songs of hermit thrush and Swainson's are easily separated; the hermit thrush begins with a long introductory note. The Swainson's thrush has a tendency to conclude with an upward climb.

Probably the best two areas to return to here would be Roaring Fork trail, and the Caribou

Trail, access from Meadow Creek Reservoir. A large group of rangers were going out to clear trails as I came in. Old ghost town, village, of Monarch is at the junction of the Southside Trail and Arapaho-Creek Trail, would be good for children; also a large old steam boiler on the southside trail.

I have backpacked (and day-hiked out of backpack camps) 100 miles in the last two weeks.

1980. July 25-27. Chambers Lake in camper with Giles. Up Friday a.m. and spent Friday p.m. in the lake area, especially upstream. Hiked to Blue Lake Saturday. The old trail is still good around the lake, including a good steel bridge - over the creek, but soon as it starts uphill it is washed out and supposedly closed, but still not too hard to follow. After a mile and a half meet the new trail, at a trail register in the middle of the junction. Climb good trail to Blue Lake. Met many hiking parties coming in overnight on return; this area is too crowded.

Sunday a.m., walked up to Zimmerman Lake, nice walk. There are trails-roads in the Sawmill Creek area, but there are clearcuts in here which mess it up. Collected *Pleurozium schreberi* from the Blue Lake trail where it runs on the s.w. shore of Chambers Lake; this is Fred Hermann's location where he found it the second time in Colorado. Townsend's solitaire, pine grosbeak, peewee, but not too many birds.

July 30-31. Talk on Environmental Ethics at Pingree Campus. Went up with Giles Wednesday a.m. and drove the Monument Gulch Road, easy 4WD or even sedan road all the way, especially in the lower part. Might be rough in spots if very wet. There are 3 gates in here, and many private cabins, but it is nowhere blocked or posted, except private plots, and no trouble to pass.

Supper at Pingree Park, and talk that night. Stayed in Tom Wolff's cabin. Thursday am. went out with Dennis Lynch's group, on field trip to judge productivity of a ponderosa pine site. Productivity is found by coring the tree, determining age and height, and comparing this (via a graph with other sites in the Rocky Mountain area (and ponderosa terrain generally). Ponderosas are selected for cut on the basis of various factors; the older the tree the lighter its bark; young trees are darker barked. A full rounded crown indicates age, and drooping branches loss of vigor. Various formulas are used to estimate the board feet of timber, or the number of sawlogs (16') in a particular tree.

1980. Aug. 9-11. Camper at Howard Haise cabin. Many hummingbirds. The Lassater's see Calliope hummingbirds several times in the summer and fall. Hummingbirds are mostly gone by Labor day. Cut wood with the chain saw Monday morning.

1980. Aug 16. Diamond Lake with Fred Hermann. Drove Scout to Buchanan Campground,

formerly called Fourth of July Campground. About 2 ½ miles on foot. Collected on field identification by Fred Hermann: *Drepanocladus exannulatus*, *Oncophorus wahlenbergii*, *Pohlia nutans*, *Dicranum scoparium*, *Tayloria lingulata*, *Solenostoma*, liverwort species. *Paraleucobryum enerve*, *Fissidens bryoides*, *Andreaea rupestris*, *Lescurea atrovirens*, *Hygrohypnum smithii*, *Cratoneuron filicinum*, *Kiaeria starkei*, *Sphagnum russowii*. Also: *Parnassia*. Graupel storm in afternoon, clearing afterward; too many backpackers in here.

Carex hermannii, a newly described Mexican species, is named for him.

Claydonia is a gray lichen, light gray, with stalked fruiting bodies. *Parmelia* is a green one, gray underneath.

1980. Aug 21-24. Arapaho Pass and Caribou, with David and Gray Hampton, and Giles. Left Thursday a.m. for Buchanan Campground (Fourth of July Campground), set up camp, and hiked up to Arapaho Glacier overlook, a little more climb than I thought. The overlook is higher than the pass or Lake Dorothy. Lovely day.

1980. Friday, Aug 22. Hiked to Arapaho Pass and then to Lake Dorothy (lunch) and on over to Caribou Pass. This trail across the face of the mountain was once a road and is no trouble at all when clear of snow, though the trail is washed out in some steeper places and a false step could get you into trouble. Lovely day again. Previous night was cold, with some frost in the a.m.

Saturday. Drove back to Nederland, looking in at the Hesse townsite, where a few cabins remain, restored. Lots of people hiking out of here; must be some really good country upland from here. Devil's Thumb Pass trail and several cirque lakes on the S. Fork of the Middle Boulder Creek.

Drove to Caribou, good dirt road, often posted before Caribou, but at Caribou and beyond nothing was posted. Sedan road to Caribou, an old townsite high on a saddle. Looked around an old cemetery and several mine sites here; most of the stones had been stolen. Proceeded on good 4wd, even rough sedan road to camp on Caribou Creek, generally east of Pomeroy Mountain.

1980. Sunday a.m. Onward on rough 4wd mile or so, and crossed Caribou Creek where it joins the creek from Rainbow Lakes in rough stream crossing, but a good adventure. (slide of this crossing). Four motorcyclists followed, much to Giles delight. Good road beyond here, campers had been brought down into the flats n.e. of Caribou Creek in here. Lunched at Rainbow Lakes campground, after a short look around at the lakes. Drove home. But, alas, had to return to get my daypack which had been left out of the packing by David at Rainbow Lakes Campground. Steady drive back to beat the dark, and immediate return to

Fort Collins.

1980. Aug 31, 1980. Platte River Bottom, at Empire Reservoir area. Returning from Akron and preaching, walked down road. The area where the eagles are in winter. Interesting in summer growth, many cattails, road sprinkled with grasshoppers. Some different flora in here - look at it when you have more time. Red headed woodpecker. Shonny brought in a small frog, which she named Herman, and to which she gave much attention.

1980. Sept. 25, 1980. Cirque Meadows, with Fred Hermann. Good aspen in upper reaches, but aspen is late this year. Collected *Calliergon giganteum* first Colorado record. Also much *Pohlia bulbifera* right in the lower Cirque Meadows area, on the embankments above the stream courses. Also *Drepanocladus revolvens*.

1980. Oct. 3-5. Family in camper at Mountain Park Campground. Saturday hiked up Roaring Fork a ways in lovely aspen.

1980. Oct. 30, Thursday. Miller Fork with Fred Hermann. Fair day, but snow on the northeast side, the descent, from Bulwark Ridge to Miller Fork.

1980. Nov. 28, 1980. Arthur's Rock with Cub Scouts. Jim McCambridge, Larry Donner, & 6 Cubs, including Giles. Nice day.

1980. Dec. 27, 1980. Butte Royal Tunnel, with Giles. Went up Dale Creek to within view of Overland Trail Stage Station, but there is someone living in a trailer house nearby. On to Butte Royal area. Parked Scout, cut over a hill and into Fish Creek drainage, went up the creek to the tunnel. Built in 1910 by Denver, Laramie, and Northwestern RR, but they never got the tracks past Greeley. Hoped to make Laramie and through Wyoming to Seattle. See Triangle Review, May 9, 1979. Returned by a higher route which parallels the Highway 287. Then drove round and into a road that mountain real estate developers have put into the area. You can drive without posted signs to within a few feet of the tunnel. But this real estate road had a down chain across it; it might sometimes be chain locked. 19 deer in several groups. 22 antelope. A few hawks.

Very warm, 65 degrees! This has been a mild winter and some record breaking warm days.

stop 1980

start 1981

1981. January 3, 1981. Twin Cabin Gulch and High Park, with Shonny and Giles. Left about

10.30 from parking area at cattle gate. Fair-to-good trail up the gulch (also a sign here Ellen's Gulch), but could be wet in higher water. Reached the meadow where I was before (hiking in from west and Buckhorn Ranger Station). On up on private land to High Park, where we lunched in a teepee, canvass gone, but rug and big wood stove and many tools, pots, pans, etc. On up over saddle--there is weak to poor trail over the high point here, old roads below, to Harlan Gulch, reaching a house, uninhabited in winter, but looks like it might be inhabited throughout summer.

1981. January 10, 1981. Jug Gulch with Giles. As before, but the water was way down, and no problem crossing the stream, tho I wore my pack boots. Mild, dry winter. Trail/road is o.k. for a while but in upper reaches peters out (where we lunched) in a maze of downed beetle-killed pines. One golden eagle seen at very close range, flew off from a perch nearby and flew by us not 30 yards away. One deer.

1981. February 23, 1981. 27 Bald eagles at Riverside, Empire, Jackson Reservoirs. Single adult on a rock point, in the middle of Riverside, then several others here and there enroute to Empire. Lunched at the lookout at Empire down at the water's edge with 6-8 variously perched or in the air. Sunny day and warm. The water fills this inlet for the first time in several years.

After lunch drove up the cottonwood river bottom to Orchard, with several adults very close (for eagles), and nice views in scope. Went on to Jackson Reservoir. The State Recreation area is divided in half by a Jackson Lake Marina, private, rather much of a trailer park, with some of these inhabited year round. Talked to a ranger. Camping is available year round, water only Memorial Day to Labor Day. Ranger lives on premises. North of campground saw two adults perched, and two immatures in the air.

Also: several rough-legged hawks, and miscellaneous others. Nice V of half a dozen snow geese over the Empire Reservoir after lunch. With Giles. As good a day at this as I have had. About half the eagles were adults, about half immature, about half seen perched, about half in the air.

1981. April 18, 1981. Hike up Horsetooth, prior to April 28 election toward purchasing Soderberg Ranch by Larimer County. Dirt road rises from Inlet Bay to a parking lot of sorts, and good foot trail into Spring Canyon Falls, good falls with small volume of water but high spray. On up Spring Canyon and after the meadow mostly picking your way upwards. At the base of the rock, find a slope in the rock angling back south, and make your way up from here (east side). I had previously been up west side. About 25 persons involved. Led by Tony Baltic, also along Steve O'Kane, doing master's in plant taxonomy. About 15 wildflower species out, 1 golden eagle. With Giles, first hike with his new (birthday) red pack.

1981. April 28. Horsetooth Mountain election won, 52% to 48% approximately, voters about 10 to 4 in Ft. Collins for, but 4 to 1 in Loveland against, 2 to 1 against in Estes Park.

1981. May 2, 1981. Solo up Greyrock Meadow and circuit around and back down the main trail. Fair flora out, but early and dry. One nice blue grouse close up. The trail is good and steep, rises higher than the meadow and then drops down into it from the west side.

1981. May 28, 1981. Lower Buckhorn with Fred Hermann and Giles. Stopped about 2 ½ m. north of Masonville, looking for *Gymnostomum* and *Moelendoa*, the latter found here very disjunct, but the latter not found. Birds noisy here. One good rattlesnake crossed the route we were traveling behind me, and before Giles and Fred Hermann. I heard the noise and suspected it.

Continued to mouth of Sheep Creek. Found *Anomodon attenuatus* in here twice, not common in Colorado, common in East. Lunched, and afterwards went up Twin Cabin Gulch a ways. Afterwards, I went up Lakey Canyon several hundred yards; there was an old road in here. Queer posted sign, from a West Virginia Bird Club at mouth, but this seems NF land. Try this one sometime. Oriole, bluebirds, bunting, presumable lazuli? Hermann tells *Hypnum* by the lack of a costa even with field lens. Later: Hermann keyed *Dicranum flagellare*, new to Colorado, collected today.

1981. May 29, 1981. Tamarack Ranch (Galesburg) Wildlife area, and preached at Akron. Left Friday a.m. with Giles, rained hard on way out. Went off Interstate 76 into Proctor, heard bobwhite here first time in Colorado (where the S. Platte is crossed south of Proctor). Went on to Crook and back south across the River to Check Station, drove on dirt road to "Headquarters," a former ranch house for Tamarack Ranch. Camped at Check Station, open area, camping permitted here. The access is all from the south, by areas (1-11 east of Crook, 1-24 west of Crook), and good-to-fair dirt roads give access.

Some late evening birding Friday, weather now good. Coyotes heard evening, in the night, and again very noisy in early morning. Slept in Scout on new rig of plywood boards. Up early a.m. for birding along the river bottom, and returned again after breakfast. Several rabbits.

Seen: mallards, kestrel, bobwhite (heard often), ring-necked pheasant, great blue heron (8-10), avocet, killedeer, sanderling, Wilson's phalarope (a dozen busy in the water's edge of shallow pool at Crook--in some sort of courtship display??), rock dove, mourning dove (many), nighthawk, red-shafted flicker, redheaded woodpecker (25 or so, really spectacular numbers), downy woodpecker, eastern kingbird (hundreds), western kingbird, horned lark, barn swallow, blue jay (many), magpie, black capped chickadee, house wren (large numbers), singing all day long, brown thrasher (many), robin, cedar waxwing, starling, Bell's

vireo (small, but clearly so, a mid-western bird), warbling vireo, yellow warbler, yellowthroat, yellow-breasted chat (very noisy), house sparrow, western meadowlark, red-winged blackbird, orchard oriole (several), Baltimore oriole (several), blue grosbeak, rufous-sided towhee, lark bunting. Forty species.

Drove south to Akron, found an Ornate Box Turtle in center of road, captured for Giles. I did not know that these were in Colorado, but they are out here, and come out after rains. Several jackrabbits. Rather few hawks seen on this trip. Saturday night in Akron, at home of John McCandless. Returned Sunday p.m. There is a free campground at Brush, also a KOA in Ft. Morgan area. The campground we stayed in at the Check Station is within site of I-76, and could easily be used from there.

1981. June 5-7, 81. Family in camper at Moraine Park. Site no. 39. Drove up Friday a.m. and shopped in Estes Friday p.m. Hiked to Pool Saturday over midday, and I went up Cub Lake trail a ways alone in later p.m. Nothing Sunday morning. Screech owl both nights. Mother mallard with 8 ducklings in line after her. Chipping sparrow, Audubon's warbler, violet-green swallow, tree swallow, wren, 9 deer, two in velvet, 2 elk in Beaver Park in late evening. I watched a chipmunk carry her young one. She came out of hole, looked around, returned pulling him out tail first, and then carried him 100 feet, and returned by a different route, but seemed to know where she was going and how to get back very clearly. Coyotes in the night.

1981. June 15, 81. Crystal Mountain Road, Sheep Creek to Donner Pass. Left late as I had not been feeling well. Drive to the top of the hill on Crystal Mountain Road, where there is a 3-4 way fork, and several posted signs. Took a false start on the left hand road, and had to switch back across the meadow (middle of section 25), and return to the main road (private, but open) south to Sheep Creek. Then hiked up Sheep Creek almost due West.

There is a good trail, often a road, not always, all the way, but there are no signs, and side trails, and I tried to go up a tributary instead of the main creek for a while. Mining claim in here, with lots of noisy and cheaply painted signs, but you are rather clearly not posted off this land. Good hike up, but took longer than I thought. Late lunch at Donner Pass. You climb higher than the pass, and then drop down to it on this route. Returned, collecting mosses up and down. 3 ½ miles each way, 7 miles round trip here, with about 2 miles each way on the bottom end, total 11 miles.

I hiked back up the western most road, which is on N. F. land. This is quite passable by Scout, but rough and would be slow going. 5 elk nearly back out, close in timber. One deer.

1981. June 23, 1981. Flattop Mountain with Richard Routley, Australian philosopher, environmental philosophy, and Fred Johnson, CSU. Nice day, a little rain but afterwards clearing. Rather windy on top.

1981. 2-4. Moraine Park with Julia, Mother, Giles, in camper. Rainy all Thursday afternoon, Friday was in and out of clouds on Trail Ridge Road, but a spectacular day, with clouds draping the peaks. Hard rain with clearing afterwards after supper Friday. Cloudy Saturday morning. Brown-capped rosy finches at the Alpine Visitor Center. Coyotes Friday night. Lots of hummingbirds. Ten deer. Returned Saturday for July 4 picnic on Concord Drive. This was mother's first camping trip, at age 75.

1981. July 22-24, 1981. White Mountains in New Hampshire. Flew to Boston July 21, and limo to Portsmouth, rental car up to Franconia notch country, arriving about 10.00 a.m. Hiked up Cascade Brook Trail (here this is the Appalachian Trail) to Lonesome Lake, and return. Delightful trail, lunched at crossing of Cascade Brook. Appalachian Mountain Club hostel at the lake, is staffed all summer, supplies packed in. Returned to parking area, at Whitehouse Bridge, and then walked east several hours on same trail--now the Liberty Spring Trail (= Appalachian Trail) and branching off to Flume Side Trail.

1981. Thursday, July 23. Wilderness Trail, off Kancamagus Highway. This is an old railway; many ties remain but it is flat and easy walking, a main access to Wilderness area here. Walked to Franconia Falls and on to Camp 16 and return. Later that day, walked Greeley Ponds Trail. Total about 25 miles of hiking in 2 days. Grand weather.

Collected a good many mosses. Saw lots of beargrass (*Lycopodium*), *Maianthemum*, *Coptis*, *Viburnum*, *Cypripedium*, lots of *Sphagnum*, trees were Balsam Fir (*Abies*), Spruce--red and black--maple, paper birch, beech, Clinton's lily. Not many birds, but vireos singing. No oaks, hickories. No jays. Good lush woods but have been timbered and the giants are cut out. Chipmunks, no game, no sign. Lots of Indian Pipe (*Monotropa*).

1981. Friday a.m. early to Exeter and Council of Institute on Religion in an Age of Science. Saturday to Star Island (Isles of Shoals, 10 m. from Portsmouth) and week long conference there. Many breeding gulls on the island, zealous for their chicks. Gulls will cannibalize each others' chicks.

1981. Aug 6-11. Mt. Zirkel Wilderness with Giles. Left Ft. Collins in Scout Thursday a.m. and drove to Walden, inquired at Ranger Station. Drove to Livingston Park, and camped there, mostly a parking lot. Access road across private land. 12-14 vehicles in here. Hiked round to Norris Creek so Giles could fish!

Friday, hiked--backpacked to Rainbow Lake and camped there. Saturday, hiked with daypacks to Slide Lake, Upper Slide Lake, and on to the Divide. Missed the trail unawares and went up to Slide Lake (the way many people go, not shown on maps), but returned on the main trail. The best way to go to Slide lake with packs would probably be to go around

on the main trail to Upper Slide Lake. In a flat area, just before climb to Upper Slide Lake, there is a turn back--obscure, but should not be too hard to find--and trail descends to Slide Lake. After a short distance on the turnoff you can see the lake below. There are old poles marking the main trail thru here, and the turnoff is at one such pole.

Many camped at Slide Lake, a lovely place. Lunched at Upper Slide Lake, and climbed on to the divide, a good climb above Upper Slide Lake, and then flat or up and down on the divide. 20 on horseback at Roxy Ann Lake junction. Some rain that evening in camp. Hiked out Sunday. (I returned to this divide August 1990.

1981. Sunday (Aug. 9) made our way to north end of the range. Lunched at South Delaney Lake, rain off and on through the day. North to Big Creek Lakes Campground--nice area but many of the Winnebago set camp in here for 2-3 weeks at a time. Monday hiked to Seven Lakes--12 miles round trip. 4 blue grouse. Coyote yelping in midafternoon in subalpine woods. Hard rain the last part of the return trip and I got pretty wet; Giles did better with an oversized raincoat. Collected mosses, esp. at Big Creek Falls and Seven Lakes. Not so many on the trail here--met Bob Martin coming up to Seven Lakes just as we started to descend; he has been there four times. Nice view close up on telephone pole of peregrine falcon on return across the sagebrush country before Cowdrey. Nice immature red-tail perched on return over Cameron Pass. Several deer. *Rhododendron albiflorum* (White Flowered Azalea) [which Weber now puts in *Azaleastrum*], Colorado's only rhododendron/azalea is abundant around Rainbow Lake, past bloom when I was there, but evident, found only in Park Range, and next northward in Oregon, and Canada.

1981. August 16-22. Mt. Evans, Mt. Bierstadt, Guanella Pass. Giles and I in Scout. Drive to Mt. Evans Sunday a.m., lunched going up the Mt. Evans road, and pitched camp at Echo Lake Campground. No trouble getting space. Rainy afternoon by now, but we drove to Summit Lake and on to summit. Clouds in and out around the peaks, and I got out to walk up the last 200 yards or so, and on top people's hair was standing on end from the static electricity--first time I had ever see this. So I didn't stay long. Browsed around on the flats between Mt. Evans and Epaulet Mtn on return, and saw nine Rocky Mountain goats--first time I had ever seen them--3 were kids from this season. Considerable rain in the night.

1981. Monday, spent day about Summit Lake, collecting mosses. Off and on weather, but rather pretty with clouds floating in and about the summits. Saw 5 goats on the way up, 2 kids. Also one Bighorn Sheep ewe and her lamb, within ten minutes of seeing the goats. Hundreds of pipits about the lake. Walked over on the Summit Lake flats after lunch. After supper, walked down around Echo Lake and saw one coyote running across the road. Bristlecone pine are evident at timberline here, and also at Echo Lake first time I had noticed them.

1981. Tuesday, moved over to Guanella Pass--this is a good road, paved about half way up, wide gravel-dirt the rest of the way. Afternoon, we hiked to Silver Dollar Lake, a bit of a disappointment as the lake has been scarred up from lowering the water line.

1981. Wednesday, hiked up Mt. Bierstadt, Giles' first climb of a fourteener. The willows below Guanella Pass had been predicted bad, but we found a good footpath through and went through dry shod. Also a cairned route up the slopes in the lower part, then cairns vanishing, and then returning again at the upper reaches. Three ptarmigan, very close. Lovely day.

Thursday, drove up the Argentine Pass Road, to Waldorf Mine, good day. Lunched there after scouting the Pass road in the upper part, and returned to Ft. Collins. Bristlecone pine also on this road.

Fred Hermann lists from Naylor Lake-Silver Dollar Lake:

Stegonia latifolia
Desmatodon stylistius
Bryoerythrophyllum ferruginascens
Tayloria acuminata
Tayloria froelichiana
Plagiobryum demissum
Clevea hyalina (thalloid liverwort)
Dicranum elongatum
D. acutofilium
Polytrichum strictum
Brachythecium plumosum
Entodon concinnus
Tortella arctica
Myurella julacea
Didymodon asperfolius
Hygrohypnum cochlearifolium

From Summit Lake:

Oreas martiana
Bryoerythrophyllum ferruginascens
Calliergon turgescens
Calliergon sarmentosum
Rhacomitrium fasciculare
Campylopus schimperi = *C. subulatus schimperi*
Bartramia breviseta, = *B. ithyphylla* var. *brevisetata*

Entodon concinnus
Paraleucobryum enerve
Drepanocladus revolvens
Mnium spinosum
Tayloria hornschurchii
Plagiobryum zieri
Didymodon asperfolius

1981. August 28, 81. Argentine Pass with Fred Hermann. Left at 6.00 a.m, and drove nonstop to Argentine Pass road, and up to Waldorf mine, thence to about 1 m. short of pass, and walked to top by trail. Lovely day. Road would have really been no problem to pass, and there are adequate turnarounds. But you cannot descend the other side.

We were looking for *Voitia nirvalis*, moss reported only from continental U.S. in 1886 on Argentine Pass, by William Trelease (?). Grows reportedly on sheep dung. Alpine tundra is rather dry toward the pass, and we collected only a few. Returning, lunched at Scout, and then spent a good while in a normally wettish area (though just now dry) about ½ m. under the pass (as the crow flies), in search of *Oreas* (rather rare arctic moss), finding some other interesting things here. Made a short circuit by Scout towards the lower basin, but decided we did not have time to go down. Collected a few mosses at the pond above Waldorf mine, and a few on the way back down.

Hermann finds on Flattop Mountain, in wetter areas near snowmelt:

Oreas martiana
Grimmia mollis c. fr.
Andreaea rupestris
Tortella arctica
Drepanocladus revolvens
Paraleucobryum enerve
Ditrichum giganteum = *D. flexicaule*
Politrichastrum alpinum
Hylacomnium splendens
Pohlia obtusifolia
Dicranum elongatum

1981. September 29, 81. Zimmerman Trail, from Homesite to Sheep Creek Reservoir. Left Home (name of place, about 3 m. w. of Arrowhead Lodge in Poudre Canyon) 8.15, with permission of Jack Revis to cross the lower part, which he owns. Go along road over creek, on 100 yards or more and come to pile of sawn boards lying aside road. Take trail off here, cross small streamlet, and come to new Forest Service Trail sign. Continue a short piece,

and come to a blank plywood sign which marks a bypass of the lower end of the old wagon road. I went up the old road, however, which is a bit rough but very mossy. It might be worth returning here. I returned over the bypass which is steep.

The main trail was old wagon road and is in very good shape, but there are some blowdowns. It is moderately well blazed, better so upwards, but no trouble following. Nice wet trail, but the trail, once well on up, does not cross the creek often. Eventually you come to two open areas, and top out a bit and drop back down into drainage of the Sheep Creek area. Good sign and trail looks in good shape back to Crown Point area.

Sheep Creek Reservoir is long defunct. It was built by Zimmerman, but in a quarrel over water rights he had to blast it out. Cabin hulks here of large logs. Lovely fall day, good aspen, and I kept steadily moving, but did some looking at mosses in the lower end on return. Lots of *Brachythecium rivulare* and *Timmia*. 2 deer roadside. 12 miles roundtrip.

1981. Oct. 2-4, 81. Sleeping Elephant Campground in Camper. Somewhat rainy weekend, and aspen was way past its prime. Drove on Saturday up to Chambers Lake, and down the Laramie River road. Lunched at Brown's Park Campground. Several outfitters putting tent camps in place via horsepack from Rawah Trail and from Brown's Lake. Aspen should be lovely along Laramie River, but it is all gone now--mid-September to 3rd week of September would have been prime. Lots of Townsend's solitaires in camp.

1981 Oct. 18, 81. Hiked around Stone Mountain, Atlanta, Georgia. Rain in morning and later clearing. Circuit trail goes all the way around, about 8 miles. Collected mosses.

1981. Oct. 22, 81. Congaree Swamp, with Ernest Thompson, as guest of J. Carlton McCracken, Rt. 1, Box 79, Hopkins, S. C. 29061. Adjacent to Columbia, S. C. Especially at areas known locally as Gooses Pond, and Hodges Lake, both cypress swamps. Pileated woodpecker. Very dry, driest on record.

1981. October 23-24, 1981. Mountains of North Georgia. Chattahoochee National Forest. Drove Friday from Columbia, S. C. to Dahlonega, Ga, and got motel room there. Drove up to Neels Gap on Appalachian trail, about 15 m. n. of Dahlonega. Very cold and wet on ridge top, with leaves mostly gone, though they had been very colorful below. Hiked 2-3 miles north. There is a lodge and store at the Gap and the trail goes right through the lodge. Returned and went down to lower area, Desota Falls, hiked up to Middle Falls, about 1.5 miles, and then down to Lower Falls, a short distance. Both are lovely, small, but striking falls. Wet woods but not raining and very enjoyable. Good colors.

Saturday, drove to trail terminus and Springer Mountain. Very lovely woods on drive up, good dirt roads literally paved with falling leaves. Found trail to Springer Mountain, though

later found that the trail had been re-routed in this last part, returning to the same trail in last half mile. Windy and cooler here, with most leaves gone. Shelter at Springer Mountain, and terminus of trail there. Returned, lunched, and drove out Noontootle Creek road, with hike (again on Appalachian Trail) in the lower part of this road, up to an unnamed falls. Thence to Atlanta and Jackie Hall's for supper (my first cousin).

1981. Saturday, Oct. 31, 1981. Falls Hollow Trail, at Elliott's Knob. Drove out from Staunton, and hiked up the trail. It is an old road in lower (and even upper parts) and easy to walk below but becomes more difficult above due to blowdowns. Collected mosses. Returned, and drove around to locate North Mountain Trail. Falls Hollow is splendid example of wet hollow. Leaves fairly well gone, though the woods were pretty. Overcast but no rain.

1981. Nov. 27, 1981. Loch Vale, with Giles. Bright day, solid snow underfoot, but well packed down by Thanksgiving hikers, and not really that deep. Left parking lot about 9.30, lunched at the Loch about 11.15, left about 12.00, back at the Scout about 1.30.

Thirty two elk in the late afternoon, one group of 12 in Beaver Meadows, and about twenty in the woods in the road curves above Fall River Entrance Station. 12 deer. One splendid bighorn ram on the rocks above the road junction in Moraine Park, together with a ewe. Nice in the scope. Turned into Aspenglen Campground and saw a pair of coyotes, the first was roadside sitting when we drove up.

1981. Dec. 19, 1981. Estes Park Audubon bird Count. Arrived Park Headquarters 7.45. Went up Loraine Park area and then up Bear Lake Road, with Gardner Miller (960 Riverside Dr., Estes and Iris Sherman 1811 E. Mulberry, Ft. Collins).

Windy with some snow.

Magpie 2
Mountain chickadee 18
Raven 6
Hairy woodpecker 2
Tree sparrow 1
Robin 1
Crow 12
Townsend's solitaire 1
Pygmy nuthatch 14
Bohemian waxwing 10
White-breasted nuthatch 2
Stellar's jay

Brown Creeper 2

Gray jay 2

Warner a Moraine Park and make the whew-whew-whew call. They had seen a pygmy owl in the a.m., and he found a boreal owl killed. nd Ruth Reeser are good birders in Estes, lunched with them. Snipes are reasonably common in

stop 1981

start 1982

1982. February 18. First crocus, and some robins in town. Weather has lately been mild, although there were some very cold days in December and January, and record cold in Midwest and East.

1982. February 20, 1982. Eagles at Empire and Jackson Reservoir. Left with Giles about 7.15. Nothing at Riverside, nothing at Empire. But nine seen along the river bottom run up to Orchard, two perched at good scope distance. Ate lunch with one in the scope, parked by the side of the road. Later viewed one at bridge, and Giles found abandoned brief case roadside. Took it to the storekeeper at Orchard, who says the husband of the woman who runs the post office there traps coyote and beaver and throws the carcasses in a draw about a quarter mile down the river, below the bluff, and they feed some on these.

Proceeded to Jackson Reservoir State Park, and saw three adults on the ice in middle of-the lake. Good range. Drove back to Goodrich, and south .8 mile to the Lefler Wildlife Easement and drove around through the western loop, but this does not come next to the river. There seems an eastern road that does. This looks like good spring birding area. Returned and saw several more eagles along the Goodrich Orchard road. Total fifteen for the day, all but two or three adults. One pheasant, some buteos but not many.

1982. March 13, 1982. Hike up Crosier Mountain with Giles. From eastern side. Trail rises through fairly steep, north facing woods, past an old mine, and crests a ridge, followed by a gradual swing around in a westerly direction, and a gradual climb. Reach a very large, flat meadow. Trail goes through it, but on northern side. Dead elk in here.

Trail continues as woods thicken (they are nowhere very thick through here) and after passing thru grove of tall aspen enters a steep climb and crests out at old fence. Start drop into True Gulch, and then steep climb out of it. Follow long ridge, rather gradual climb or even level westerly until you reach the last base of Crosier (joining the trail from the West I

had used before). Climb to top, not blazed, and here and there a little trouble to find in the snow. Calm and clear on top. Lunched there. Did this again, abortively, May 15, 1999.

Two Pasqueflowers in one clump in bloom, and nothing else out. Aspen buds opening up a bit here and there. A good many chickadees, juncos, a few woodpeckers. Six deer seen in the large meadow in return. Lots of beetle kill in the pines. Five ticks off my clothes in house on return.

1982. March 18, 82. Skied Beaver Meadows with Shonny and Giles. Skied from warming hut up North Fork Trail 1.75 miles and return. Fair skiing, but icy spots. 15 deer on road on way up. One bluebird.

1982. April 4, 1982. Wellington Wildlife area and Cobb Lake, briefly on Sunday morning. Pintails, white-fronted goose (2), green-winged teal, Canada geese, yellow headed blackbird, shoveler, scaup, bufflehead, widgeon, Western grebe, marsh hawk, many mallards.

1982. April 10, 1982. Unnamed canyon, just west of Lakey Canyon, south off Buckhorn Creek. There seems no trail up Lakey Canyon itself. There is an old road, pleasantly passable but overgrown up the unnamed canyon. Reached picnic table and campsite, with roads in from above. I hiked one, which climbs, then descends to return to the canyon, then another, which swings up, around and down to return to Buckhorn Canyon very near where I started. Lunched at the picnic table, then went up at stream level in the canyon, past the point earlier gained on the road, and up a bit further, but the road peters out. Returned, collecting a few mosses.

Nineteen doe in a meadow in the Wilderness Ranch area, 1 lone doe elsewhere. Black crowned heron. Stream is fairly frozen yet, and nothing out but catkins.

1982. May 8, 1982. Twin Sisters with Giles. Left Scout about 9.15, on summit at 12.00. Rather dry trail up thru lodgepole pine, no streams crossed. One spring shown on map not found. Gradual breakout onto alpine, which is largely rocky, little soil. Very tame gray jays took food from Giles' hands. Hairy woodpecker, kinglet heard. Windy on summit, park service repeater radio towers there? Some snow flurries on way down, clearing afterwards. Walked atop drifts for as much as a hundred yards, but no problems. Little flora out, pasqueflowers and Candytuft (*Thlaspi*) below.

1982. May 23, 1982. Spring Creek Falls, below Horsetooth. Sunday evening walk and supper with Giles.

1982. May 27, 1982. Wellington Wildlife area, Cobb Lake, etc. With Giles on a Sunday

morning, rather overcast.
yellow headed blackbird
Western Kingbird - many
Canada geese, with goslings
Eastern kingbird - many
Great Blue Heron - six
shoveler
avocet - many
lark bunting
redwing
horned lark
mallard
cinnamon teal
coot
blue teal
canvasback
gadwall
barn swallow
pheasant (heard)
meadowlark
magpie

1982. June 4-6, 1982. Olive Ridge Campground, with Giles and Adam McCambridge. Left Friday about 9.15, after wet weather, but weekend turned out quite dry. Set up camp and hiked a ways up Meadow Mountain Trail in afternoon. Go south on the Ski Road to junction, marked with signs. There is an old junction, now bypassed, with small Trail sign, a hundred yards or more below. See map. Steady climb to subalpine area, considerable snow drifts remain on n. facing slopes.

1982. Saturday, hiked to Ouzel Falls. Bridges are being rebuilt and we had to hike the last mile and a quarter in to the ranger station. Fairly uneventful climb to the Falls. There is still little out up here. Collected some mosses. After supper went to the willow bottom adjacent to Copeland Lake for birds, and on return winched a man out stuck down at edge of Copeland Lake.

Audubon's warbler, Wilson's warbler, yellow warbler, Western pewee, chipping sparrow, song sparrow, redwing, kinglets much in evidence, many siskins, robins, ravens, woodpeckers, chickadees (mountain), Stellar's jay, two coal black Abert's squirrels. Giles and Adam caught a much treasured frog.

1982. June 11, 82. Devil's Gulch to Arthur's Rock with Fred Johnson and Giles. Arrived at

Fred's house about 8.00. His is Blue Spruce Road, with sign on small wishing well below. Left his car at Arthur's Rock Trailhead and returned, up Jack Pine Road, which you can go up to parking area. Not posted. On foot, dropped into Empire Gulch and old Copper mine, then over into Devil's Gulch, a nice one, moist enough for good flora. Lunched here, and gradually climbed out to ridge and broke out onto very large open area, Swanson's Ranch, which may be developed, but state land is just east. Followed jeep road south, but came around too far south and had to work back n.e. into Arthur's Rock Gulch.

Nice flora all round. Large flocks of pine grosbeaks. Shooting stars especially good.

1982. June 17, 1982. Tamarack Ranch with Fred Hermann. Left 6.00 a.m. Arrived about 8.30. Much weedier than before and we were not able to find many mosses. *Bryum argenteum*, *Phascum cuspidatum* ?? - there is lots of this, like a small *Bryum* with hair points, but little fruiting sessile capsules. *Barbula*, or something in Pottiaceae, but not well developed. *Ditrichum flexicaule*. *Funaria*. The latter two at the Proctor crossing.

Birds: Canada goose, mallard, redtail, marsh hawk, Swainson's hawk, Kestrel, pheasant, bob white (often heard), great blue heron, black crowned night heron, avocet, killdeer, pigeon, dove, yellow-billed cuckoo (lots heard, one seen very close, burrowing owl (seven seen on posts roadside), nighthawk, red-headed woodpecker, red-shafted flicker, eastern kingbird, barn swallow, blue jay, magpie, black-capped chickadee, house wren, brown thrasher, warbling vireo, yellowthroat, yellow-breasted chat, meadowlark, redwing, Brewer's blackbird, common grackle, orchard oriole, Bullock's oriole, goldfinch, lark bunting, lark sparrow.

One coyote seen nicely on road east of headquarters. Snake, not a rattlesnake, about 3 ft. long. One lizard with green head, 10" long.

1982. June 27, 1982. Tunnel Campground, Laramie River Road, in camper with family. Left Sunday afternoon, after preaching at Poudre Park Community Church. Friday before was a torrential rain, and hail ruined the tomatoes, but the weather cleared up and was quite fair. No water in Tunnel Campground, and we went back up the road and got some from a brooklet. Screech owl in the evening, with many snowshoe rabbits, six or eight seen in the campground the 3 days.

1982. Went up West Branch Trail Monday midday and lunched there. Fairy slipper orchids at lunch, by the West Branch. Returned for lazy afternoon and evening. Home Tuesday p.m., after a lazy morning. Birds fairly good, lots of hummingbirds, up to seven at a time at a red plastic container of sugar water placed on a post outside the camper. Swainson's thrush, a number of Yellow-bellied sapsuckers, ravens, chickadee, yellow warbler, song sparrow, junco. Three deer seen several times in camp, six or seven other deer. 3 garter

snakes.

1982. July 6-20, 1982. West Virginia, etc. Drove from Richmond to Morgantown for Conference in Wilderness Psychology, July 8-9, taking Giles via Charleston to meet Julia there. Left conference about 4.00 p.m. and camped at Coopers Rock State Forest. After supper collected mosses on Clay Furnace Trail,

1982. July 9, Friday. Saturday a.m., drove to Virgin Hemlock Trail, stopping for collections about 1/4 m. s. of Entrance Gate on 4-lane Route 48, and old two lane Route 73. Talked with superintendent Alfred Kerns. Deer in evening and two spotted fawns early a.m. Hooded warbler.

1982. July 10, Saturday. Drove to Julia's in afternoon.

1982. July 13, Tuesday, left Julia's with Giles for Cranberry Backcountry, Monongahela National Forest. Did the boardwalk around the Cranberry Glades Botanical Area that afternoon, also a short walk on the Forks of Cranberry Trail from the Highland Scenic Highway. Camped at Summit Lake Campground.

1982. July 14, Wednesday, solid day in Cranberry Backcountry. Down Fisherman's Trail to Cranberry River, which we forded in tennis shoes. Thence along the road to Rough Run Trail, which in upper part is old railroad, much overblown, but now a nice trail. Lunched and returned with Giles enjoying a skinny dip in the river. Skunk, a small one, in the campground that morning. Veery is prominent bird in the forest, notable "Quee-ur" call. Large owl in woods.

1982. July 15, Thursday. Walked the Falls of Hill Creek Trail, to see Upper, Middle and Lower falls, all three nice falls, and the lower the highest in West Virginia. I did the boardwalk again, and in p.m. drove to Richmond. Lots of birds but they were difficult to see in the woods. Good raspberries and huckleberries.

1982. July 25-28, Buchanan Pass. Alone. Drove the 4WD road in towards Cony Creek about halfway, and packed the rest. 8-10 vehicles at the Cony Creek intersection, crossing the pond edge in water about 2/3 way up the tires with no trouble. Enter Indian Peaks Wilderness here. Hiked on to about timberline and pitched camp, at a small sawn wood bridge over the stream, not far above the presently marked turnoff to Red Deer Lake. Cooked supper in rain, with clearing afterwards.

Fabulous rainbow, end to end and doubled in colors, very bright, in evening.

Monday, climbed Sawtooth. Just below the pass are two snowfields that are about as steep

as you want to cross alone, but others had been before and pretty well dug steps in. Lovely climb to Sawtooth and lunched there. On return weather began to close in, and late afternoon was all in rain. Went round to Red Deer Lake, and found trails confusing. They are marked differently from what is shown on map, and the presently marked trail takes you lower down, then back up to Red Deer.

On return, followed a differently marked trail (now somewhat abandoned, thru late snowfields, and in the upper part this turns into cairn route only thru grassy areas, joining the main Buchanan Pass Trail almost exactly where I had camped (very slightly below it), but this is not marked or evident from the upper turnoff.

1982. Tuesday, returned to try trail (unmarked on topo sheets) to Coney Lake, but the trail, good below, got scattered above, it began to rain, and I ran out of time, so turned back. Good views of a marten not long before I turned back. Lunched on return, and then hiked out in hard rain, getting pretty wet, especially when trying for some mosses at Coney Creek intersection, now quite abandoned.

Drove Scout out in rain, and camped at throwdown camp not far below Beaver Reservoir. Mostly rain in night.

1982. Wednesday, drove to Nederland in cloudy bright weather, lunched at Nederland, and then drove to Hessie access point. Hiked to Lost Lake in rain, with an hour's clearing while there, but rain on return. Drove home in rain, and it rained for the next 24 hours without stopping.

Cornus canadensis, *Listera* (twayblade), and a number of others collected, and spent next day keying plants (in 24 hour rain). Dead ptarmigan in tundra; several deer in camp. Many white crowned sparrows. A number of brown capped rosy finches.

1982. August 1-2, North Lone Pine Creek Trail to Bald Mtns. Drove up Sunday afternoon and camped at North Fork Poudre Campground. Hiked up Killpecker Creek about a mile.

1982. Aug. 2, Monday. North Lone Pine Creek Trail. A small turnout, overlook, and picnic area has been put in here. Trail goes up, soon joining creek, mostly on and off an old road. Lower end has been rebuilt and blazed, and about 3 footbridges put in over creek. Saw marten in here at close range, this is the second one in a few days (another at Cony Creek) but I had not seen any for 10-12 years before. Kinglet at close range.

Trail rises and covers a lot of dry woods, blazes disintegrate in last mile and numerous blowdowns. I made it through but had to spend a lot of time finding the trail, often with quite old blazes and I had to backtrack and build cairns. Lunched on top, after joining the road from Nunn Creek, which I had hiked before.

On return got lost for about an hour, because I tracked off onto a second set of blazes for about 1/4 mile, and was reluctant to retrack evident blazes. Take careful notice of a pole cairn in a small open area just under Middle Bald Mountain 1/4 - 1/2 m. on return), and get oriented from here. Morale: Leave some sign of your own on a stretch through obscure blazes. Also, on the second time thru leave a different sort of sign (wood sticks upturned, instead of cairns, etc.) so that you can readily separate sign left going in from new sign laid on return.

1982. Wore new boots on this hike, Vasque 11 EE, having used the last pair since coming to Ft. Collins in 1968, 13 years. If this pair lasts that long, I will be 63 when I buy the next pair. (Later: But they didn't. See Jan. 20, 1989.)

1982. Aug. 9-12, 1982. Rainbow Lake, Upper Slide with Giles, 4 days backpacking. Left in Scout about 6.30 and arrived Livingstone Park 11.00 a.m., ate early lunch there. Got into Rainbow Lake about 3.00, and set up tent just before rainstorm, clearing later. There is 6" of snow where we camped last year.

Tuesday, on to Upper Slide, intending to go over to Roxy Ann, but Giles was frightened of electrical storm in midday. Clear most of the afternoon. Very sheltered camp at lower end of lake.

1982. Wednesday, hiked over to Roxy Ann and back, anxious to find *Bryum knowltonii* at the Roxy Ann turnoff. But there is much snow here, this is a wetter, cooler year, summer, than before. Found some immature *Brya* there, mostly just below the turnoff, and am trying to let the capsules ripen on the back porch.

Cloudy day, but dry, until evening, with some clearing midafternoon. Two horse parties in Roxy Ann. This trail is clear enough, but unimproved and rather cut up by the horses. *Rhododendron albiflorum* was in good bloom at Rainbow Lake, and also, though less of it, at Roxy Ann Lake. *Kalmia polifolia* is in excellent bloom and abundant, at Upper Slide and on the tundra above. Little birds, enough mosquitoes. Fire really helps to keep them out of camp. New boots are doing fine.

1982. Thursday, hiked out by 2.00. The birds on the ponds around Walden are good and one ought to take some time to study them out. Also hawks are good in this area. One deer at Livingston Park.

1982. August 26, 1982. Zimmerman Trail, with Fred Hermann, about 2 miles up. Pair of blue grouse, very tame. Looking for mosses. More beetle damage in here than I remembered.

Collected:

Ceratodon purpureus
Brachythecium rivulare
Tortula ruralis
Chiloschypus rivularis
Tetraphis pellucida
Orthotrichum laevigatum
Pseudoleskeella tectorum
Platydictya (Amblystegiella) junergmannoides
Brachythecium oxycladon
Dicranum scoparium
Dicranum rhabdocarpum
? *Lophozia obtusa*
Timmia bavarica

1982. October 2, Saturday. The Pool, with family, Bob and Joan Meroney, and Donna. Return via Cub Lake. Pretty, a bit cool, and aspen good in spots, but often gone, and other places not yet turned. This has been a rainy fall.

1982. October 7, Thursday, 1982. Peterson Lake, down to Poudre River, with Fred Hermann. A new trailhead has been put in 1/4 m. past Peterson Lake, road is somewhat rough. Trail still goes back to lake, and cuts down, as before. Trail in other direction follows the road cut for the timber sale which runs uppermost and nearest the uncut woods, and in about 1/4 to 1/2 m. joins the other trail, just prior to stream crossing. Two new Colorado mosses? See after Nov. 18.
Nice aspen in Poudre Canyon, nice fall colors here and there. Fantastic weather. No game, few birds.

1982. October 16-18 1982. Ocala National Forest, Florida (before Conference on Agriculture, Change, and Human Value at University of Florida. Flew to Gainesville, arriving 6.15 p.m., and rented car. Drove down Route 441 and cut over on Route 316 via Fort McCoy to Salt Springs. This was formerly a private campground, now managed by the National Forest. Pitched camp there after dark in the Pocket Hotel, for the first time. Drove South to Juniper Springs Recreation Area Sunday morning. Hiked Ocala Trail north for several miles, though not as far as Hidden Pond, which was the destination of several which I passed. Might have made it to Gator Pond. Lunched where there had been a fire recently on the east side of a pond.

This is sand pine and palmetto country. Palmettos have long underground stem/trunk, and

only the lattermost part sticks up. Enormous piles of bear scat, full of palmetto seeds several places along the trail. Fewer mosses than I hoped for. Returned, went to the Juniper Springs central area, where a large springs forms a developed swimming hole. A canoe run is available for 7 miles down the run here. Walked Nature trail to Fern Hammock Springs. Large owl heard in the night.

1982. Monday, drove to Alexander Springs and walked Timucuan Natural Trail, named for Timucuan Indians. This was the best of the trails, a semi-tropical forest. Swimming area here. Drove back, touring Silver Springs, glass bottomed boat. Many alligators here, also monkeys, which survive from various films produced here. A jungle run boat takes you past various imported animals. Various native fish, including large garfish, 4-5 feet long. One at Alexander Springs was over 3 feet long. Returned to Gainesville about 5.00 p.m.

1982. Thursday, Oct. 21, 1982. On flight back from Gainesville, taking off from Atlanta, I got to see two sunsets. The first while still on the ground, and a second one after climbing to jet altitude, where the sun had not yet set.

1982. Nov. 6, 1982. Chasm Lake with Giles. Good hike, warm below, windy above, snow was here and there a problem in the upper trail, but nothing too serious. Lunched at Chasm Lake, frozen over. Blue grouse going up in the timber. Five deer on return.

1982. Nov. 18, 1982. Ran 10 miles on CSU field to celebrate my 50th birthday (tomorrow), and made it very well. Weighed in at 156, lowest weight probably in the last 25 years, though my usual weight now is 160, down 12-15 pounds from the last few years. Took stress electrocardiogram at Poudre Valley Hospital this morning.

Final checklist of Mosses from New Hampshire, July 22-24, 1981 (& liverworts)

Paraleucobryum longifolium
Nowellia curvifolia
Diphysicum foliosum
Mnium hornum
Hylocomium splendens
Plagionmium ciliare
Polytrichum pallidisetum
Rhizomnium appalachianum
Dicranum fulvum
Scapania nemerosa
Sphagnum girgensohnii
Sematophyllum marylandicum
Sphagnum capillifolium

Cephalozia bicuspidata
Callicladium haldanianum
Pylaisiella selwynii
Brotherella recurvans
Anomodon attenuatus
Plagiothecium denticulatum
Leucobryum glaucum
Hypnum pallescens
Tetraphis delicatulum
Hypnum imponens
Lepidozia reptans
Pohlia nutans
Bryhnia novae-angliae
Brachythecium oxycladon
Herzogiella striatella
Brachythecium plumosum
Isopterygium elegans
Brachythecium populeum
Rhacomitrium aciculare

32 mosses

Final checklist of Mosses from Virginia mountains (Fall's Hollow, Elliott's Knob), Oct. 31, 1981 (and liverworts)

Anomodon attenuatus
Forsstroemia trichomitria
Dicranella heteromalla
Ulota hutchinsiae
Dicranum montanum
Hedwigia ciliata
Dicranum scoparium
Haplohymenium triste
Bartramia pomiformis
Bryhnia novae-anglia
Rhodobryum roseum
Climacium americanum
Aulacomnium heterostochum
Pogonatum pensilvanicum
Aulacomnium palustre
Homomallium adnatum

Hylocomium brevirostre
Plagiomnium ciliare
Thuidium recognitum
Drepanocladus fluitans
Hypnum curvifolium
Grimmia apocarpa
Fissidens cristatus
Bryum capillare
Brachythecium plumosum

25 mosses

Final checklist of mosses from Congaree Swamp, Columbia, S. C., Oct. 22, 1981

Hypnum lindbergii
Fissidens bryoides
Leptodictyum trichopodium
Leskea polycarpa
Porella pinnata
Clasmatodon parvulus
Sematophyllum marylandicum
Leucolejeunea clypeata
Herpetineuron toccoae
Anomodon attenuatus

10 mosses

Final checklist of mosses from Georgia Mountains (and Stone Mountain), Oct. 18, and Oct. 23-24, 1981

Dicranum fulvum
Hygrohypnum eugyrium
Leucobryum albidum
Plagiomnium medium
Schwetschkeopsis fabronia
Rhizomnium appalachianum
Campylium chrysophyllum
Selaginella apoda (not bryophyte)
Mnium hornum
Hedwigia ciliata
Brotherella tenuirostris

Leucodon brachypus
Aulacomnium palustre
Bryoandersonia illecebra
Leucodon julaceus
Fissidens subbasilaris
Campylopus talluensis
Plagiochila sullivantii
Grimmia laevigata
Hygroamblystegium tenax
Thuidium delicatulum
Entodon seductrix
Dicranum scoparium
Hypnum curvifolium
Hypnum imponens
Sphagnum squarrosum
Pogonatum pensilvanicum

27 mosses

94 mosses, total of above lists from East collected in 1981. Specimens of all placed in CSU herbarium (later moved to CU herbarium).

(October 7, continued). Fred sent Elva Lawton one which she identified as *Platydictya confervoides* fr. *brevifolia* (Grout), no combination available as Grout put it in *Amblystegiella*. This would be new to Colorado,

He also sent one which she identified as *Pseudoleskella catenulata* (Schrad.) Kindb. which would be new to Colorado. The usual one is *P. tectorum*. But the differences are slight, and Weber is not so sure. This would be probably only a recognition of what had before been collected as *P. tectorum*.

end 1982.

start 1983

1983. January 8, 1983. Saturday. Nymph and Dream Lake, with Giles, on shows shoes. Four new inches of snow had fallen the night before, and above Nymph the going was not all that easy, nor the trail everywhere evident. Especially right above Nymph where the trail cuts under a cliff, snow had piled so steep it was difficult to get across.

Looked to no avail for elk in evening, also walked up Hallowell Park trail as far as the bridge

and Cub Lake Trail sign. Not enough snow in here to need snowshoes.

1983. January 17, 1983. Skied with Shonny and Giles on Long Draw Road, and on Blue Lake Trail. Really good snowpack in the last few miles, above Chambers Lake, tho skimpy snow cover below. Long Draw Road is not plowed and much skied over. Easy skiing. Blue Lake Trail is rated moderate.

21 bighorns on return. First group of ten at meadows edge, shortly below sleeping elephant campground, meadow has a very large boulder in it near roadside. Seemed perhaps there was a salt station here? Second group of eleven lower down, also at base of canyon wall, edge of flats. I had left my binoculars to save space from the mess of skis and gear in the car, so couldn't see them close range, but a good many, perhaps even all ? were rams. Clearly many had horns. One group of about 24 deer on way up, another group of about 6.

1983. January 29, 1983. Camp Amukulo to Wintersteen Park, with Giles. Took Shonny and 3 other girls to week end camp, and Giles and I hiked out from camp. Up the hill back of camp, steep and too much snow, then pleasant on the flats above. Hit a recently bulldozed road, which looks about the same as is on map, but I never was too clear when and how I broke through to contact the road the family went on with Howard Haise in jeep several years before. Lots of evidence of deer, some elk, none seen. One coyote heard barking.

1983. Feb. 26, 1983. Horsetooth Mountain with Giles. Nice day, very dry this season. About 12 spring beauties in good flower, one clump of Townsendia. Somewhat marked path up cuts in and out of the roads. At the road toward the summit area, it is best to stay on the road until it swings round on the east side, then stay on a trail at the base of the rock cliffs until you are almost under the tooth, then switch back up a zigzag rising up to the lower parts of the final climb. Then climb the remainder on the ridge more or less from the south. Do not go on the west side, as I did on my first climb. 3 deer roadside. Ravens. Perhaps 100 people here and there on the trail.

1983. March 4-5, 83. Good steady all night rain.

1983. March 12, 1983. Riverside, Empire, Jackson Reservoirs, with Giles. Nine bald eagles and a cardinal! One good adult at Riverside, perched way across the reservoir. Four immatures there. Nothing at Empire as people were shooting there. Three at Jackson, one good adult. On return to Riverside, there were five immatures, adding one to those seen in the morning.

The cardinal was active in the road just north of the S. Platte River bridge s. of Riverside. Also heard a second one singing while watching this one, a nice male. First one I have ever seen in Colorado.

1983. Apr. 9, 83. Cobb Lake area, with Giles. Mallard, coots, gadwall, canvasback, redheads, scaup, shoveler, C. goose, widgeon, bufflehead, pintail, cinnamon teal, green-winged teal, flicker, meadowlark, pheasant, redwing, robin, gull, kestrel, marsh hawk, yellow-headed blackbird, magpie, great blue heron, killdeer, 3 muskrats, jackrabbit.

1983. April 24, 83. Riverbend Ponds, with Audubon Society, led by David Leatherman, entomologist with Colorado State Forest. Bittern, pied-billed grebe (notable call), vesper sparrow, black crowned night heron, marsh wren, ring-necked duck (somewhat like scaup). Here recently but not seen: wood duck, long eared owl. Ibis are in the area, Virginia rail. Group count, 38 species. Orioles arrive May 1.

1983. April 24, evening. Strauss cabin area, briefly. Several jackrabbits.

1983. 1983. April 30, 83. Alone, towards Panorama Peak, and Lion Gulch. Tried to get into trail above Pinewood Reservoir, but road blocked off. Also tried to get permission at Campground at Meadowdale Ranch, above Pinewood Springs, but too many landowners involved. So went up access road to Panorama Peak, but too much snow. Got as far as Solitude Creek on Pole Hill Road, end of NF property here, but not posted further along.

Returned and went about ½ mile up Lion Gulch Trail. This looks like a good area, with many possibilities in Homewood Meadows in Homewood Meadows at the head of this trail. Also drove up Big Elk Meadows Road. New road splits off and rises to road to Johnny Park, with junction on ridge-saddle. Blocked off now, but open to several 4wd possibilities in summer. Bluebirds, siskins, chipping sparrows, 15 deer, many Pasqueflowers, Alpine candy tuft, spring beauty. Giles gone to Air Force Academy on camp.

1983. May 7. Rocky Mountain Park, with Clements. 32 elk in meadows after supper at Nicky's.

1983. May 8. Black necked stilt at marsh east of Fossil Reservoir.

1983. May 15. Orange crowned warbler at Martinez park, also yellow breasted chat.

1983. May 21. Martinez Park, good migrants

May 22. Well Gulch Trail, breaking through to the main trail, with Giles. Continued as before, not far past where we had earlier met two boys hunting turkeys. The main ridge road is not far further up, comes in at a junction in a saddle meadow with an old bed springs in junction. Walked on down ridge road which rapidly descends, crosses onto private property and joins a big dirt road (to radio towers). Returned, lunched in light rain, and walked up to big flat meadow on top, where earlier Fred, Giles and I saw the bull pawing the ground.

Good birds below, warbling vireo, lazuli bunting, towhee, etc. Giles found an arrow. Two deer.

1983. May 28-30, 83. Tammarack Ranch, with Giles. Left Saturday about 11.30, lunched at Ault. Arrived about 4.00. Steve Martin in trailer house at Crook Check Station and Campground, later met John Ellis, doing bird census. River was very high and all the bottom I had previously walked through was flooded. They were doing the census each morning in canoes. Gnats very bad in evening sun, but calmed down in twilight. Relatively few in the morning. Slept in pop-up tent.

1983. Good birding in the evening, also the next morning. Flushed wild turkey, another one later. Sunday evening saw one sitting roosting in tree, and Sunday morning saw one in fields in scope. About half dozen in all. These were stocked here last year. Turkey has banded tail on takeoff (and red head); pheasant has longer pointed tail, no banding.

Badger seen about twilight, good view, running along one of the plowed rows sowed with food for wildlife. Short-eared owl flew out and perched in open ahead of us. Sunday night one flew out over meadows for 2-3 minutes, low over grasslands. Many white-tails, some at close range (12-15 in all). Many bobwhites seen and heard. Took some trouble figuring out what a bobolink was.

The turkeys are mostly in area 1, with the short windrow, but some in areas 2-5, tracks throughout.

Drove to Red Lion, but bridge was out to Red Lion, and had to drive around through Sedwick. Red Lion area is closed during nesting, March 15-July 15, but much can be seen from the road. Also drove to Jumbo Reservoir, good many campers here.

Cormorant
rock dove
Canada goose
mourning dove
mallard
Great-horned owl (flushed at twilight)
pintail
short-eared owl
shoveler
nighthawk
blue-winged teal
flicker
scaup

red-headed woodpecker (in profusion)

Swainsons' hawk

eastern kingbird (many)

kestrel

western kingbird (only 2)

bobwhite

horned lark

ring-necked pheasant

barn swallow

great blue heron

blue jay

turkey

magpie

coot

chickadee

avocet

house wren (many)

killdeer

brown thrasher (only 1)

spotted sandpiper

robin

Wilson's phalarope

starling

orchard oriole

yellowthroat

Northern (Baltimore) oriole

house sparrow

Northern (Bullock's) oriole

bobolink

western tanager

western meadowlark

rufous sided towhee

red-winged blackbird

lark bunting

yellow headed blackbird

lark sparrow

Brewer's blackbird

1983. Rain in the night and at twilight, Sunday night. Packed up, and came home Monday, stopping at Overland Trail museum in Sterling. One antelope. Large bullsnake while walking the road with the bridge out at Red Lion, Giles afraid to catch it!

1983. June 4, 83. Picnic in Sprague Lake Picnic Area, with Mark and Rene Bryant. About 65 elk here and there in the park, mostly in Beaver Meadows. About 12 deer. The elk seem to be migrating upwards and out in day more than usual. Only one seen with antlers.

1983. June 10-12. Homestead Meadows with Giles, backpacking 2 nights. Left Friday in time to lunch at trailhead at Lion Gulch. Climbed Gulch and pitched camp just below Walker Homestead. There is a stock tank spring in here, but water needs to be treated. A little rain Friday night.

1983. Saturday, we did the loop, which goes over to Brown Homestead, using a foot trail to circumvent private property, then old roads to return. Also went here to Irwin Homestead, all from the nineteen-teens, all subsequently used as mountain cabins, all interesting ruins and preserved in run down ruins as historic landmarks. Return to Walker homestead and lunched near there. In afternoon, walked to Engert homestead, and then over to Laycock Homestead, the oldest, 1891, but also used more recently, and last up to Hill homestead. A further road seems to go over to Boren homestead, and on out to Pierson Park. Returned to camp. Green-tailed towhee at spring below camp. Lovely day. Poor will in the night.

1983. Lion Gulch Trail done again, Aug 13-14, 83, June 8, 84, Dec. 24, 94.

Sunday, packed out, gathering mosses on way down. The gorge is worth another and more careful collecting trip later in season. Took Giles to Highlands camp. Took the Chevrolet Scooter (bought from Marc Bryant) first time.

1983. June 17, 1983. East Inlet Trail and Adams Falls. Left early and drove over on Trail Ridge Road, enormous amounts of snow piled high. A few elk and a few deer. Got to trailhead about 10.00 and spent till 1.00 collecting mosses at Adams Falls, with some trouble getting to the other side, over a log, and then walked back down to road to return over. Lovely falls and full of water.

Returned to lunch at the falls and spent the afternoon hiking Fast Inlet Trail, as far as where the trail, having left the creek some while, returns to it, this perhaps a mile below Lone Pine Lake. Beginning to pick up a good deal of snow under foot by the time I turned back. Ate supper on the return, where the stream which drains Mt. Cairns crosses the trail, also a waterfalls. About 30 elk on the return to Timber Creek Campground, also 3 snowshoe rabbits seen. Slept there, and drove over Trail Ridge early the next morning to get Giles at Highlands Camp. Lovely day both days. Do more hiking on the west side of the park.

1983. July 1, 83. Moody Hill-Sheep Creek Trail (though I set out to go up towards Donner Pass), Buckhorn Road was closed for repairs. Good, but uneventful hike, and finally sorted

out the roads in the upper part, which have been made since the earlier topo I was using was printed. Later topo shows enough of the roads to work things out.

1983. July 8-10, 83. Tunnel Campground with family in camper. Tractor with flatbed had gone off the road in a detour, with a big International tractor on it, and blocked road. We turned around and pitched camp in Aspen Glen Campground, below Chambers Lake. Chambers Lake was full. Then pulled out about 4.00, when they had gotten the truck out, using a road bulldozer. This washed out when a dike up on Green Ridge washed out and flushed down.

1983. July 15-17, 83. Tonahutu Trail, in Rocky Mountain National Park, backpacking with Giles. Left Friday, not early enough. Got permits last ones available in this stretch of trail) and got to trailhead at 11.00. Green Mountain Trailhead. Lunched in Big Meadows. Tried Vitamin B-1 and Ben's Repellant and this helps ward off mosquitoes, which are otherwise bad this year. Got to Granite Falls, lower campground about 3.30. Rain later. Collected mosses about the falls.

1983. Saturday, day hike to Bighorn Flats. Snow has melted rapidly and no problems. Lunched near the flats, with 13 elk nearby, 3 calves. Collected mosses on Bighorn Flats. Clear and lovely day.

1983. Sunday, hiked out, after crossing on log to far side of falls and collecting mosses on the far side. Lunched in Big Meadows again, out about 2.00. One deer close by at Granite falls Friday evening.

Try the Onahu loop sometime. This comes out near enough to the Green Mountain trailhead to walk the highway in 10-15 minutes.

1983. July 20-26. Mount of the Holy Cross, with Giles. Left Wednesday, July 20, 83 and drove to Vail and Minturn, information at Ranger station there. Camped at Half Moon Campground, after driving to Shrine Pass to see Mt. of the Holy Cross from a distance.

1983. Thursday, July 21. Hiked up Mt. of Holy Cross. 14 miles round trip. The trail rises to Half Moon Pass, then drops a lot to East Cross Creek, a favorite camping area for climbs the next day. Trail continues through timber, and is no longer really a maintained trail. Steady climb up the mountain, Giles doing well, small cairns mark the easiest route. Reached summit about noon.

On descent kept losing the way and getting into rougher boulders, with Giles tiring some, and some rain, but came on down o.k. Rain from East Cross Creek on in, and got pretty wet. Giles with a case of chills that night. One ptarmigan on the way down.

1983. Friday. Rested in the morning and dried out, then after lunch packed up to go in to Notch Mountain. Hiked in on the Lake Constantine Trail to where the Notch Mountain trail turns off and camped there. Good evening, with a little rain.

1983. Saturday. Climbed Notch Mountain, but never got good weather. Only the lower half of the cross was visible from the shelter cabin at the ridge on Notch Mountain. Misty and drifting clouds, in a way a spectacular day. Returned and hiked back to car camp, rainy evening.

1983. Sunday. Packed up wet but in brilliant sunshine and returned to Vail, and hiked up to Bighorn Falls that afternoon, trailhead from East Vail. Nice trail but disappointing for mosses. Returned through Minturn, and camped at Blodgett Campground, nice evening. Great Horned owl calling in the night.

1983. Monday. Missouri Lakes (July 25) collecting mosses. Drove to trailhead in Scout, and hiked the 4 miles in. Trail is scarred by water developments lower down, but is a fine trail in excellent country above. Twelve lakes in this basin, 3 good sized ones, and others smaller. Rather good day for weather. Lots of *Rhacomitrium* up here.

1983. Tuesday, July 26, packed up and drove home, through Camp Hale, ruins of wartime camp to train soldiers in mountain fighting.

1983. August 4-13, 1983. Yellowstone in camper with Giles and Shonny. Left 5.30 a.m., before daylight, and drove through Wyoming. About 100 antelope sighted during the day, mostly in groups of 5-12 here and there. Arrived to find Falls Campground temporarily closed, and spent night at Pinnacle Campground on Brooks Lake, on dirt road 5 m. off the main route 287. Excellent dirt road, and no problems. Several rabbits in here. Lovely area. (No water here, Brooks Campground, nearby on other side of lake.)

1983. Friday, left 6.30 am. and drove into Yellowstone and Grant Village. The drive in is about 2 ½ hours. Two deer on dirt road out. 2-3 moose on way into Yellowstone. Camped at Grant Village, site 161. Spent afternoon in Old Faithful area, walking around Upper Geyser Basin. Picnic supper at Whiskey Flats picnic area, north of Midway Geyser Basin, with 2 elk in picnic area as we ate. Walked around Midway Geyser Basin after supper.

1983. Saturday. Hayden Valley, after look at West Thumb Area. Two large herds of buffalo, one with 85 buffalo, another with about 120, all at some distance from road, but exciting much interest. Also about half a dozen moose in the river, and some elk. Tried to go into Artist Point on the Grand Canyon of the Yellowstone, but couldn't get in as rangers blocked

the road. It turned out that a boy had been killed by falling rock, knocked loose from climbers above, who should not have been where they were. He was ten years old, and walking the Uncle Tom's Trail (mostly stairs) to see the lower falls from the south side. We hiked down the trail to the brink of the Lower Falls, after a stop at Inspiration Point.

Supper at picnic area north of Canyon, and returned at dusk and dark through Hayden Valley. Bison, some now very close to road, one crossing road right at us. Several more moose, and about 30 elk, mostly at a distance. Others had seen grizzly bear and cubs from lookout here the night before. Many pelicans on lake and river.

1983. Sunday, Aug. 7. Hiked to Mystic Falls and Fairy Falls. Fairy Falls, a long thin plume is especially nice.

1983. Monday, August 8. Left about 7.00 a.m. to move north to Tower Campground. Tower Campground is only fair, pit toilets and uneven sites. In afternoon, went on ranger-naturalist hike with ranger Mike Kendall, across sagebrush country. Found (to his own surprise) a fine bear's den recently dug, a monstrous hole dug in the timber on the north-facing side of a ridge, above the Yellowstone River. Also found in the area grizzly scat, which is at least 2" in diameter, perhaps half again as bulky as black bear scat (although the den is surmised to be that of a black bear cub or yearling which had been trapped and released in the area). Also found about 8 elk racks, carrying out a couple, which the ranger was to saw up and scatter in the area. Elk antlers are much coveted for sale, though as a groundup power thought to have medical powers (as an aphrodisiac in China). Roosevelt Lodge here, was built to commemorate a hunting trip in this area by Teddy Roosevelt. Picnic supper at Lamar Valley ? picnic area nearby, and in the evening drove the Blacktail Plateau gravel road looking for wildlife. Saw only two moose, one at distance, one nearby in woods. However on the main road were two more moose, near at hand, both big bulls. Aug 9.

1983. Tuesday, Aug. 9. Hiked up Mount Lashburn. Storm just as we left, but it soon cleared and fine day. The hike up is on an old roadbed; we left from Duramen Pass picnic area, though it seems most others hiked up starting at the other end - the Chittenden ? road. Bighorn sheep near the summit, two first seen in exquisite profile on a ridge, both rams.

Later, two (others?) came so near we had to get off the road to avoid them, both rams. Lunched in the observation tower, and after lunch walked (with Shonny only) up the Chittenden road shortly to see ewes and lambs reported there, and found one ewe with two lambs at roadside, with four others, 11 sheep seen altogether.

In the evening, I returned to overlooks on the road up toward Mt. Lashburn to see if I could

spot bear. Five moose seen, at a distance, and about 12 elk, but no bear.

1983. Wednesday, August 10. Moved to Mammoth Hot Springs. Five coyotes on the way, one walked right by the car on the road after we had stopped to observe it. Did Mammoth hot springs in the afternoon, after showers in the morning. Ranger talk on bears at Indian Creek Campground that night, picnic supper at Shepherd Cliffs Picnic Area nearby. About 24 elk after the talk on the roadside, wading through Gardner River. Stayed till dark on Swan Lake Flats, hoping to see bear reported there two days before. Hard rain while waiting, later clearing.

1983. Thursday, rose alone at returned to Swan Lake Flats watching for wildlife. About 6 elk. Three Sandhill cranes seen well through the scope. Returned to get Shonny and Giles and set off for Norris Geyser Basin. Finally found a bear shortly above Mammoth Hot Springs, a cub or yearling eating Shepherdia berries along the roadside, and watched him half an hour.

Ranger tour at Norris Geyser basin, and watched Echinus, Geyser erupt. Supper at camp, and ranger program that evening on hawks and owls in Yellowstone.

1983. Friday. Left Mammoth Hot Springs, driving south. Lunched at Old Faithful, with a second round on some much desired ice cream cones. Stopped in Tetons at Colder Bay for Indian exhibit, and drove out, camping at Falls Campground, now open. Hatchett Campground is near ranger station (Bridger-Teton National Forest), only about 6 sites, fills mid afternoon. Falls (Shoshone National Forest) has 45 sites, and seldom seems to fill.

1983. Saturday, Aug 13. Drove home uneventfully from Falls Campground, after a 6:30 a.m. getaway. Children were good in helping get off.

1983. August 13-14. Lion Gulch Trail to Homestead Meadows, with Giles, Adam McCambridge, and Mark Michoski, the Kodiak Patrol, hopelessly juvenile camping to fulfil Camping Skill award. The day after I heard that Philosophical Books would publish my Religious Inquiry: Participation and Detachment. Jane was in Richmond, and Shonny in Nebraska on a work camp. Poor-will in evening.

1983. Sept. 10-11, 83. The Pool, with the Kodiak Patrol! to fulfill the second overnight for first class Scouts. Hiked to Fern Lake in the afternoon. Lovely weather, and the boys slept out under the stars in a cloudless sky, breezy but warm. 2 water snakes.

1983. Oct. 8. Flattop Mountain and headwaters of Tonahutu Creek, with Giles. Left Bear Lake about 8.45, on Flattop about 11.00, and walked over some distance to where we had backpacked in July 15-17, 83. Mild day, but somewhat windy on top. Weather good but

somewhat uncertain in the distance. Fog in lower elevations. Lunched at 12.00 just above the point where we contacted the point reached before. Collected some mosses in this area. Steady hike out, returning about 4.30. No wildlife.

1983. October 9, Sunday, returning from Akron. About 24 antelope, near the road. Mild weather generally so far this fall, but there was an early freeze in September that took the tomatoes out overnight.

James Watt resigns as Secretary of the Interior. Hurray!

1983. October 22, 1983. Ypsilon Lake, and elk bugling. Left trailhead at 8.30 with Giles. Steady walk up, past Lawn Lake flood damage, from last year. Vast gulley cut in former stream bed. Dry woods on ridgetop and lovely day. Reached snowpack about Chipmunk (which is higher than Ypsilon) and dropped down on north facing side in solid snowpack, but no trouble walking in. Pleasant but windy at lake for lunch. Walked out about 3:30.

Cooked supper, and listened for elk. Towards dark about 12, then about 24 more came out in upper Horseshoe Park. Heard about 12 good bugles here, and saw several bucking at each other and two rearing up on hind legs to kick at each other. Only two bulls evident in this group.

Drove down almost at dark to middle part of Horseshoe Park where we had seen a number coming out from the far side. Here the bugling was much more dramatic, and heard a total of 103 calls before leaving. Best I have ever heard by far.

1983. November 5, 1983. Ptarmigan in white in snow on Trail Ridge Road. Audubon trip led by Ken Giesen, Colorado Division of Wildlife, under Clait Braun. Left 6.00 a.m. and drove to Trail Ridge. First tried an area not far past the old ranger stations and cabins, torn down now, looking through the low willows. Then drove to Tundra Curves (past Rock Cut) and walked about quarter mile n.w. at about same elevation, and found five in snow patch in willows.

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1983. May 22. Well Gulch Trail, breaking through to the main trail, with Giles. Continued as before, not far past where we had earlier met two boys hunting turkeys. The main ridge road is not far further up, comes in at a junction in a saddle meadow with an old bed springs in junction. Walked on down ridge road which rapidly descends, crosses onto private property and joins a big dirt road (to radio towers). Returned, lunched in light rain, and walked up to big flat meadow on top, where earlier Fred, Giles and I saw the bull pawing the ground.

Good birds below, warbling vireo, lazuli bunting, towhee, etc. Giles found an arrow. Two deer.

1983. May 28-30, 83. Tammarack Ranch, with Giles. Left Saturday about 11.30, lunched at Ault. Arrived about 4.00. Steve Martin in trailer house at Crook Check Station and Campground, later met John Ellis, doing bird census. River was very high and all the bottom I had previously walked through was flooded. They were doing the census each morning in canoes. Gnats very bad in evening sun, but calmed down in twilight. Relatively few in the morning. Slept in pop-up tent.

Good birding in the evening, also the next morning. Flushed wild turkey, another one later. Sunday evening saw one sitting roosting in tree, and Sunday morning saw one in fields in scope. About half dozen in all. These were stocked here last year. Turkey has banded tail on takeoff (and red head); pheasant has longer pointed tail, no banding.

Badger seen about twilight, good view, running along one of the plowed rows sowed with food for wildlife. Short-eared owl flew out and perched in open ahead of us. Sunday night one flew out over meadows for 2-3 minutes, low over grasslands. Many white-tails, some at close range (12-15 in all). Many bobwhites seen and heard. Took some trouble figuring out what a bobolink was.

The turkeys are mostly in area 1, with the short windrow, but some in areas 2-5, tracks throughout.

Drove to Red Lion, but bridge was out to Red Lion, and had to drive around through Sedwick. Red Lion area is closed during nesting, March 15-July 15, but much can be seen from the road. Also drove to Jumbo Reservoir, good many campers here.

Cormorant
rock dove
Canada goose
mourning dove
mallard
Great-horned owl (flushed at twilight)
pintail
short-eared owl
shoveler
nighthawk
blue-winged teal
flicker
scaup
red-headed woodpecker (in profusion)
Swainsons' hawk
eastern kingbird (many)
kestrel
western kingbird (only 2)
bobwhite
horned lark
ring-necked pheasant
barn swallow
great blue heron
blue jay
turkey
magpie
coot
chickadee
avocet
house wren (many)
killdeer
brown thrasher (only 1)
spotted sandpiper
robin
Wilson's phalarope
starling

orchard oriole
yellowthroat
Northern (Baltimore) oriole
house sparrow
Northern (Bullock's) oriole
bobolink
western tanager
western meadowlark
rufous sided towhee
red-winged blackbird
lark bunting
yellow headed blackbird
lark sparrow
Brewer's blackbird

Rain in the night and at twilight, Sunday night. Packed up, and came home Monday, stopping at Overland Trail museum in Sterling. One antelope. Large bullsnake while walking the road with the bridge out at Red Lion, Giles afraid to catch it!

1983. June 4, 83. Picnic in Sprague Lake Picnic Area, with Mark and Rene Bryant. About 65 elk here and there in the park, mostly in Beaver Meadows. About 12 deer. The elk seem to be migrating upwards and out in day more than usual. Only one seen with antlers.

1983. June 10-12. Homestead Meadows with Giles, backpacking 2 nights. Left Friday in time to lunch at trailhead at Lion Gulch. Climbed Gulch and pitched camp just below Walker Homestead. There is a stock tank spring in here, but water needs to be treated. A little rain Friday night.

Saturday, we did the loop, which goes over to Brown Homestead, using a foot trail to circumvent private property, then old roads to return. Also went here to Irwin Homestead, all from the nineteen-teens, all subsequently used as mountain cabins, all interesting ruins and preserved in run down ruins as historic landmarks. Return to Walker homestead and lunched near there. In afternoon, walked to Engert homestead, and then over to Laycock Homestead, the oldest, 1891, but also used more recently, and last up to Hill homestead. A further road seems to go over to Boren homestead, and on out to Pierson Park. Returned to camp. Green-tailed towhee at spring below camp. Lovely day. Poor will in the night.

Lion Gulch Trail done again, Aug 13-14, 83, June 8, 84, Dec. 24, 94.

Sunday, packed out, gathering mosses on way down. The gorge is worth another and more careful collecting trip later in season. Took Giles to Highlands camp. Took the Chevrolet

Scooter (bought from Marc Bryant) first time.

1983. June 17, 1983. East Inlet Trail and Adams Falls. Left early and drove over on Trail Ridge Road, enormous amounts of snow piled high. A few elk and a few deer. Got to trailhead about 10.00 and spent till 1.00 collecting mosses at Adams Falls, with some trouble getting to the other side, over a log, and then walked back down to road to return over. Lovely falls and full of water.

Returned to lunch at the falls and spent the afternoon hiking East Inlet Trail, as far as where the trail, having left the creek some while, returns to it, this perhaps a mile below Lone Pine Lake. Beginning to pick up a good deal of snow under foot by the time I turned back. Ate supper on the return, where the stream which drains Mt. Cairns crosses the trail, also a waterfall. About 30 elk on the return to Timber Creek Campground, also 3 snowshoe rabbits seen. Slept there, and drove over Trail Ridge early the next morning to get Giles at Highlands Camp. Lovely day both days. Do more hiking on the west side of the park.

1983. July 1, 83. Moody Hill-Sheep Creek Trail (though I set out to go up towards Donner Pass), Buckhorn Road was closed for repairs. Good, but uneventful hike, and finally sorted out the roads in the upper part, which have been made since the earlier topo I was using was printed. Later topo shows enough of the roads to work things out.

1983. July 8-10, 83. Tunnel Campground with family in camper. Tractor with flatbed had gone off the road in a detour, with a big International tractor on it, and blocked road. We turned around and pitched camp in Aspen Glen Campground, below Chambers Lake. Chambers Lake was full. Then pulled out about 4.00, when they had gotten the truck out, using a road bulldozer. This washed out when a dike up on Green Ridge washed out and flushed down.

1983. July 15-17, 83. Tonahutu Trail, in Rocky Mountain National Park, backpacking with Giles. Left Friday, not early enough. Got permits last ones available in this stretch of trail) and got to trailhead at 11.00. Green Mountain Trailhead. Lunched in Big Meadows. Tried Vitamin B-1 and Ben's Repellant and this helps ward off mosquitoes, which are otherwise bad this year. Got to Granite Falls, lower campground about 3.30. Rain later. Collected mosses about the falls.

1983. Saturday, day hike to Bighorn Flats. Snow has melted rapidly and no problems. Lunched near the flats, with 13 elk nearby, 3 calves. Collected mosses on Bighorn Flats. Clear and lovely day.

1983. Sunday, hiked out, after crossing on log to far side of falls and collecting mosses on the far side. Lunched in Big Meadows again, out about 2.00. One deer close by at Granite

falls Friday evening.

Try the Onahu loop sometime. This comes out near enough to the Green Mountain trailhead to walk the highway in 10-15 minutes.

1983. July 20-26. Mount of the Holy Cross, with Giles. Left Wednesday, July 20, 83 and drove to Vail and Minturn, information at Ranger station there. Camped at Half Moon Campground, after driving to Shrine Pass to see Mt. of the Holy Cross from a distance.

1983. Thursday, July 21. Hiked up Mt. of Holy Cross. 14 miles round trip. The trail rises to Half Moon Pass, then drops a lot to East Cross Creek, a favorite camping area for climbs the next day. Trail continues through timber, and is no longer really a maintained trail. Steady climb up the mountain, Giles doing well, small cairns mark the easiest route. Reached summit about noon.

On descent kept losing the way and getting into rougher boulders, with Giles tiring some, and some rain, but came on down o.k. Rain from East Cross Creek on in, and got pretty wet. Giles with a case of chills that night. One ptarmigan on the way down.

1983. Friday. Rested in the morning and dried out, then after lunch packed up to go in to Notch Mountain. Hiked in on the Lake Constantine Trail to where the Notch Mountain trail turns off and camped there. Good evening, with a little rain.

1983. Saturday. Climbed Notch Mountain, but never got good weather. Only the lower half of the cross was visible from the shelter cabin at the ridge on Notch Mountain. Misty and drifting clouds, in a way a spectacular day. Returned and hiked back to car camp, rainy evening.

1983. Sunday. Packed up wet but in brilliant sunshine and returned to Vail, and hiked up to Bighorn Falls that afternoon, trailhead from East Vail. Nice trail but disappointing for mosses. Returned through Minturn, and camped at Blodgett Campground, nice evening. Great Horned owl calling in the night.

1983. Monday. Missouri Lakes (July 25) collecting mosses. Drove to trailhead in Scout, and hiked the 4 miles in. Trail is scarred by water developments lower down, but is a fine trail in excellent country above. Twelve lakes in this basin, 3 good sized ones, and others smaller. Rather good day for weather. Lots of Rhacomitrium up here.

1983. Tuesday, July 26, packed up and drove home, through Camp Hale, ruins of wartime camp to train soldiers in mountain fighting.

1983. August 4-13, 1983. Yellowstone in camper with Giles and Shonny. Left 5.30 a.m., before daylight, and drove through Wyoming. About 100 antelope sighted during the day, mostly in groups of 5-12 here and there. Arrived to find Falls Campground temporarily closed, and spent night at Pinnacle Campground on Brooks Lake, on dirt road 5 m. off the main route 287. Excellent dirt road, and no problems. Several rabbits in here. Lovely area. (No water here, Brooks Campground, nearby on other side of lake.)

1983. Friday, left 6.30 am. and drove into Yellowstone and Grant Village. The drive in is about 2 ½ hours. Two deer on dirt road out. 2-3 moose on way into Yellowstone. Camped at Grant Village, site 161. Spent afternoon in Old Faithful area, walking around Upper Geyser Basin. Picnic supper at Whiskey Flats picnic area, north of Midway Geyser Basin, with 2 elk in picnic area as we ate. Walked around Midway Geyser Basin after supper.

1983. Saturday. Hayden Valley, after look at West Thumb Area. Two large herds of buffalo, one with 85 buffalo, another with about 120, all at some distance from road, but exciting much interest. Also about half a dozen moose in the river, and some elk. Tried to go into Artist Point on the Grand Canyon of the Yellowstone, but couldn't get in as rangers blocked the road. It turned out that a boy had been killed by falling rock, knocked loose from climbers above, who should not have been where they were. He was ten years old, and walking the Uncle Tom's Trail (mostly stairs) to see the lower falls from the south side. We hiked down the trail to the brink of the Lower Falls, after a stop at Inspiration Point.

Supper at picnic area north of Canyon, and returned at dusk and dark through Hayden Valley. Bison, some now very close to road, one crossing road right at us. Several more moose, and about 30 elk, mostly at a distance. Others had seen grizzly bear and cubs from lookout here the night before. Many pelicans on lake and river.

1983. Sunday, Aug. 7. Hiked to Mystic Falls and Fairy Falls. Fairy Falls, a long thin plume is especially nice.

1983. Monday, August 8. Left about 7.00 a.m. to move north to Tower Campground. Tower Campground is only fair, pit toilets and uneven sites. In afternoon, went on ranger-naturalist hike with ranger Mike Kendall, across sagebrush country. Found (to his own surprise) a fine bear's den recently dug, a monstrous hole dug in the timber on the north-facing side of a ridge, above the Yellowstone River. Also found in the area grizzly scat, which is at least 2" in diameter, perhaps half again as bulky as black bear scat (although the den is surmised to be that of a black bear cub or yearling which had been trapped and released in the area). Also found about 8 elk racks, carrying out a couple, which the ranger was to saw up and scatter in the area. Elk antlers are much coveted for sale, though as a groundup power thought to have medical powers (as an aphrodisiac in China). Roosevelt

Lodge here, was built to commemorate a hunting trip in this area by Teddy Roosevelt. Picnic supper at Lamar Valley ? picnic area nearby, and in the evening drove the Blacktail Plateau gravel road looking for wildlife. Saw only two moose, one at distance, one nearby in woods. However on the main road were two more moose, near at hand, both big bulls. Aug 9.

1983. Tuesday, Aug. 9. Hiked up Mount Lashburn. Storm just as we left, but it soon cleared and fine day. The hike up is on an old roadbed; we left from Duramen Pass picnic area, though it seems most others hiked up starting at the other end - the Chittenden ? road. Bighorn sheep near the summit, two first seen in exquisite profile on a ridge, both rams.

Later, two (others?) came so near we had to get off the road to avoid them, both rams. Lunched in the observation tower, and after lunch walked (with Shonny only) up the Chittenden road shortly to see ewes and lambs reported there, and found one ewe with two lambs at roadside, with four others, 11 sheep seen altogether.

In the evening, I returned to overlooks on the road up toward Mt. Lashburn to see if I could spot bear. Five moose seen, at a distance, and about 12 elk, but no bear.

1983. Wednesday, August 10. Moved to Mammoth Hot Springs. Five coyotes on the way, one walked right by the car on the road after we had stopped to observe it. Did Mammoth hot springs in the afternoon, after showers in the morning. Ranger talk on bears at Indian Creek Campground that night, picnic supper at Sheepherder Cliffs Picnic Area nearby. About 24 elk after the talk on the roadside, wading through Gardner River. Stayed till dark on Swan Lake Flats, hoping to see bear reported there two days before. Hard rain while waiting, later clearing.

Thursday, rose alone at returned to Swan Lake Flats watching for wildlife. About 6 elk. Three Sandhill cranes seen well through the scope. Returned to get Shonny and Giles and set off for Norris Geyser Basin. Finally found a bear shortly above Mammoth Hot Springs, a cub or yearling eating Shepherdia berries along the roadside, and watched him half an hour.

Ranger tour at Norris Geyser basin, and watched Echinus, Geyser erupt. Supper at camp, and ranger program that evening on hawks and owls in Yellowstone.

Friday. Left Mammoth Hot Springs, driving south. Lunched at Old Faithful, with a second round on some much desired ice cream cones. Stopped in Tetons at Colder Bay for Indian exhibit, and drove out, camping at Falls Campground, now open. Hatchett Campground is near ranger station (Bridger-Teton National Forest), only about 6 sites, fills mid afternoon. Falls (Shoshone National Forest) has 45 sites, and seldom seems to fill.

1983. Saturday, Aug 13. Drove home uneventfully from Falls Campground, after a 6:30 a.m. getaway. Children were good in helping get off.

1983. August 13-14. Lion Gulch Trail to Homestead Meadows, with Giles, Adam McCambridge, and Mark Michoski, the Kodiak Patrol, hopelessly juvenile camping to fulfill Camping Skill award. The day after I heard that Philosophical Books would publish my Religious Inquiry: Participation and Detachment. Jane was in Richmond, and Shonny in Nebraska on a work camp. Poor-will in evening.

1983. Sept. 10-11, 83. The Pool, with the Kodiak Patrol! to fulfill the second overnight for first class Scouts. Hiked to Fern Lake in the afternoon. Lovely weather, and the boys slept out under the stars in a cloudless sky, breezy but warm. 2 water snakes.

1983. Oct. 8. Flattop Mountain and headwaters of Tonahutu Creek, with Giles. Left Bear Lake about 8.45, on Flattop about 11.00, and walked over some distance to where we had backpacked in July 15-17, 83. Mild day, but somewhat windy on top. Weather good but somewhat uncertain in the distance. Fog in lower elevations. Lunched at 12.00 just above the point where we contacted the point reached before. Collected some mosses in this area. Steady hike out, returning about 4.30. No wildlife.

1983 October 9, Sunday, returning from Akron. About 24 antelope, near the road. Mild weather generally so far this fall, but there was an early freeze in September that took the tomatoes out overnight.

James Watt resigns as Secretary of the Interior. Hurray!

1983. October 22, 1983. Ypsilon Lake, and elk bugling. Left trailhead at 8.30 with Giles. Steady walk up, past Lawn Lake flood damage, from last year. Vast gulley cut in former stream bed. Dry woods on ridgetop and lovely day. Reached snowpack about Chipmunk (which is higher than Ypsilon) and dropped down on north facing side in solid snowpack, but no trouble walking in. Pleasant but windy at lake for lunch. Walked out about 3:30.

Cooked supper, and listened for elk. Towards dark about 12, then about 24 more came out in upper Horseshoe Park. Heard about 12 good bugles here, and saw several bucking at each other and two rearing up on hind legs to kick at each other. Only two bulls evident in this group.

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1983. May 15. Orange crowned warbler at Martinez park, also yellow breasted chat.

1983. May 21. Martinez Park, good migrants

1983. May 22. Well Gulch Trail, breaking through to the main trail, with Giles. Continued as before, not far past where we had earlier met two boys hunting turkeys. The main ridge road is not far further up, comes in at a junction in a saddle meadow with an old bed springs in junction. Walked on down ridge road which rapidly descends, crosses onto private property and joins a big dirt road (to radio towers). Returned, lunched in light rain, and walked up to big flat meadow on top, where earlier Fred, Giles and I saw the bull pawing the ground.

Good birds below, warbling vireo, lazuli bunting, towhee, etc. Giles found an arrow. Two deer.

1983. May 28-30, 83. Tammarack Ranch, with Giles. Left Saturday about 11.30, lunched at Ault. Arrived about 4.00. Steve Martin in trailer house at Crook Check Station and Campground, later met John Ellis, doing bird census. River was very high and all the bottom I had previously walked through was flooded. They were doing the census each morning in canoes. Gnats very bad in evening sun, but calmed down in twilight. Relatively few in the morning. Slept in pop-up tent.

Good birding in the evening, also the next morning. Flushed wild turkey, another one later. Sunday evening saw one sitting roosting in tree, and Sunday morning saw one in fields in scope. About half dozen in all. These were stocked here last year. Turkey has banded tail on takeoff (and red head); pheasant has longer pointed tail, no banding.

Badger seen about twilight, good view, running along one of the plowed rows sowed with food for wildlife. Short-eared owl flew out and perched in open ahead of us. Sunday night one flew out over meadows for 2-3 minutes, low over grasslands. Many white-tails, some at close range (12-15 in all). Many bobwhites seen and heard. Took some trouble figuring out what a bobolink was.

The turkeys are mostly in area 1, with the short windrow, but some in areas 2-5, tracks throughout.

Drove to Red Lion, but bridge was out to Red Lion, and had to drive around through Sedwick. Red Lion area is closed during nesting, March 15-July 15, but much can be seen from the road. Also drove to Jumbo Reservoir, good many campers here.

Cormorant
rock dove
Canada goose
mourning dove
mallard
Great-horned owl (flushed at twilight)
pintail
short-eared owl
shoveler
nighthawk
blue-winged teal
flicker
scaup
red-headed woodpecker (in profusion)
Swainsons' hawk
eastern kingbird (many)

kestrel
western kingbird (only 2)
bobwhite
horned lark
ring-necked pheasant
barn swallow
great blue heron
blue jay
turkey
magpie
coot
chickadee
avocet
house wren (many)
killdeer
brown thrasher (only 1)
spotted sandpiper
robin
Wilson's phalarope
starling
orchard oriole
yellowthroat
Northern (Baltimore) oriole
house sparrow
Northern (Bullock's) oriole
bobolink
western tanager
western meadowlark
rufous sided towhee
red-winged blackbird
lark bunting
yellow headed blackbird
lark sparrow
Brewer's blackbird

Rain in the night and at twilight, Sunday night. Packed up, and came home Monday, stopping at Overland Trail museum in Sterling. One antelope. Large bullsnake while walking the road with the bridge out at Red Lion, Giles afraid to catch it!

1983. June 4, 83. Picnic in Sprague Lake Picnic Area, with Mark and Rene Bryant. About 65 elk here and there in the park, mostly in Beaver Meadows. About 12 deer. The elk seem to

be migrating upwards and out in day more than usual. Only one seen with antlers.

1983. June 10-12. Homestead Meadows with Giles, backpacking 2 nights. Left Friday in time to lunch at trailhead at Lion Gulch. Climbed Gulch and pitched camp just below Walker Homestead. There is a stock tank spring in here, but water needs to be treated. A little rain Friday night.

Saturday, we did the loop, which goes over to Brown Homestead, using a foot trail to circumvent private property, then old roads to return. Also went here to Irwin Homestead, all from the nineteen-teens, all subsequently used as mountain cabins, all interesting ruins and preserved in run down ruins as historic landmarks. Return to Walker homestead and lunched near there. In afternoon, walked to Engert homestead, and then over to Laycock Homestead, the oldest, 1891, but also used more recently, and last up to Hill homestead. A further road seems to go over to Boren homestead, and on out to Pierson Park. Returned to camp. Green-tailed towhee at spring below camp. Lovely day. Poor will in the night.

Lion Gulch Trail done again, Aug 13-14, 83, June 8, 84, Dec. 24, 94.

Sunday, packed out, gathering mosses on way down. The gorge is worth another and more careful collecting trip later in season. Took Giles to Highlands camp. Took the Chevrolet Scooter (bought from Marc Bryant) first time.

1983. June 17, 1983. East Inlet Trail and Adams Falls. Left early and drove over on Trail Ridge Road, enormous amounts of snow piled high. A few elk and a few deer. Got to trailhead about 10.00 and spent till 1.00 collecting mosses at Adams Falls, with some trouble getting to the other side, over a log, and then walked back down to road to return over. Lovely falls and full of water.

Returned to lunch at the falls and spent the afternoon hiking Fast Inlet Trail, as far as where the trail, having left the creek some while, returns to it, this perhaps a mile below Lone Pine Lake. Beginning to pick up a good deal of snow under foot by the time I turned back. Ate supper on the return, where the stream which drains Mt. Cairns crosses the trail, also a waterfall. About 30 elk on the return to Timber Creek Campground, also 3 snowshoe rabbits seen. Slept there, and drove over Trail Ridge early the next morning to get Giles at Highlands Camp. Lovely day both days. Do more hiking on the west side of the park.

1983. July 1, 83. Moody Hill-Sheep Creek Trail (though I set out to go up towards Donner Pass), Buckhorn Road was closed for repairs. Good, but uneventful hike, and finally sorted out the roads in the upper part, which have been made since the earlier topo I was using was printed. Later topo shows enough of the roads to work things out.

1983. July 8-10, 83. Tunnel Campground with family in camper. Tractor with flatbed had gone off the road in a detour, with a big International tractor on it, and blocked road. We turned around and pitched camp in Aspen Glen Campground, below Chambers Lake. Chambers Lake was full. Then pulled out about 4.00, when they had gotten the truck out, using a road bulldozer. This washed out when a dike up on Green Ridge washed out and flushed down.

1983. July 15-17, 83. Tonahutu Trail, in Rocky Mountain National Park, backpacking with Giles. Left Friday, not early enough. Got permits last ones available in this stretch of trail) and got to trailhead at 11.00. Green Mountain Trailhead. Lunched in Big Meadows. Tried Vitamin B-1 and Ben's Repellant and this helps ward off mosquitoes, which are otherwise bad this year. Got to Granite Falls, lower campground about 3.30. Rain later. Collected mosses about the falls.

1983. Saturday, day hike to Bighorn Flats. Snow has melted rapidly and no problems. Lunched near the flats, with 13 elk nearby, 3 calves. Collected mosses on Bighorn Flats. Clear and lovely day.

1983. Sunday, hiked out, after crossing on log to far side of falls and collecting mosses on the far side. Lunched in Big Meadows again, out about 2.00. One deer close by at Granite falls Friday evening.

Try the Onahu loop sometime. This comes out near enough to the Green Mountain trailhead to walk the highway in 10-15 minutes.

1983. July 20-26. Mount of the Holy Cross, with Giles. Left Wednesday, July 20, 83 and drove to Vail and Minturn, information at Ranger station there. Camped at Half Moon Campground, after driving to Shrine Pass to see Mt. of the Holy Cross from a distance.

1983. Thursday, July 21. Hiked up Mt. of Holy Cross. 14 miles round trip. The trail rises to Half Moon Pass, then drops a lot to East Cross Creek, a favorite camping area for climbs the next day. Trail continues through timber, and is no longer really a maintained trail. Steady climb up the mountain, Giles doing well, small cairns mark the easiest route. Reached summit about noon.

On descent kept losing the way and getting into rougher boulders, with Giles tiring some, and some rain, but came on down o.k. Rain from East Cross Creek on in, and got pretty wet. Giles with a case of chills that night. One ptarmigan on the way down.

1983. Friday. Rested in the morning and dried out, then after lunch packed up to go in to Notch Mountain. Hiked in on the Lake Constantine Trail to where the Notch Mountain trail

turns off and camped there. Good evening, with a little rain.

1983. Saturday. Climbed Notch Mountain, but never got good weather. Only the lower half of the cross was visible from the shelter cabin at the ridge on Notch Mountain. Misty and drifting clouds, in a way a spectacular day. Returned and hiked back to car camp, rainy evening.

1983. Sunday. Packed up wet but in brilliant sunshine and returned to Vail, and hiked up to Bighorn Falls that afternoon, trailhead from East Vail. Nice trail but disappointing for mosses. Returned through Minturn, and camped at Blodgett Campground, nice evening. Great Horned owl calling in the night.

1983. Monday. Missouri Lakes (July 25) collecting mosses. Drove to trailhead in Scout, and hiked the 4 miles in. Trail is scarred by water developments lower down, but is a fine trail in excellent country above. Twelve lakes in this basin, 3 good sized ones, and others smaller. Rather good day for weather. Lots of *Rhacomitrium* up here.

1983. Tuesday, July 26, packed up and drove home, through Camp Hale, ruins of wartime camp to train soldiers in mountain fighting.

1983. August 4-13, 1983. Yellowstone in camper with Giles and Shonny. Left 5.30 a.m., before daylight, and drove through Wyoming. About 100 antelope sighted during the day, mostly in groups of 5-12 here and there. Arrived to find Falls Campground temporarily closed, and spent night at Pinnacle Campground on Brooks Lake, on dirt road 5 m. off the main route 287. Excellent dirt road, and no problems. Several rabbits in here. Lovely area. (No water here, Brooks Campground, nearby on other side of lake.)

1983. Friday, left 6.30 am. and drove into Yellowstone and Grant Village. The drive in is about 2 ½ hours. Two deer on dirt road out. 2-3 moose on way into Yellowstone. Camped at Grant Village, site 161. Spent afternoon in Old Faithful area, walking around Upper Geyser Basin. Picnic supper at Whiskey Flats picnic area, north of Midway Geyser Basin, with 2 elk in picnic area as we ate. Walked around Midway Geyser Basin after supper.

1983. Saturday. Hayden Valley, after look at West Thumb Area. Two large herds of buffalo, one with 85 buffalo, another with about 120, all at some distance from road, but exciting much interest. Also about half a dozen moose in the river, and some elk. Tried to go into Artist Point on the Grand Canyon of the Yellowstone, but couldn't get in as rangers blocked the road. It turned out that a boy had been killed by falling rock, knocked loose from climbers above, who should not have been where they were. He was ten years old, and walking the Uncle Tom's Trail (mostly stairs) to see the lower falls from the south side.

We hiked down the trail to the brink of the Lower Falls, after a stop at Inspiration Point.

Supper at picnic area north of Canyon, and returned at dusk and dark through Hayden Valley. Bison, some now very close to road, one crossing road right at us. Several more moose, and about 30 elk, mostly at a distance. Others had seen grizzly bear and cubs from lookout here the night before. Many pelicans on lake and river.

1983. Sunday, Aug. 7. Hiked to Mystic Falls and Fairy Falls. Fairy Falls, a long thin plume is especially nice.

1983. Monday, August 8. Left about 7.00 a.m. to move north to Tower Campground. Tower Campground is only fair, pit toilets and uneven sites. In afternoon, went on ranger-naturalist hike with ranger Mike Kendall, across sagebrush country. Found (to his own surprise) a fine bear's den recently dug, a monstrous hole dug in the timber on the north-facing side of a ridge, above the Yellowstone River. Also found in the area grizzly scat, which is at least 2" in diameter, perhaps half again as bulky as black bear scat (although the den is surmised to be that of a black bear cub or yearling which had been trapped and released in the area). Also found about 8 elk racks, carrying out a couple, which the ranger was to saw up and scatter in the area. Elk antlers are much coveted for sale, though as a groundup power thought to have medical powers (as an aphrodisiac in China). Roosevelt Lodge here, was built to commemorate a hunting trip in this area by Teddy Roosevelt. Picnic supper at Lamar Valley ? picnic area nearby, and in the evening drove the Blacktail Plateau gravel road looking for wildlife. Saw only two moose, one at distance, one nearby in woods. However on the main road were two more moose, near at hand, both big bulls. Aug 9.

1983. Tuesday, Aug. 9. Hiked up Mount Lashburn. Storm just as we left, but it soon cleared and fine day. The hike up is on an old roadbed; we left from Duramen Pass picnic area, though it seems most others hiked up starting at the other end - the Chittenden ? road. Bighorn sheep near the summit, two first seen in exquisite profile on a ridge, both rams.

Later, two (others?) came so near we had to get off the road to avoid them, both rams. Lunched in the observation tower, and after lunch walked (with Shonny only) up the Chittenden road shortly to see ewes and lambs reported there, and found one ewe with two lambs at roadside, with four others, 11 sheep seen altogether.

In the evening, I returned to overlooks on the road up toward Mt. Lashburn to see if I could spot bear. Five moose seen, at a distance, and about 12 elk, but no bear.

1983. Wednesday, August 10. Moved to Mammoth Hot Springs. Five coyotes on the way,

one walked right by the car on the road after we had stopped to observe it. Did Mammoth hot springs in the afternoon, after showers in the morning. Ranger talk on bears at Indian Creek Campground that night, picnic supper at Sheepherder Cliffs Picnic Area nearby. About 24 elk after the talk on the roadside, wading through Gardner River. Stayed till dark on Swan Lake Flats, hoping to see bear reported there two days before. Hard rain while waiting, later clearing.

Thursday, rose alone at returned to Swan Lake Flats watching for wildlife. About 6 elk. Three Sandhill cranes seen well through the scope. Returned to get Shonny and Giles and set off for Norris Geyser Basin. Finally found a bear shortly above Mammoth Hot Springs, a cub or yearling eating Shepherdia berries along the roadside, and watched him half an hour.

Ranger tour at Norris Geyser basin, and watched Echinus, Geyser erupt. Supper at camp, and ranger program that evening on hawks and owls in Yellowstone.

1983. Friday. Left Mammoth Hot Springs, driving south. Lunched at Old Faithful, with a second round on some much desired ice cream cones. Stopped in Tetons at Colder Bay for Indian exhibit, and drove out, camping at Falls Campground, now open. Hatchett Campground is near ranger station (Bridger-Teton National Forest), only about 6 sites, fills mid afternoon. Falls (Shoshone National Forest) has 45 sites, and seldom seems to fill.

1983. Saturday, Aug 13. Drove home uneventfully from Falls Campground, after a 6:30 a.m. getaway. Children were good in helping get off.

1983. August 13-14. Lion Gulch Trail to Homestead Meadows, with Giles, Adam McCambridge, and Mark Michoski, the Kodiak Patrol, hopelessly juvenile camping to fulfil Camping Skill award. The day after I heard that Philosophical Books would publish my Religious Inquiry: Participation and Detachment. Jane was in Richmond, and Shonny in Nebraska on a work camp. Poor-will in evening.

1983. Sept. 10-11, 83. The Pool, with the Kodiak Patrol! to fulfill the second overnight for first class Scouts. Hiked to Fern Lake in the afternoon. Lovely weather, and the boys slept out under the stars in a cloudless sky, breezy but warm. 2 water snakes.

1983. Oct. 8. Flattop Mountain and headwaters of Tonahutu Creek, with Giles. Left Bear Lake about 8.45, on Flattop about 11.00, and walked over some distance to where we had backpacked in July 15-17, 83. Mild day, but somewhat windy on top. Weather good but somewhat uncertain in the distance. Fog in lower elevations. Lunched at 12.00 just above the point where we contacted the point reached before. Collected some mosses in this area. Steady hike out, returning about 4.30. No wildlife.

1983 October 9, Sunday, returning from Akron. About 24 antelope, near the road. Mild weather generally so far this fall, but there was an early freeze in September that took the tomatoes out overnight.

James Watt resigns as Secretary of the Interior. Hurray!

1983. October 22, 1983. Ypsilon Lake, and elk bugling. Left trailhead at 8.30 with Giles. Steady walk up, past Lawn Lake flood damage, from last year. Vast gulley cut in former stream bed. Dry woods on ridgetop and lovely day. Reached snowpack about Chipmunk (which is higher than Ypsilon) and dropped down on north facing side in solid snowpack, but no trouble walking in. Pleasant but windy at lake for lunch. Walked out about 3:30.

Cooked supper, and listened for elk. Towards dark about 12, then about 24 more came out in upper Horseshoe Park. Heard about 12 good bugles here, and saw several bucking at each other and two rearing up on hind legs to kick at each other. Only two bulls evident in this group.

Drove down almost at dark to middle part of Horseshoe Park where we had seen a number coming out from the far side. Here the bugling was much more dramatic, and heard a total of 103 calls before leaving. Best I have ever heard by far.

1983. November 5, 1983. Ptarmigan in white in snow on Trail Ridge Road. Audubon trip led by Ken Giesen, Colorado Division of Wildlife, under Clait Braun. Left 6.00 a.m. and drove to Trail Ridge. First tried an area not far past the old ranger stations and cabins, torn down now, looking through the low willows. Then drove to Tundra Curves (past Rock Cut) and walked about quarter mile n.w. at about same elevation, and found five in snow patch in willows.

They were extremely well camouflaged, and I was 25 feet away before I could spot them. Even when others said they were there, I thought them clumps of snow. Quite tame and we watched them half an hour from a distance of a few feet. Ken Giesen caught one, which was unbanded, using the long fishing pole arrangement they have, with a wire loop on the far end. Weighed, measured, banded it. They band about a hundred birds a year on trail ridge. This trip had been scheduled for Guanella Pass, but the birds have not come in there yet. This is a late fall; it is unusual for Trail Ridge still to be open this late. Look for ptarmigan in the low willows, about 2 feet high or lower. They feed on the buds as much as anything else.

Cold winter from Thanksgiving on.

end 1983.

start 1984.

end 1984.

1985. Feb. 1, 1985. 157 elk in Rocky Mountain National Park, at minus 10°. In groups of 30-40 mostly in Horseshoe Park and on the south side of Deer Mountain above Beaver Meadows, and between the Beaver Meadows entrance station and the Park Headquarters. I was enroute to Philosophy Department retreat at Estes Park YMCA.

1985. Feb. 16, 1985. With Kevin Cook in van to s.e. of Scottsbluff, Nebraska, on a "Snowy Owl Chase." Three golden eagles, two of them seen nicely between Fort Collins and Cheyenne. Five great horned owls, two flushed from roadside wind breaks, one single and then a pair seen nicely perched at side of road. About fifteen buteos, mostly rough legs. Tell rough-leg by the feathered leg, the black belly, and it is slimmer than red tail.

40-50 redpolls seen about Wyoming-Nebraska line. This is an accidental in Colorado, doesn't usually get this far south. Mergansers, buffleheads, redheads, mallards, coots on Platte River Power Authority - Rawhide Plant lake at the plant. Bald eagles are often seen here. The lake is a cooling lake and does not freeze over.

Snowy owls are seen a few times a winter in Colorado, more often to the north, but are always rare. The male is snowy white with age, but younger birds and females have more tan/brown feathers. About 2 dozen antelope.

1985. Feb. 18, 1985. Downhill skiing with Shonny and Giles at Eldora, their first time on downhill skis. Lovely day. Rode Ho-hum! and Snail! Chairlifts.

1985. Feb. 24, 1985. Rawhide Power Plant. One bald eagle, adult far across the lake at the edge. Stayed there an hour. Lots of coots, mergansers, geese. Snow goose earlier seen flying over town.

1985. March 11-12, 85. Overnight camp at Jackson Lake and 43 bald eagles. Left a.m. 1 immature and 2 adults in air on way in to Riverside Reservoir, one of the adults flushed from

perch in tree. 3 adults and 5 immatures at Empire, all sitting out on ice. Water is about half frozen, half open, and eagles sit at edge of ice. None seen along riverside this trip. Lunched at bridge at Orchard.

Drove to Prewitt Reservoir, for the first time. Well marked access on Route 6 s.e. of Merino, and easy access around the lake, all Fish and Wildlife property, camping permitted but no tables seen. 12 adults and 8 immatures here, some perched in trees, mostly at edge of ice. Now and again in the air. Perhaps 200 snow geese, mixed with Canada geese in the open water on the lake.

1985. Returned to Jackson Lake and camped, too dark to look for eagles. Wind died down and not bad in the evening. Snow in the night, but we didn't know it was falling until we got up, when it had stopped. Somewhat windy in the morning, but improved.

Walked up the shore. 12 eagles, 4-5 adults, all on edge of ice, now and again flying, and walked up reasonably close to several. Returned to Empire via Orchard, and there was one good adult on ice. Lunched at Empire. Returned to Riverside, one adult far across lake on the bare soil hill where I have seen them before); also two immatures here in air. (These are presumed the same eagles seen the previous day.)

Talked to the ditchkeeper, who lives in the house at the bend of the road just below. Fish and Wildlife spent \$100,000 building up Pelican Island. Several hawks, including two dark redtails.

1985. March 23, 1985. Mills Lake Trail with Giles, on shows shoes. Tried out the new Sherpa shoes, which do very well. Good maneuverability. Shonny had gone to Keystone skiing with church youth group.

Two bighorn rams in Big Thompson Canyon, one half curl and quite lovely, posed against a rocky background for several minutes, the other a yearling ram behind it. Snowpacked roads above Sprague Lake picnic area, and heavy snow flurries all day long on the trail, some clearing after three o'clock. But it was sunny on the plains all day. Steady climb to the trail junction between Lock Vale and Mills, and difficult finding the trail thereafter, eventually turned around short of making it to Mills Lake, especially as Giles was tiring.

Met 8-10 skiers eventually in several groups all of whom had not skied up the summer trail but taken a short cut up the tributary of Glacier Creek which is crossed by the heavy wooden bridge shortly after leaving trailhead. Then they turn and go between Glacier Knobs. Also, they do not take the summer trail to Loch Vale, but go down and ski up the creek.

Slick section of road on way out and pushed a pickup truck out that was stuck.

1985. Mar. 31, 1985. Cobb Lake area with Giles, Sunday morning. Pintails, redheads, widgeon, coot, scaup, cinnamon teal, green winged teal, Canada geese, grebes, but very windy. One flock of 18 bluebirds in prime color, all males except about two. Quite lovely. Several nice pheasants, male and female.

1985. April 12-15, 85. Tetons and Yellowstone. Took Giles out of school. Drove Friday to Jackson via Rock Springs, counting 850 antelope enroute, in groups of 12-24. 8 bighorn sheep on Hoback Creek Road south of Jackson (Bridger Teton National Forest). 2000 elk in National Elk Refuge north of Jackson; there are about 5000 here in winter, and they may break out for high country anytime now. Several sandhill cranes, bluebirds.

Stayed at Teton Science School (= Grand Teton Environmental Education Center, Coleen Cabot, Director. Teton National Park property with a private, nonprofit educational school, a good deal of time spent educating elementary and secondary schoolchildren in a sort of eco-week affair, winter ecology, building snow caves. Staff of about 12. Drove further into Teton Park area about twilight and saw 13 moose.

1985. Saturday a.m. heard coyotes calling. Drove up main road again, 15 moose, 3 bald eagles, 2 sandhill cranes, mostly opposite Triangle Ranch. Once I had a bald eagle, two moose and two sandhill cranes in the spotting scope at once! Coyote seen running across sagebrush field on return.

1985. Panel discussion on grizzly bears at Jackson High School in afternoon. John Weaver, co-ordinator of grizzly recovery program for 12 National Forests, on panel, with Don Schmalz, outfitter from Cody, and Tom Lyon, professor of English, Utah State University. 3 trumpeter swans on return, also a pair of moose close up. Both moose and elk have mostly dropped their antlers.

1985. Teton-Yellowstone, continued. Left 5.00 a.m. Sunday and drove via Teton Pass south of Jackson around through Idaho (Diggs, Ashton) to West Yellowstone and on into Old Faithful area. The road into Old Faithful has only been open a couple days. Snow depth typically 3 feet, though sizeable areas are open, especially where there are thermal areas. Many buffalo in the park, also elk, one bald eagle along Madison River. Buffalo and elk freely present in the areas that are filled with tourists in the summer. Watched Old Faithful and walked around geyser area. Lunched at Old Faithful.

Returned and drove north to Mammoth-Hot Springs. Single coyotes on two different occasions; more elk and buffalo, sandhills. First thought to camp at Mammoth, but a grizzly sow with cubs had been sighted day before between Pebble Creek and Cooke City, so we

drove up that road. Large numbers of elk and many buffalo on the road, but not so close up as on the Old Faithful Road, but no bear.

Night in motel at Cooke City, where the road stops, not open further until about June 1. Left early a.m. Monday and returned, somewhat slowly through the park (no longer counting elk and buffalo) and more rapidly thereafter. Pair of coyotes in Gardner River area, and another single coyote in Norris area. Drove home via West Yellowstone, Idaho, Teton Pass, Jackson, Rock Springs, total 670 miles for the day's drive!

Wildlife count:

- 518 buffalo
- 100 +/- deer
- 32 moose
- 4 bald eagles
- 1,050 antelope
- 19 bighorn sheep
- roadkilled porcupines - 2
- 2,525 elk
- 20 sandhill cranes
- 5 trumpeter swans
- 7 coyotes
- 12 redtail hawks
- 0 - bears!

Barrow's Goldeneye (duck) in Lamar Valley, also one perched Ferruginous Hawk in snag.

start 1984

1984. Jan. 3, 84. Skiing into Wild Basin with Shonny and Giles. Nice day, but the snow was crusty. is this it

1984. Jan. 18, 84. 28 degrees below zero. Coldest I have ever seen it.

1984. March 3, 84. Riverside, Empire, and Jackson Reservoirs. No eagles, perhaps one at considerable distance. Reservoirs were frozen solid, as I have not seen them before. But no eagles along the river either. One white-fronted goose, quite close. Northern shrike. Dead coyote had been shot at State Wildlife area at Empire. Windy day. With Giles.

1984. March 10, 1984. Horsetooth Mountain Park. Alone, walked over to what is now called Culver Falls and Lower Falls (to be renamed Horsetooth Falls). Bald eagle flew into

nest on cliffs above Culver Falls, and watched some time, but couldn't see him/her on nest. Ron Ryder says bald eagles have not been known to nest here since the thirties.

Continued on up Spring Creek trail but it became too deep in snow, and I cut up to the service road and continued to the radio towers. Lunched there. There is a miscellaneous group of radio installations here, some are Denver TV relays for incoming signals, some are commercial radio repeaters. Returned after lunch, with many more people on the trails.

Culver Falls (now so called) is where Giles and I lunched with a group when the vote for the park was coming up. The entrance from the east (via East Ridge) requires crossing what is a private road (although it is quite open) and is not officially listed as an entrance.

1984. March 17, 1984. Pole Mountain District, Medicine Bow National Forest, with Giles. Pretty day, drove to Summit Rest area, first expecting to cut across dirt roads from Tie Siding, but finding on inquiry that they were deep in drifts. 105 antelope in Virginia Dale area, in large groups.

Considerable snow drifts at Summit area, and pulled out two girls stuck in a Bronco. The side roads are all virtually closed with snow drifts. Went on to Vedauwoo Rocks area and took road to entrance, but had to walk in over scattered snow drifts. Ate lunch shortly up the nature trail.

Returned to snowshoe on trail system marked from Summit Rest Area. There are several trails marked in here and dozens of persons were using them. About 24 deer on way home, in Virginia Dale area.

1984. March 24, 84. Skied to Lake Agnes, with Giles on snowshoes. Lovely day, but warm enough to make some difficulty going uphill skiing, and had hard time standing up coming down. Lovely scenery.

1984. April 7, 84. Cobb Lake area, Wellington Wildlife area.

Gadwall

Canada goose

wigdeon

pintails

ruddy ducks - have I seen this one here before? Several on the pond to the left from the walk-in parking lot, Cobb lake area.

scaup

shovelers

cinnamon teal

marsh hawk
blue winged teal
green teal
no yellow headed blackbirds
redheads
redwings - lots
canvasbacks
no shorebirds, much
avocet - 1

1984. April 8, 84. Marshes south of Fossil Creek, and Duck Lake, on Audubon Trip. Too many people.

1984. April 14. Riverbend ponds and Flatiron site, with Kevin Cook on Audubon trip. Too windy. Lots of black crowned night herons, 3-4 yellow headed blackbirds. A few bitterns and wood ducks are here (not seen). Noted "wood duck alley" a stretch of isolated water where they are often found.

1984. May 5, 1984. Shorebirds with Kevin Cook and group. (and Giles). Duck Lake, and swampy cattail marshes nearby, then to Nelson's Reservoir, then to Windsor Reservoir and finally at Timnath Reservoir, cattail swamp on east side.

Sandpipers: To be expected here are:

spotted - told at great distance by the teetering spotted sandpiper (not seen)

solitary sandpiper - eye ring stands out (not seen here)

least sandpiper - when it bends over in front of you, note the V white stripes on back straw colored legs

western sandpiper - rufous patch dark legs

semipalmated sandpiper - no rufous patch, dark legs

sanderling - the bird at the beach that runs in front of the surf like a wind up toy. Even here they run sideways.

willet - standing - a big bird with few characteristics flying - with a conspicuous black-white wing pattern named from the call.

greater yellowlegs - the common one here in May, upwards of willet sized

lesser yellowlegs (not seen) the common one here in March.

long billed dowitcher - long bill and rufous front.
(seen well the next day at Briggsdale)

(short-billed dowitcher is rare here)

long-billed curlew - curved bill

marbled godwit - Straight or upturned bill. Two colored bill is distinctive.

killdeer (a plover)

semipalmated plover - like a killdeer with one black bar

avocet

Canada goose

Wilson's phalarope - swim around in circles, or just spin around on water to stir up insect larvae. Also swim with head bob. Hundreds seen on the water.

sora

Virginia rail - both seen well while eating lunch at Timnath after the others had gone. Quite near the car at the roadside.

coots

bufflehead

pintail

mallard

widgeon

shoveler

merganser

pelicans - about 12 on Windsor Reservoir, and 24 at Timnath, the latter quite close.

great blue heron

teal

pheasant
loggerhead shrike
peregrine falcon
Western grebe in great numbers (56-60) on Timnath
eared grebe
savannah sparrow - yellow over eye
marsh hawk
coots
burrowing owl - standing over the prairie dog colony at Nelson's Reservoir magpie
red winged blackbird
yellow headed blackbird
common grackle

2 coyotes, running in field n. side of Nelson's reservoir

1984. May 6, 84. Briggsdale and Crow Valley Park, Audubon trip with Jim Sedgwick, a Ph.D. under Ron Ryder, now on a songbird project at Tammarack Ranch.

Walked around the campground area, bristling with birds. Best time here is mid-May, peak, but good all May. Water and trees in the midst of the plains that catches lots of migrants.

Mrytle warblers - abundant - must have seen 100 Audubon's warblers - mixed in. Both are now lumped as yellow rumped warblers.

great horned owl - perched in tree, ears clearly seen

willet - call heard, calls its name
solitary sandpiper eye ring, bobs a little
white crowned sparrow
doves

orange crowned warbler You don't see the crown but once in 400 times. It has to be angry to erect the feathers. A nondescript yellow green, go by the weak color and some eye strips maybe, also mostly the time of year.

Say's phoebe
blue jay
Wilson's phalaropes
spotted sandpiper

wood ducks - seen briefly in flight
cowbird
long billed dowitchers - about 6 seen well
Swainson's hawk - about 10. One flew by close up
Lincoln's sparrow
Swainson's thrush
hermit thrush
goldfinch
mallard
pintail
kestrel
Franklin's gull
rufous sided towhee
California gull
green tailed towhee
flicker
lark bunting
western kingbird
horned lark
crow
magpie
robin
common grackle

Later, returned to where the main road bends s.w., and turned north three miles (Road 57), till junction with Road 96 (dirt) and drove east 1.6 miles, at stop to see mountain plover. At the stop point there is a weak road coming north-south, with a windmill up the n. road some distance off on skyline, and another closer windmill n.e. on horizon and s. road points between 2 power poles far south. Walked out about 6 feet apart to flush a mountain plover and flushed two, seen through telescope.

Mountain plover are more common here than was earlier known.

Sparrows here are clay colored (not seen)
Brewer's sparrow (not seen)
Chipping sparrow (not seen)
vesper sparrow - white outer tail feathers, many seen

McCown's longspur - several seen - white outer tail feathers with black tip

The grass here is blue gramma and buffalo grass.

Immature golden eagle over Lexington Green driving home one Sunday several weeks ago.

1984. May 12, Saturday, with Kevin Cook. Grandview Cemetery, then Martinez Park area, then driving Wellington area looking for hawks. Barn owl in bankside excavation n. of town, hard to see in the dark of the hole. Orioles, flicker, ducks, hairy woodpecker, yellowthroat, towhee. 2 Swainson's hawks north of town, and nice look at an immature golden eagle soaring overhead. Broadwing hawks often nest in Grandview Cemetery, s. side near the golf course. They are otherwise hard to see in Colorado. The frogs that sing in the cattails in Martinez park are chorus frogs mostly, some leopard frogs.

1984 May 19, Saturday. Grandview Cemetery and s. of Laporte Jr. High, birding. Giles shot a rabbit at Cleon Kimberling's, his first.

1984. May 20, Sunday. Spring Creek with Kevin. Notable birds: catbirds, lesser goldfinch, Virginia's warbler. Two large bullsnakes copulating. Rock wren. Lots of orioles, goldfinches. Chats.

1984. May 26, Saturday. Crow Valley with Kevin Cook. Stopped off at the bend of the road from n.e. to e. (about 5 miles short of Crow Valley) to see a White Necked Raven, unusual bird for northern Colorado. Got a much better look at it coming back. Small raven, crow-sized, but with raven call. White neck doesn't show. Two golden eagles nearby.

At Crow Valley, rose-breasted grosbeak and black headed grosbeak, both in binoculars at same moment and close by. Lots of Swainson's thrushes. Swainson's hawks. Lark sparrows, cowbirds. One brown thrasher and one mockingbird (the first I have seen in Colorado?) Two great horned owls in tree, amply seen, including 60x in scope. They nest here every year and can usually be found. Western wood pewee, rough-winged swallow.

Mountain plover across the road, after lunch, and drove north and out east again to see McCown's longspurs. Late getting back for a trip Giles was to make on Bernie Rollin's motorcycle. Cold morning but the weather fared up midmorning. Quite a contrast in birds seen today and May 6. Almost no warblers. This has been a poor year for warblers.

1984. May 27, Sunday. Catbird in the back yard! Third I have seen in Colorado.

1984. June 2, 84. Birding at Duck Lake, Fossil Creek, etc., alone. Nice views of yellowthroat. Otherwise the usual birds.

1984. June 3, Sunday. Last of the spring seminars with Kevin Cook. Rist Canyon and Pingree Park Road, up Crown Point Road a ways.

White throated swifts at n. end Watson's Lake. Wings are longer, narrower than the cliff swallows more common there, also the swifts have a different flight pattern. Catbird (4th in Colorado!) nests here regularly.

Drive to picnic area in Rist Canyon, a favorite birding spot. Red-breasted nuthatch, the least common one in Colorado. It is an eruptive species, that is, it has boom years, but is usually uncommon. Also pygmy nuthatch.

Ruby crowned kinglet, with red crown nicely seen. Chased an ovenbird at much length, and got only a glimpse of it, but others in the party saw it nicely. Warbling vireo, including a nest, which is built below the limb, slung down, somewhat like an oriole's nest. Evening grosbeaks, western wood pewee. Empidonax flycatchers, probably Dusky. Siskins.

On to Buckhorn, with a stop to see a goshawk (which I did not see) and walk along meadow. Lincoln's sparrow and song sparrow. Olive-sided flycatcher, with quick-three-beers call.

The dirt mounds in linear form are eskers made by the northern pocket gopher, *Thomomys talpoides*, Kevin has seen them making these. The gophers make tunnels in the ground up to 500 feet long, and variously a few inches to 2 ft. underground. But in winter they leave the ground and make tunnels in the snow. Then when they dig more tunnels they will fill the tunnels in the snow with dirt. (See Lechleitner, *Wild Mammals of Colorado*, p. 111).

They also make piles of dirt any time of the year, often with a hole to one side, but they also plug their holes.

Western wood pewee. Spotted sandpiper. The spotted sandpiper female lays two clutches of eggs. He incubates one and she the other!

Red crossbill in lodgepole forest up Crown point road, also several dozen Calypso orchids, including one clump with 12-15 in it. Pipit, pipit walk, sparrows hop. Two dippers nesting on Poudre River on way back.

Participants: Judy Bodenham (dark haired studied entomology); Greg Mihalik, beard, companion of Sally Mather. Margaret Pratt, short haired blonde, studied horticulture, interested in flowers; Cathy Stamm, long haired brunette, often with Margaret. Art Watson, druggist at Walgreens. Roger Rybicka. Susan Strawn, with son, Chris. Rob Porter, young D.V.M. Kevin Cook, 728 Eastdale Dr., 221-0012

1984. June 8, 84. Pierson Trail, alone. Up Fish Creek road from Estes through a subdivision with no trespassing signs, but the forest service seems to have access through here. Some

confusing turnoffs, but stay on the main dirt road and climb steeply, eventually coming to a welcome to the National Forest sign and some mileages, 1 m. to Pierson Park. But the road stays somewhat confusing, because of timber roads. Stay on main road 1.8 Miles, mostly in low, 2nd gear, and come out in a grassy area with trail signs. Showshoe rabbit enroute up.

Hike to Homestead Meadows was a good one and no problems, though the trail is essentially unshown on topo maps, although it is not a newly built trail, some old berm in here. Birds were good, bluebirds, Williamson's sapsucker, yellow bellied sapsucker, creepers, nuthatches, chipping sparrows, yellow rumped warblers, Empidonax flycatchers, lots of flickers, Townsend's solitaires, crossbills, many, many siskins, a few Swainson's thrushes.

One coyote in a grassy open area. Trail rises, then falls and comes out in Homestead meadows. Lunched at Laycock Homestead, which Giles and I had reached last year from Lion Gulch. 15 elk in the meadow while I lunched.

1984. June 21-26, 84. Seminar on Environmental Arts and Sciences, Thorne Ecological Institute, held at Aspen. Drove over Independence Pass. Friday, June 22, hiked up Conundrum Creek 3-4 miles. Getting into the trailhead was difficult because late snows had caused many blowdowns. There are hot springs at the head of this trail, unusual in the alpine.

1984. Saturday, June 23, hiked to Crater Lake with Frank Golly, University of Georgia, Program in Ecology, director. Also field trips up Independence Pass, and again to Maroon Bells. Cookout supper with Stuart Mace, friend of Jody Cardamone's who runs the nature center there, a deep ecologist.

1984. June 29-July 30. Trip to Alabama and Virginia in camper. Spectacular redheaded woodpeckers at Lake Lowndes State Park, just s.e. of Columbus, Miss. Also quite a chorus of frogs and insects, and a great horned owl, and some whip-poor-wills.

1984. July 19-23. Ramsey's Draft area, George Washington National Forest, with Giles in camper. Camped at Lake Todd, w. of Mt. Solon and Natural Chimney's. Drove up from Richmond Thursday in perfect weather. Friday (July 20) hiked up Ramsey's Draft. Trail begins on Route 250 at Mountain House Picnic Area, and continue in car about 3/4 mile up, where road is blocked off. Old road, now nice for hiking continues about 4 miles up and then becomes foot trail. Collected mosses. See list Sept. 1985.

1984. Saturday, rain. Drove up Reddish Knob, and then to Grand Caverns. Great Horned Owl in night. Sunday, hiked in Dividing Ridge Trail (now incorporated into the White Oak Trail, a trail of some 25-30 miles that follows a circumferential route. Connected with

Springhouse Ridge Trail, lunched at Hiner Spring, and head of Ramsey's Draft trail, and descended it a ways. Then returned and walked to base of Hardscrabble Knob Trail. Very muddy auto road (which had been newly scraped) was ticklish to get through. Upper part of Ramsey's Draft is virgin timber and a Wilderness Study Area. Pileated woodpecker, Cooper's Hawk.

1984. Friday July 27. Night at Harmonie State Park, New Harmony, Indiana, and owl walk to try to hear owls call prompted by a recording of owl calls. No luck. Spectacular breakup of a spaceship or satellite seen by accident at the close of the hike. Hiked in darkness more than I realized was possible.

1984. July 29, Sunday. Night at Wilson Lake State Park. Many coyotes calling in the night.

1984. August 3-5, American Bryological and Lichenological Society Foray into Rocky Mountain National Park. Stopped at Sylvan Dale Ranch just before Big Thompson Canyon, and also in the Canyon, and Friday afternoon went from McGraw Ranch walking up Cow Creek and to Bridal Veil Falls.

1984. Saturday, Aug. 4. Trail Ridge in vicinity of Toll Memorial, and in afternoon to the Pool and Fern Falls. 2 female bighorns in Horseshoe Park.

Some participants:

Roger A. Anderson, lichens, Univ. Denver;
Dom Basile, new editor of Bryologist,
Elmire Conklin, doing thesis on Fissidens;
Jan-Peter Frahm, co-author of German Moosflora;
Mason Hale, lichens, Smithsonian Institution.
Thomas Nash, Arizona State, lichens; Paul Bievel, algae expert,
Dickinson College;
William Buck, tropical mosses, New York Botanical Garden;
E. H. Ketchledge, dendrology expert and bryology,
State University of New York at Syracuse
Mac Sargent, bryology and cell biology University of Illinois,
Sam Shushan, lichens, University of Colorado;
John Thomson, University of Wisconsin, lichens and bryology,
Cliff Wetmore, lichens, University-of Minnesota,
Hank Webster (Harold J.), DuBois Campus, Pennsylvania State University, bryology,
Richard Andrus, Sphagnum expert and environmental sciences, State University of New York at Binghamton.

1984. Aug 11, 84. Zimmerman Trail from Crown Point. Drove with Giles to Crown Point,

and took older road to Zimmerman Trail. Good 4wd, pickups, vans to trailhead, a bit doubtful for sedans. Descend and reach main Zimmerman Trail as hiked before from Poudre Canyon, and thence to Sheep Creek Reservoir. Then on up Zimmerman trail to point where extension of Crown Point Road contacts it (not shown on topos). Uneventful return, rather dry woods, but some good spots around Sheep Creek Reservoir.

1984. Aug. 20-24, 1984. Mt. Zirkel's. Gilpin Lake and Gold Creek Lake. Drove over in Scout on Monday (Aug. 20), with bad weather in afternoon. Camped at Seedhouse Campground (there used to be a seedhouse here, extracting seeds from lodgepole pine, spruce, etc. for re-seeding forests). Strolled around a road north from campground area late in the dusk and got hit in the head by some unknown object -- stray bullet, slingshot rock?? -- and bled enough to soak a handkerchief.

1984. Tuesday, Aug. 21. Gold Creek Lake, and on up to old lakebed, through which the Ute Pass Trail passes.

1984. Wednesday, Aug. 22. Backpacked to Gilpin Lake, and camped on West side in nice campground. Afternoon at ease, and collecting mosses. Thursday, Aug. 23, hiked to Red Dirt Pass in off-on weather. Clouds-fog-winds traveling through the pass at good rate and condensation level right at the pass. Better weather on return late in afternoon. Northern pocket gopher seen late in evening, pulling down bistort and other grasses and forbs. Rather little sign of game in this area and none seen.

1984. Friday, Aug. 24, rain in early morning, but packet out dry, and rain-drizzle all the way home. Only 4 ½ hours driving back from Steamboat.

Sign in Seedhouse Campground: Three Island Lake 5. South Fork Elk River 2.

Elk River watershed is one of the best in Colorado, producing 25 gallons of usable water per square foot of watershed, enough for 500,000 persons.

1984. September 12, 84. Trail Ridge Road and hike to Loch Vale in afternoon with John Mackintosh, Ian's son from London. Unsettled weather but no rain really, and clouds rather pretty in and out the peaks. Bits of aspen turning.

1984. October 3-7, 84. Trip to Athens, Georgia for Environmental Ethics Conference. Rented car and drove to Cleveland, got motel, and walked into Anna Ruby Falls, nice area. Twin falls formed at the junctions of Curtis and York Creeks, joining at the base of the falls to become Smith Creek. Anna Ruby Nichols was the daughter of a prominent Civil War Colonel, John H. Nichols, who owned the area. Next morning hiked up Appalachian Trail from Unicoi Gap, and then on to Athens. Heard turkeys on the trail. Nice weather.

1984. Saturday (Oct. 6) drove to Hiawassee with Baird Callicott and following Bob Loftin (Philosophy, University of North Florida, Jacksonville) to his home (summer home) at Hiawassee (where his in-laws also live: Mr. & Mrs. C. C. Wilson, RFD 1, Box 203-A6, Hiawassee, GA. 30546. This is on Lake Chatuge. Stopped on way in and hiked down Corbin Creek. Loftin is an ornithologist, authority on birds in this area.

1984. Sunday, a.m. Baird and I drove to Coleman River Scenic Area and hiked trail up Coleman River, splendid trail, beautiful stream, delightful in early fall. Returned to Atlanta afternoon. *Halesia carolina*, Carolina silverbells, is somewhat prominent in these woods, now in notable fruit, 4 winged. Also *Clethra acuminata*.

1984. Nov. 17, 1984. West Creek Falls from McGraw Ranch (now Indianhead Ranch). Drove in with Giles and had trouble with a pet and pest goat. Hiked up a trail, called Best Trail, which rises over to West Creek, and then up the Creek. Contact with North Boundary Trail is well marked, and hiked on up to West Creek Falls, lunched there. Returned and hiked up North Boundary Trail enough to scout it out. Returned by the North Boundary Trail, which comes back to Indianhead Ranch. Also looked up the Bridal Veil Falls trail a little ways.

Returned to Estes and found 152 elk in Horsehoe Park, in two large groups. Also a nice view of a pair of Great Horned Owls, one perched in tree (see with binoculars) at dusk. Five deer.

Lots of *Rhytidium* in the West Creek bottom, also lots of beetle kill in here. There is a trail back to Gem Lake from on up toward the Bridal Veil trail (according to man at the ranch).

1984. Nov. 24, 1984. Trail over White Pine Saddle and on toward Flowers Road, along Pendergrass Creek. Alone, Giles was too fussy to go. Free of snow on the southfacing side, unbroken snow on north facing side, but not too difficult to walk in. Nice day, but definitely winter in the woods. 2-3 deer, probably some elk heard in the brush. Should make a good spring hike but you need a day or two to reach the back areas in here.

end 1984.

start 1985.

1985. January 2, 1985. North Lone Pine Trail, with Giles, on snowshoes. Big drifts just past this parking area (6 m. w. of Redfeather Lakes). Went in past second stream crossing and up a ways further; solid snow cover. Returned. Walked up to Kilpecker burn area. Cloudy

in a.m., sunny later on; nice day.

Splendid-pair of golden eagles on return (vicinity of Hanson's Ranch); also 14 mule deer. One great horned owl perched at roadside on iron pole; watched him in binoculars (the new Bushnell Custom Compact pair) at some length.

1985. Jan. 19, 1985. Eagle, probably immature bald, flying over Fort Collins on Drake street, returning from taking Giles to meet Scouts to go on cross country ski-backpacking trip. Trip aborted, snowstorm and Scouts weren't prepared.

1985. Feb. 1, 1985. 157 elk in Rocky Mountain National Park, at minus 10o. In groups of 30-40 mostly in Horseshoe Park and on the south side of Deer Mountain above Beaver Meadows, and between the Beaver Meadows entrance station and the Park Headquarters. I was enroute to Philosophy Department retreat at Estes Park YMCA.

1985. Feb. 16, 1985. With Kevin Cook in van to s.e. of Scottsbluff, Nebraska, on a "Snowy Owl Chase." Three golden eagles, two of them seen nicely between Fort Collins and Cheyenne. Five great horned owls, two flushed from roadside wind breaks, one single and then a pair seen nicely perched at side of road. About fifteen buteos, mostly rough legs. Tell rough-leg by the feathered leg, the black belly, and it is slimmer than red tail.

40-50 redpolls seen about Wyoming-Nebraska line. This is an accidental in Colorado, doesn't usually get this far south. Mergansers, buffleheads, redheads, mallards, coots on Platte River Power Authority - Rawhide Plant lake at the plant. Bald eagles are often seen here. The lake is a cooling lake and does not freeze over.

Snowy owls are seen a few times a winter in Colorado, more often to the north, but are always rare. The male is snowy white with age, but younger birds and females have more tan/brown feathers. About 2 dozen antelope.

1985. Feb. 18, 1985. Downhill skiing with Shonny and Giles at Eldora, their first time on downhill skis. Lovely day. Rode Ho-hum! and Snail! Chairlifts.

1985. Feb. 24, 1985. Rawhide Power Plant. One bald eagle, adult far across the lake at the edge. Stayed there an hour. Lots of coots, mergansers, geese. Snow goose earlier seen flying over town.

1985. March 11-12, 85. Overnight camp at Jackson Lake and 43 bald eagles. Left a.m. 1 immature and 2 adults in air on way in to Riverside Reservoir, one of the adults flushed from perch in tree. 3 adults and 5 immatures at Empire, all sitting out on ice. Water is about half frozen, half open, and eagles sit at edge of ice. None seen along riverside this trip. Lunched

at bridge at Orchard.

Drove to Prewitt Reservoir, for the first time. Well marked access on Route 6 s.e. of Merino, and easy access around the lake, all Fish and Wildlife property, camping permitted but no tables seen. 12 adults and 8 immatures here, some perched in trees, mostly at edge of ice. Now and again in the air. Perhaps 200 snow geese, mixed with Canada geese in the open water on the lake.

Returned to Jackson Lake and camped, too dark to look for eagles. Wind died down and not bad in the evening. Snow in the night, but we didn't know it was falling until we got up, when it had stopped. Somewhat windy in the morning, but improved.

1985. Walked up the shore. 12 eagles, 4-5 adults, all on edge of ice, now and again flying, and walked up reasonably close to several. Returned to Empire via Orchard, and there was one good adult on ice. Lunched at Empire. Returned to Riverside, one adult far across lake on the bare soil hill where I have seen them before); also two immatures here in air. (These are presumed the same eagles seen the previous day.)

Talked to the ditchkeeper, who lives in the house at the bend of the road just below. Fish and Wildlife spent \$100,000 building up Pelican Island. Several hawks, including two dark redtails.

1985. March 23, 1985. Mills Lake Trail with Giles, on showshoes. Tried out the new Sherpa shoes, which do very well. Good maneuverability. Shonny had gone to Keystone skiing with church youth group.

Two bighorn rams in Big Thompson Canyon, one half curl and quite lovely, posed against a rocky background for several minutes, the other a yearling ram behind it. Snowpacked roads above Sprague Lake picnic area, and heavy snow flurries all day long on the trail, some clearing after three o'clock. But it was sunny on the plains all day. Steady climb to the trail junction between Lock Vale and Mills, and difficult finding the trail thereafter, eventually turned around short of making it to Mills Lake, especially as Giles was tiring.

Met 8-10 skiers eventually in several groups all of whom had not skied up the summer trail but taken a short cut up the tributary of Glacier Creek which is crossed by the heavy wooden bridge shortly after leaving trailhead. Then they turn and go between Glacier Knobs. Also, they do not take the summer trail to Loch Vale, but go down and ski up the creek.

Slick section of road on way out and pushed a pickup truck out that was stuck.

1985. Mar. 31, 1985. Cobb Lake area with Giles, Sunday morning. Pintails, redheads, widgeon, coot, scaup, cinnamon teal, green winged teal, Canada geese, grebes, but very windy. One flock of 18 bluebirds in prime color, all males except about two. Quite lovely. Several nice pheasants, male and female.

1985. April 12-15, 85. Tetons and Yellowstone. Took Giles out of school. Drove Friday to Jackson via Rock Springs, counting 850 antelope enroute, in groups of 12-24. 8 bighorn sheep on Hoback Creek Road south of Jackson (Bridger Teton National Forest). 2000 elk in National Elk Refuge north of Jackson; there are about 5000 here in winter, and they may break out for high country anytime now. Several sandhill cranes, bluebirds.

1985. Stayed at Teton Science School (= Grand Teton Environmental Education Center, Coleen Cabot, Director. Teton National Park property with a private, nonprofit educational school, a good deal of time spent educating elementary and secondary schoolchildren in a sort of eco-week affair, winter ecology, building snow caves. Staff of about 12. Drove further into Teton Park area about twilight and saw 13 moose.

1985. Saturday a.m. heard coyotes calling. Drove up main road again, 15 moose, 3 bald eagles, 2 sandhill cranes, mostly opposite Triangle Ranch. Once I had a bald eagle, two moose and two sandhill cranes in the spotting scope at once! Coyote seen running across sagebrush field on return.

Panel discussion on grizzly bears at Jackson High School in afternoon. John Weaver, coordinator of grizzly recovery program for 12 National Forests, on panel, with Don Schmalz, outfitter from Cody, and Tom Lyon, professor of English, Utah State University. 3 trumpeter swans on return, also a pair of moose close up. Both moose and elk have mostly dropped their antlers.

1985. Teton-Yellowstone, continued. Left 5.00 a.m. Sunday and drove via Teton Pass south of Jackson around through Idaho (Diggs, Ashton) to West Yellowstone and on into Old Faithful area. The road into Old Faithful has only been open a couple days. Snow depth typically 3 feet, though sizeable areas are open, especially where there are thermal areas. Many buffalo in the park, also elk, one bald eagle along Madison River. Buffalo and elk freely present in the areas that are filled with tourists in the summer. Watched Old Faithful and walked around geyser area. Lunched at Old Faithful.

Returned and drove north to Mammoth-Hot Springs. Single coyotes on two different occasions; more elk and buffalo, sandhills. First thought to camp at Mammoth, but a grizzly sow with cubs had been sighted day before between Pebble Creek and Cooke City, so we drove up that road. Large numbers of elk and many buffalo on the road, but not so close up as on the Old Faithful Road, but no bear.

1985 Night in motel at Cooke City, where the road stops, not open further until about June 1. Left early a.m. Monday and returned, somewhat slowly through the park (no longer counting elk and buffalo) and more rapidly thereafter. Pair of coyotes in Gardner River area, and another single coyote in Norris area. Drove home via West Yellowstone, Idaho, Teton Pass, Jackson, Rock Springs, total 670 miles for the day's drive!

Wildlife count:

- 518 buffalo
- 100 +/- deer
- 32 moose
- 4 bald eagles
- 1,050 antelope
- 19 bighorn sheep
- roadkilled porcupines - 2
- 2,525 elk
- 20 sandhill cranes
- 5 trumpeter swans
- 7 coyotes
- 12 redtail hawks
- 0 - bears!

Barrow's Goldeneye (duck) in Lamar Valley, also one perched Ferruginous Hawk in snag.

1985. May 5, 85. Crow Valley, with Giles. Lovely day, though Crow Valley was not as bristling with birds as it was last year this time. Audubon's warbler, Myrtle warbler, many doves, white crowned sparrows, chipping sparrows, redwings, Swainson's hawks, Swainson's thrush, goldfinch, kestrel, flushed one great horned owl, meadowlarks, two brown thrashers, flickers, robins, rufous sided towhee, lark sparrow, horned lark, lark bunting, yellow warbler, barn swallow, pheasant, yellow breasted chat.

Drove north a bit and came on a really good golden eagle, enormous sitting on fence, and flew off in front of car while I had binoculars on it. Immature, with good white. Returned to lunch at Crow Valley.

After lunch, hunted up the mountain plover, saw two. There is a prairie dog colony nearby and burrowing owls may often be seen here. McCown's longspur.

1985. May 8-13, trip to Washington, D. C., Georgetown University and two days in Shenandoah National Park, and surprised mother on a Mother's Day visit to Richmond. Left Washington and drove through Warrenton, Sperryville and got on Skyline Drive, Route 211,

road to Luray. Drove south to Big Meadows and camped there two nights. Only campground open in park.

1985. Hiked Dark Hollow Falls and ate supper at the falls, mostly birding and enjoying spring flora. Friday, hiked Whiteoak Canyon Trail in Skyland area, about 7 miles round trip, to first and then second falls. Lovely weather, though the descent and climb were about enough hike. Returned to hike up Hawksbill Mountain, 4050 ft., highest point in park, about 2 miles round trip. This plus early morning bird walk made about ten miles for the day.

1985. Sunday, drove south and hiked South River Falls trail, mostly birding, about 3 miles round trip. Again, lovely weather and falls. Lower here and flora is more out, also some different birds. Then drove to Route 250, lunching enroute, and on to Richmond.

About 50-60 deer, often pretty tame. Bucks have no antlers now and doe have not yet dropped their fawns. Half dozen groundhogs, rabbits. Skunks and raccoons are often seen in campground; one couple I talked with had seen a bear cross road previous day.

Many towhees. Chipping sparrow, field sparrow. Veery is common in woods and makes notable call. Several catbirds, many robins. Good look at solitary vireo, several brown thrashers. Warblers often heard but hard to locate in the foliage. Good look at several chestnut-sided, one bay-breasted, one black and white. Ovenbird heard in lower end of park, not upper. Nice blue grosbeak and (I think) a redstart. No hawks seen. A good many goldfinches. 31 species seen or heard. 75 are said on the checklist to be abundant or common in spring. Pewees often heard, also phoebe, and good look at several great crested flycatchers.

1985. May 18, 1985. North Boundary Trail and West Creek Falls, with Giles. Nice day and woods full of ticks. Went back looking for the *Leptopterigynandrum austroalpinum* on West Creek; found it again about 200 yards downstream from the junction of the main North Boundary Trail. It is in the horizontal crevice of a boulder, and seems somewhat to hang down, or at least some main stems of it do.

Went on up and lunched at West Creek Falls, Giles came upon a large porcupine rather suddenly and it startled him. Collected mosses on the far side of the falls. Several Audubon's warblers.

Rather heavy hail on the road on the way home.

1985. June 2, 85. Spring Creek below Horsetooth dam. Catbird. Phoebe.

1985. June 4-13, 85. Athens, Georgia, and Joyce Kilmer-Slickrock Wilderness. Left Athens

Saturday, June 8, about 3.00 and spent night above Tate Branch campground, rather noisy with too many people. Hiked Coleman River trail some that evening, and again next morning. Then on into North Carolina and to Joyce Kilmer forest on Sunday. Camped at Horse Cove Campground, quite nice, only a few people. Hiked the Joyce Kilmer Memorial trail during supper, ate at the Memorial. Enormous poplars and hemlock here, some take five persons to join arms around (20 feet). Also good birds.

Monday, hiked Naked Ground Trail 4-5 miles up. The ranger did not know why it was so called. Fine deep woods, collected mosses. Hard rain coming out. 4 foot blacksnake. Ovenbirds evident from calls, black-throated blue warblers seen well. Lots of trailing arbutus and large patches of Indian pipe.

Went to Ranger Station in Robbinsville and got more information, and camped that night at Santeelah Hunters Camp, enroute to Bob Stratton Bald. Slept in open lean-to, with brilliant display of lightning bugs, and rain off and on all night.

Tuesday, drove to Wolf Laurel Basin and hiked up Bob Stratton Bald. Saw ruffed grouse with 4 chicks behind her crossing the road driving in; first I didn't realize what the chicks were as they crossed a bit after she did and one by one, though in a great hurry. She waited for them at the edge of the road.

Climbed the bald in much cloud cover and ate on top. The bald is not the summit, but there is 10-20 acres of bald further past (east); also some fir in here. Returned and went to Naked Ground (gap) which is wooded, not naked, and then walked out in the rain. Good flora. Veery in here, which must be about the southern limit.

Drove to Bryson City and camped (in Great Smoky Mountains National Park) at Deep Creek. Walked up Deep Creek trail and did about 3-4 mile circle route after supper. Hard rain off and on in the night, and packed up in drizzle. Drove to Oconaluftee Visitor Center, near Cherokee, and weather was clearing some, so drove up Clingman's Dome, with pretty clouds opening up on the way, but by the time I got to the top (6,642ft) there was complete cover. Returned, dried out, lunched at Collins Creek Picnic area, and drove to Atlanta and spent night with Jackie Shires Hall.

Saw flowers I haven't seen in twenty years, and still knew a lot of them, but the names of some have been forgotten. Need to brush up on the ferns. Some laurel in bloom, some rhododendron, both great-white and rose-purple, some flame azalea on top of Bob Stratton Bald.

1985. June 17, 85. Vedawoo Rocks in Medicine Bow National Forest, briefly, after meeting in Laramie on "Fence at Red Rim." Drove home over short cut via Ames Monument to come

out a Tie Siding. Good but sometimes corduroy road.

1985. June 20-28, 1985. Kingston, Ontario, and Algonquin Provincial Park. Flew to Toronto and rental car to Kingston for Conference on Environmental Ethics at Queens University, Kingston. Friday midday, boat trip to Thousand and One Islands, on each one of which (!) is a summer home. Lovely day. These are islands where Lake Ontario goes into the Saint Lawrence River. Friday 4.00 p. m. thru Sunday lunch, conference.

1985. Sunday, June 23, drove north in afternoon and camped at Opeongo Campground, Aping Lake. Hard rain that evening. Camped amidst a profusion of Bunchberry, which is superabundant throughout the park.

1985. Monday a.m., June 24, walked Beaver Pond Trail and Spruce Bog Boardwalk trail, then went with naturalist on hike to Aping Lookout. Late afternoon, drove to Lake of Two Rivers and pitched camp, walked Two Rivers Trail in evening.

1985. Tuesday morning, June 25, did bird walk with naturalist, and rest of day hiking trail around Provoking Lake, nearby. After supper hiked Hemlock Bluff Trail.

Wednesday, June 26, hiked Muzzy Lake trail, after pitching camp at Tea Lake Campground.

1985. Thursday, June 27, rented canoe and paddled around Canoe Lake. Disappointingly non-wild; there are camps and summer homes all around it. Lovely weather throughout, except for rain first night.

Black flies were mostly gone (supposedly). They live most of year as larvae in water, and are only in adult stage May/June. They are bad to crawl up pants legs and bite, and you often don't feel it until later. Mosquitoes off and on, often bad at dusk, but variable rest of day. If there is much breeze, no problem. Few or no deer flies. Mosquitoes were decidedly fewer in campgrounds.

Park overall is disappointingly less than primeval. The whole thing was timbered and is all regrowth. They are still logging large portions of it. Many infolding. But there is still lots of good woods, and I did not see the interior. "Interior" is the way the parts reachable only by canoe (or on foot) are called. Park owns two float planes, which are often in the air.

Bunchberry (*Cornus canadensis*) in incredible profusion and in flower. Wild Sarsaparilla (*Aralia nudicaulis*) also abundant. Canada Mayflower (*Maianthemum canadense*) also in profusion. Twinflower (*Linnaea borealis*) quite common. Red trillium (not in flower); spotted coral root (*Corallorhiza maculata*), a few; violets, fewer than you would think; Trailing Arbutus (*Epigaea repens*), not in flower, but there is a good deal here.

Wood Sorrel (*Oxalis montana*); Goldthread (*Coitus groenlandica*), often abundant; Fringed Polygala (*Polygala paucifolia*), rather frequent; pink Lady's slipper; the most I have seen - 18 one day, 6 another day, 1 another day; *Vaccinium*, groundcover; Cotton-grass (sedge; *Eriophorum spissum*); White Spiraea (Meadowsweet, *Spiraea latifolia*).

Bogs: Pitcher plant, *Sarracenia purpurea*), hundreds seen, mostly in Muzzy Lake area on Muzzy Lake trail, here often in flower. Sundew (*Drosera rotundifolia*); one leaf with three insects caught in it. Labrador tea (*Ledum groenlandicum*), a white heath in bogs, often in profusion; Sheep Laurel (*Kalmia angustifolia*), a little seen; Yellow pond-lily (*Nuphar variegatum*), common.

Roadsides: Orange Hawkweed (*Hieracium aurantiacum*) in profusion, an introduced exotic from Europe, entered the park after 1900; mixed with native yellow hawkweeds. Ox-eye daisy (*Chrysanthemum leucanthemum*), common. Some vetch (*Vicia cracca*); some Yarrow; some cinquefoil (*Potentilla argentea*); lots of raspberry (*Rubus idaeus*) some Pearly Everlasting (*Anaphalis margaritacea*).

Loons often calling at night; several seen at close range on canoe trip; they dive underwater for up to 3 minutes. Few ducks; the lakes often have no swampy edges and ducks don't like it here. One ring necked duck seen.

Ruffed grouse (1); kingbird, nice view of palpatated woodpecker, lots of white throated sparrows and song is ever in the air, chipping sparrows, blue jays, black and white warbler, lots of varies song sparrows, catbird. Red-breasted nuthatch; female rose-breasted grosbeak; great crested flycatcher. One Blackburnian warbler (nice male) seen well from car at close of Muzzy Lake hike. Ovenbird; often heard; also chestnut-sided warbler. Bradding hawk (two seen; one calling). Yellow ramped (Myrtle warbler); hermit thrush.

1985. Wolf scat seen on the abandoned railway bed, now a trail on n. part of Muzzy Lake Trail, mostly vicinity of Wolf Howl Pond. Eleven piles of it; it is easy because full of fur and very large (size of human excrement); no confusing this with coyote or fox.

Wolves in the park prey on deer but have not learned to catch the moose; they seem to be a somewhat smaller wolf than in the west or further north. There are howling packs in August, and if this happens for several nights, tours are led out; a recording played and the wolves may howl back.

One moose seen, roadside, one deer. The deer were originally few in the deep woods; the woods were cut, burned, and in the regrowth the deer moved in and flourished; in the 1950's peaked in great numbers. But with more regrowth; the habitat became less favorable and

deer have declined. Moose declined when deep appeared for reasons unknown; then it was discovered that the deer carry a parasite, a worm in the spinal cord, which little affects them, but in moose goes to the brain and kills the moose - which often staggers around stupidly in the last stages of the disease. Moose have returned with the decline of the deer.

Several dozen frogs seen; several turtles, mostly painted turtles, though one (on canoe trip) had no painted head (sticking up above deep water) and was probably a snapping turtle. Snapping turtles common here; two were in an enclosure at the park museum; large thick necks and should be able to be recognized in the field.

One beaver; also chipmunks swimming in water some distance from land; they are good swimmers.

1985. July 11, 85. Chasm Lake, below Long's Peak, with Ernie Partridge and Giles. Nice day. Best view I have ever had of a brown capped rosy finch (the rare one, tho locally common in habitat) at Chasm Lake, perched and singing after lunch.

1985. July 21, 1985. Brackenbury State Wildlife Area, just north of Cement Plant, above Owl Canyon, just s. of Livermore Forks. We were rained out of a planned trip to Grays and Torrey's Peaks, heavy rains and tornadoes in Denver area. Overcast to cloudy bright most of day, and there had been medium heavy rains in this area. Giles and I went into this area, March 15, 1980. Deer flies (*Chrysops* spp) were bad in the lower parts, wet areas. One redbtail.

1985. August 20-25, 85. Wind River Range with Robert Elliot, Australia, and Giles. Drove in Scout Tuesday, Aug. 20, to Pinedale and north to New Fork Lakes Campground, arriving about 6.30. Long day in Scout. Rather dusty campground at lakeside. Poor will calling in evening.

1985. Wednesday, Aug 21. Hiked to Rainbow Lake, though Giles gave out just before the lake and we lunched short of it. Steady climb. After lunch stayed a bit at Rainbow Lake and then on to Palmer Lake, less climb, but plenty of hike for the day. Nice site at Palmer lake high above the lake, with pond nearby. This country is more extended high country, with many ups and downs, all nearly timberline or above, than is usual in the Front Range.

1985. Thursday, Aug. 22. Packed on to Summit Lake, all high country hiking, and much easier than day before, but worried about shelter, as it looked stormy (which never materialized). Passed Cutthroat and No Name Lakes enroute, lunched at No Name Lakes. Found a very nice campsite some below Summit Lake.

1985. Friday, Aug 23. Giles stayed in camp, and Robert and I hiked for the day over to Peak Lake. This is mostly a long day's hike around Mount Aenaeus. Passed Pass Lake, a very

pretty one, and Elbow Lake, also pretty. The upper Twin Lake would be the most suitable here for camping, though no trees are shown on the topo, there are some there.

Above Elbow Lake trail rises to Shannon Pass. This section is a long S-curve back north of the generally south-trending Highland Trail, and is heavily used by horses (relatively). We saw about 12 people during the day; one party camped with horses. Lunched with good view of Peak Lake (3 parties going there to camp), and then retraced our steps, now looking at mosses. Coyotes close by during the night.

1985. Saturday, Aug 24. Packed out, returning to Palmer Lake, lunching a little past it, and then coming out the long (long!) way home, north into Palmer Canyon, thence around to New Form Park, and back out. 16 miles this day, and wore a blister on the bottom of my foot. Camped at New Fork Lakes again, finding that a mouse had gotten into the Scout and into food cached there. The mouse must have been in the Scout when I moved it from the trailhead to the campsite, as he cut up my ski hat that night making a nest. Cut the tassel off.

One moose seen where Reynolds creek comes into Palmer Canyon.

1985. Drive home Sunday, Aug. 25. Quite spectacular osprey's nest on a telephone pole below Pineal, nearer Boulder. One osprey brought a fish to another in the nest (presumably a juvenile, though it didn't look much like it) and the one in the nest ate it. Nice views in spotting scope.

Many antelope seen enroute both ways. Total trip on foot about 45 miles. Leave plenty of time for trips in Wind River Range (Bridge Wilderness); the backcountry is a bit hard to reach.

1985. Sept. 13. Hike to Mummy Pass, prior to Philosophy Dept. Retreat. Lovely day. Black Abet's squirrel on way up, about 8 deer, one doe with fawn still with spots. Steady climb to the high point before Mummy Pass and then up and down to the pass. Turned back a little short of the pass and looked around for mosses. About 15 miles round trip.

List of mosses from Ramsey's Draft, July 19-23, 1984. (and liverworts)

Hedwigia ciliata

Tetraphis pellucida

Hypnum imponens

Plagiomnium cuspidatum

Aulacomnium heterostichum

Plagiomnium medium

Anomodon rostratus
Rhizomnium punctatum
Metzgeria conjugata ?
Plagiomnium ciliare
Brotherella recurvans
Plagiothecium cavifolium
Sematophyllum marylandicum
Dicranum montanum
Hylocomium splendens
Isopterygium elegans
Eurynchium riparioides
Fontinalis dalecarlica
Entodon cladorrhizans
Nowellia cirrifolia
Grimmia pilifera
Brachythecium cirtum
Porella platyphylla
Rhynchostegium serrulatum
Bartramia pomiformis
Philonotis fontana
Dicranella heteromalla
Bryhnia novae-angliae
Anomodon attenuatus
Campylium chrysophyllum
Dicranum fulvum
Brachythecium plumosum
Hypnum curvifolium
Brachythecium populeum
Hypnum cupressiforme
Forsstroemia trichomitria
Hygroamblystegium tenax
Dicranum scoparium

1985. Oct. 5, Saturday. Hike with Giles up Onahu Creek Trail, and elk-bugling in evening. Drove over Trail Ridge Road in clear sky but snow blowing across roads. Dropped into the lower country, essentially free of snow. Hiked up Onahu Trail expecting to go to Long Meadows, but the trail has been rerouted and the main trail now turns and goes back south to Big Meadows instead. There are signs, obscure trail to Long Meadows, and the trail is probably not bad in summer, but we soon hit enough snow and a difficult creek crossing and turned back. Lunched at Onahu Bridge. There are three campsites in here.

Returned and drove over Trail Ridge and listened for elk bugling (with 2000 others!) in Horseshoe Park. Heard 250 bugles and stopped counting. But did not see a great many elk, perhaps fifty. They rather stayed in the bush, perhaps because of the crowd.

Nice view of dipper up Onahu Creek. About a dozen deer roadside during the deer.

1985. Oct. 7, Monday. Cow Creek Valley from McGraw Ranch (Indianhead Ranch) with Fred Hermann, looking for *Pseudoleskeella arizonae* and *Dicranodontium denudatum*, both found by Peter Frahm, German bryologist, on AIBS foray Aug. 3, 1984. Blustery day, but we never got seriously rained on.

1985. October 9, 85. Whooping crane near Severance. Paul Opler said it was there, and I drove out about 2.00 p.m. It had been feeding for about ten days in and around a cornfield just east of a slough about half a mile east of Severance. Watched it 45 minutes. Rice white adult with black crown, some distance away but nice in the scope. About 30 are thought to migrate through Colorado. Total population at present about 100.

1985. Oct. 12, 85. Barr Lake, with Paul Opler and Audubon Field trip, also Giles. Drove back to Severance to see the whooping crane, still there. This bird was hatched at Gray's Lake, Idaho, and is banded with colored markers so that Fish and Wildlife authorities know which one it is. Nice sunny day.

Drove to Barr Lake, saw 50 species, at least the group did. Over 100 white pelicans on the lake and large flock flew overhead so close we could hear their wings whistle in the air. Also yellow crowned kinglets at close range in low bushes around the lake. Very nice area near Brighton, near Denver. A state park. Paul Opler is lepidopterist, book on butterflies from Johns Hopkins Press, formerly with Endangered Species Office.

1985. Oct. 10. Thursday, Steve Pensinger, Random House, said they will publish my book on science and religion.

1985. Oct. 16. Wednesday. Loch Vale with Robert Elliot, Brisbane College, Australia. Later also to Dream Lake. Nice day.

November, rather cold and snowy.

1985. Dec. 8-9, 1985. A major snowstorm, 18" in town.

1985. Dec. 22. Drove to Wellington Wildlife area and Platt River Rawhide plant. Watched a group of horned larks in scope roadside at length. Three rough legged hawks. Rawhide is not frozen, many geese, ducks, but no eagles.

end 1985.

start 1986

1986. Jan. 20, 1986, Zimmerman Lake, with Giles, on snowshoes, Nice day, good snow, but uneventful, 7 bighorns at one of the feeding/medication spots (across from the fish hatchery) on the way up, 17 there coming down, including 2 rams. The Montgomery Pass trail also leaves from the Zimmerman Lake parking lot, and I scouted the lower end of it, Too steep to ski, but it should be a good climb on snowshoes.

1986. Jan. 25-29, Syracuse, N. Y. and address to Symposium on Social and Economic Values of Wildlife. Flew Saturday and rented car; drove out to Montezuma Wildlife Refuge, Seneca Falls, N. Y. Night in motel.

1986. Sunday morning hiking in along road by the mail pool. This is an observation drive in season, usually snowed in in winter and a ski trail, but currently there has been a thaw and it was clear of snow. Overcast day. Thousands of Canada geese in the air and on the pool, almost all frozen. Returned and after lunch hiked a Spring Pool trail off Route 89. 12-15 deer. Snow Sunday night and returned to Beaver Lake Nature Center north of Syracuse. Very nice, especially birds at a large bird feeder, and the hemlock woods in 10" of new snow. Also Sunday afternoon drive south beside Lake Cayuga.

1986. Feb. 15. First crocus. Mild weather.

1986. Feb. 22. Rawhide Power Plant with Paul Opler and Audubon group. Exquisite adult bald eagle soaring shortly after we arrived. Many coots, goldeneye, scaup, buffleheads, mergansers, widgeon. Nice golden eagle, and later a second one at a distance. Drove out to Rockport, expecting to go on to the Pawnee' Grasslands but got separated from the leader. Ferruginous hawk, roughleg hawk. 50-60 antelope, one herd of 15 deer. The golden eye males were throwing their heads way back, in courtship; also the buffleheads were doing this to a lesser degree.

Received two new NCR computers yesterday. My first computers, for wordprocessing.

1986. Mar. 17-18, 86. Eagle trip, camped at Jackson Lake. 9 eagles, but we were really too late. Not the best weather. Drove to Riverside, open water, no ice, cloudy but calm. Weather has been mild for 6 weeks. Reservoirs are as full as I remember seeing them. Drove to Empire, in slight rain. Lunched at Centennial Café in Orchard (eating outside!). Drove to Prewitt in rain. Two nice adults perched in tree on the island off to the left as you go in, and we gradually crept closer and closer in Scout until I could fill the scope at 60x

with one of them. So close you could see the pupils in his eyes. He was wet and perched somewhat tottering in a high tree in good wind, trying to dry out. Very menacing looking in somber weather. Total of six seen here, one immature.

Drove around the east side; there is considerable access here, but you eventually have to stop at the outlet/inlet. Returned to Jackson Lake and got camped and supper cooked, but with no time before dark.

Much wind in the night, but no rain (there was a major storm in the mountains). Took tent down in the wind in the morning. It did o.k., but this is as much wind as I have had it up in. Three eagles seen around Jackson, but none very close. Talked to ranger; there were 14 here last week, but it is late and weather has been mild. Drove around east and north side of Jackson Lake; there is access to the wildlife refuge from the north side.

1986. Drove to Weldona and south across the S. Platte, then up a road to a reported eagle roost. Lunched again at café at Orchard, and drove home.

Several flocks of bluebirds. Perhaps two dozen great blue herons, more than I remember before. Perhaps 150 snow geese at Jackson Lake. Good number of Canada geese; the usual ducks - mallards, buffleheads (a few) lots of redheads, some shovelers, scaup, coots, widgeons. Ranger said he had seen some pelicans.

1986. Mar. 29, 86. Harris' sparrow at feeder at Fred Hermann's. This sparrow winters here in Colorado, but is unusual. Nests in arctic.

1986. April 3, Thursday. Spring snowstorm and got stalled in road to Loveland. I was trying to get to Boulder to give a paper at the Regional Meeting, American Academy for the Advancement of Science, on Values in Evolutionary Theory. There was little snow in Fort Collins, though Denver was in trouble. Began to snow furiously as I left town and by the time I got halfway to Loveland driving was difficult. It was hard to see the road in a whiteout, and the main signs for orientation were the telephone poles. Everything else was white and visibility was such that I could hardly see from one telephone pole to the other.

Two cars were turned around in the road about 3 miles north of Loveland, and, since others were behind me, I could not go forward or backward. Still snowing furiously. After half an hour enough people accumulated on both sides of the traffic to gather a half dozen to push until one of the cars was pushed far enough off the road to get by. A four wheel drive managed to get by the other and with a tow rope pulled it back straight on the road, and it pulled off into a farm driveway nearby.

I went on to Loveland and turned round and came home on Route 287, which was no

problem returning.

1986. April 10-13, 1986. Bowling Green State University, Bowling Green, Ohio, to deliver paper there. Sunday and Monday a.m. in the woods. Oak Openings Preserve west of Toledo, a Toledo metropark, but a very nicely preserved area and full of trails. Hiked the Blue-Fern trail first, before people began to gather, early a.m. Sunday, cool but lovely weather. Not too much out in the way of spring flora, but nevertheless nice deciduous woods. Then hiked Red Sand Dunes Trail, to sand dunes that are relict from prehistoric times when Lake Erie was much higher.

After lunch hiked Horseshoe Lake Trail, and then Silver Ridge Trail.

About mid-afternoon left to drive to Crane Creek State Park on Lake Erie east of Toledo, and stumbled onto Ottawa National Wildlife Refuge first, then went to Crane Creek about sunset. Night in motel, and then drove back to Oak Openings (not far from the airport) and stayed there until time for takeoff about noon.

Lovely display of *Hepatica americana*, perhaps a thousand blossoms within sight on a hillside on the Silver Ridge trail. Some *Claytonia*, Spring Beauty, and a little *Anemonella*. Lots of *Lindera benzoin*, Spicebush. Lots of *Symplocarpus*, Skunk Cabbage, the best displays I have seen, and very pretty in the morning sun.

Earthstars, *Geastrum*, especially well developed around the sand dune area. Bigtooth Aspen is common in the area. Red Pine, Norway Pine, Scotch Pine, Jack Pine, Austrian Pine, White Pine, also Norway Spruce and Douglas Fir.

One Eastern bluebird in the sand dunes area, first I remember seeing in a long time. Chipping sparrows, titmice, veery song sparrow. Cooper's Hawk and call.

At the Ottawa Wildlife Refuge, about 6-8 Great Egrets, all white. A dozen Great Blue Herons, lots of Canada Geese. There is a 7-acre plot of deciduous forest preserved at Crane Creek State Park which catches migrants that hesitate to cross Lake Erie (you cannot see the other side). Ruby Crowned Kinglet in here. Next morning at Oak Openings a nice flock of Golden Crowned Kinglets. Coots. Deer tracks and a dead raccoon in the woods.

1986. May 4, 86. Crow Valley, with Giles. Perhaps half a dozen mockingbirds and as many brown thrashers. No warblers. Reports were that Audubon's and myrtle had been there day before. Western kingbird, wrens. Lark sparrow. Swainson's hawk. No orioles. I thought I saw a cardinal on the way in, but others there hadn't seen any, so maybe not; it wasn't a clear view. Cedar waxwings. Loads of doves, blackbirds, starlings. American goldfinch.

Others had seen great horned owls and rose breasted grosbeaks the day before. Flushed a mallard hen off a nest on the ground beside an elm tree, with about ten unhatched eggs in it. Lark bunts, great horned larks, Western meadowlark in abundance on drive in. Kestrels. Robins.

1986. May 11, 86. Spring Creek below Horsetooth, alone, for birds. Nice couple hours, with the usual birds. Lovely lazuli bunting. Many chats.

1986. May 17, 86. Back to Crow Valley for the morning. This time it was full of Swainson's thrushes, no mockingbirds seen. A few brown thrashers. Lots (perhaps a hundred) orchard orioles and a number of northern orioles. Perhaps a hundred western kingbird. Lots of goldfinches. Several yellow warblers. Western wood pewee. Barn swallows. Nice view in scope of turkey vulture, on ground, his head filling the field. One western tanager seen in town.

1986. May 31- June 13. Ottawa, Canada, Nova Scotia and Prince Edward Island.

June 6, 1986. Flew to Halifax from Ottawa (after attending World Conservation Strategy Conference there, where I met Russell Peterson, past president of Audubon Society). Got car and drove to Kejimikujik National Park (kejim-koo-jik). Stayed in room at bed and breakfast inn just s. of Park (Whitman Inn). Rain off and on most of this time. Walked the trails around park headquarters (Mersey Meadows, Beech Grove, Mill Falls) in the afternoon, and went to a park ranger program that evening.

Next morning, did birds around the bed and breakfast place, then rewalked some of the same trails, then went on a ranger-guided hike at Grafton Lake, then did the Hemlock and Hardwoods trail. Ate noodles at a picnic area, and then drove back to Halifax to pick up Jane (leaving about 5.00 p.m.), that night in Halifax.

Lots of redstarts, maybe a couple dozen seen or heard. Myrtle warblers, chestnut-sided, ovenbirds, parula - on the whole quite good for warblers. Yellowbellied sapsucker, hummingbird, thrushes, kingbird, loon (one heard calling), ravens.

Perhaps 7-8 pink ladyslippers, lots of Maianthemum, Cornus canadensis, Starflower (*Trientalis borealis*). Cancer-root (*Orbanche*), Pinedrops (*Pterospora*).

Ferns were especially good: Bracken, the three Osmundas (Royal Fern, Cinnamon Fern, and Interrupted fern); *Onoclea*. *Pteretis pensylvanica* (Ostrich-fern), though rare in Kejimikujik, is common elsewhere in Nova Scotia and New Brunswick and the fiddleheads are eaten in the spring. I was served them last week at a gourmet dinner at the Chateau Laurie Hotel in Ottawa.

Some of the flora and fauna that are rare here are common further south, and thought to be relict here from a land bridge that once connected Nova Scotia with parts south in the U. S. In particular Blandings turtle (*Emydidae* Blandings, named for a Philadelphia naturalist), is found here with a very discontinuous range, spotty in Massachusetts, NY, skips to the upper Midwest. About 500 are believed to be here. The ranger caught one (by hand from a boardwalk) swimming, the largest he said he had ever seen.

Calla in bloom. A good deal of *Arbutus* is here (not in flower); this is the floral emblem of Nova Scotia. The Pink Lady-slipper is the floral emblem of Prince Edward Island. Water-shield (*Brasenia schreberi*), floating on the water with a football shaped leaf, has a very gelatinous undersurface. The lake shore where the ranger caught the Blandings turtle was full of it.

Labrador Tea (*Ledum*) was common in the park, and elsewhere saw a good deal of *Rhodora* in bloom (*Rhododendron canadense*).

1986. June 22, 86. Mineral Springs Trail from Rustic, with Giles. Trailhead is obscure, but once on it it is a good trail. Take road over river past Rustic (dirt) and follow it back on south side about half a mile. There are private cabins all through here, but nevertheless there seems to be a state easement, and once at the spot there are no posted signs. Up the trail 150 yards (invisibly to road) there is a sign: Mineral Springs Trail, 3 miles.

Nice trail, though there is a good deal of beetle killed spruce in here. *Physocarpus*, Ninebark, was in full bloom, splendid display, and better developed here than I elsewhere recall. *Dodecatheon*, Shooting-star, also quite good. Lots of woodpeckers in the downed and dead timber. Above, more aspen, with wrens, Cassian's finches, pine grosbeaks. Also half a dozen Townsend's solitaires. Lunched at Mineral Springs area, where the trail (for the last 3/4 mile having become a road) crosses the road in from the Crown Point Road.

1986. June 28, 86. Chasm View with Bob Crumby and Perry Biddle.

1986. July 17-21, 86. Popo Agie Wilderness trip, with National Outdoor Leadership School, from Lander, Wyoming. (Pronounced Po-pose-zhia, long o's) With Bev Driver and others.

Drove to Lander in government car, with Giles; arrived about noon. Spent most of afternoon getting outfitted (though we didn't take much), introduced to NOLS, and got on bus to go to vicinity of Dickinson Park, where we camped with Allen Brothers, outfitters, and were fed supper in a cabin there. Night in a tent there. Coyotes heard in the morning.

Breakfast there, then onto bus for several miles to Dickinson Park; then on foot the rest of

the day. Hiked in to Smith Lake and then to Cook Lake, where we camped throughout. Afternoon at ease; discussions in the evening.

1986. Saturday a.m., discussions; afternoon hiked along to Cathedral Lake, nice hike.

Saturday night, led discussion on intrinsic values in wilderness. Sunday a.m. discussions; afternoon, hiked to up Lake Phyllis (not named on map), just below which there was a fresh avalanche fall with much windthrown timber (now melted), but must have avalanched in March or April. Went on to Mendarrin Lake, very nice forest floor in here, good timber (limber pines, with glacial erratics). Mendarrin lake is in a fine cirque.

Discussions in the evening; Monday, hiked out, nice hike. Drove home from 4.00 on Monday night.

Participants: Bob Lucas; forestry and author on wilderness; B. L. Driver, recreation expert, USFS; George Peterson, recreation expert USES; Tom Brown, economist, USFS; Dan Stynes, recreation, Michigan State University; Rick Knopf, river recreation, USFS now moving to Arizona State to teach, Dan Williams, outdoor recreation, University of Utah; Dan Dustin, recreation, San Diego State University; Jim Wiley, marketing, Temple University. Jack Troyer, Fred Kingwell, rangers.

NOLS participants: Paul Calver, director of marketing, Molly Hampton, Nancy Siegel, Ian (pronounced with long i) Gersten, stayed part time and left, replaced by Drew Leeman. Lantien Chu, Chinese girl who has married recently Jim Ratz, the executive director.

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Notable raspberries, especially on the road in the Half Moon (formerly campground), which we took shortly thinking to camp up there, but turned around when the "check engine" signal on the Scooter began flashing. But no trouble.

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Saturday night, Giles slept outside in a rigged bed, to pass off his Camping Merit Badge. Some rain. Sunday a.m. nice weather but rain by midmorning. Finished work on the merit badge. Packed up and drove home after lunch.

Brought home fairy shrimp, *Brachinecta coloradensis* (probably). A crustacean, Subclass Brachipoda (gill-feet) Order Anostraca, fairy shrimps, (without a carapace). Twenty or so flattened leaf-like structures that are both gills and feet. Eyes are stalked. Very pretty things to watch swim in the water. Long, thin abdomen, and a forked tail. They live in pools in the alpine and lower, and lay eggs that are very resistant to drying and to cold; then hatch out the following year. Egg sacs also seen.

Good picture in Barnes, Invertebrate Zoology, p. 393 (my copy). The standard reference for taxonomy is Robert W. Penna, Fresh-Water Invertebrates of the United States, Wiley, 1978, 2nd ed. He was at Univ. Colorado. Filliped is a now outmoded name for a subclass, including the Anostraca.

Giles and I earlier caught some of these on the Seven Sisters Lakes trip.

James Ward, CSU, is the local expert.

Theodore D. A. Cockerel, Zoology of Colorado, Univ. Colorado, Boulder, 1927, is old, but has a lot of information about what's to be expected in Colorado in it. In CSU library.

1986. Oct. 10, 86. Talk by Nolan J. Doeskin, CSU Dept. Atmospheric Sciences, on Ft. Collins and Colorado Climate. Steamboat area mountains can get up to 70 some inches of rainfall a year (or precipitation), the most in Colorado. This should make it a good area for mosses.

1986. Oct. 19-27. New York Zoo, Wildlife Conservation International. Flew to Richmond on Thursday, Oct. 23, and went up to Staunton on Friday, Oct. 24. Leaves were beautiful. Went with Mother and Aunt Willie Lee, Friday on the Skyline Driver. Friday night with Aunt Jacqueline in Staunton, and Saturday drove out to Rockbridge Baths, and up through Goshen Pass. Lovely leaves, but rain. The river had flooded last year and river channel very torn up. The school I attended (long out of use) had just been torn down.

1986. Nov. 15, 86. Rawhide Reservoir with Ron Ryder and Audubon, for most of Saturday morning. Windy, and the usual ducks and geese. Loons can sometimes be seen here, but they are low in the water, almost like a floating log, and hard to see when it is windy.

1986. Nov. 28, Friday after Thanksgiving. Donner Hill Trail, with Giles, from Buckthorn Ranger Station. But too much snow to get far up it. We went between the Greer Road and the Ballard Road. New, round cabin with central fireplace being built in here.

Afterwards, drove up the Ballard Road, and then Greer Road to where we had lunched. Snowpacked but no problem. Then tried further up the Ballard Road and going got too rough in deeper snow. The preferred trailhead for the Donner Pass Trail is now on the Ballard Road, as there is some private property (where the new cabin was) that is being developed some in here.

A few deer going up toward Horsetooth. Elk sign.

1986. Dec. 24, 1986. 3:00 p.m. by Express Mail. Received the first copy of Science and Religion A Critical Survey, from Random House.

1986. Dec. 27, 1986. Christmas Bird Count with Kevin Cook. Also Giles until noon, and Mark Schumann in early morning. Around Dixon Reservoir and got a really nice look at a goshawk. Nice eye strip over eye, otherwise a steel blue bird, perched. Also a prairie falcon perched on a telephone pole, first mistaken to be an oversized kestrel.

Then up to Horsetooth. 3 snipe in the slough where the dirt bikes run at the north end. Lunched there, brought Giles home. Then up Rist Canyon, where the high point was on the way down, a pygmy owl, perched in the top of a pine, in good sun. Put the scope on him at 60x. Yellow eyes, robin sized, long tail. Really doesn't look like an owl in silhouette, could be thought to be just any medium sized bird, except for having too little neck.

Up to Greeley Reservoir filter plant, and then into Lory State Park, about 4.00 p.m. One more goshawk in flight overhead. A big accipiter, long-tailed and several wing beats, then a soar.

Herring Gull 2
American wigeon 6
Mallards 94
Steller's Jay 9
Green winged teal 6
Raven 2
Gadwall 6
Magpie 12
Rock Dove 13
Robin 2
Snipe 3
Red breasted nuthatch 5
Northern shrike 1
Pygmy owl 1
House sparrow 4
Downy Woodpecker 1
Black capped chickadee 10
Flicker 2
Junco 30
Pine Siskin 95
Goshawk 2
Am. Goldfinch 2
Tree sparrow 12
Evening Grosbeak 19
house finch 7
Starling 59
song sparrow 3
prairie falcon 1

28 species

Dave Leathermann, active ornithologist, is forest entomologist for the state and good all round naturalist. He would be good to consult on insects.

Colorado Division of Fish and Wildlife does an aerial survey of geese; we didn't count them.

end 1986

start 1987.

end 1987.

1995. Biology, Ethics, and the Origins of Life - Book 1995

Critical Notice: Biology, Ethics, and the Origins of Life

Harmon R. Holcomb, III (Philosophy, University of Kentucky) says of Biology, Ethics, and the Origins of Life: "A delight to teach, this anthology conveys our best efforts to come to grips with what biology is telling us about human nature: human beings are an evolved social species having mind, culture, and morality. In striving to reconcile our evolutionary past with the challenges of living an ethical life today, this book captures the interests of all students, especially biology students. Rolston's introductions make the book easy to teach and the uniformly readable, informative articles never fail to inspire good discussions. No other short book succeeds so well in showing how scientists, philosophers, and theologians can learn from each other and work together to keep our overall vision of human life on earth honest." In review note, published by Jones and Bartlett.

Clifford Matthews (Chemistry, University of Illinois at Chicago) says that Biology, Ethics, and the Origins of Life is an "exceptionally stimulating collection of essays." "Holmes Rolston ... has done a superb job in planning and editing this volume, not only contributing a thoughtful introduction to the symposium as a whole but also supplying separate introductions for each chapter, a final provocative overview by way of an epilogue, and a helpful glossary and index. This slim volume on biology and origins is not to be missed by anyone at all interested in religion and science and life." Review in Zygon: Journal of Religion and Science 31(1996):530-535.

John G. Quilter (Philosophy, Australian Catholic University, New South Wales) cites Biology, Ethics, and the Origins of Life for its "awareness of the complexities of the issues and the current state of the relevant literature in the philosophy of science." In "A Questionable View of the Place of Science in the Foundations of the Law of Life and Death," Death Studies 22(1998):393-401, citation on p. 399, p. 401.

1997 Cover Story "Natural Thinker" Denver Post

1986 start

1986. Jan. 20, 1986, Zimmerman Lake, with Giles, on snowshoes, Nice day, good snow, but uneventful, 7 bighorns at one of the feeding/medication spots (across from the fish hatchery) on the way up, 17 there coming down, including 2 rams. The Montgomery Pass trail also leaves from the Zimmerman Lake parking lot, and I scouted the lower end of it, Too steep to ski, but it should be a good climb on snowshoes.

1986. Jan. 25-29, Syracuse, N. Y. and address to Symposium on Social and Economic Values of Wildlife. Flew Saturday and rented car; drove out to Montezuma Wildlife Refuge, Seneca Falls, N. Y. Night in motel.

1986. Sunday morning hiking in along road by the mail pool. This is an observation drive in season, usually snowed in in winter and a ski trail, but currently there has been a thaw and it was clear of snow. Overcast day. Thousands of Canada geese in the air and on the pool, almost all frozen. Returned and after lunch hiked a Spring Pool trail off Route 89. 12-15 deer. Snow Sunday night and returned to Beaver Lake Nature Center north of Syracuse. Very nice, especially birds at a large bird feeder, and the hemlock woods in 10" of new snow. Also Sunday afternoon drive south beside Lake Cayuga.

1986. Feb. 15. First crocus. Mild weather.

1986. Feb. 22. Rawhide Power Plant with Paul Opler and Audubon group. Exquisite adult bald eagle soaring shortly after we arrived. Many coots, goldeneye, scaup, buffleheads, mergansers, widgeon. Nice golden eagle, and later a second one at a distance. Drove out to Rockport, expecting to go on to the Pawnee' Grasslands but got separated from the leader. Ferruginous hawk, roughleg hawk. 50-60 antelope, one herd of 15 deer. The golden eye males were throwing their heads way back, in courtship; also the buffleheads were doing this to a lesser degree.

Received two new NCR computers yesterday. My first computers, for wordprocessing.

1986. 1986. Mar. 17-18, 86. Eagle trip, camped at Jackson Lake. 9 eagles, but we were really too late. Not the best weather. Drove to Riverside, open water, no ice, cloudy but calm. Weather has been mild for 6 weeks. Reservoirs are as full as I remember seeing them. Drove to Empire, in slight rain. Lunched at Centennial Café in Orchard (eating outside!). Drove to Prewitt in rain. Two nice adults perched in tree on the island off to the left as you go in, and we gradually crept closer and closer in Scout until I could fill the scope

at 60x with one of them. So close you could see the pupils in his eyes. He was wet and perched somewhat tottering in a high tree in good wind, trying to dry out. Very menacing looking in somber weather. Total of six seen here, one immature.

Drove around the east side; there is considerable access here, but you eventually have to stop at the outlet/inlet. Returned to Jackson Lake and got camped and supper cooked, but with no time before dark.

Much wind in the night, but no rain (there was a major storm in the mountains). Took tent down in the wind in the morning. It did o.k., but this is as much wind as I have had it up in. Three eagles seen around Jackson, but none very close. Talked to ranger; there were 14 here last week, but it is late and weather has been mild. Drove around east and north side of Jackson Lake; there is access to the wildlife refuge from the north side.

Drove to Weldona and south across the S. Platte, then up a road to a reported eagle roost. Lunched again at café at Orchard, and drove home.

Several flocks of bluebirds. Perhaps two dozen great blue herons, more than I remember before. Perhaps 150 snow geese at Jackson Lake. Good number of Canada geese; the usual ducks - mallards, buffleheads (a few) lots of redheads, some shovelers, scaup, coots, widgeons. Ranger said he had seen some pelicans.

1986. Mar. 29, 86. Harris' sparrow at feeder at Fred Hermann's. This sparrow winters here in Colorado, but is unusual. Nests in arctic.

1986. April 3, Thursday. Spring snowstorm and got stalled in road to Loveland. I was trying to get to Boulder to give a paper at the Regional Meeting, American Academy for the Advancement of Science, on Values in Evolutionary Theory. There was little snow in Fort Collins, though Denver was in trouble. Began to snow furiously as I left town and by the time I got halfway to Loveland driving was difficult. It was hard to see the road in a whiteout, and the main signs for orientation were the telephone poles. Everything else was white and visibility was such that I could hardly see from one telephone pole to the other.

Two cars were turned around in the road about 3 miles north of Loveland, and, since others were behind me, I could not go forward or backward. Still snowing furiously. After half an hour enough people accumulated on both sides of the traffic to gather a half dozen to push until one of the cars was pushed far enough off the road to get by. A four wheel drive managed to get by the other and with a tow rope pulled it back straight on the road, and it pulled off into a farm driveway nearby.

I went on to Loveland and turned round and came home on Route 287, which was no

problem returning.

1986. April 10-13, 1986. Bowling Green State University, Bowling Green, Ohio, to deliver paper there. Sunday and Monday a.m. in the woods. Oak Openings Preserve west of Toledo, a Toledo metropark, but a very nicely preserved area and full of trails. Hiked the Blue-Fern trail first, before people began to gather, early a.m. Sunday, cool but lovely weather. Not too much out in the way of spring flora, but nevertheless nice deciduous woods. Then hiked Red Sand Dunes Trail, to sand dunes that are relict from prehistoric times when Lake Erie was much higher.

After lunch hiked Horseshoe Lake Trail, and then Silver Ridge Trail.

About mid-afternoon left to drive to Crane Creek State Park on Lake Erie east of Toledo, and stumbled onto Ottawa National Wildlife Refuge first, then went to Crane Creek about sunset. Night in motel, and then drove back to Oak Openings (not far from the airport) and stayed there until time for takeoff about noon.

Lovely display of *Hepatica americana*, perhaps a thousand blossoms within sight on a hillside on the Silver Ridge trail. Some *Claytonia*, Spring Beauty, and a little *Anemonella*. Lots of *Lindera benzoin*, Spicebush. Lots of *Symplocarpus*, Skunk Cabbage, the best displays I have seen, and very pretty in the morning sun.

Earthstars, *Geastrum*, especially well developed around the sand dune area. Bigtooth Aspen is common in the area. Red Pine, Norway Pine, Scotch Pine, Jack Pine, Austrian Pine, White Pine, also Norway Spruce and Douglas Fir.

One Eastern bluebird in the sand dunes area, first I remember seeing in a long time. Chipping sparrows, titmice, veery song sparrow. Cooper's Hawk and call.

At the Ottawa Wildlife Refuge, about 6-8 Great Egrets, all white. A dozen Great Blue Herons, lots of Canada Geese. There is a 7-acre plot of deciduous forest preserved at Crane Creek State Park which catches migrants that hesitate to cross Lake Erie (you cannot see the other side). Ruby Crowned Kinglet in here. Next morning at Oak Openings a nice flock of Golden Crowned Kinglets. Coots. Deer tracks and a dead raccoon in the woods.

1986. May 4, 86. Crow Valley, with Giles. Perhaps half a dozen mockingbirds and as many brown thrashers. No warblers. Reports were that Audubon's and myrtle had been there day before. Western kingbird, wrens. Lark sparrow. Swainson's hawk. No orioles. I thought I saw a cardinal on the way in, but others there hadn't seen any, so maybe not; it wasn't a clear view. Cedar waxwings. Loads of doves, blackbirds, starlings. American goldfinch.

Others had seen great horned owls and rose breasted grosbeaks the day before. Flushed a mallard hen off a nest on the ground beside an elm tree, with about ten unhatched eggs in it. Lark bunts, great horned larks, Western meadowlark in abundance on drive in. Kestrels. Robins.

1986. May 11, 86. Spring Creek below Horsetooth, alone, for birds. Nice couple hours, with the usual birds. Lovely lazuli bunting. Many chats.

1986. May 17, 86. Back to Crow Valley for the morning. This time it was full of Swainson's thrushes, no mockingbirds seen. A few brown thrashers. Lots (perhaps a hundred) orchard orioles and a number of northern orioles. Perhaps a hundred western kingbird. Lots of goldfinches. Several yellow warblers. Western wood pewee. Barn swallows. Nice view in scope of turkey vulture, on ground, his head filling the field. One western tanager seen in town.

1986. May 31- June 13. Ottawa, Canada, Nova Scotia and Prince Edward Island.

1986. June 6, 1986. Flew to Halifax from Ottawa (after attending World Conservation Strategy Conference there, where I met Russell Peterson, past president of Audubon Society). Got car and drove to Kejimikujik National Park (kejim-koo-jik). Stayed in room at bed and breakfast inn just s. of Park (Whitman Inn). Rain off and on most of this time. Walked the trails around park headquarters (Mersey Meadows, Beech Grove, Mill Falls) in the afternoon, and went to a park ranger program that evening. Next morning, did birds around the bed and breakfast place, then rewalked some of the same trails, then went on a ranger-guided hike at Grafton Lake, then did the Hemlock and Hardwoods trail. Ate noodles at a picnic area, and then drove back to Halifax to pick up Jane (leaving about 5.00 p.m.), that night in Halifax.

Lots of redstarts, maybe a couple dozen seen or heard. Myrtle warblers, chestnut-sided, ovenbirds, parula - on the whole quite good for warblers. Yellowbellied sapsucker, hummingbird, thrushes, kingbird, loon (one heard calling), ravens.

Perhaps 7-8 pink ladyslippers, lots of Maianthemum, Cornus canadensis, Starflower (*Trientalis borealis*). Cancer-root (*Orbanche*), Pinedrops (*Pterospora*).

Ferns were especially good: Bracken, the three Osmundas (Royal Fern, Cinnamon Fern, and Interrupted fern); *Onoclea*. *Pteretis pensylvanica* (Ostrich-fern), though rare in Kejimikujik, is common elsewhere in Nova Scotia and New Brunswick and the fiddleheads are eaten in the spring. I was served them last week at a gourmet dinner at the Chateau Laurie Hotel in Ottawa.

Some of the flora and fauna that are rare here are common further south, and thought to be relict here from a land bridge that once connected Nova Scotia with parts south in the U. S. In particular Blandings turtle (*Emydidae* Blandings, named for a Philadelphia naturalist), is found here with a very discontinuous range, spotty in Massachusetts, NY, skips to the upper Midwest. About 500 are believed to be here. The ranger caught one (by hand from a boardwalk) swimming, the largest he said he had ever seen.

Calla in bloom. A good deal of *Arbutus* is here (not in flower); this is the floral emblem of Nova Scotia. The Pink Lady-slipper is the floral emblem of Prince Edward Island. Water-shield (*Brasenia schreberi*), floating on the water with a football shaped leaf, has a very gelatinous undersurface. The lake shore where the ranger caught the Blandings turtle was full of it.

Labrador Tea (*Ledum*) was common in the park, and elsewhere saw a good deal of *Rhodora* in bloom (*Rhododendron canadense*).

1986. June 22, 86. Mineral Springs Trail from Rustic, with Giles. Trailhead is obscure, but once on it it is a good trail. Take road over river past Rustic (dirt) and follow it back on south side about half a mile. There are private cabins all through here, but nevertheless there seems to be a state easement, and once at the spot there are no posted signs. Up the trail 150 years (invisibly to road) there is a sign: Mineral Springs Trail, 3 miles.

Nice trail, though there is a good deal of beetle killed spruce in here. *Physocarpus*, Ninebark, was in full bloom, splendid display, and better developed here than I elsewhere recall. Dodecatheon, Shooting-star, also quite good. Lots of woodpeckers in the downed and dead timber. Above, more aspen, with wrens, Cassian's finches, pine grosbeaks. Also half a dozen Townsend's solitaires. Lunched at Mineral Springs area, where the trail (for the last 3/4 mile having become a road) crosses the road in from the Crown Point Road.

1986. June 28, 86. Chasm View with Bob Crumby and Perry Biddle.

1986. July 17-21, 86. Popo Agie Wilderness trip, with National Outdoor Leadership School, from Lander, Wyoming. (Pronounced Po-pose-zhia, long o's) With Bev Driver and others.

Drove to Lander in government car, with Giles; arrived about noon. Spent most of afternoon getting outfitted (though we didn't take much), introduced to NOLS, and got on bus to go to vicinity of Dickinson Park, where we camped with Allen Brothers, outfitters, and were fed supper in a cabin there. Night in a tent there. Coyotes heard in the morning.

Breakfast there, then onto bus for several miles to Dickinson Park; then on foot the rest of the day. Hiked in to Smith Lake and then to Cook Lake, where we camped throughout.

Afternoon at ease; discussions in the evening.

Saturday a.m., discussions; afternoon hiked along to Cathedral Lake, nice hike.

Saturday night, led discussion on intrinsic values in wilderness. Sunday a.m. discussions; afternoon, hiked to up Lake Phyllis (not named on map), just below which there was a fresh avalanche fall with much windthrown timber (now melted), but must have avalanched in March or April. Went on to Mendarrin Lake, very nice forest floor in here, good timber (limber pines, with glacial erratics). Mendarrin lake is in a fine cirque.

Discussions in the evening; Monday, hiked out, nice hike. Drove home from 4.00 on Monday night.

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1986. Saturday, drove to Sugarloaf Recreation area and hiked to Telephone Lakes, from about 10.00 to 3.00. Windy but pleasant. Easy hike over flat to undulating tundra. Long-tailed shrew found dead near the side of one of the lakes.

1986. Saturday night, Giles slept outside in a rigged bed, to pass off his Camping Merit Badge. Some rain. Sunday a.m. nice weather but rain by midmorning. Finished work on the merit badge. Packed up and drove home after lunch.

Brought home fairy shrimp, *Brachinecta coloradensis* (probably). A crustacean, Subclass Brachipoda (gill-feet) Order Anostraca, fairy shrimps, (without a carapace). Twenty or so flattened leaf-like structures that are both gills and feet. Eyes are stalked. Very pretty things to watch swim in the water. Long, thin abdomen, and a forked tail. They live in pools in the alpine and lower, and lay eggs that are very resistant to drying and to cold; then hatch out the following year. Egg sacs also seen.

Good picture in Barnes, *Invertebrate Zoology*, p. 393 (my copy). The standard reference for taxonomy is Robert W. Penna, *Fresh-Water Invertebrates of the United States*, Wiley, 1978, 2nd ed. He was at Univ. Colorado. Filippid is a now outmoded name for a subclass, including the Anostraca.

Giles and I earlier caught some of these on the Seven Sisters Lakes trip.

James Ward, CSU, is the local expert.

Theodore D. A. Cockerel, Zoology of Colorado, Univ. Colorado, Boulder, 1927, is old, but has a lot of information about what's to be expected in Colorado in it. In CSU library.

1986. Oct. 10, 86. Talk by Nolan J. Doeskin, CSU Dept. Atmospheric Sciences, on Ft. Collins and Colorado Climate. Steamboat area mountains can get up to 70 some inches of rainfall a year (or precipitation), the most in Colorado. This should make it a good area for mosses.

1986. Oct. 19-27. New York Zoo, Wildlife Conservation International. Flew to Richmond on Thursday, Oct. 23, and went up to Staunton on Friday, Oct. 24. Leaves were beautiful. Went with Mother and Aunt Willie Lee, Friday on the Skyline Driver. Friday night with Aunt Jacqueline in Staunton, and Saturday drove out to Rockbridge Baths, and up through Goshen Pass. Lovely leaves, but rain. The river had flooded last year and river channel very torn up. The school I attended (long out of use) had just been torn down.

1986. Nov. 15, 86. Rawhide Reservoir with Ron Ryder and Audubon, for most of Saturday morning. Windy, and the usual ducks and geese. Loons can sometimes be seen here, but they are low in the water, almost like a floating log, and hard to see when it is windy.

1986. Nov. 28, Friday after Thanksgiving. Donner Hill Trail, with Giles, from Buckthorn Ranger Station. But too much snow to get far up it. We went between the Greer Road and the Ballard Road. New, round cabin with central fireplace being built in here.

Afterwards, drove up the Ballard Road, and then Greer Road to where we had lunched. Snowpacked but no problem. Then tried further up the Ballard Road and going got too rough in deeper snow. The preferred trailhead for the Donner Pass Trail is now on the Ballard Road, as there is some private property (where the new cabin was) that is being developed some in here.

A few deer going up toward Horsetooth. Elk sign.

1986. Dec. 24, 1986. 3:00 p.m. by Express Mail. Received the first copy of Science and Religion A Critical Survey, from Random House.

1986. Dec. 27, 1986. Christmas Bird Count with Kevin Cook. Also Giles until noon, and Mark Schumann in early morning. Around Dixon Reservoir and got a really nice look at a goshawk. Nice eye strip over eye, otherwise a steel blue bird, perched. Also a prairie falcon perched on a telephone pole, first mistaken to be an oversized kestrel.

Then up to Horsetooth. 3 snipe in the slough where the dirt bikes run at the north end.

Lunched there, brought Giles home. Then up Rist Canyon, where the high point was on the way down, a pygmy owl, perched in the top of a pine, in good sun. Put the scope on him at 60x. Yellow eyes, robin sized, long tail. Really doesn't look like an owl in silhouette, could be thought to be just any medium sized bird, except for having too little neck.

Up to Greeley Reservoir filter plant, and then into Lory State Park, about 4.00 p.m. One more goshawk in flight overhead. A big accipiter, long-tailed and several wing beats, then a soar.

Herring Gull 2
American wigeon 6
Mallards 94
Steller's Jay 9
Green winged teal 6
Raven 2
Gadwall 6
Magpie 12
Rock Dove 13
Robin 2
Snipe 3
Red breasted nuthatch 5
Northern shrike 1
Pygmy owl 1
House sparrow 4
Downy Woodpecker 1
Black capped chickadee 10
Flicker 2
Junco 30
Pine Siskin 95
Goshawk 2
Am. Goldfinch 2
Tree sparrow 12
Evening Grosbeak 19
house finch 7
Starling 59
song sparrow 3
prairie falcon 1

28 species

Dave Leathermann, active ornithologist, is forest entomologist for the state and good all

round naturalist. He would be good to consult on insects.

Colorado Division of Fish and Wildlife does an aerial survey of geese; we didn't count them.

1986 end

1990 start

1990

Includes Africa, October 5-20, 1990.

1990. January 4-11. Trip to Louisville, KY and Richmond. Jan. 13 flew into Charlotte and out again enroute to Richmond. Lots of evidence of hurricane Hugo, trees laid down in spots, although then it would skip a mile or more until trees were laid down again. This was a massive hurricane that came further inland than usual last fall and closed down St. Andrews College.

1990. Jan. 11. Flew Richmond to Atlanta, which flew over Winston Salem and Asheville area with clear blue skies and nice views of Southern Appalachians. Then from Atlanta to Denver, flying over Ozarks. Nice weather, blue skies from coast to the Rockies.

J1990. Jan. 27. Snowshoed alone to Zimmerman Lake. Nice day especially in morning, got more windy later on, though I lunched at the lake decently. Big L.L. Bean winter boots worked well with snowshoes (Sherpas). After return to Scout, I changed to the heavy blue/black gaiters over my hiking boot and tried the Montgomery Pass trail a little. That worked well too.

Ten bighorns near where the old right angle bridge was (now replaced with better bridge). Two more several miles below fish hatchery. Fourteen at the fish hatchery, about 6-8 rams in here, less than half curl. This on the way up. On the way back there was a good group of twenty four several miles above the fish hatchery, a hundred and fifty yards off the road. Total 50 sheep.

Scout wouldn't restart when I pulled into Hardware store in LaPorte and I got a fellow to pull me. Started at once when I popped the clutch in 2nd gear.

That night: heard David Martin at Kevin Cook's Eyrie. He runs the Colorado Bird Report, 423-

5582. Gets 28,000 calls in and out a year. It is 24 hours on recording, call in as early as you like before going out for the day.

1990. Feb. 3, 90. Bryophyte Workshop with David Jamieson at Golden. Judy Von Ahlefeldt rode down with me. Bill Jennings, P. O. Box 952, Louisville, 666-8343 is the orchid man in the state. Peter Root, 4915 W. 31st Ave., Denver, 80212, 433-9340, is the fern man. Loraine Yeatts is good, a volunteer with Denver Botanic Gardens, went into Big Thompson Canyon for a study for Rocky Mountain Park to relocate some stuff lost in there.

1990. Feb. 9. Friday. Lunch with Ian Player, South Africa, and World Wilderness Congress.

1990. Feb. 10, Saturday. Phantom Canyon, alone. Went to Game check station on Cherokee Park Road and cut over Judson Ranch land to get to the Nature Conservancy Easement. Lovely day, though windy at times up top. Climbed to the flat west rim, and then dropped down to the river, through light snow on north facing slopes. Walked up the river a ways, crossing on ice, though you can often jump it on rocks at this season. Climbed back to rim, and lunched just below it to stay out of wind.

Found nice carpet of *Bryum alpinum* coming back down. Distinctive in the field and this is the first I have really recognized it. Forms large soft deep turfs of moss trending downslope on smooth, sloping surfaces of irrigated granite outcrops. The plants are not really anchored to the rock but held together by eroded gravel and sand. Bright green when fresh, golden-brown when dry and older. Imbricate when dry, not at all crisped

Ten deer, half of them at the bottom of the canyon. Lots (6-8) of ouzels, active and singing, in and out of water. One nice golden eagle, one rough-legged hawk. Try the Lone Pine road, below here; it is on state land.

First crocus. Warm days through here.

1990. February 24. Eagles on plains, alone. Saw nine, just past the river crossing toward Riverside Reservoir, at the irrigation canal on the north side, look way down east. They were all perched nearby. Is this where the roost is supposed to be? Several good mature ones here. The others were seen off and on, a couple in the air over Empire, darting at each other. One good one was along the river toward Orchard. Only one at Jackson, where I lunched. Then on to Prewitt, where there were four. Ten in the day's total of twenty were adults.

Brought home a Kangaroo rat that had recently been killed from roadside. It has notable cheek pouches--fur lined outside pockets on either side of the mouth which it uses to carry seeds. This one had a head of grass seed tucked away in one pouch.

Three nice pheasants, right beside car. Fifteen rough-legged hawks. Drove back from Merino north to Colorado 14 and thence home.

1990. March 1-4, Conference on Theology and Environment at Lutheran School of Theology, Chicago. Spent Saturday afternoon on the Indiana sand dunes with Ron and Joan Engel. He wrote Sacred Sands. Nice weather, though breezy and cool to cold. The dunes are a remnant interspersed in big steel, now rather decadent and empty of the once glorious promises of the progressive era. Sunday, flew back right over Prewitt Reservoir on the plains above Fort Morgan.

1990. March 15-19. Oberlin College, return via Huntington, WV. Went out Saturday morning with Eric Higgs, wife Sheila, Barbara Moran (philosophy of science), and Joe Sheridan, led by Dennis Desjardin, a mycologist, good with twigs in winter condition, which he had just been teaching in class. Looked around on some good woods owned by the college.

Afternoon, geology field trip, led by Cheryl Hummum, geologist-naturalist with Lorain County Metropolitan Park District. At Mill Hollow, Bacon Woods Reservation. Vermillion River has cut a cliff through Cleveland Shale, overlain by Bedford Formation, which is reddish (vermillion). A feature here are so-called "Fossil Turtles," nothing to do with turtles, but a rock concretion with veins running through it (septaria) that resemble turtle shells.

Latter part of afternoon at Old Woman Creek National Estuarine Reserve, on edge of Lake Erie. Red-bellied woodpecker seen here.

1990. Sunday afternoon, drove north of Huntington with Julia, Gray, M. J., Ernest, to see Green Bottom, a wet area managed by Corps of Engineers and used for hunting and recreation. One raccoon seen that had been injured; he was limping. Lovely weather, though it was snowing by the time I took off from the Huntington airport on Monday morning.

1990. Apr. 15. Easter Sunday. Overcast after a lovely Saturday. Cobb Lake and Wellington Wildlife areas. Avocets, scaup, mallards, pintails, gadwalls, blue winged teal, cinnamon teal, widgeon, one pair of pheasants up close and many calling. Four pelicans at Cobb lake in distance, five at Wellington area. Zillions of yellow headed blackbirds. Redwings. Geese. One pair of marsh hawks nesting at area going on a little north from the usual turnoff back west to Wellington ponds. Steadily carrying nesting material and dropping down into a cattail swamp near the road.

Coots, lots. A few shovelers. Pied bill grebe, western grebe. Mergansers, killedeer, western

meadowlark. Buffleheads, one ring-necked duck, up close, nice. There is a great blue heron rookery now at the small pond, westernmost stop, at Wellington area. There were 15 great blues in it. Check this again.

1990. April 19. Lecture at Middle Tennessee State University.

1990. April 20. Drive to Frozen Head State Park (Wartburg, TN), and walked North Prong Flat Fork, past DeBord Falls, and then up Panther Branch. Spectacular trilliums, perhaps a hundred thousand of them in all. Also Phlox was spectacular. Lunched on the trail. Returned, checked in at motel, and then walked Judge Branch trail. Talked to ranger here, David Engelbretson.

1990. April 21. Drove to Colditz Cove State Natural Area, near Allardt, near Jamestown. Preserved by Nature Conservancy and Tenn. State Parks. Deep gorge with hemlock and rhododendron, and an overhanging falls, rather like Noccalula Falls at Gadsden, Alabama. Good trailing arbutus in here.

Drove to Pickett State Park, at Kentucky Border, but did not have much time there. Also little out here in wildflowers. Hiked Hidden Passage Trail briefly, and found lots of Climbing Fern, *Lygodium palmatum*. The only time I ever saw it before was at Roan Mountain, above Ripshin Lake, June 7, 1966.

Wildflowers in Bloom
Frozen Head State Park
Colditz Cove State Natural Area
Pickett State Park
April 20-22, 1990

Stellaria pubera, Great chickweed
Claytonia virginica, Spring beauty
Viola hastata, Halbert-leaved yellow violet
Anemonella thalictroides, Rue anemone
Hepatica acutiloba, Hepatica
Sanguinaria canadensis, Bloodroot, past blossom
Dentaria laciniata, Cut-leaf toothwort
Viola rostrata, Long spurred purple violet
Epigaea repens, Trailing arbutus, a good deal at Colditz Cove
Trillium sessile, Maroon toadshade trillium
Trillium luteum, Lemon toadshade trillium
Trillium erectum, Wake robin trillium
Trillium grandiflorum, Great white trillium

Trillium -- at least a hundred thousand
Anemone lancifolia, Wood anemone
Ranunculus spp. Buttercup - perhaps 4 species
Phlox stolonifera, Wild Blue Phlox
abundant and spectacular

Vicia, Wood vetch
Viola canadensis, Canada violet
Geranium maculatum, Wild geranium
Carex, Sedge, several species
Antennaria plantaginifolia, Pussy toes
Thalictrum dioicum, Early meadow rue
Vicia minor, Periwinkle
Tiarella cordifolia, Foam flower
Asarum canadense, Wild ginger
Asarum arifolium, Little brown jug
Pedicularis canadense, Wood betony
Iris cristata, Dwarf crested iris, quite common
Arisaema atrorubens, Jack in the pulpit
Caulophyllum thalictroides, Blue cohosh
Oxalis montana, Wood sorrel
Uvularia perfoliata, Perfoliate bellwort
Smilacina sp., False Solomon's seal
Polygonatum sp., Solomon's seal
Disporum lanuginosum, Hairy disporum
Panax trifolius, Dwarf ginseng
Podophyllum peltatum, May apple
Viola, another yellow violet
Orchis spectabilis, Showy Orchid, 2 seen
Erigeron sp., Fleabane
Senecio sp., Ragwort
Hypoxis hirsuta, Yellow star grass
Cypripedium acaule, Pink lady's slipper, 3 seen
Waldsteinia fragarioides Snake strawberry
Euphorbia sp., Spurge
Mitella diphylla, Bishop's cap
Zizia aurea, Early meadow parsnip
Cercis canadensis, Redbud, common
Cornus florida, Flowering dogwood, common
Barbarea vulgaris, Yellow rocket roadsides
Houstonia caerulea, Bluets, abundant at Colditz Cove

Viola pedata, Bird's foot violet
Dodecatheon media, Shooting star
Nasturtium, White water cress
Vaccinium, Highbush blueberry
Fragaria virginiana, Wild strawberry
Amelanchier sp., Serviceberry

Unidentified heath

Lygodium palmatum, Climbing fern locally abundant on Hidden Passage Trail, Pickett SP.

1990. May 5, 1990. Old Stringtown Gulch Road to Nelson Spring. I was in here before on June 5, 1971 and June 12-14, 1978. Drive up in 4WD about 1 ½ m. in to locked gate, but this takes out much of the climb. Lovely day. Hiked in, reaching finest display of pasqueflowers I have ever seen, ten thousand of them. Otherwise not much out, though greened up. Some spring beauties. Steady hike in; I was hoping to get in shape a bit for the Gila Wilderness hike forthcoming. Lunched at Nelson spring; snow still in drifts along the road, but no problem. On return a mother and son at Nelson spring in a Bronco, and on way out half a dozen or so trail bikers. Flushed one wild turkey; white band at end of tail (on Western birds). Blue grouse have no such band.

1990. May 14. Hike up the Priest, with Ernie Thompson. SW of Charlottesville, VA. Nice purple rhododendron, and, towards the top, lots of trilliums still in bloom. Very nice day.

1990. May 20-25. Wilderness Management School, Gila Wilderness, New Mexico. Drove to Santa Fe on Sunday and spent the night with Gerry and Frances Allen. Drove to Reserve, NM, Monday am., and had a flat tire going up to Willow Creek on dirt road, and second tire went flat not long after arriving in camp.

The School was at Willow Creek Administrative Site. Beth Boyst, former student, had invited me. Mike Gardner is the District Ranger. Leaders, and cooks, were Ron Henderson, older, moustache, lots of experience in the area, had shot bear in the area, told the story about the mare mule blaze. (The familiar tree blaze is derived from mule trails, and looks like the rear end of a mare mule!). The other cook was Ron Bradsby, larger, also with much experience in the area. John Kramer, another leader, was on the Wilderness Resource Staff of Gila National Forest; he went to the World Wilderness Conference here in Ft. Collins. They had eight Dutch ovens, of various sizes and shapes.

Backpacked in Tuesday and Wednesday, to Iron Creek Lake, then along Iron Creek, and over Clayton Mesa, to the Middle Fork Gila River. Dropped way down to camp into a canyon. Clear and dry. Lovely ponderosa forest on way in, and out, but very dry in the

grassy undercover. Better along north slopes and riparian zones. Some very large Doug firs in here. Heard a whippoorwill in early a.m. There is a population in the Southwest.

Talk on no trace camping, dispersing fire sites, and one by an archaeologist on an old homesite in the area. Then packed out. Total 15 miles, and I got a blister on the way out, as most were moving faster than I otherwise might have. Lots of them were back country rangers and used to walking.

The trip had been planned into Apache Spring (10,000 ft.), but there was too much snow there. But I saw no snow at all. Cold in the mornings, and lots of frost on the car the day I left.

Thursday, into Snow Lake, and I gave talk at campground near there. Also an after supper video discussion.

Drove out Friday a.m. and Richard Newton took me to see some Indian petroglyphs near Reserve. Drove as far as Las Vegas, NM and camped in rather nice KOA campground just south of there. Drove home Saturday. Perhaps three dozen antelope seen from the car.

There is a population of spotted owls in the Gila, and we met some persons who were canvassing the population. They listen and call at night. Sometimes they have put out a mouse and make a squeak. The owl will come in and get the mouse and they can locate the nest that way.

1990. June 10, Sunday. Hiked N. Fork Big Thompson Trail about as far as Deserted Village. Had a summer cold, and didn't move all that fast or far. Nice day, though, and there were at least a thousand calypso orchids in here, many in good shape, many a little past prime. One clump had 116 in it, and another clump nearby some 36. Many clumps passed had 12, 15, often thirty or forty. Best display I have ever seen. About the usual otherwise.

1990. June 21, Thursday. Heard Roger Tory Peterson speak at American Birding Association convention at the Marriott in Ft. Collins. Also heard Jon Dunn, Consultant for the National Geographic guide on birds, on taking field notes to document rare birds.

1990. June 23, Saturday. Heard Rick Bowers, Tuscon, Arizona, on night birds (owls and nightjars) and Greg Budney, on birding by ear, Curator of the Library of Natural Sounds, Cornell University Laboratory of Ornithology.

Scratch on a tree (don't beat on it) with a woodpecker hole, and see if an owl pops its head out. The owl thinks a raccoon or something is climbing up the tree and wants to see what is going on. Too much noise and it knows it's something else and freezes up.

Play owl calls at moderate to low volume. Play a pygmy owl tape even if you get no owls, lots of other birds will come in to fuss at it.

1990. June 24, Sunday. Hike up Long's-Chasm Lake Trail with William Braddock, Geology, CU. Participants: Paul Edwards, 2541 Gilpin Ct., Loveland, High School science teacher, H. L. Schaeffer, "Lou" a park service employee in retirement and very interested in geology and natural history. Brian Suderman, 1117 Bradley, Laramie, WY. Also Braddock's wife, Carol, and Curt Buckholz went halfway, taking pictures, and then turned back.

The oldest rock that leaves any evidence to make inferences from is a (now) metamorphic country rock, laid down as sediments 2 billion years ago. By 1.7 billion years ago, it was solidified and metamorphosed, with some intrusion of a Boulder Creek Granite, not in evidence here.

About 1.4 billion years ago the Silver Plume Granite was intruded into it a pink, sometimes grayish granite that we walked through most of the day. The intrusion through here dominates, and often you see bits and pieces of the previous metamorphic rock, looking rather as though the granite is the country rock and the metamorphic came later. But not so, the other way round.

We walked round just below the bend in the road as you come up, to see Iron Dike, basalt, from 1.3 billion years, going to gabbro in the center of the dike. This is a well known dike and can be traced miles through the lower country here.

To date rocks of this age, there are two techniques. One is a potassium (in feldspar) going to argon, the other is a rubidium going to strontium. The argon is a gas, and has to be measured, presumably none lost. The rubidium. is a trace element in the feldspar and is the test used here. You have to carry a lot of rock off the mountain to find some that has the right rubidium in it to run the test, done in Denver.

Walked up the trail. Colluvium (as Braddock used it) is loose rock, around in the woods here where there is little soil, that has not traveled far (more than 200 ft.) from where it once broke loose from bedrock. Alluvium has traveled some distance by water. Talus has fallen and piled up steep. Colluvial rocks heave to the surface through frost action.

Quartz veins in some of these rocks. Often with black hematite coating, hematite has crystal faces which suggests that it crystallized in open cracks. Time unknown, maybe Tertiary. Veins were laid down by water borne minerals. Dikes were put in by magma.

Eugenia Mine - little is known about it. Some say there is a shaft there to 1,000 ft. There is no record of any production.

Looked at a prospect. Sulfide iron bearing veins were thought probably to bear gold or silver and prospected.

gossan, gozzan, a ferruginous deposit, that they liked, a top off for something important below.

Crossed a fault zone, before Eugenia Mine turnoff, then back into the Silver Plume Granite.

The brook crossing flows along the edge where you begin to shift from colluvium to glacial till.

The first till is Bull Lake, 130,000-150,000 years ago, the Bull Lake glaciation.

The second till is Pinedale, 35,000 to 10-15,000 years ago. Both are named from locations in Wyoming. Up there the till goes out on the plains and you can study it a lot better. Pleistocene goes back to 2 million years.

Big boulders along creeks can be spheroidal just from weathering in place, not necessarily water. Where there are two edges or a corner, weathering is accelerated, and this rounds them off. Glacial activity doesn't particularly round off boulders. It facets them by dragging them along a surface.

The Silver Plume Granite was earlier mapped and called other things. A woman named Margaret Fuller Boos ? mapped it and called some Mt. Olympus Granite, the fine grained phase, and some Long's Peak Granite, the typical phase.

Silver Plume granite would earlier have been called quartz monzonite, but that term isn't used any more. It would now technically be called monzo granite.

There are often planar oriented feldspar crystals in it. These are oriented with the flow of the magma.

The earliest sedimentary deposits (2 billion years) were shales and muds, and they have metamorphosed to gneiss by 1.7 billion years. This was presumably the first mountain building episode, although none of this topography remains, and you only judge that there were mountains because the rock beneath is much metamorphosed and contorted.

If it gets hot enough it not only metamorphoses, some of it actually melts, and this tends to be the low temperature melting parts, and this will recrystallize as quartz and feldspar. Some of the granite veins are formed this way, and are 1.7 b years old, contemporary with the metamorphosis. Others of the granite veins are 1.4 billion years, Silver Plume Granite.

A rock often doesn't have just one name. Several names can be used. We looked at one, a migmatite (thin alternating layers or lenses of granite type and schist). But it could also be called a biotite schist, or a biotite gneiss.

Gneiss and schist are not conceptually all that distinct.
Schistose texture has aligned platy minerals. They could be all the same, no bands.

Gneissic texture has alternating layers of different mineral compositions.
By this account a rock can be both schist and gneiss.

Some big garnets seen in some of the granite, also in some of the metamorphic rocks.

Above timberline. A white mineral in with the aligned platy biotite is sillimanite. It looks like felt under lens.

Bull Lake Moraine is older. Pinedale Moraine is younger; it is the ridge (here with more timber on it) closer to the gorge). It is not easy to tell where one stops and the other stops. You have to study how much weathering has taken place on the surfaces of the till. Often the metamorphic is a little harder than the granite, and sticks up in ridges of an inch or so.

Looking up at Meeker, Ship's Prow, the Diamond, etc., you see large bands, slightly sloping. The flat bands are all that is left of the country metamorphic rock and the intruded Silver Plume is above and below it.

The snowfield in Jim's Grove could have cut the depression there, but it may not be cut in bedrock, only in colluvium or till. The whole big bowl of Jim's Grove area is presumably a sort of Bull Lake Cirque.

scree - small talus, small enough to get down your socks when you try to walk over it.

Really, all the topography is contingent, looking out from the trail junction (Chasm Lake, main trail), where we ate lunch. Long's Peak isn't any different or harder rock from what's all around, it is just where the streams didn't reach. The tarns are there, presumably not on any harder or less hard rock. Even the big valley between Long's and Twin Sisters is not a structural valley, just a drainage.

Walked on to see a dacite dike. The mystery rock. Seems to be a Tertiary dike in here. It is a dacite porphyry. Brought home a small piece.

Braddock doesn't think the flat surface now on the summits was ever a peneplain, which is

like Kansas, flat, no relief over 100 ft. The surface was really rolling or even mountains. It hardly has a date. We don't have any deposition here but in the time between a billion years and the present, all the rock column must have been more or less above the preCambrians, first laid down, and then washed away. Details all gone, or can be surmised from the rocks on the flanks down at Loveland, etc.

The next activity here is a upland surface, which 70-50 million years ago is uplifted, and the present Rocky Mountains start, being cut into this already low mountainous surface. That's Bighorn Flats and Terra Toma, cut now into Forest Canyon. Then the glacial features were cut 2 million years ago onward into that.

Braddock and Cole (a former graduate student of his) are publishing a Geologic Map of Rocky Mountain Park this year (September?) and he showed us a color proof, he had received only a day or two before.

end of geological hike, Long's Peak.

1990. June 30, 1990. Poudre River and Laramie River wetlands, with Dieter Wilken and Jan McGee, on Colo. Native Plant Society field trip.

Plants at Kinnikinnick Meadows (shortly below the Fish Hatchery)

Potentilla effusa
Eriogonum pumilus
Stipa comata
Pseudotsuga menziesii, Doug fir
Populus tremuloides
Artemisia frigida
Pinus ponderosa
Habenaria hyperborea
Polygonum bistortoides = *Bistorta bistortoides*
Geranium richardsonii
Castilleja sulphurea, Yellow paintbrush
Pedicularis scopulorum. = *P. sudetica* ssp. *scopulorum*
Dodecatheon pulchellum
Carum carvi. Caraway. Like a Queen Ann's lace.
Thermopsis rhombifolia
Trifolium praetense
Poa praetensis
Astragalus

Allium rubrum
Grindelia squarrosus
Phleum pratense
Galium boreale
Valeriana edulis
Equisetum arvense
Stellaria umbellatum
Stellaria longifolia
Smilacina racemosa
Thlaspi arvense
Agropyron smithii
Pediocactus smithii
Gaillardia aristata
Bromus tectorum
Achillea lanulosa
Carex rostrata
Potentilla spp,
Scirpus microcarpus
Eleocharis palustris
Utricularia vulgaris insectivorous bladders
Sparganium minimum
Carex aquatilis
Pedicularis groenlandica
Glyceria striata
Primula incana
Sisyrinchium montanum
Rosa sp.
Salix sp.
Montia chamissoi
Oxytropis sericea
Populus balsamifera
Gilia pinntifida
Phacelia hastata
Chrysothamnus nauseosum
Penstemon virgatus
Lilium philadelphicum (Wood lily) is in here, but we didn't see it.

Rode in the motor home of Robert Davis, economist that I first met at Wildlife Conference at Syracuse, also at the Symposium at Univ. Illinois, he is now in Boulder.

Went to Jan McGee's fen, which seems now to be called Boston Peak fen, a 10,000 year old

glacial kettle remnant. Of interest here are *Salix candida*, *Carex libida*, *C. limosa*, and *C. diandra*. I worked the mosses here last summer.

Then went on to Hoehholz lakes. Several Wyoming plants here that hardly get into Colorado. *Sisyrinchium pallidum*.

Returned to Narrows Picnic area about 6.30 and took the Ford up to Cameron Pass to see if I could find the boreal owl.

Got there towards dark and found the box, very close to Zimmerman Lake trailhead. There was a woman there, Louise Armstrong, from Illinois, working in the summer at Cheley Camps. We scratched the trunk to no avail twice, waiting between each, and then as I was about to go we tried it again. The owl popped out and spent about a minute looking out. Nice show. The hole looks small, but the owl looked bigger than what you might have thought could get through the hole.

Drive home in the dark.

Richard Chamberlain in the movie Centennial was filmed in Kinnikinnick Meadows and the cabin ruin remains.

1990. July 15. Bowen Gulch in Rocky Mtn NP and Arapaho NF. Drove over Trail Ridge and got on trail about 10.00, losing some time figuring out the trailheads. The former Bower Gulch trailhead has been merged with the Baker Gulch one, and then you have to walk south for a mile and a half to get into Bowen Gulch.

Hiked on up the Gulch. This is the area of disputed timber sale and old growth forest, though the area to be cut is not where I walked but nearby in a tributary drainage from the south. There are roads in from the south, not shown on the old maps.

Met three rangers building a bridge. Passed an osprey's nest, with the momma alarmed and screaming at me, both going and coming.

About two dozen elk seen from car coming and going. Try a backpack into the high country in here (Never Summer Wilderness) from the unshown roads from the south.

1990. July 21-22. Backpack to Lake Jasper and Devil's Thumb Pass, alone. Left early Friday, went to Hessie Trailhead. After the road splits from Fourth of July turnoff, road is marginal for sedan, but many do it, and it is not far, only mile or so. Better to park at Hessie townsite and don't try to go the last mile or so. Creek often runs in road some, but it is solid gravel, not muddy.

Threatening weather, but it cleared and I hiked in dry. Set up camp and napped in rain, cooked supper in a little rain. Should have waited as it cleared off and was lovely in the evening.

1990. Saturday, clear in a.m. and I day hiked up to Devil's Thumb Pass. The trail goes up into the cirque with Devil's Thumb Lake and a pond above it, but then the trail does not climb the headwall of the cirque (contrary to what is shown on topo,) but goes UP to the south, climbing a ridge and joining the divide.

One good snowfield, snowbank in here that I climbed over going up, but was reluctant to descend on return, too steep for safety, and walked around. Weather was good. You have to drop down on the west side, pick up the Corona trail, and then climb back up to the Pass from the West. The Corona trail is well marked with high cairns, but some great distance apart; they would be difficult to locate in a whiteout.

Rain set in rather suddenly on descent, and I started lunch at the bottom in the shelter of some stunted spruce, only to have the sun come out while I ate. But weather had caved in by the time I returned to camp. Dry but cloudy for supper, and so foggy that night that you could not see more than 100 feet.

1990. Sunday a.m. clear and nice, hiked out by 3.00 p.m., rather leisurely. One deer first night, and coyotes howling in early morning. Birds were good, lots of white crowned sparrows. Several kinglets, seen. One white pelican on drive home.

1990. Aug 1, Wednesday. Spoke at CSU Alumni Nature Camp, Pingree Park. Shonny used a whole matchsafe full of matches trying to start a fire in the stove in the cabin!

1990. Aug. 5-9. Backpacking with Giles, Continental Divide Trail, Mt. Zirkel Wilderness. Left at 5.00 a.m., after Giles had had little sleep the night before, working at Jack in the Box. He slept much of the way over. Couple dozen antelope in North Park. One skunk prowling the road around LaPorte. Arrived in Steamboat about 9.30. Road to Buffalo Pass is good dirt, but lots of corduroy. Giles drove up; first time in Scout.

We were on the trail heading north by 11:15 or so, and hiked about an hour and ate lunch. Almost nonstop hiking through the afternoon to reach Luna Lake about 6.00 p.m. in lovely weather. A pretty good descent via Lake Elbert to Luna. About ten Boy Scouts were camped there (from Kansas City), but we got a good and quiet campsite toward the lower end of the lake. Pretty bushed by dark.

1990. Tuesday, Aug. 7. Lovely weather continues, perhaps the warmest night I remember

in the alpine. Hiked up to Lake of Craggs, on up top, and then on Continental Divide Trail (abbreviated C.D.T. thru here) north to the Roxy Ann Lake Trail, where Giles and I had joined it before (in August 1981, when he was 9; now he is 18). Warm lunch in good sun.

We separated on return; he went back to fish and I collected some mosses. I made my way back south to the middle trail that goes down to Luna Lake, not well marked or well worn, but found the way down; there are some cairns. Went down below Luna Lake to the Mad Creek area a little after supper. Good weather continues.

1990. Wednesday. Hiked halfway out, really a good day's hike, from about 9:30 till 3.00, and stopped at the pond right on the divide halfway back. Various people camped there, two with llamas. Started raining now, though also continued pretty. Spectacular rainbow after supper, sometimes double.

1990. Thursday. Hiked out by 11.00 and drove home. Giles had to be at work at 8.00 and Jane was returning from Richmond to arrive at 5.00 p.m.

First trip using the Sierra Designs blue tent. Fewer hawks enroute than I would have expected. Apparently, we saw a fox going up the Buffalo Pass Road. Only a glimpse.

1990. Aug. 19. Chasm Lake, leading group from Estes Park Philosophy Conference. Jack Weir, Paul Churchill, Bryan Norton, Pete Gunter and wife Sheila, her daughter Maury, and their daughter Sheila. Also Ray Raphael's son, Nick? Good day and good trip up.

1990. Aug. 23. Drosera bog in Park Range, with Kevin Cook. But we couldn't find the sundews. Left 5:00 a.m. and were at the trailhead below Big Creek Lakes at 9:30. The road down from Big Creek Lakes to the trailhead is o.k. for Ford, but marginal. Wouldn't like to do it wet or any more washed out.

The trail south is the Grizzly - Helena trail, seems to be named because it runs from Grizzly Creek to Helena Campground, now defunct and passed in the car above the trailhead. But it is well kept up and no trouble to follow. It is, however, re-routed from what is shown on the map to keep it inside the national forest.

Heard and saw some crossbills on the way down. Kevin called them in. Distinctive call. Lunched at Shafer Creek crossing, and thought the trail went up from here (following Alan Carpenter), but I had misunderstood him, and we eventually went on another 1/4 - 1/2 m. south and found the junction. Fryingpan Trail is evident and little trouble to follow, seems to have been in many years. But it is not now kept up and there are frequent blowdowns. There are numerous signs at the critical junction, but many of them were old, some lying down.

Hiked up to the contact with Shafer Creek about 1 ½ m. West, and found the Sphagnum Bog, but could not find any Drosera. Nicest Sphagnum bog I have seen in the state; you can jump on it and the Sphagnum turf shakes for 50 feet around. Lots of buckbean, Menyanthes trifoliata. Several Leopard frogs seen (Rana sp.)

But no Drosera seen. Phone call to Alan Carpenter on return. He says Betsy Neeley (his wife) found it, and they found several dozens of plants, most of them in a 50 foot area, but a number outside of it. Thinks they found them on two different bogs. This was in early August. He was looking for unusual sedges. He thinks the best of these bogs do not have Yellow Pond Lily on them. They used aerial photos and this made it a lot easier to get around. Phone 443-8094.

Returned about dark, ate a picnic supper at Big Creek Lakes, and drove home, arriving midnight. Big Creek Lakes has a Tiger muskie in it, a hybrid that is sterile, but bred and stocked as a game fish.

Saw 3 sage grouse on way home; two in twilight crossing road, and one after dark. They inhabit especially the wetter areas of the grasslands here.

The boreal owl in Cameron Pass raised 3 chicks. These owls feed on a vole that climbs the trees and so they can feed through the winter, even with deep snow on the ground.

Africa trip follows starting on a new page.

Africa Trip

Oct. 5, 1990. Friday. Left Denver, British Airways, about noon

Depart Chicago, 5.35 p.m.

Oct 6, Saturday. Arrive London, 7.25 a.m.

Checked in Excelsior Hotel

Took underground downtown for a few hours. Big Ben and Houses of Parliament. Westminster Abbey and visited Darwin's grave. Tower Bridge, and Picadilly Circus. Returned to hotel, and nap.

Depart for Johannesburg, 8.15 p.m.

Night flight, arriving Johannesburg 8.20 a.m.

Met and taken to Rosebank Hotel, Johannesburg.

Lunch with George Carlson, Senior Lecturer, Department of Philosophy, University of the Witwatersrand. Talked until about 3.30.

Walked around the area, to shopping center nearby.

1990. Oct., 8, Monday. Met with Helga Liebenberg, Director of the Southern African Forum, and Jenni Heeger, my tour leader, and Vance Martin.

11.00 left for Port Elizabeth, arrived Port Elizabeth and drove to Addo Elephant Park. Some vervet monkeys on the way in, crossing the road. Afternoon tour led by Nico van der Walt there. Saw about two dozen elephants at close hand, half a dozen leopard tortoises, an angulate tortoise (a rare one), glimpse of some kudu bucks, also several grey duikers (pronounced diker). Dung beetles. Watched elephants from a blind drinking and cooling themselves with water toward sundown. Lots of ostriches. Nice look at a cape eagle owl towards dusk and a smaller, unidentified owl. A number of suricates, a delightful small mongoose, including one tame one. One jackal buzzard.

Dinner that evening with Nico and his wife, Sorina, and that evening went out in four wheel drive truck with a spotlight. Saw one good buffalo, dark and memorable in the spotlight, another in the bushes. Red hartebeest, numerous spring-hare (not a hare, but a rodent something like a small kangaroo, on which Nikko had done some special work), various rabbits, a few eland, lots more duikers. One bat-eared fox.

1990. Oct. 8, Tuesday. Morning at Addo Elephant Park. Ate kudu steaks for breakfast. They gave me some biltong, a dried meat like jerky. We went out again driving around the park with Barry Hapgood, a student doing a practicum in residence at Addo. Saw many more

elephants, over forty at a watering hole, coming and going, and then back at headquarters there were another sixty coming in to the watering hole there. Lots of weaver birds at a wet pond area at the headquarters area, cape weavers, spectacled weavers, and red bishops (a black weaver with a scarlet head). Male weaver birds build the nest and show it to the female who may or may not like it. If they can't get a female to accept their nest, they have to build another. Cape robins. Cattle egrets. Malachite sunbirds, a striking bird. Also memorable is the incessant call of the doves, especially the cape turtle dove.

Left for Port Elizabeth and a flight about 5.00 to Cape Town. Checked in at St. Georges Hotel. Drinks with Albie Sachs failed to happen that night, but drinks and supper the following night.

1990. Oct. 10. Wednesday. West Coast Park with Trevor Dearlove, Chief Communication Officer, Southern Parks, National Parks Board. Trevor attended the World Wilderness Congress in Denver and Estes Park.

Drove north West Coast Park, located at Langebaan, about 100 km. north. The vegetation is originally fynbos (means fine bush), here and even more south to Cape Point, but it is much invaded by several shrubs from Australia. The fynbos biome is an unusual floral province, the richest flora in the world of comparable size. Some 8,000 species in the Cape Town area, nearly 70 percent endemic, and some 1,300 presently classified as endangered.

Lots of birds, francolins (a large partridge), (helmeted) guineafowl, flamingos, curlew sandpipers, stonechats (something like a robin), Egyptian geese, pied crows (like a magpie), common terns, sacred ibis, whitebreasted cormorants, crowned cormorants, bank cormorants, white pelicans, European bee-eaters, African marsh harriers, black harriers, black korhaan.

Took motorboat, guided by a park warden, Sarel Yssel, over to see nesting colony of cape gannets, ten thousand of them on an island. Difficult getting on and off boat in the swells. Saw cape fur-seals on way over and back.

After lunch, drove around the lagoon, saw many ostriches, including young, about the size of a chicken, and especially on the west side (north of Churchhaven), bontebok, springbok, Burchell's zebras, gemsbok, blue wildebeest, eland.

Returned to Cape Town. Drinks with Albie Sachs, Director of the South African Constitution Center, exiled from South Africa for 23 years, sometime in Mozambique, sometime in London, lost his hand and part of his arm when a death squad bombed his car. He joined us for dinner.

Dinner with Denise Meyerson and Paul Taylor, husband and wife, philosophers at University of Cape Town. She does ethics, he social philosophy. Joined by Albie Sachs.

1990. Oct. 11, Thursday. Day with John Raimondo, General Manager of the Environmental Evaluation Unit, University of Cape Town. Raimondo was earlier a chemist in paper technology, but has returned to the University in environmental evaluation. University is in a spectacular setting, mountains behind, False Bay opens out in front.

drove to Darwin site at Sea Point, nice view.

10.30. Talk to group of his students.

Lunch at Rhodes Memorial, area with nice view over the city, adjacent to the university. The inscription is : "To the life and work of Cecil John Rhodes, who loved and served South Africa. The immense and brooding spirit shall quicken and control, living he was the land; and dead, his soul shall be her soul." A verse by Kipling. Joined by Sandra Fowkes, senior consultant in the Environmental Evaluation unit, who is interested in incorporating environmental ethics into their course work there.

Brief trip to talk with Sheila Coltham at the Quaker Peace Center. She had a project planting trees in one of the townships. She had been stoned when attempting to deliver some clothing in a township not long before and rescued by other blacks.

Afternoon: Symposium with Roy Siegfried, Director, Percy FitzPatrick Institute of African Ornithology (the Fitztute). Siegfried is one of the authors of South African Environments into the 21st Century

Rode cable car up to the top of Table Mountain, lovely view, but a gathering "tablecloth" (cloud cover) brought us down a little earlier than expected.

Evening: Dinner at John Raimondo's home, wife Dawn, joined by Ian McDonald, botanist who had been at the symposium, wife Sue, and Hugh Fynn, wife Lurette (he teaches geography in a secondary school). He has a lovely home overlooking the city.

1990. Oct. 12, Friday. Joined by Jeannette Wulff, publisher of Wildlife Rancher. Met with Mr. Reinold Rau, Head of Taxidermy, and P. A. Hulley, South Africa Museum. He has a project to rebreed the quagga, an extinct subspecies of zebra, visited Sunday (see below). Hulley is interested in environmental education as this can be accomplished by a natural history museum.

Noon. Gracious lunch at Stellenbosch, hosted by Erica van Greunen. This is a lovely wine producing region. Stellenbosch is the second oldest town in the country, founded 1679. Allan Heydorn was present, a consultant with the South Africa Nature Foundation, and until recently its director. Also present, Andrew Muir, Director of the Leadership Wilderness Group, Cape Town. Stopped by the Wilderness School offices on return, near the botanical gardens, below.

4.00. Met with Brian Huntley, Chief Director, National Botanical Institute, Kirstenbosch Botanical Gardens, Cape Town. He took us up to his home, with marvelous view near top of the hillside, and we walked down through the gardens. Notable cycads here.

Evening. Dinner with Andrew Muir and his girl friend, a lawyer, Jeannette, and Vance.

1990. Saturday, Oct. 13. Visited Quagga Project with Reinold Rau. Drove to Worcester, then to Robertson and on to Vrolijkheid Nature Reserve at a village called MacGregor. Vegetation dries out considerably. This area is on the edge of the Karoo Desert. As a project of the South African Museum, he has about half a dozen zebras there, chosen to have few stripes and to be darker as the quagga was. The quagga has been extinct since August 12, 1883, when a captive mare, the last of its kind, died in a zoo in Amsterdam. It was hunted to extinction, once ranged throughout the Karoo and Orange Free State. It was once thought a species, but Rau established that it was a subspecies, partly through taxonomy and partly through electrophoretic analysis of some scrapings from the old skins that exist. He thinks the gene pool is still available, and hopes to re breed it. He needs zebras without stripes on the legs and toward the rear and zebras of a brownish color.

Rau says the wild cow persisted in Europe until medieval times; there were two species *Bos taurus* and *Bos indicus* (the latter from India), and that some persons have tried to re breed them.

Also there, saw black-backed jackals that they had trapped and a caracal, also trapped. These two are bad to take lambs, and they have a project to find ways to decrease this, by modifying lambing practices, also they hope to find ways of trapping that do not catch other animals, as many caught are not the target species.

Returned a different route, coming back over Sir Lowry's Pass, nice views of False Bay.

1990. Oct. 14, Sunday. Cape Point trip. Drove down the Cape Peninsula to Cape of Good Hope Nature Reserve with Andrew Muir. Lovely day and lovely trip. Walked up to viewpoint over the cape. Saw baboons here. Very rich flora, though no trees native to this area.

About 5.00. Flew to Johannesburg.

1990. Oct. 15, Monday. Lunch with Mr. Sydney Gerber, Chief Director, Environmental Conservation and Mr. Herman Grove, Director, Environmental Management, Department of Environmental Affairs, Pretoria.

Tried, but failed to meet Laura Pollecutt, Public Relations Officer for the National Environmental Awareness Campaign, and so did not get to see Japhta Lekgetta, President of the National Environmental Awareness Campaign, African National Congress.

Dinner with Braam van der Vyver, Head of Public Relations and Marketing, and Mike Landman, Chief Education Officer, Inland Parks. He will soon become a chief ranger at Kruger National Park.

1990. Oct. 16, Tues. Breakfast with Jocelyn Hellig, Senior Lecturer, World Religions, University of the Witwatersrand.

10.00. Met Jacklyn Cock, Sociology Dept., very interested in the ANC Environmental Platform.

Lunch with John Ledger, Director of the Endangered Wildlife Trust, also again Mike Landman.

Flew to Durban, and checked in at Holiday Inn, Marine Parade, lovely and large hotel right on beach front. Evening meal with Vance and Wayne Elliott.

1990. Oct. 17, Wednesday. Breakfast with Ian Player, who was himself headed out for the start of a trip in the Umfolozi Reserve.

Morning, at grounds of Wilderness Leadership School.

Noon: Interview with Barry Martins, Natal Daily News.

Lunch with Roland Goetz and his wife.

Trails (trips) in the bush usually have about eight persons. There is a trails officer up front with a rifle, usually a .458 or .357, also a game warden. These rifles are usually repeaters, 3-shot, but each of the two would get only one shot. Buffalo and rhino may charge as their first line of defense, lions may attack, especially if you move or appear to run away. They had to put down eleven animals in a recent year, not a very large number. But one trails

officer was hurt when a buffalo gored him, though this was the first injury in recent times. Some one stays on guard all night, though they could really often dispense with this.

4.00. Met Wayne Elliott back at hotel and started north. Drove north to his home at Melmoth. Lots of sugar cane country on the way, also many tree plantations--mostly pine and Eucalyptus. They burn the sugar cane before they harvest it, gets the leaves off. Most of the timber in South Africa is planted, introduced trees, often Australian. Met Paget Haines, who was our "cook" on the trip. She works with the kwaZulu tourist board. Recent graduate and raised in the area, she speaks Zulu from her youth. Spent night there.

There are hot wet summers in kwaZulu.

1990. Oct. 18, Thursday. Drove north and through Umfolozi Game Reserve. Wayne kept a pistol handy, in case there was trouble. Saw zebras, wildebeest, impalas, baboons. Secretary birds (head feathers were used as secretary pens), white-backed vulture, lappet-faced vulture (a really big one), hamerkop (a dull brown stork), yellowbilled kite. Rather cool and windy and they thought this kept the wildlife somewhat under cover. The Umfolozi is one of the oldest game reserves in Africa (it was one of five proclaimed in 1895). After coming out on eastern side, went to the home of Magqubi, Ian Player's famous guide.

Lunch at Ghost Mountain Inn, Mkuze.

The Zulu circular homes are kraal, not a Zulu word, but the same root as corral, Spanish and other root for circle. The Zulu word is muzi. Lots of cows, usually rather puny looking, kept by black kids who follow them around, but few fences. Two out of three of these cows die of natural causes, they are sometimes eaten and milked, but mostly kept as a kind of status symbol of wealth.

Drove on north to Tempe Elephant Park and camped in Sihangwane (see hah ng gwahn) Campground. Monkeys in the campground when we entered. Lots of crested guineafowl. Later joined by Donald Zoll, doing a book on management of elephants, lives in Arizona, consults with San Diego zoo. He was once in the Department of Philosophy, University of Saskatchewan and later in philosophy at Arizona State University.

Tembe Elephant Reserve is somewhat new. Conservationists would like to put a corridor between Ndumo and Tembe, but the ANC is troublesome. They have started to put a community center for political reasons in the way, otherwise it doesn't make much sense to put it there.

1990. Oct. 19, Friday. Drove to Kosi Bay which has a coastal forest. Tea in home of the

director, Vaughn Smith, wife Bernice Smith. Took a walk in the coastal with a black guide, at Lake Nhlangwe, 3rd lake, where the headquarters is. Very dense forests, lots of birds, but hard to make out. Drove down the Lake Mpungwini, second lake, where the fish weirs are.

Back to Tembe for a late lunch, and then off to Ndumo Game Reserve. Mozambique is across the Usutu River. Borrowed an open, green Land Rover at the headquarters (hatted camp), and went out with Pam Richards, an intern in wildlife conservation, who works there. Saw grey (common) duiker, red duiker, nyalas, common reedbuck. Along a river (Nyamiti Pan) we saw two white rhinoceros, first across the bay, and then drove around to get up closer, nice views. Lots of crocodiles along the river, and one group of about 12 hippopotamuses, underwater except for their heads.

Elephant is world's largest land mammal, white rhino is second, and hippo is third, and they are all here (Tembe and Ndumo); I saw the second two in one day and the first (and biggest) walked by my camp in the night!

A striking tree along the river sides is fever tree (acacia).

Ndumo is known for its birds. Saw spurwinged goose, saddle-billed stork (large one, strikingly colored), Egyptian goose, African spoonbill, glossy ibis, blacksmith plover, whitefaced duck, water dikkop, fish eagle (like bald eagle), blackwinged stilt, a kingfisher (unidentified), Goliath heron (a big one), lesser striped swallow, flamingos, pelicans,

Night again at Tembe.

1990. Oct. 20, Saturday. In early dawn heard the call of the African broadbill. A frog like "purr-rupp." Inconspicuous bird, and I only heard it. People come from some distance to see and hear it here.

Tracks of elephants right outside the electric fence to the camp. Tracks of bush pigs both nights.

Drove back to Melmoth, showered, changed clothes, and drove to airport in Durban. Left Durban for Johannesburg, 5.00. Left Johannesburg for London, 8.00.

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end Africa trip

1990. Nov. 19, 1990. Ran 5 miles to celebrate my 58th birthday!

1990. Fri. Nov 23. Hiked alone to Donner Pass. Nice day, windy on top. Left Buckhorn Ranger Station about 8:30. Trail is relatively new (new to me at least) from just past the lower Ballard Road, rebuilt to avoid some private property and a cabin put in here. Trailhead has been put in at upper Ballard Road, from which it is 2 miles to pass. Snow last mile and a half underfoot, and not too easy walking. Got a blister. Better on return. One pure white snowshoe rabbit seen in the woods (where there was no snow). About a dozen deer here and there enroute in Scout.

1990. Dec. 22. Christmas bird count with Kevin Cook, at -10o; it got up to 1o by mid afternoon. Birds not moving much.

pigeon 35

harrier 2, one female flew in right at us at Kevin's feeder

red tailed hawk, 4

black capped chickadee 8

junco 2

raven 5

magpie 18

song sparrow 7

flicker 7

Canada goose, 453

mallard 12

morning dove 1

snipe 8

starling 117

robin 3

tree sparrow 14

house sparrow 72

kestrel 1
killdeer 1
house finch 10

end 1990.

1991. Jan. 30-Feb. 3. American Fisheries Society, Oregon Chapter, Conference, Salishan Lodge, Gleneden Beach. Oregon coast. Out both Friday and Saturday, on Friday at various points up and down the coast, especially some sand dunes near Florence. Saturday, with Dan Bottom, in the morning at Cascade Head Natural Area, magnificent old growth forest, then trail breaks out to sea, in the afternoon in an old growth tract on the Siuslaw National Forest. Returned here May 1994.

1991. Feb. 8-18. Center for Theology and Natural Science, Berkeley. Spent Sunday in Muir Woods, on the peninsula north of Golden Gate, later in the afternoon on Mount Tamalpais (tamal-pie-us). In addition to the redwoods, lots of Tanoak, Lithocarpus densiflorum, with evergreen leaves, a tree halfway between Quercus (it makes acorns) and chinquapin/chestnut, with flowers like the latter. One trillium in flower, Trillium ovatum, and a good many other things in flower. Mild climate here.

1991. March 16, 91. Rawhide with Ron Ryder and Audubon. Yellow-billed loon, the first I ever saw. Has yellow bill and asymmetrical bill and is rather larger than common loon. Magnificent look at it through spotting scope in best of light, from the road over the dam. Also one common loon. Neither yet in breeding plumage. Also hooded merganser, nice view. One adult bald eagle.

Coming back, at Wellington wildlife area, two short-eared owls, flying low over grassland, nice view, had both in binoculars at the same time. Also the usual of waterfowl.

1991. March 30-Apr 2, 1991. Washington State University, Pullman. Flew to Spokane, rented car, and drove south to Pullman, arrived after lunch. Spent afternoon with Dan Holbrook and wife, drove down to see an area where the Snake River Canyon is dammed. He was once a logger.

1991. Sunday (Easter Sunday), drove over into Idaho and joined Marv Henberg and wife, Lori, and students, for rather disorganized hike into a piece of the St. Joseph National Forest, starting at a campground south of Deary. Also on hike, Nick Gies, teaches philosophy of religion at University of Idaho and Mike Clifford, Vanderbilt Ph.D., teaching there temporarily.

1991. Monday, at the University, including evening lecture, and concluding time with Michael Neville, chair.

1991. Tuesday a.m. flew home. This is the wheat belt and is the most plowed up land, every square inch of it, that I have ever seen. Very high wheat yield. But it is not bread wheat, but noodle and pasta wheat. Deep volcanic soil.

1991. Apr 6-9, McConnell Lecture, Alton L. Collins Retreat Center, Eagle Creek, Oregon, and Willamette University, Salem. Flew to Portland Saturday, met by Lane McGaughy, and rented car and drove to Retreat Center, checked in and had lunch. Saturday afternoon drove up to Mount Hood National Forest and hiked up the Salmon River trail, loaded with mosses. Misty rain.

1991. Sunday morning returned and drove as far as Government Camp, trying to get up to Timberline Lodge, but it was snowing and chains were required.

Returned and hiked along the lower Salmon River trail, collecting mosses in the most moss-laden woods I have ever been in. In bloom: Indian-plum, *Oemleria cerasiformis* (ohn-lee-re-uh ser-ass-if-formis), an interesting shrub; *Erythronium montanum*, Avalanche lily; a saxifrage; Bleeding heart, *Dicentra formosa*; a cardamine; *Oxalis*, *Oxalis oregana*; Coltsfoot, *Petasites frigidus* (pet-uh-sigh-teez frigid-is). Tried another trail to a falls in the early afternoon, but too much snow.

Returned to lecture Sunday evening and Monday morning. Lecture at Willamette University in afternoon. Returned to Portland and flew out early next morning. I never saw Mount Hood, always buried in the clouds.

1991. Friday, Apr 12 - Monday, Apr 15. Austin, Texas, with Texas Parks and Wildlife Symposium. Flew down Friday, met by Lee Ann Linam, in charge of endangered species in Texas, and husband, and went to barbecue at National Wildflower Research Center, founded by Lady Bird Johnson. Fire ants at the picnic.

1991. Saturday at the symposium. Sunday morning, went out to Travis Audubon Society area with David Diamond, plant ecologist, also joined by Paul Turner, doing census work, and saw the golden cheeked warbler, on endangered species list. Also saw the black capped vireo, on endangered species list, the latter in Hippie Hollow, an area with nude bathing below!

Latter part of Sunday went to a falls with Bob Murphy, Texas Parks and Wildlife, section chief. Several scissors-tailed flycatchers. Texas has relatively little federal or state land; most of it is private and this makes conservation difficult there. Austin is further south than you think; quite summery here by now.

Also a road runner. Ball moss, Tillandsia, a bromeliad, pineapple family.

1991. Apr 17-19, University of Nevada, Las Vegas, though no opportunity to get out into the country.

1991. Apr 27-Apr 30, South Dakota State University, Brookings. Flew up Saturday to Sioux Falls and rented car north to Brookings. Looked around campus and evening with Kent Kedl. Sunday morning went to Oakwood Lakes State Park with David Nelson. Prairie lakes, most of the trees, of which there are a number now, were brought by the settlers. Midday, saw a prairie reserve by Nature Conservancy. Lots of pelicans and a pond full of wood ducks. Saw western grebes in courtship display, where they rise up and skitter across the water. Afternoon went to Pipestone, Minnesota, nearby, where Indians mined a soft claystone for peace pipes. Sunday dinner at David Nelson's with the philosophy department.

1991. Monday on campus, supper with Nels Granholm. and drove back to Sioux Falls for early morning departure. Lots of rain on Monday. The Dakotas, they say here, should not be divided North and South but East River and West River (the Missouri, which flows through them both). East River is wetter, farmable, tall grass prairie, Central Time Zone; West River is dry, short grass prairie and badlands, Mountain Time Zone, more like Montana, Wyoming. Much the difference between Eastern Nebraska and Western Nebraska.

1991. May 9-13, Jackson Hole, Economic Valuation of Wilderness, and Yellowstone Trip. Left Thursday early and drove up, arrived Jackson about 3.30. Hundreds of antelope in groups of 4-24 on the way up. One golden eagle. Checked into Snow King Lodge. Got with Peter Miller, Winnipeg, and wife, Carolyn, and we drove up into the Elk Refuge. 400-500 elk at some distance, though o.k. in the scope. One adult bald eagle sitting in tree. Red tailed hawk. Several mule deer. 3-4 trumpeter swans.

Rain and degenerating weather. Friday morning woke to snow. In conference all day, though in late afternoon drove back up and saw much the same, plus sandhill cranes. one moose. A few bluebirds. Heard Mardy Murie briefly that night at the banquet (wife of Olaus Marie, wrote my guide to animal tracks), before Utah congressman Wayne Owens spoke.

1991. Saturday, May 11, after my panel, drove into Yellowstone and camped at Madison. Two moose down toward Tetons. Hundreds of bison along the road from Old Faithful to Madison. Roads very broken up from frost heaves and potholes. Cloudy but not bad, a bit cool during the night. Sunday, awoke and took off early to Hayden Valley, but started snowing and snowed off and on all day. Hayden Valley was covered with snow. Pelicans, mergansers, a few bison. This was the most snow they had had in over a decade this late in the season, they reported.

The road from Old Faithful to West Thumb snowed shut (Craig Pass), as did road south to Tetons and Jackson. Hundreds of bison all day long, often with nursing calves. Did not see any coyotes at all, though I had seen a number on an earlier trip. A few more trumpeter swans. Got a room in Old Faithful Inn for the night, an antique room built in early 1900's, with brass bed, leftover washstand, rotary light switches, clear glass electric bulbs, and unfinished wooden walls. Snowed all evening intermittently, sometimes a graupel that could be heard hitting the roof. I walked around Old Faithful area in twilight.

1991. Monday, left 8.00 to drive around through Idaho. Sandhill cranes in Idaho, also one small porcupine alive by the roadside. Lovely mountains, coming down on the west side of the Tetons and over Teton pass back into Jackson. The Wind River mountains were quite lovely coming down, lovely clouds and a nice day, though stormy looking off in distance. Several hundred antelope again driving home.

1991. May 22-30, 1991. XVII Pacific Science Congress, Honolulu, and visit before to Hawaii Volcanoes National Park, on the big island: Hawaii. Kilauea Crater. Thurston Lava tube. Some walks in the forest. Memorable evening walk into see the lava flow, lava pouring down into the sea. (and some decent pix).

1991. June 1-12, 1991. North Idaho College, Coeur d'Alene, Idaho. Drove up Saturday through Wyoming, cloudy and sometimes very foggy through Wyoming, north on 1-25, but by the time I got into Montana it was beautiful. Stayed first night at campground at Big Timber. The owner had a caged bear in the campground. Drove on to Coeur d'Alene by late afternoon Sunday, stopping off at a Forest Service Station with mule display, buying maps there.

1991. Monday through Friday teaching at National Endowment for the Humanities symposium at North Idaho College.

1991. Saturday, June 8, drove north through Idaho panhandle (Sandpit and Bonner's Ferry), and then over to Kalispell, Montana, and Hungry Horse. Drove down the long dirt road west edge of Hungry Horse Reservoir, long slow drive, to Spotted Bear Ranger Station, then to Pack Bridge and the main trailhead into the Bob Marshall Wilderness. Capped there. Sunday, tried to backpack into the Bob Marshall a ways, but the trail was too chewed up by horses and very difficult walking. Turned back, and drove a little further up the access road to look at the Sunburst Lake Trailhead. Saw a bear briefly on the return, from the car, and as soon as he saw me he bolted. Small one, brown.

1991. Drove out and into Glacier National Park, capped there Sunday night at Apgar campground. Went to a Sunday evening service led by Parks Ministry seminarians, overlooking Lake MacDonald. Drove out Route Camas Road to Fern Creek, where bears were reported and got a good look at one, eating dandelions at the roadside. Watched him alone for five minutes or so, before others gathered, who tried to photograph him and eventually drove him off (after ten minutes or so).

1991. Monday, drove up toward Logan Pass, walked to Avalanche Lake and lunched there, nice hike. Lower part is Trail of the Cedars, some fine old growth forest. Black cottonwood, *Populus trichocarpa*, Western red cedar, *Thuja plicata*, Western larch, *Larix occidentalis*, Douglas-fir, *Pseudotsuga mezesii*, Western hemlock, *Tsuga heterophylla*, Western white pine, *Pinus monticola*, needles in groups of fives, Queencup Beadlily, *Clintonia uniflora*, Devil's Club, *Oplopanax horridum* (Ginseng family), *Trillium*, *Trillium ovatum*., Blue clematis, *Clematis columbiana*, Western serviceberry, *Asmelanchier alnifolia*, Western yew, *Taxus brevifolia*, a shrub.

1991. Monday evening, left the park about 4.00 and drove south. Tried to camp at National Bison Refuge, but there was no campground there, so camped in nearby small town of Charlo, free in the City Park.

1991. Tuesday, drove south, stopping a while in Missoula in camping goods stores, then steady drive south through Idaho Falls and Pocatello, then cutting across toward 1-80 in Wyoming. Bobolinks in Idaho, some large wet fields of iris in Wyoming. Camped at town of Lava Hot Springs, where there is a large hot springs. Wednesday, drove home across Wyoming. Drove about 2500 miles in the 70 Ford, without a whimper or without using a drop of oil.

1991. June 30. Hiked to Blue Lake with Ned Hettinger, Charleston SC

1991. July 2-7, Teaching at Aspen Center for Environmental Studies and backpack trip to Lost Man Lake.

1991. July 2, Tuesday, drove to Denver and went by airport to arrange Jane's ticket to China and Giles' to Richmond. Drove to Aspen arriving about 4.00 p.m. Lovely drive over Independence Pass.

1991. Taught Wednesday, Thursday (July 4) and Friday, three hours in morning and three hours in afternoon. Friday evening, Jody and Tom Cardarmne (daughter Kate, son Will) and friend John took me to Picnic Point, on private land, on south side of Aspen Mountain. Lovely lookout, salmon and wild rice for supper. Two deer and various wildflowers. Stayed

at "The Professor's House."

1991. Saturday a.m., drove back toward Independence Pass, and took Lost Man trail from first switchback below Independence Pass (on west side). Good climb to Independence Lake and over saddle and down to Lost Man Lake. This saddle is the highest I have ever carried a backpack (a little over 12,800 ft.). The nearest other would be Fall Creek Pass (a little over 12,600) in the Holy Cross area that Giles and I did going from Seven Sisters Lakes over to Lake Constantine. Crossed a snowfield at the pass that was about all I want to do, walked around it on return next day. Lunched at the saddle. Pitched camp and then walked down into valley below, where trail goes on around toward South Fork Pass and then back to Lost Man Reservoir and back out.

This is also the highest I have ever camped (12,450 ft., the camp at Seven Sisters was 12,100). Rain in the afternoon but not bad, a little windy in the tent. Clearing by evening. Marmots, conies, white-crowned sparrows, pipits, no big game seen. Calm night. Walked out next day by 11.00 a.m. Pack has too high a center of gravity to make it easy walking sloping snow fields. Drove home by 4.30. Too many people coming back through the Eisenhower Tunnel, like a traffic jam at rush hour at a tunnel in an Eastern City; avoid it on July 4 weekends. Next time try Crystal Lake above Ashcroft (Stuart Mace's place); it is much recommended, though may be crowded.

1991. Sunday, July 14. Phantom Canyon, small mammals trip, with Dave Armstrong.

Armstrong had set 160 traps the night before, caught 22 mice and rats, and saved one of each species to show and release. This is not a bad catch, maybe a little better than average. Baited with rolled oats.

The terrain changes markedly here owing to transition to Sherman granite, a Wyoming type landform, named for Sherman Hill. This is an igneous intrusion.

Deer mouse. *Peromyscus maniculatus*. The commonest mouse. They do not hibernate. In winter they like to live under the snow piles for shelter, making nests at the snow/ground interface. We released one up top and later, at the VIP house, saw one with a nest in a bench on the porch covering some butane bottles. Field recognition: Brownish tan color with white underparts, tail shorter than head and body and markedly bicolored.

Putting cattle on land increases the kangaroo rats. They formerly increased after the large herds of bison had come through.

Harvest mouse. *Reithrodontomys megalotis*. A small mouse. Builds a nest like a tennis ball. In the winter several will huddle together in a nest, maybe with their tails all sticking out. There is a groove on the face of the incisors. More brownish than the deer mouse, and

smaller.

Rock mouse. *Peromyscus difficilis*. Big ears. Long tail, good for balancing moving about the rocks. A large mouse. This mouse is common here but this is uncommon habitat. Field recognition: grayish color, large size, relatively long ears, and tail as long as body.

Prairie vole. *Microtus*. Voles are called meadow mice; meadows are typically wetter and they are typically in wetter situations. A vole is a mouse, but a special kind of mouse. Little beady eyes, no ears. This one a short tail.

Pocket mouse. Pocket gopher. Kangaroo rat. All have external cheek pouches. They pack pouches with seeds, to carry them home and eat in peace. They unload the pouch by taking a shoulder and shoving it out.

Packrat middens. A midden is really just a word for a trash dump. Some are hundreds of years old. The urine of packrats is very viscous, since they are often short on water, and pollen collects in it, and is preserved as in amber. This makes them interesting archaeologically, and the flora of the past is often decoded from the pollen in packrat middens.

Mexican woodrat. *Neotoma mexicana*. Packrat. Packrats are said to "trade" objects. What really happens is that they are carrying one thing, come upon another that they like better, and drop the one and pick up the other. People in cabins would find one thing missing and another in its place, dropped by the rats, and think they meant to trade.

Big brown bats and little brown bats both live in houses in Fort Collins.

1991. July 20-21. Backpack alone to American Lakes. Left Friday a.m., late, and drove over Cameron Pass down to State Forest area. Parked and started hiking. Lunched on trail. Reached American Lakes about 3.00, and found campsite, somewhat smallish niche in the few trees above the lower lakes. Took a nap and then cooked supper in light rain. There are not a lot of good campsites here, though there is a good one across the lakes, occupied. Scrambled up to Snow Lake after supper, in rain. There is really no trail up to the lake and camping there would be impossible, all boulders along the shoreline. Ranger later said the rocks above the lakes are good for bighorn, but what would they eat?

1991. Sunday, partly cloudy, later clearing, a pretty day. Hiked up to Thunder Pass. Met an oilman, geologist, on return. The mountains to the East are mostly an extrusive volcanic, dated 28 million years ago (Lulu Mountain, Thunder Mountain, Neota, also Mt. Richtofen). These mountains from a distance have a dark reddish cast. But the American Lakes area is an intrusive rock, also dated at 28 million years, a grandodiorite, grey feldspar. Curiously, the Nokku Craggs are a Cretaceous sedimentary, turned straight up and metamorphosed by

the intrusion.

Hiked out, lunching enroute. Home by 3.30 p.m. I hiked this previously on August 28, 1973, meeting a CSU graduate student geologist then. See that record. Also Don Crosby, Suk Koo Lee, and I attempted Mt. Richtofen from the Lake Agnes side on August 9, 1975.

1991. July 28. Phantom Canyon field trip, with Matt Rand, snakes and lizards. He is recent Ph.D at Boulder, will be doing a 2-3 year post-doc at University of Texas, Austin. Did his dissertation on the red-lipped plateau lizard, see below. Carpooled the last miles in with David McPhee, CSU in Family Development, wife, and little daughter, who is "fond of snakes."

The five herps known in the reserve are:

1. Red-lipped fence lizard. *Sceloporus undulatus* (Eastern fence lizard) *erythrocheilus*, which mans red-lipped. Really just a subspecies of the Eastern fence lizard, known over much of the southern United States. It is only on rocks in this area, or going and coming between rocks. Rand caught two of these during the day. They do push ups for territorial display. On the underside there are two body stripes that are cobalt blue, and they display this. They also display an orange or yellowish chin, color is more prominent in breeding season. Rand thinks there are two forms orange and yellow, and that generally the orange can oust the yellow. A male will have a fair sized territory for a lizard, in which there are 2-3-4 females. Nevertheless many of the yellows drift between territories and manage to copulate with the females anyway.

They are easy to catch with a loop that can be retraced on a length of fishing pole. They often have small mites that attach to them, especially on the rear legs; they lose these when they shed their skin. The males can be told by two enlarged scales at the vent. They eat grasshoppers, spiders, on't seem to like moths. Lizards have external ears; snakes do not. Even legless lizards can be told this way.

2. Prairie rattlesnake. *Crotalus viridis viridis*, a subspecies of the Western rattlesnake, *Crotalus viridis*.

3. Yellow-bellied racer (snake). *Coluber constrictor*. Eats lizards. Moves fast, and you usually only get a glimpse of it.

4. Bull snake. *Pituophis melanoleucus* (pit-u-o-fis ml-lan-o-lu-kus). Though often much larger, they can look and act like rattlesnakes, even make a buzzing sound. We caught one down at the river; I spotted it and Rand picked it up. Lots of hissing at first, but once up on the air in somebody's arms it calmed down. They can bite, though they usually do not. This

was a big one, six feet long. It sticks out its tongue constantly, for a cross between taste and smell. The signals go from the tongue up to two Jacobson's organs that detect odors.

5. Western Terrestrial Garter Snake. *Thamnophis elegans*.

Both the rattlesnake and the gartersnake are viviparous, bear their young alive. The others hatch eggs.

6. Milk snake. *Lampropeltis triangulum*. Secretive, should be here; some say they have seen it. Black, white, red or orange bands around body.

7. Horny toad. Could be here, though it may be too cold for it. It is on the plains, but this is 1,500 feet higher, and the winters are rough. The horny toad is an ant-eating specialist and you can often find them on the periphery of an ant mound, taking stray ants. They won't go into the ant hill or sit on top of it, because the ants will mob them.

There are no toads or frogs here, probably because there is not enough still water for tadpoles to develop. No turtles known.

Snakes have to get out of the heat soon, because their whole body is on the ground. Lizards can stay out when it is much hotter, because they only touch the ground with their feet.

A wrist watch can be used to cast a beam of sunlight into crevices to see if there is anything in there. Works better than you would think.

Lewis's woodpecker. Common here; we saw several. Likes open areas. Look for a black bird at a distance, with red sides/face; the red comes through some distance away. It may not act like a woodpecker, but sit up in the top of a tree as though it were a flycatcher. Doesn't undulate wingbeats, and can look more like a small crow. One very nice golden eagle, watched soaring at lunch.

1991. 21-22. Trip to find *Drosera*, sundew, this time with success. With Kevin Cook. Left Ft. Collins, 6.00 a.m., and drove to Walden. Met Betsy Neely, who first found the plants, and Holly Richter there in Forest Service office, with Ranger Charles (Chuck) Cobb. Holly Richter has been recently employed by Nature Conservancy to do a study with reference to making this a Research Natural Area. (Address: Box 3514, Lyons, CO 80540).

On the trail about 10.30, good hike in, Kevin and I backpacking. Betsy soon found the *Drosera*, in a smaller pond, not the bigger lake (at 9200 ft) we searched last year. It is easy to find here. She eventually found a little at the big pond, over near a ditch on the n.w corner. They hiked back out same day. Contrary to the topos, these lakes/ponds do not have any external drainage. They are, apparently, old glacial kettles.

Some of the interesting things in here are:

Comarum palustre, about like a *Potentilla*. Purple Cinquefoil. Has red leaves and petals, petals shorter than the sepals. Found here the first time east of the divide by Betsy Neely.

Calamagrostis, the common grass here

Potamogeton, with floating leaves.

Spiranthes romanzoffiana. Lady's Tresses.

Carex lasiocarpa. with hairy perigynium, found here only in Colorado. Pubescent on the faces, not merely on the margins.

Carex canescens. Yellowish, common.

Sparganium minimum. Burreed.

Swertia perennis. Star gentian.

Kevin and I pitched camp, walked back in to the pond with the *Drosera*.

Thursday. Kevin and I worked our way down the chain of small ponds/depressions running north east from the lake at 9200 ft. down to the still bigger lake at 8985 ft., so marked but unnamed on the topo. Most of the small ponds on the map do not really have water in them, but are wet *Carex* areas. Found a wood frog (*Rana sylvatica*) in the open area, wet but no standing water, just s.e. of the lake. This was Kevin's first encounter of a wood frog in Colorado, also mine. Good black mask across the eyes makes this one easy to recognize.

The frogs we saw in here are:

1. (Striped) Chorus frog (*Pseudacris triseriata*). Small, an inch or so. We saw lots of them. Stripe through eye from snout to groin. Background color varies, brown, green, red, and we saw all three colors. Stripe color also varies. The most common dorsal pattern is stripes, but it may be spots in rows, or scattered, or anything in between.
2. (Northern) Leopard frog (*Rana pipiens*). Large dark spots on back.
3. Wood frog. *Rana sylvatica*. Above.

Two others that might be here are:

4. Western Toad. *Bufo boreas*. Also called Boreal toad. Warty skin.
5. Tiger salamander. *Ambystoma tigrinum*. Our only salamander.

We found abundant *Drosera* in the lake at 8985 feet, in the n.e. end, where there is an extensive *Sphagnum* mat, floating. You can jump up and down on it and shake it. This is in the vicinity of a big, abandoned beaver dam at this end of the lake. Again, contrary to the topos, there is no external drainage. The best *Drosera* site is on the Boettcher Lake quadrangle, and marked there on my copy. This is the Frying Pan Basin and the Basin continues on the Mt. Zirkel topo.

Took compass bearing due south and went back to trail, and built a good cairn where we hit the trail, also there is a blowdown across the trail here. So in the future you could go to the cairn, head due north, and hit the lake. Lunched at the campsite, and then hiked out, reached the Scout at 4.00, and drove home, by 9.00 p.m. turday, September 28, 1991. Conference on Biology, Ethics, and Origins of Life. Field trip to Rocky Mountain Park, Trail Ridge Road and elk bugling. Saw about 50 elk, and heard 20-25 good calls, but enormous numbers of people there. October 7, 91. Fabulous aspen in prime color in South Canyon Creek, first canyon west of Glenwood Springs, seen from the air on first leg (Denver - San Francisco) of the trip to China. This seems to be BLM and private land, but it looks as though you could drive up there. Quite a lot of nice aspen in much of this country.

October. In China.

report starts on new page

Report on Trip to China, October 1991

Holmes Rolston, III, Department of Philosophy, CSU

General Comments

China has 1/14th of the total land area on Earth, 1/4 of the world's people. The land area is approximately the size of the United States, the population over four times that of the United States. There is immense variation in topography, climate, soils, ecology, and ethnic peoples. The altitude ranges from 300 meters below sea level (in the Turpan Depression of northern Xinjiang) to 8800 meters (in the Himalayas, the "roof of the world"); ecosystems range from tropic to alpine, rainfall varies from over 250 cm. annually to under 1 cm. China is unique in Eurasia in having an unbroken forest from the tropics to boreal regions. The flora is among the richest in the world, some 30,000 species (U.S. about 20,000), including 5,000 woody species, 2,800 tree species (U.S. less than 700).

China has three of the longest rivers in the world, rivers that do not always flow peacefully, due to enormous catchment basins, often steep and barren, that shed water rapidly, and due to the erosion of loess soils that build up downstream deposits subject to periodic breakthrough and flooding. The Huang (Yellow) River ("China's Sorrow") has killed more people than any other feature of Earth's surface. In China, forestry is especially important in relation to soils and sedimentation and downstream water flow. Although the Chinese have lived more or less in harmony with their landscape for millennia, they today more nearly press the carrying capacity of their landscape than do most other peoples. Human

development and environmental conservation are as integrally related in China as anywhere else on earth.

The immense Chinese population is very unevenly distributed on the landscape, due to the variation in climate and topographic features. In general China is about twice as elevated in landscapes as is the United States. Eastern China is densely populated, but the interior is often lightly populated and some parts are almost unpopulated. Some 90% of China's population live on little more than 15% of the land surface. The massive size of the population, together with the large and diverse land areas, pose problems of governability faced by no other country in the world. The climate is regarded as being more erratic and unpredictable than in most other nations.

China as a nation is not especially well-watered; the runoff is about one-fifth what it would be in other large nations. The actual water caught and used in the United States is about the same as the total amount of rain that falls on China, areas of comparable size. The result is a large population, unevenly distributed, an uneven rainfall, and strain on water resources.

The United Nations Environment Program reports that there are over 300 environmental awareness groups in China. There are also over 60 universities in China teaching courses on environmental engineering and ecology. A monthly English language journal, China Environment News, is published with UNP. assistance, together with a quarterly Chinese language journal, World Environment.

Environmental Ethics in China

The comments that follow result from a brief visit and are inevitably impressionistic.

For most leaders and intellectuals in China, environmental ethics, if a legitimate inquiry at all, is rather simple theoretically, though sometimes complex operationally in practice. The problem is maintaining an environment that will support human development. Old China was a backward nation due to the exploitation of the masses by the elite, but New China (Marxist China, since 1949) is ideally competent at large-scale, long-term planning, and citizens can be expected and even required to put the common good first. Environmental pollution and the inequitable distribution of resources is capitalism's problem.

Nevertheless China discovered that it had problems in the sixties and seventies, and the current Marxist account is that leaders assumed a maximum exploitation mode, sometimes through ignorance of the feedback loops between nature and culture, sometimes through overweening greed. That has since been rectified, a model of "rational use of nature" has replaced an irrational model. Society in harmony with nature is a better model than society

exploiting nature.

The ethical issues arise mostly with distribution of what is desired and undesired. Much of China is subject to erratic and uncertain rainfall; usually there is either too much water or not enough. The question is who gets it when there is not enough and who gets it when there is too much. Likewise with food and pollutants. Especially with the Marxists, these may not be considered ethical questions, but questions of sound scientific management. Managers, it can be assumed will know and seek the optimal common good. Citizens do not have the expertise to follow technical analyses of pollution distribution, although they may have to be educated what to do in the required cleanup.

Such issues at once intersect with the population problem, which is perhaps China's number one problem. This is thought of as an ethical problem, though not particularly a problem in environmental ethics. Again early leaders of the New China made a serious mistake, thinking that rapid exploitation of nature under the new socialist regime would automatically take care of the population problem. Now, stern measures are required. Policies differ in regions of the country, especially in the autonomous regions, but the following is typical. One child is permitted and will receive a free high school education, free health care, and other benefits. With the second child, all such benefits are canceled. With a third child various punitive measures begin; adverse pressures in the work unit step up; with a fourth child the parents are subject to being dismissed from their jobs. Reports (which need to be verified from better sources) are that in sections of the country where boy children are particularly desired, this sometimes means that girl babies are less well cared for in early infancy, or even let die, in the hopes of having a son the second time around.

In "urban management" style environmental ethics, wildlife, wildlands, endangered species, ecosystem integrity, animal rights will never be mentioned. The native wildlife has been gone for centuries, although the pariah species of civilization remain (English sparrows, pigeons, magpies, mice, rats). The streams do need to be kept pure enough for edible fish and invertebrates (prawn, shrimp) that the Chinese enjoy. The markets are full of animals to eat, still alive or recently slaughtered (no refrigeration), including dogs and cats. If asked whether there any vegetarians by conviction, one gets the reply that some Buddhists formerly believed this (following from ahimsa, non-injury, the first Buddhist commandment), but that Buddhism is gone, and that the vegetarian Buddhists were mostly under the excessive sway of Indian Buddhists anyway. Most Chinese Buddhists were too practical to be serious vegetarians.

Dogs are not permitted in the cities, though cats can be kept as pets.
Many fox skins were for sale in the stores.

The Chinese Academy of Social Sciences; Universities in Beijing.

The Chinese Academy of Sciences was one unit until 1977, when, for political reasons, it was separated into the Chinese Academy of (Natural) Sciences and the Chinese Academy of Social Sciences. There are about 80,000 persons in the Chinese Academy of Sciences. There are about 5,000 persons now attached to the Chinese Academy of Social Sciences, and it does not receive particularly good support as the government is not altogether happy with some of the free-thinking elements there. Within the Chinese Academy of Social Sciences there are various institutes, one of which is the Institute of Philosophy. The Chinese do not have any field called the humanities, though they do have art, music, and literature, outside the social sciences.

The Institute of Philosophy contains about 260 philosophers in about ten departments: Department of Historical Materialism, Department of Dialectical Materialism, Department of History of Traditional Chinese Philosophy, Department of Dialectics of Nature, Department of Ethics, Department of Aesthetics, Department of History of Western Philosophy, Department of Modern Western Philosophy, Department of Logics.

The Chinese do philosophy of nature under the term "dialectics of nature," which for them also includes philosophy of science. In addition to the Department of Dialectics of Nature in the Chinese Academy of Social Sciences, the Chinese Academy of Sciences has a Department of the Dialectics of Nature in the Graduate School.

A principal philosopher interested in environmental ethics is Professor Yu Mouchang, who is a research professor with the Institute of Philosophy, Chinese Academy of Social Sciences. He has been there over thirty years, been reading environmental philosophy for ten years. See bibliography below.

Tsinghua University has about 10,000 undergraduates, about 3,000 graduate students. The total university community, support staff and others is about 40,000. There are even factories on campus, for the applied training of the students, all of whom are encouraged to have some factory training. Students may also work to pay for their college expenses. There is a Department of Social Science, within which there is a section of philosophers, about 18 philosophers.

Beijing University is alleged (at least by the others) not to welcome foreign visitors and lecturers. There were several accounts of Westerners trying to enter there, unaccompanied, and being turned back at the gate. But Yu Hui took us there without any problem and gave us a tour of the campus.

People's University is a large university with a generally open campus. They do not have strong programs in the natural sciences.

Lecture Schedule

Thursday, October 10. Lecture at Graduate School, Chinese Academy of Social Sciences. Host: Professor Chen King, Director, Department of Ethics, Institute of Philosophy, and Secretary, Chinese Society of Ethics. Host: Prof. Luo Guojie, Vice-President of the People's University of China and Chairman, Chinese Society of Ethics. Host: Professor Wei King-Min, Director, Section of Ethics, Department of Philosophy, Beijing University, and Vice-Chairman of the Chinese Society of Ethics. Host: Dean Li Bochum, Department of Dialectics of Nature, Graduate School, Chinese Academy of Sciences.

Friday, October 11. Lecture at People's University, hosted by Chinese Society of Ethics. Hosts: Same as Thursday, Oct. 10.

Monday, October 14. Lecture at the Research Center for Eco-Environmental Sciences, Department of Systems Ecology. Hosted by Dr. Zhao Jungshu, Professor and Deputy Director. The Research Center for Eco-Environmental Sciences has about 700 persons, with about 30 in the Department of Systems Ecology. These thirty mostly study facets of human ecology. Also met here Jason Weisman, an American who is a visiting researcher.

Tuesday, October 15. Lecture at Chinese Academy of Social Sciences, Institute of Philosophy. Hosts: same as Thursday, Oct. 10. Also Qiu Renzong, Senior Researcher, Institute of Philosophy, Chinese Academy of Social Sciences. His principal field is medical ethics. He spent a semester at Georgetown University and a semester at the University of Wisconsin. He is writing the article on the history of Chinese medical ethics for the Encyclopedia of Bioethics, Edition II, Macmillan.

Wednesday, October 16, Lecture at Qinghua University. Host: Professor Liu Yuang-Liang, Vice-Chairman, Department of Social Science, Tsinghua University. Host: Professor Quan Yi, Department of Environmental Engineering, Director National Laboratory of Environmental Simulation and Pollution Control, Tsinghua University. Host: Zeng Xiaoxuan, Department of Social Science, Tsinghua University.

Thursday, October 17. Lecture at Beijing Agricultural University. Hosts: Professor Han Chun-Ru, Department of Agronomy, Beijing Agricultural University. Host: Professor Wang Hong Kang, Director of the Environmental Protection Major, Beijing Agricultural University. Host: Professor Zhang Xiang-Qin, Social Science Department, Beijing Agricultural University. Host: Professor Zheng Wufu, Social Science Department, Beijing Agricultural University.

Met at the airport by Prof. Lin Xiashui and Fan Rui Ping, our interpreter through much of the trip. Met at the Guest House by Professor Liu Yuang-Liang, Vice-Chairman, Department of Social Science, Tsinghua University.

Guide for the weekend was Xu Xiang Dong, Department of Dialectics of Nature, philosophy of cognitive science.

Suzhou Institute of Urban Construction and Environmental Protection

Flew to Shanghai and rode train to Suzhou for visit to Suzhou Institute of Urban Construction and Environmental Protection, also Suzhou University.

Interview and consultation:

Host: Yao Yanxian, President.

Host: Quanda Yang, Dean, and Chairman, Department of Environmental Protection.

Host: Dr. Zou Enmin, Department of Environmental Protection

Host: Professor Xu Guangming, Marxism Teaching Office, a philosopher who has a translation of my Environmental Ethics in progress, with a team of three graduate students assisting him.

At Suzhou University:

Dinner hosted by Department of Politics, Suzhou University. There is no department of philosophy, but philosophers are housed in the Department of Politics.

Host: Professor Wang Junfu, Chairman, Department of Politics, Suzhou University.

Bibliography

--Qiu Renzong, editor-in-chief, *Guowai Ziranhexue Zhexuewenji* 1990 (International Philosophical Problems in Natural Science 1990), Chinese Academy of Social Sciences, Institute of Philosophy. Beijing: Social Science Press, 1991. ISBN 7-5004-0885-4/B 181. There are section introductions, but all the articles are translations from Western books and journals. Section I is on Philosophy of Science: Scientific Materialism. Section II is on Science and Society: The Relationship between Human Beings and Nature. The section editor is Yu Mouchang, Institute of Philosophy, who gives an introduction to environmental ethics, "Current Focus of the Study of the Relationship between Human Beings and Nature." The section contains three articles (1) G. A. Davedova, "Problems of the Relationship between Human Beings and Nature in Marxist Historical Philosophy" (pp. 104-129, translated from Russian; (2) M. B. Kushkova, Human Beings and Nature (pp. 130-145, translated from Russian; (3) Holmes Rolston, III, "Is There an Ecological Ethic? (pp. 146-157, translated by Ye Ping (Northeast Forestry University, Harbin) from English in *Philosophy Gone Wild*, originally in *Ethics*. Section III is on Philosophical Problems of Nature: the Self-

Organization of Nature. It contains a dozen articles, for example Ilya Prigogine on irreversible thermodynamics and several articles inquiring how evolutionary creation has taken place through the self-organization of nature. The book has just been released; they claim it has sold well, though many books of this kind in China are as much "distributed" to libraries and agencies as sold. Already about 3000 copies have been sold or distributed.

--Yu Mouchang, Sheng Tai Lun Li Xue (Ecological Ethics). Xi'an (in Shaanxi Province): Science and Technology Press, forthcoming. The manuscript was completed in 1988, but is still in press.

--Yu Mouchang, Sheng Tai Xue Zhe Xue (Ecological Philosophy). Kunming: People's Press of Yunnan Province, 1991. In Chinese. 3.60 Yuan. 267 pages. ISBN 7-222-00741-5. Nine chapters. Section I is foundations: holism in ecosystems, the laws of ecology, energy in ecosystems, and the major categories of ecophilosophy. Section II is on the methodology of ecophilosophy. Section III is on ecology and modern society, applying the theory of ecology to practice in environmental affairs. The author sets forth a Marxist ecophilosophy for China.

--Yu Mouchang, Sheng Tai Xue De Xin Xi (Ecological Information) Shenyang (in Liaoning Province): Science and Technology Press of Liaoning Province, 1982). Written for a popular audience to introduce some fundamental ecological ideas, at a time when ecology was a new subject in China.

--Yu Mouchang, Dan Da Shehui Yu Huan Jing Ke Xue (Contemporary Science and Environmental Science) Shenyang (in Liaoning Province): People's Press of Liaoning Province, 1986. 300 pages.

--Yu Mouchang, "Sheng Tai Lun Li Xue," ("Ecological Ethics"). Chapter 12, pages 297-308, in Chen King, Xian Dai Lun Li Xue (Modern Ethics). Chong Qing (in Sichuan Province): Chong Qing Press, 1990. Introduces Aldo Leopold's land ethic, as interpreted by Holmes Rolston and J. Baird Callicott.

--Two articles from Environmental Ethics have been translated into Chinese. The first is Richard Cartwright Austin, "Beauty: A Foundation for Environmental Ethics" (Fall 1985), translated by Yu Hui (the daughter of Yu Mouchang, above, who teaches English at Beijing University) and appeared in Ziranxue Zhexueweni (Philosophical Problems in the Natural Sciences) 1988, no. 1, pp. 85-92.

--The second is J. Baird Callicott, "The Metaphysical Implications of Ecology" (Winter 1986), translated by Yu Hui, and appeared in Ziranxue Zhexueweni (Philosophical Problems in the Natural Sciences) 1988, no. 4, pp. 66-74.

This journal was published by the Institute of Philosophy from 1978-1990, but they were forced to stop publication when their financial support from the government was withdrawn.

--Wang Rusong, editor in chief, Zhao Jingzhu and Dai Xiaolong, editors, *Human Ecology in China: Annual Report of the Department of Systems Ecology 1989*, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences. Beijing: China Science and Technology Press, 1990. 251 pages, all in English. The reports are apparently seldom printed in English but this one was made possible by a UNESCO Man and the Biosphere grant.

--Nong Ye Zhe Xue Ji Chu (The Basis of a Philosophy of Agriculture), by a Working Group of the Chinese Society of Dialectics of Nature. Beijing: Science Press, 1991. 361 pages. Entirely in Chinese. A contact and one of the working group is Zhang Xiang-gin, Beijing Agricultural University, Beijing China. She is also one of the authors.

--Holmes Rolston, III and James E. Coufal, "A Forest Ethic and Multivalue Forest Management," translated into Chinese, and used in an inside staff news source, *Information about Ecophilosophy*, at Northeast Forestry University. Publication forthcoming. Translated by Ye Ping, Social Science Department, Northeast Forestry University, 150040 Harbin, China.

--Leopold, Aldo, "The Land Ethic," translated by Ye Ping, a philosopher at Northeast Forestry University.

--Rolston, Holmes, III, "Values in Nature," translated by Yu Goping, an economist at Northeast Forestry University

Both are translated into Chinese in a special issue of *Information of Ecophilosophy*, an occasional publication of the Research Office in Ecophilosophy of the Northeast Forestry University, Harbin, 1989, No. 2.

--Ye Ping (see above), "Man and Nature: A Review of Western Ecological Ethics" (in Chinese), *Tzu-Jan Pien-Cheng-Fa Yen-Chiu* (Studies in Dialectics of Nature) 7(no. 11, 1991):4-13, 46. Published by the Chinese Association for the Dialectics of Nature.

--Ye Ping (see above) has a series of six short articles on environmental ethics in *Lin-Yeh Yüeh Pao* (Forestry Monthly) (in Chinese) running from August through December 1991. "1. What Is an Ecological Ethics?", July, no. 7; "2. The Conception of an Ecological Ethics," August, no. 8; "3. The Growth of an Ecological Ethics," September, no. 9; "4. The Present Situation in Ecological Ethics," October, no. 10; "5. Ecological Ethics Applied to Forestry Management," November, no. 11; and "6. Ecological Ethics and 'Two-Crisis'"

Countermeasures," December, no. 12. The two crises are that waste materials in air pollution harm the Earth in two ways: destroying forests and creating a greenhouse effect.

--Lester Ross, *Environmental Policy in China*. Bloomington, ID: Indiana University Press, 1988. 240 pages. Ross maintains that "exhortation and environmental ethics" (p. 60) have been massively tried in China and massively failed. By this he means that earlier Marxist environmental campaigns, such as those for reforestation, exhorted the Chinese to good environmental citizenship, to do what was in the larger public interest, such as plant trees for future generations, and that, although this resulted in the largest tree planting program in human history during waves of enthusiasm, the tree programs failed because there was no sustained monitoring and interest waned as soon as the enthusiasm passed. The trees died for lack of care. No one owned them; everybody owned them. In contrast, all that will work is programs that appeal to the self-advantage of the person over a foreseeable future, such as woodlot planting for fuel. Somebody owns the trees. Or at least is entitled to the wood and responsible for their care. Incentive changes behavior, not moral exhortation. Richardson, see below (p. 180), is not so sure.

--S. D. Richardson, *Forests and Forestry in China* (Corvallis, OR: Oregon State University Press, 1990). 353 pages. Excellent, thorough, by a New Zealand forester who has observed forestry in China over thirty years. Balanced portrayal of the successes against the massive failures. An earlier book, of which this is a major revision, is *Forestry in Communist China*, 1966.

--Vaclav Smil, *The Bad Earth: Environmental Degradation in China*. Armonk, NY: M. E. Sharpe, Inc. and London: ZED Press, 1984. 245 pages. Extensive account of serious environmental degradation and highly critical of the Maoist government and massive, bumbling Chinese bureaucracy. Deforestation and resulting erosion and flooding is China's most serious environmental problem. Much of this results from Marxist idealism about growing grain in unsuitable areas. The land use mistakes, when coupled with population growth, have China on a disaster course. The silting of the Huang (Yellow) River is one of the most intractable environmental problems on Earth. The most fundamental problem is not population size, or relative poverty, or political instability; it is a staggering mistreatment of the environment, which will prove the most serious check on China's reach toward prosperity. Smil is a geographer at the University of Manitoba.

--Li Wenhua and Zhao Xianying, *China's Nature Reserves* (Beijing: Foreign Languages Press, 1989), 190 pages. Li Wenhua is one of China's foremost ecologists; Zhao Xianying is a geobotanist who has studied in the United States. Quite useful general introduction to nature reserves in China.

The rationale they give: resources, aesthetics, scientific research, environmental protection, education, tourism. Humans have, in the past, had the wrong attitude toward nature, one of exploitation. "We once judged our ability to squeeze nature for all its worth

as an important indication of humankind's civilization and progress. Often as not, the cost of our conquests over nature was the devastation of those elements so vital to our own existence--the earth's environment and natural resources. We were, in effect, destroying our own life-support system. Living in harmony with our planet means cherishing and protecting the natural world" (pp. 1-2).

China was late forming any conservation strategy. The first reserve was in 1956, and nineteen reserves were set up by 1966, but most of these gains lost in the Cultural Revolution. Since 1976 there has been steady improvement. By late 1981 there were 76 reserves, by 1986 there were 383. A goal is 500 reserves by 2000. But one must use considerable care; many of these are paper reserves only (the designation as a reserve of the forests that remain on a former Buddhist temple site, although the area may be much used).

--Xu Weishu, *Birds in China* (Beijing: Foreign Language Press, 1989). 72 pages. Short introduction to the birds of China.

Environmental Issues

China never had and still does not have a long-distance food transportation system. Energy costs are too high and spoilage too great, without refrigeration. Farmers near the big cities supply locally, and most of what is eaten in Beijing is grown within 100 kilometers of the city. For several thousand years the urban wastes, mostly food wastes and excrement, all easily biodegradable, was recycled on the fields near the cities. Farm animals ate the garbage and the nightsoil went on the fields. Repeated crops of rice and vegetables did take their toll on soil nutrients and farmers were often eager to go to the cities and receive the free fertilizer. All that changed when the cities industrialized. Chemical fertilizer is available, cheaper if one takes into account the time and cost spent collecting the natural matter. Herbicides and insecticides are available and can be combined with the fertilizer (all applied by hand or with very simple machines. And the stuff coming down the sewers from the industries is toxic or not biodegradable.

Miscellaneous Notes

Chinese academics are poorly paid. They make about \$ 40 per month. When several academics said they would like to be able to stay informed on activities in environmental ethics, I mentioned the International Society for Environmental Ethics (ISEE) and the Newsletter, to realize that the annual dues (\$ 10.00) is a quarter of a month's salary. They are not able to buy Western books, and must use library copies, which are often in short supply.

Few Chinese can afford air travel, and most must still get around on trains and buses. Or bicycles. To attend my lectures one professor had traveled by rail from the Shanghai area (940 miles, 23 hours on the train, each way), another from the Harbin area (northeast China, 870 miles, 20 hours on the train, each way.)

end of China report

1991. Saturday, November 16, 1991. Charleston, SC. Bull Island, in Cape Roman Migratory Bird Refuge. Spoke at College of Charleston, Thursday and Friday. With Ned Hettinger. The Island was extensively damaged by hurricane Hugo a couple years before. Most of the pine trees were broken off 20-30 feet up the trunk. There are many palms and these stood pretty well. Also live oaks, which had the smaller branches blown off but the massive trunks stood. winds were 150 mph and some say higher, for about two hours, though there was rain and wind for several days. Sullivan's Island, where Ned lives, was evacuated. His (rented) house was blown down; he picked up the pieces and put them on a lot he bought.

Took boat over. The island is separated from the mainland by extensive Spartina wetlands, with some channels through open water. About 40 minute ride. Red-headed woodpeckers and Eastern bluebirds at dock. Nice great horned owl perched enroute, said to feed on the rail in the Spartina. Out at low tide and oysters evident; return at high tide. Lots of oystercatchers. Lots of cormorants. Maybe some loons. Both great egrets and snowy egrets. Great blue herons. Whimbrels.

Walked around the island. The island has two red wolves on it; one is penned and the other free. The pups from this pair are reintroduced in North Carolina. Saw wolf track several times. Also racoon tracks and turkey tracks. Ate lunch at beach on the open ocean and saw about half a dozen porpoises. Returned inland and went to an area with alligators; saw four in the swamps. The first one of considerable size; others average; mostly in the water. The ponds on the island are more or less diked off from the salt water, originally to raise rice, but later to attract freshwater birds, waterfowl for hunters. Hugo breached these dikes to some extent. But there are perhaps two hundred alligators said to be on the island; they must nest in freshwater but after can take brackish water.

Two more porpoises in water near boat on return. Previous day there was a nice Cooper's Hawk in the City Park at the Battery.

1991. Dec. 4, 91. Ran 5 miles to celebrate belated birthday. I was too sick to run on Nov. 19, still recovering from the virus/bug I picked up in China.

1991. Dec. 9, 91. Lion Gulch alone. 21 bighorns on the last rimrock before entering Big Thompson Canyon. They seem to be moving down into the Big Thompson Canyon country. Left trailhead about 9.15, good hike up, nice weather. Snow underfoot half the time, but well packed from others who had hiked it. Lunched up top at Walker Homestead (where Giles, Adam McCambridge, and Mark M. and I camped). Hiked out by 3.00. Drove up in park, 108 elk in two big groups. 15 deer. Use a temporary, quick stuff sack for the brown down jacket, when you have to take it on and off frequently.

1991. Dec. 21, 91. Christmas bird count, with Kevin Cook, and five others. Up and down the river at the Eeyrie. Half day, cold in early a.m, but after that quite pleasant. Clear sky.

white-crowned sparrow 3
black capped chickadee 12
magpie 47. Very active
great blue heron 2
starling 230
rock dove 61
waxwings, probably Bohemian 25
crows 20
brown creeper 2
robin 31
flicker 10
geese 54
downy woodpecker 2
gull sp. 1
song sparrow 7
tree sparrow 10
kestrel 11
house finch 7
blue winged teal 7
mallards 35
juncos 20
snipe 7
common merganser 4
common goldeneye 4
golden crowned kinglet 2. Very nice view in good sun.
Magpies build a nest of sticks. Fox squirrels build a nest of leaves.

1991. Dec. 28, 1991, Eaton Reservoir vicinity, Trail 315, toward Pratt Creek, Deadhorse Mountain. Left about 7.00 in Scout, alone. Drove to Cherokee Park uneventfully. Good flock of robins enroute. Snow removal stops at the junction in Cherokee Park on Road 80c, toward Sand Creek Pass. Nevertheless it had been a little plowed here and there, and much driven over, so there was no trouble, although I was on snow pack frequently. Good redtail hawk seen in tree through scope. Clear day. Originally headed toward Acme Creek, but decided to do the Trail 315 instead. Started without snowshoes, but turned back to get them and was on snowshoes all the time thereafter. Started hiking about 10.15, lunched up the trail about 12.30, back out by 2.30. Returned to hike the Acme Creek trail s.e. parallel to the creek, until it reaches the right angle turn to s.w. at Acme Creek (from about 2.45-3.45 p.m. Foot traffic only here, try it in summer.

Highlight of the drive out, about twilight, was a bobcat, seen nicely. It leapt a bit on some rocks left of the road, and looked different. Bounding look was not like a coyote. I stopped and got a good look through binoculars. At first it was a bit hidden, and I thought maybe I had mistaken a large owl or something. But then it came out unmistakably, and shortly vanished. The ruff (frill of hairs about the neck) and the pointed tufts on the ears are memorable. This was in Phantom Ranch country, 3-4 miles west of the Lower Wildlife Unit Campground (where I once left to hike into Phantom Canyon from the west side). The one I saw at Ft. Collins waterworks was June 6, 1970, twenty one years ago!

Thirty deer during the day, one group of fourteen. There is a good deal of accessible country up this way, mixing both the National Forest and the Colorado Division of Wildlife areas.

end 1991.

1997-1998. Gifford Lectures University of Edinburgh November 1997

Rolston delivered the Gifford Lectures at the University of Edinburgh, Academic Year 1997-1998, in November 1997, with the title: Genes, Genesis and God

Genes, Genesis and God is published by Cambridge University Press, 1999
ISBN 0-521-64674-X Hardcover \$ 59.95. ISBN 0-521-64108-X

Chapter 1. Genetic Values: Diversity and Complexity in Natural History. Online at:
<http://hdl.handle.net/10217/37212>

Chapter 6. Religion: Naturalized, Socialized, Evaluated. Online at:
<http://hdl.handle.net/10217/37213>

Click below for more information. Gifford Lectures, General Information. Online at:
<https://www.giffordlectures.org/>

Gifford Lectures, Rolston 97-98

Lecture 1. Genetic Creativity: Diversity and Complexity in Natural History, streaming online video, 1 hour. Windows Media. November 10, 1997. Online at:
<hdl.handle.net/10217/37813>

Lecture 10. Genes, Genesis and God, streaming online video, 1 hour. Windows Media. December 1, 1997. Online at: <hdl.handle.net/10217/37814>

Only lectures 1 and 10 were recorded.

Reviews, Genes, Genesis and God. Online at: <https://hdl.handle.net/10217/212161>

Translated into Chinese: Ji Ying, Chuang Shi Ji han Shang Di (Genes, Genesis, and God), translators Fan Hua Nien and Chen Yang Hui (Chan Sha City, Hunan, China: Hunan Science and Technology Press, 2003) Website: <http://www.hnstp.com> ISBN 7-5357-3634-3/R· 806

2002. Anne Beecher, ed., American Environmental Leaders: From Colonial Times to the Present, 2 vols. (Santa Barbara CA: ABC-CLIO, 2000), vol II, L-Z, pages 691-692. New edition (Millerton, NY: Grey House Publishing, 2008), vol. II, L-Z, pp. 695-697.

Online at: <http://hdl.handle.net/10217/37720>

2003. Rolston is awarded the Templeton Prize. The prize is awarded in Buckingham Palace, London, by Jack Templeton and immediately awarded by Prince Philip, HRH The Duke of Edinburgh. The award is about a million dollars and is donated to his alma mater Davidson College, Davidson NC, near Charlotte, to establish an endowed chair in Science and Religion. The prize receives widespread international publicity, reaching a radio audience of about 12 million listeners on All Things Considered, also on Voice of America, and notice in print in about 300 periodicals.



Holmes Rolston III and Prince Philip HRH.

2004. Rolston Interview in Brazil 2004. "Entrevista: Dr. Holmes Rolston III (Interview: Dr. Holmes Rolston, III)," *Ação Ambiental* (Environmental Action), vol. 7, no. 30, September/October 2004, pages 5-8. This is the extension journal of the Universidade Federal de Viçosa, Brazil, and this a theme issue on environmental philosophy. In Portuguese. Interviewer James Griffith. English summary and text at the end, Online at: <http://hdl.handle.net/10217/37729>

Britannica - Article about Rolston 2004

Turner, Darrell J., Rolston, Holmes (Britannica), *Encyclopedia Britannica: 2004 Book of the Year*, 92-93. Chicago, IL: Encyclopedia Britannica, 2004.

Online at: <http://hdl.handle.net/10217/37718>

Also see: Holmes Rolston III (American Philosopher and Theologian), *Encyclopedia Britannica Online*, 2008: <http://www.britannica.com/>

2005. Science — *Ency. Religion & Nature* - Taylor 2005. Pages 1494-1497 (Volume 2) in Bron R. Taylor, editor-in-chief, *The Encyclopedia of Religion and Nature*. London and New York: Thoemmes Continuum Publishers, 2005. Online at: <http://hdl.handle.net/10217/171451>

2006. Three Oakland University Lectures "Genes, Genesis, and God."

<https://hdl.handle.net/10217/235391>.

Genes, genesis and God: Holmes Rolston III: Richard J. Burke lecture in philosophy, religion and society

2006. Lecture 1. Holmes Rolston delivers the inaugurating Richard J. Burke Lecture in Philosophy, Religion and Society at Oakland University, Rochester, Michigan on March 13, 2006. Professor Rolston discusses the debate about order and disorder, randomness and probability, actualities and possibilities, as these result in increasing diversity and complexity over the evolutionary epic. He features the increasing information in genes that appears in natural history, resulting in genetic coding, eucaryotes, sexuality, societies, and mind, with human capacities for culture, including science, religion and ethics. Life opens up increasingly new possibility space. In both nature and culture, life gets more promise, becomes more promising. Life is self-transforming, takes on meaning. This invites and demands deeper explanations, philosophically and theologically.

2006. Lecture 2, "Challenges in Environmental Ethics." Richard J. Burke Lecture, Oakland University, Rochester, MI. March 14, 2006. 1 hr, 36 mins, 49 secs. Challenges in environmental ethics, philosophically and practically, include hunting, Colorado hunters and bear hunters, saving whales in Alaska, saving a drowning bison in Yellowstone, mercy-killing an elephant calf, tree spiking, shooting goats on San Clemente Island, cutting old growth forests, Yellowstone fires, and saving ecosystems and the biosphere planet Earth. Interaction with students and the audience.

2006. Lecture 3, Biology and Religion.

2008. Willard O. Eddy Lecture at Colorado State University, September 18, 2008. Three Big Bangs: Matter-Energy, Life, Mind. Online, streaming video. Windows Media. 1 hour, 23 minutes. Willard O. Eddy Lecture at Colorado State University, September 18, 2008. Online at: <http://hdl.handle.net/10217/37823> Also on DVD disk in CSU Library, general circulation.



2010 Colby College, and Maine woods, April. Virginia and Shenandoah Mountains, Rockbridge Baths, VA, April. Yellowstone National Park, Wildlife Watching and Wolf Ecology and Management Seminars, wolves, May. Indian Peaks Wilderness, Colorado, Arapaho and Caribou Pass, backpacking, August. Madagascar, lemurs, sifakas, chameleons, spiny forest, October.

2011. March, Yellowstone wolves, American Church, Paris, March-April. Texas Panhandle, Lubbock, TX, April. Nijmegen, Netherlands, International Society for Environmental Ethics, June. Newcastle, UK: Sixth International conference on Environmental Futures, July. Symposium, Helsingør, Denmark, August.

Singapore and South Asia, September. National University of Singapore. Billyoh Wetland Reserve, Singapore. Indonesia and Komodo dragons. Cambodia. Viet Nam

2010. Saving Creation: Faith Shaping Environmental Policy — Harvard Law & Policy Review 2010.

"Saving Creation: Faith Shaping Environmental Policy." Harvard Law and Policy Review 4(2010):121-148. Online at: <http://hdl.handle.net/10217/37706>

Religious faith can make a unique contribution to environmental policy. Typically, legislators might expect to formulate a science-based environmental policy. But scientific reasoning is able to offer only partial and value-free guidance. Science, by its very nature, cannot offer enough guidance for the challenges of contemporary environmental policy. Religious faith and religious communities can, and already have begun to, offer precisely what science lacks: a value-laden, unified understanding of creation, humankind, and our obligations as stewards of the Earth. I make this case here by assessing the religious traditions in the United States and Europe, particularly Western monotheism, especially Christianity.

2011. Preaching on the Wonder of Creation — JP 2011

"Preaching on the Wonder of Creation." in JP Journal for Preachers 34 (no. 4, 2011):39-46. Online at: <http://hdl.handle.net/10217/45061>

Both science and religion find a wonderland Earth. Biblical faith has the conviction that species originate when God ordered earth to "bring forth swarms of living creatures." We know that biodiversity today much better than did they, but Bible writers would have rejoiced in this fuller creation. The Hebrews found a promised land; today we can think of

an Earth with promise. Both science and religion encounter nature with awe: an awe-full sublime.

2013

2013. January 6, 2013. Went to Cleon and Betty Kimberling's wedding anniversary, a brunch at Highlands Camp, Mostly sunny, and not bad at Highlands. Took Rolston, and came back through Rocky Mountain National Park, so he could try out his binoculars, which he won as a Cub Scout award. Saw about two dozen elk, in half a dozen groups, some nice bulls, one particularly huge rack still really in town. Fern Lake Fire, starting in October, and continuing in various breakouts from smoldering throughout November and December, has burned much of Moraine Park. They were rather surprised by this, winds drove it down from Forest Canyon to Moraine Park and they even feared for the YMCA camp, which was not damaged.

2012 was the hottest year on record by an average of one degree F.

2013. January 13, 2013. Temperature -0.4 when I got up. Coldest day yet this winter, which has been rather cold, in the single digits at night, and no higher than teens and twenties in the day for several days.

2013. January 14, 2013. Temperature -1.4

2013. January 19, 2013. Drove up Poudre Canyon to survey the fire damage from the High Park Fire last summer. Second largest fire in Colorado history, and at one time over 1,900 people were fighting it. It was caused by a lightning strike and was first detected on the morning of June 9, 2012. It was declared 100 percent contained on June 30, 2012, See notes in Trail Log 2012.

Fine day. Little or no evidence of burn until about a mile before Stove Prairie turnoff. After that some burn now and again, and more on high ridges to the south. Canyon generally looks good, a couple places where the fire seems to have jumped the road south to north. No burn in evidence after Narrows, None in Rustic, Poudre Chapel area and further west.

Lunched at the wildlife turnoff (Big Bend) above the fish hatchery, and toward the end of lunch bighorns appeared. At one point I counted sixteen. Across the road but nicely visible. One had a yellow neck collar. Only one big ram, more than half curl. Others female, young males, and two yearlings. They stayed there over an hour, with several other cars stopping. I walked down to the campground, light snow on the ground, with lots of blown dry spots. Some deeper drifts. A dry winter so far.

On return drove up the Stove Prairie road about 4-5 miles, to the top. Lots of burn in here, but also patches and some larger areas that did not burn. I'm not sure how much just didn't burn and how much the fire fighters prevented from burning.

2013. January 27-31, 2013, Richmond. Meeting at Union Seminary, Sunday, Monday, Tuesday

noon, and at Ann Bryant's until fly back Thursday.

2013. Wednesday was warmest day on record for January, in mid 70's. This produced a fast moving squall line, and much of Virginia, including Richmond city, was under a tornado watch Wednesday night, but nothing came of it, except some winds and rain. Thursday morning was sunny. Some of the annual spring weeds in bloom. Chickweed, *Stellaria media*, especially when we drove up to Marc Bryant's to check on a fire alarm. Various places: hairy bittercress, *Cardamine hirsuta*. Mint, henbit, *Lamium amplexicaule*.

On the Green Ride van home, I was spotted by Daniel McFee, who has read my work and used it in class. He teaches in Dept. of Religion and Philosophy, Mercyhurst University, Erie, Pa, north of Pittsburgh, Catholic school, and is often in Fort Collins, because he is married to an associate pastor at First Methodist Church, Fort Collins, so he has wife and children here. He went to Marquette and Duke University.

India 2013

February 23-March 9, 2013.

2013. February 23, 2013. Saturday. Left 7.00 a.m., Green Ride pickup. Decent weather between storms, with another coming tonight.

Trouble in Denver with United because the travel agent had reversed my first and last names. Got that sorted out with a special agent there, but had relatively little time to make the plane.

In the process I lost my reserved aisle seats and she could only get me an aisle seat to Newark. Decent flight to Newark, and an agent there was helpful. She got me a bulkhead middle seat, Newark to Delhi, which proved just fine. I had lots of leg room and could get up and out easily. 4 hours in Newark. Take off 8.40 p.m.

The flight was circumpolar, as we flew over Maine, Labrador, Greenland, Scandinavia, Russia far east of Moscow, and the right between Afghanistan and Pakistan, and on to Delhi. Over all this territory, I almost wondered if we might get shot down by the terrorists.

Smooth flight, 14 hours. 7,323 miles 1,604 miles - Denver to Newark 8,927 miles

Add in the Green Ride, and I traveled 9,000 miles.

Essentially we flew into the sun through a whole day. You could see the progressing daylight and dark on a screen right in front of you. Reached Delhi about 9.20 p.m. on

2013. February 24, Sunday.

The usual confusion through customs, though the agents were efficient. My bag had to be re-tagged in Denver with the name reversal, and I was apprehensive about it, but it did come through – almost the last bag.

2013. I met the trip guide, an Indian, Rajveer Singh. 45 minutes on a van to Maidens Hotel, northern part of Delhi. Decent hotel.

2013. February 25, Monday.

Delhi into Ranthambore Park (or spelled Ranthambhore) decent breakfast, and I slept well. Some sightseeing. Definitely in the third world. Auto rickshaws, cycle rickshaws by the hundreds. India is right hand drive, from the English legacy. Delhi is the old Muslim capital. New Delhi was constructed by the British in the 1930's.

Delhi is on the Yamuna River, which I saw, drove alongside it. Second holiest river in India.

Delonix regia, a red flowered roadside bush.

Acacia, by the river.

Indians chew a cheap and bad chewing tobacco. The national language is both Hindi and English. In Delhi the traffic sign boards are in four languages: Hindi, English, Punjabi, and Urdu.

Saw the old fort, a dramatic ruin.

Neem tree, a medicinal tree, *Azadirachta indica*

The leaves are used in India, Pakistan to give baths to children suffering from skin diseases. Elders find it useful in controlling high blood sugar level and is said to clean up the blood. Neem is also used to give baths to the Muslim dead. Neem leaves are dried in India, Pakistan and placed in cupboards to prevent insects eating the clothes and also while storing rice in tins (natural pesticide). Neem leaves are dried and burnt in the tropical regions of Pakistan to keep away mosquitoes. These leaves are also used in many Indian festivals by making them into garlands. The main trees are numbered by city authorities.

We visited a large roundabout with an Indian park in the center, the Arch of Triumph, a memorial to those Indians who died fighting for the British in World War I. Rhesus macaques - seen.

There are millions of stray dogs in India. People give them a little food, and tolerate them

Birds seen about the park.

White wagtail - a Siberian migrant here now

Common Myna

House Crow

Rock pigeon.

Driving along, there were myriads of portable stalls and hawkers.

Reached the train station. Crowded and confused. The guide engaged three porters to carry our luggage, partly on their heads, partly underarm, carried 3-4 blocks, and they waited to put it on the train. He said he knew one of the porters and called him on his cell phone to arrange it.

The train was a combination seat and sleeper deal, with bunks overhead and seats that can be folded down into a bed. 3-4 hours on the train. We passed, after dark, through town of Mathura, a town where Krishna is said to have been born 3,500 years ago. Passed thousands of slum houses, in some deep poverty. We picked up a box supper in Bharatpur, and continued on the train, now rather dark with most of the passengers in the sleeper compartments, with curtains drawn. About 10.30 p.m., we got off at Sawal Madhopur. No porters and some troubles with luggage. Took two taxis to Tiger Den Resort, 20 minutes away. Decent large room.

2013. Tuesday, February 26. Ranthambore National Park.

The Ranthambore National Park, spread over 1,334 square kilometers, along with its nearby sanctuaries, the Salai Manning Sanctuary and the Kail Devi Sanctuary, offers the best sighting of tigers in natural habitat since the forest remains dry eight months a year. The deciduous forest receives very little rainfall and has sparse undergrowth, and chances are that the big cat will be sighted. Ranthambore has a well-laid-out network of foot trails in the forest, which is divided into eight tourism zones consisting of savannah grasslands, ravines, perennial lakes and streams.

2013. On July 24, 2012, the Supreme Court had announced an interim ban on tiger tourism in the core areas of tiger reserves across country. However, the court lifted the ban on October 17 as per the fresh guidelines framed by the National Tiger Conservation Authority (NTCA), which were notified on October 15. These guidelines permit tourism in 20 per cent of the core zone of tiger reserves.

Tourism season in Ranthambore begins on October 1, but this time with the court ban, bookings of Gypsies (a vehicle seating six) and canters (an open-topped truck seating 20) for a safari at the park hadn't begun until October 17. About 200 canters and an equal number of Gypsies operate safaris in Ranthambore. Drivers of these vehicles and about 125 guides are dependent on tiger tourism for their livelihood. As many as 1,040 tourists are allowed into the park every day, in two shifts of 520 each. The Supreme Court order lifting ban has infused fresh energy into not only the tourists, wildlife enthusiasts and tiger conservationists, but also in these people who depend on the tiger for their livelihood.

Various figures about the numbers of tigers, often 3,500 in all of Asia. In captivity, the best figures seem to be that there are 13,000 tigers, a somewhat enlarged figure from 12,164 found. This is 3-4 times the number now existing in the wild (3,500) Tilson and Nyhus, pp. 228-229.

tigers arrived in India, 12,000 years ago. p. 45. two million years fossil history, p. 53.

biggest cat? biggest cat in the sense that the biggest tiger individuals are bigger than the biggest lion individuals. But averaged out, the two species are of similar size, tiger females are smaller than males, there is variation in the subspecies, and often the weight of stomach contents is unknown. p. 61

The tiger is the biggest cat, 50 kilos heavier, and a head longer. BBC tiger program, right at the start. A tiger needs to kill one large deer or similar animal a week, afternoon. The tiger is successful in a hunt only 1 in 20 times. p. 178 Exxon Mobil continues to contribute over \$ 1 million a year to tiger conservation, p. 190. There are about twice the number of people living in the tiger's geographical range as there were forty years ago, when Tiger Project started, p. 19 There are no verifiable Indian tigers in zoos outside India. Mostly zoos have Sumatran and Amur tigers. p. 211. white tigers, pp. 234-235. They are not albinos.

Up at 5.00 a.m., for tea and cookies at 6.15. Full moon setting. Off about 6.45, three of us in one open-topped 4WD and three in another. With driver and guide. Long bumpy drive through a dry forest. 8 cheetal (spotted deer) with one nice buck. 10 cheetal. jungle babblers. We are going to zone 5. There is a mother tiger here with 3 cubs, 8 months old, and one adult male. rufous tree-pie. *Dendrocitta vagahunde* cf. magpie nicely seen. green sandpiper. A migrant, moorhen - like a coot. red-wattled lapwing, like plover. white throated kingfisher, *Halcyon coromonda*. white-breasted water hen 6 cheetal Chital. Cheetal. Spotted Deer, *Axis axis*. India's most common and visible deer. The only prominently spotted deer in the country.

2013. 6 sambar (pix). *Cervus unicolor* - large deer with a shaggy, dark brown coat. They browse more than graze. Common over India. Often eaten by tigers. 4 sambar. 3 hanuman langurs. A primate, a kind of monkey. white-naped woodpecker. *Chrysocolaptes festivus*. rare here, an endemic. First heard, and later seen. 2 peacocks peafowl 8 peacocks 6 peacocks nilgai - 6, in bushes. 10 cheetal

The guide stopped the car to listen for the alarm calls of cheetal. When a tiger is near, they give alarm calls. Also the langurs give alarm calls. heard the rutting call of spotted deer, cheetal. white naped woodpecker, well seen. Lots of large strangler fig trees. lots of birds at and around a sizeable lake, with a dam at the end. pond heron. *Andeola greyii*. common kingfisher, but it isn't common. red-vented bulbil. white throated kingfisher. Oriental honey buzzard. *Pternis ptilorhynchus* = Crested honey buzzard. crocodile (pix). comb duck = nakta - with a protuberance on its bill. black winged stilt. black-tailed godwit white-browed wagtail. *Motacilla maderaspatensis*. gray heron. painted stork. Great egret *Casmerodius albus*, Great thick-knee. *Esacus recurvirostris* = Great stone-curlew wood sandpiper dusky crag martin brown crane - *Amaurionis akool* unusual to see it so well rose-ringed parakeet nicely seen, drinking Indian flap-shell turtle, seen through a foot or more of water. 6 cheetal. large gray babbler. five striped northern squirrel (p. 128 in *Mammals*) buffalo - domestic. 10 langurs. 6 cheetal. 6 cheetal. 10 cheetal. spotted owl, nicely seen on a snag. 30 langur. returned, bumpy ride, about 10.30 for breakfast

2013. Only two vehicles in sections 1-2 had seen tigers, none in my group. There are huge vans with 30 people in them, and noisy engines. lunch. Back out at 2.30, to the same section 5 thick-bulled curlew. sambar buck. sambar doe. cheetal. sambar. nilgai 6 cheetal - bucks fighting (pix). 6 peacocks. back to the lake with the crocodile, now with two more, total 3. crested serpent eagle - nicely seen. 10 cheetal. sambar. greater coucal. cormorant. Indian darter = anhinga. peacocks. 12 langurs. sambar, two together, and rufous tree-pies, picking insects off of them

2013. wild pig - rooting in the dirt. *Sus scrofa*. Ancestor of the domestic pig, domesticated for about 9,000 years. A group of pigs is called a "sounder."

checkrow - an Accipiter hawk, nicely seen in a tree, although we could not see the front. Like a merlin. Almost back to the lodge, there were a dozen vehicles, with a hundred or more observers, watching a leopard spectacularly high on the distant skyline, virtually at the summit. Head and shoulders looking over the valley. Returned to the lodge.

2013. Wednesday, Feb. 27. off at 6.25 am. Breakfast at 6.15 a.m. Full moon setting. brown fish owl. peacocks. gray Francois, roadside. rose-ringed parakeet. cheetal. sambar. painted stork. sambar bucks, sparring. cheetal. rut call. nilgai, 30 wild pigs (pix)

common hoopoe. 12 sambar. We thought we heard sambar alarm calls, and we were trying to follow them. 20 cheetal

We had been assigned zone 3, but the guide thought there was too little action there, which we drove through, so they moved into zone 4. There is a tag slot on the front of the vehicle which they changed from 3 to 4, and back again as we returned.

tiger scat, tiger tracks, We reached an area where they had just seen a tiger, but we missed it - too late.

large billed crow. A mile and a half up the road a van was paused and we stopped. They heard on a cell phone that the tiger was seen again back where we were. So a fast drive back where we were.

I saw the tiger, rather briefly but nicely, some 50, maybe 40 yards down in the bottom of a draw, looking down from above. I could see slowly moving stripes through the bushes. At times you could see most of the tiger, never all at once, but passing by. Stripes nicely seen, the tigress's head well seen, and you could see it from top back to feet. Splendid, saw it in a couple of openings, then it went behind a thick leaved green tree and came out beyond it. You could see her muscles rippling as she walked. Maybe a minute for the whole show.

2013. This tigress is T-16, named Machli, (pronounced muh chū lee), a female 13 years old, born 1997. (Spelling of her name varies, Machali on the park website, but mostly Machli elsewhere.) She has had four sets of cubs. 3 cubs in 2001, 2 cubs in 2002, cubs in 2005, 3 cubs in 2012, and all the cubs have survived. Her mother had the same name, which means fish. There is a fish shaped mark on the side of her face. She was often found cooling herself in water. She mated with Bamboo Ram. She is a good breeder. (Dates of her giving birth to cubs are not consistent in what I have read.)

2013. From the park website:

<http://www.ranthamborenationalpark.com/ranthambore-machali.html>

Machali (T-16), the royal tigress is the most famed in India and is exclusively the pride of Ranthambore National Park. The glorious palaces, lakes and fort of Ranthambore are the major strong hold of Machali. It is the most photographed tigress in Ranthambore and is also being known as the "lady of the lake" since it can mostly be found along the water territory of the jungle. The tigress Machali has long been under media spotlight and has gained tremendous attention amidst the vast ranges of animal and tiger lovers. There could be many reasons behind her fame but the one and only thing that has captivated many attentions are her muscular and majestic look and her

dominance at the whole Ranthambore jungle. Films books and even life time awards are such accolades that have lifted her name to greater extent.

The most noticeable thing in Machali is in her name. She has the fish shaped marking on the left part of her face. Her legendary fight with 14 foot long crocodile has really created a history and it was the first time since such an encounter has been recorded and filmed. Interestingly, Machali has been photographed many times and have gained a lot of popularity amidst the wildlife lovers. Many documentaries and short films have been shot for her and she had been the star of the wild tiger world. In addition to this many books have been written on her and her park; and even received a TOFT Lifetime Achievement Award for her contribution to conservation and the wider Rajasthan economy.

This renowned tigress was first witnessed during monsoons in 1997, probably in July and this was the time when people impressed with her majestic look and flexible movements. She gave birth to three cubs, one female and the other two male by mating with a large male tiger called "Bamboo Ram". The female one was being named "Sundari (T-17)" and the cubs were named "broken tail" and "slant ear".

By the end of December 2001 both these cubs separated from Machali. Soon after Broken Tail and Slant Ear separated from Machali, she mated again with another male tiger called "Nick Ear". Bamboo Ram had died of old age when Broken Tail and Slant Ear were still with Machali and Nick ear had taken over his territory. By April 2002, Machali had given birth to her second litter, the two cubs named Jhumru (male) and Jhumri(female). By the end of 2004 Machali mated with another male tiger known as X-male and around March 2005 she again gave birth to two cubs namely Sharmeele (which means shy in Hindi) and Bahadur (Brave).

Machali became popular due to her muscular strength and was always being noticed for saving her cubs from other animals and male tigers. It is so interesting to learn that the male tigers really got afraid of her and upon intimidating they used to run away from her and her cubs. Since her common territory was the lakes around the Ranthambore Fort and so she had great encounters with many crocodiles; the legends of which are so popular even now.

Machali, the queen of the tiger dynasty is now in her devolving stage; a painful fact to be accepted. The royal tigress that once used to conquer the whole environment of Ranthambore for over a decade with her muscular hunks and impressive strength is now a toothless tiger that really needs feeding unlike the royal battle she won with 13 foot long crocodile at her enduring stage.

Certainly the elegance in her royalty still illuminates with her every movement and the grace is still clung with her every growing muscle. Perhaps this can easily be realized when she moves. Her inevitable legacy will survive forever. In fact, two of her daughters are now being shifted to Sariska Tiger Reserve when the reserve lost all its count so as to continue the dynasty of the tigers to rule in the whole jungles of Rajasthan.

Today, Machali has grown old and has lost almost all of her teeth and most of her territory as well. But still her royalty resounds at every nook and corner of Ranthambore.

Times of India story:

<http://epaper.timesofindia.com/Default/Scripting/ArticleWin.asp?From=Archive&Source=Page&Skin=TOINEW&BaseHref=TOIJ/2010/09/06&PageLabel=1&EntityId=Ar00103&ViewMode=HTML&GZ=T>

Ranthambore 'Machli' on her last legs Anindo Dey |TNN

Jaipur: A young calf tied to a tree just outside the Lakarda outpost may look strangely out of place at Ranthambore National Park. However, conservation has its strange stories in the wild. The calf was kept as a reserved food for Machli, the most famous tigress of the national park. More than 15 years of age now — the maximum a tiger can live in the wild — Machli's health is often unstable and her future is "uncertain." In the event she was not able to hunt, the calf will be given to her.

"Sometimes she is not able to hunt for days together. In such cases, she shrinks in size and in extreme cases, she may die. Therefore, we have to be ready with such measures," explained R S Shekhawat, director of the park.

Machli or T-16, is not only the most famous tigress of the park — thanks to it being sighted by numerous visitors — it has also given as many as 11 cubs to the park. Hence there was no surprise when, in April last year, the Travel Operators For Tigers (TOFT) gave her the 'Lifetime Achievement Award.'

Machli had lost three of her teeth in fights with crocodiles to save her young ones in summer. "I have seen three instances when she killed a crocodile during my tenure. The crocodiles come up on dry land in summer and are a danger to the cubs," said Shekhawat.

But with years the story has changed. Conservationists, though not willing, when coaxed into it, agree that her future is uncertain. "Anything can happen to her anytime," they say.

Now she lives in the Lakarda area of the forest and has managed to add a bit more to her territory after the death of another tiger, T-4, beyond the Lakarda nullah.

2013. Fading Star . The tigress is also called Lady of the Lake . Is the most photographed tiger in the world. She even has a fan page on the Facebook 'Machli' contributed to Ranthambore economy

Jaipur: Ranthambore's oldest tiger, Machli, is finding it difficult to hunt for her food. "In her prime, she not only ruled the Lacerta area but also had the Malik tala, Tambakhan, Padam tala, Rajbag and a lot of other areas beyond the fort to her credit.

Eventually, her daughter, T-17, snatched away some of her territory and others too were taken away," says Schacht. In fact, two of the tigers relocated to Sariska are also her offspring.

According to an estimate by TAFT, Machli in the past 10 years has contributed more than \$10 million per annum to the economy of Ranthambore. Why then should a tigress so brave be called Machli ? "It's because of the marks on her face that resemble a fish," says Schacht. Something to watch out then for the lucky few who manage to spot her this time when the park reopens on October 1. (Her

age in this article is older than others give.)

There is a BBC documentary, "Queen of the Tigers," by Colin Stafford-Johnson, aired October 19, 2012, which features her.

T-24, a tigress, which has no name, is 7 years old, and has killed 8 people. 7 of the eight killed were illegally in the forest. Last year, she killed two people, a teenager, and also the mother of a naturalist guide that Rajveer knows. She was illegally cutting grass inside the park.

That tiger this year killed and ate a ranger, in zones 1-2. She ate part of the ranger before they were able to rescue his body.

plum-headed parakeet = *Psittacula cyanocephala*. returned to lodge.

Trip to the Fortress of Ranthambore in the afternoon, built 10th century. With huge crowds of pilgrims there for the day. Afternoon safari in zone 2. I list now mostly new bird species we have not seen before. Drove some distance along a more or less stagnant stream, in rather good woods. checkrow - an Accipiter. black drongo - nicely seen. 2 crocodiles. nilgai (lots of pix). tiger scat (pix). We stopped at a ranger station. The ranger lives there. Solar panels, to pump water. There was an unusually clean toilet.

We stopped to look for a bird that Rajveer had heard call, and with outrageous good luck, Saw a leopard in the brush, only 15-20 yards away. It slipped further into the bush though it did not spook. I saw it maybe ten seconds, the upper half of the body and the head quite well.

black-tailed mongoose, nicely seen. crested serpent eagle.

We returned to camp and walked down to the river to see painted sand grouse.

There were bats, greater mouse tailed bat. We saw in the dark painted sand grouse, but I would never have known what they were.

2013. Thursday, February 28.

Up at 4.30, breakfast 5.30, off at 6.10 for the train station. waning moon. We caught the train, this time a "chair car," and better than the sleeper. Some camels drawing carts. Reached Bharatpur about 10.30 a.m. transfer to the Bagh Hotel (means gardens) with extensive gardens. lunch.

2013. 2.00 p.m. To Keoladeo Ghana National Park. (pronounced kay ō lah dō)

Once a hunting preserve developed by a maharaja in the 1800's, originally an oxbow lake and wetland, much enlarged and managed. went on a pedal rickshaw.

little egret. Indian pond heron. laughing dove. Indian roller. large egret. Northern pintail.

common moorhen. common teal. purple heron. darter = anhinga. imperial eagle, nicely seen flying. little grebe. greater coucal. intermediate egret. common greenshank common redshank. common teal. common coot. Indian spot-billed duck. black drongo. bar-headed goose, the highest flying bird in the world. Flies over the Himalayas. There is a documentary on this bird. glossy ibis. greater spotted eagle.

70 coots in a long line on a pond. Northern shoveler. Northern pintail. lesser whistling duck - I later heard the whistling in flight. nilgai - bluebull. Male dark grey-blue With the general shape of a horse (lots of pix later). Indian flap-shelled turtle - out on a bank. Brahminy starling. purple gallinule. bronze-winged jacana. spotted owl. black-crowned night heron. painted stork. Indian cormorant. jungle babbler. black-headed ibis, formerly called white ibis. purple heron. Eurasian marsh harrier. steppe eagle. nilgai pix. wild pig. gray hornbill. There was not enough water coming into the reserve, and it was drying up. Rajveer took part in some protests that marched in the street and blocked some roads to get attention. They did get the water allotments they needed.

2013. Friday, March 1. All day at the Keoladeo Reserve. grey hornbill. grey heron. pond heron. seen with white wings flapping. We got into a boat, but waited a while to get a second boat. Then for about an hour we were in boats, polled along a water course evidently dredged out some. Wetlands on both sides.

little egret. green sandpiper. The water was full of duckweed. *Azolla*. rosy-ringed parakeet. common teal. common crow. red-wattled lapwing. bronze-winged jacana. nilgai - female. sambar, dusky horned owl, adults and two young nicely seen. greater spotted eagle. We left the boats and walked along a dike. shovelers, lots of them. gadwall. Eurasian marsh harrier. Two of them. When they circled over the lake, this spooked the shovelers and ducks, who flew up in flocks. A few minutes later they would settle down and return. garganey - a duck something like a teal. Eurasian widgeon. glossy ibis. coots. Indian spot-billed duck. Nicely seen in the scope, including the "spot" on the bill, between the bill and eyes, a loreal spot. big bee hive in a tree, covered with still bees. spotted owl. rhesus macaques. We reached some park buildings. chestnut shouldered petronia, a sparrow hawk (rare). black bittern. At park headquarters, Gertrude saw a jungle cat, as did Rajveer, but no one else saw it.

2013. Walk through the interpretive center. lunch on the lawn. back in rickshaws for the afternoon. painted crane - juvenile. bluethroat - in the bushes, which I hardly saw. lesser golden-backed woodpecker. greater spotted eagle. turtle. 10-12 painted storks on an island (pix). yellow bittern (rare). black bittern - I finally saw it.

We reached a Krishna Temple, Keoladeo Temple, more or less the center of the park, and oxbow lake. ruddy-shelduck. Indian flap shelled turtle, graylag goose, little green bee-eater. European spoonbills, a dozen, on a island. Eurasian widgeon. white-throated kingfisher. pheasant tailed jacana, tail is longer in the breeding season. green bee eaters. We walked in to see the Sarus crane. Two seen reasonably well, the tallest flying bird in the world. 1.6 meters. resident Some individuals can reach a height of 7 feet. Some individuals can live to be 80 years old. bar-headed goose, close up. comb duck. nilgai bull. cows. rickshaw ride back. long-tailed shrike.

lesser goldenback (woodpecker) = flame-backed woodpecker *Dinopium benghalense*.

green pigeon - two glimpsed in the air. Returned and stopped in an outdoor market.

English and Sanscrit are compulsory in the schools. People are 90% literate. In the lodge, the electric power was often off and on for several minutes, and I got to carrying my flashlight in my pocket, and even took it nearby when I took a shower.

2013. March 2, Saturday.

to the Taj Mahal. off at 8.00 a.m. in van, big piles of cow dung, to be burned as fuel, their main fuel. wheat fields. They plant in November and harvest in April. One crop. Mostly harvested by hand in small fields. fields of mustard (= rape). Oilseed rape. (*Brassica napus oleifera*). They crush the seed for oil, also burn the stalks as fuel.

Rape seed is a major crop in India (mustard), grown on 13% of cropped land. Rapeseed oil is edible. It is the most favored vegetable oil in India for cooking, while in Europe it is used for the manufacture of biodiesel and is in great demand there. Rapeseed was the third leading source of vegetable oil in the world in 2000, after soy and palm. Rapeseed is the world's second leading source of protein meal. In Europe, rapeseed is primarily cultivated for animal feed and for biodiesel.

Natural rapeseed oil contains erucic acid, which is mildly toxic to humans in large doses but is used as a food additive in smaller doses. Canola is a specific variety of rapeseed bred to have a low erucic acid content. Canola was developed in Canada and its name is a combination of "Canada" and "Oil" (Canadian oil low acid).

2013. Reached Fatehpur Sikri. Joined by local guide. This is a huge red sandstone fortress built by Emperor Akbar and was the capital 1570-1585. Now a deserted city on top of a ridge. Various sandstone buildings in various stages of ruin and preservation. Parcheesi courtyard, with a huge Parcheesi board. Yellow footed green pigeon. roadside Eucalyptus. Egyptian vulture

Getting married now you both check your blood type and consult an astrologer. Reached Agra, a bustling third world city. water buffalo, dozens of them in the streets.

Reached the Taj Mahal, accompanied by the same local guide. constructed 1631-1653 by Emperor Shah Jahan, in memory of his wife. They were married 17 years and she produced 14 children, and died in childbirth. 20,000 people worked on building it.

Shah Jahan, who built it, was deposed by his son Aurangzeb in the Agra Fort for the last eight years of his life, and kept in house arrest there. The Taj Mahal is on the Yamuna River. Semi-precious stones are inlaid in the walls.

Lunch - good lunch in a good restaurant. Visited Agra Fort, another huge sandstone fort, and walked through it. We saw the rooms where Shah Jahan was imprisoned by his son. Returned to Bharatpur about 5.00 p.m.

2013. March 3, Sunday. Off at 8.00 a.m.. driving to Delhi.

We are going a different way for the first half of the trip to avoid protestors. They are jamming the main road, a protest march over pollution in the Yamuna River. Funds were allocated for cleaning up the river, but lost in corruption. The result was several hours of driving through village India, totally third world. The people are poor, though not in desperate poverty.

Eucalyptus trees. Great piles of cow dung for fuel. The roads are halfway decent at best, often poor, broken, bumpy. The road is often worse in the towns, maybe better in the more open country. Went through a town, Karma, associated with Krishna.

Finally, we got back on the main road. Rest stop and bought souvenirs for Rolston and Elie. Box lunch on the van. The roads have many speed bumps, as if these were needed. Often in the same town I saw palaces (usually defunct) and poverty. The driver got lost several times and had to ask bystanders for the route. Finally we reached the Delhi airport, about 2.00 for a 3.50 flight. The flight was half an hour late. Reached Raipur at sunset. Spent night in Babylon International Hotel. Flew in over lots of rice paddies, all dry now.

2013. March 4, Monday.

Nobel laureate Rudyard Kipling's *Jungle Book* (1894), long used by the Cub Scouts for its moral fables, is set in Kanha country.

Off at 8.00 a.m. We drove in two taxis to Kanha, through Gandal and Salatekri. The road is not shown on my India map, though I marked it in red. Paid toll in various places in wretched toll booths, and the toll roads seemed no better than the ordinary roads. Often the paved part of the road was only a single lane, wide enough for one vehicle. If you met someone coming, you had to get half the car off the road onto a dirt side strip. Likewise passing, you honked the horn, and the car or cart moved over and you passed with half the car off the blacktop on the dirt sidestrip.

Flame in the Forest. *Badaga monosperma*. A tree with orange-red flowers, with few or no leaves at flowering time. So it looks like a fire in the forest. Drove through a mountain forest. Good forest and no people. Then back on flat land with rice paddies.

India now has no vultures, or few. All were killed from a chemical used with people and livestock, when vultures ate the dead cattle. Diclofenac sodium, a painkiller given to sick cows and buffalo, and humans. It is banned for this use in the U.S., and now in India, but still used. It affects the vulture's liver and heart. It is used in treatment of some human illnesses.

Use of diclofenac in animals led to a sharp decline in the vulture population in the Indian subcontinent, 95% decline in 2003, 99.9% decline as of 2008. The mechanism is, it is presumed, renal failure, a known side effect of diclofenac. Vultures eat the carcasses of livestock that have been administered veterinary diclofenac, and are poisoned by the accumulated chemical, as vultures do not have a particular enzyme to break down diclofenac. At a meeting of the National Wildlife Board in March 2005, the Government of India announced it intended to phase out the veterinary use of diclofenac.

The loss of tens of millions of vultures over the last decade has had major ecological consequences across the Indian subcontinent that pose a potential threat to human health. In many places, populations of feral dogs have increased sharply from the disappearance of Gyps vultures as the main scavenger of wild and domestic ungulate carcasses. Associated with the rise in dog numbers is an increased risk of rabies, possibly leading to the deaths of thousands of persons. The resulting multiplication of feral dogs in India and Pakistan has caused a multiplication of leopards feeding on those dogs and invading urban areas looking for dogs as prey, resulting in occasional attacks on human children.

The loss of vultures has had a social impact on the Indian Zoroastrian Parsi community, who traditionally use vultures to dispose of human corpses in Towers of Silence, but are now compelled to seek alternative methods of disposal.

2013. Reached Kanha, about 11.30, taking less time than predicted. The road into the resort looked terrible, but the resort was a large compound with elegant rooms. Resort named: The Baagh. (means "tiger")

Afternoon game ride, 2.45. Kanha National Park, in its current form, spans the Kanha, Banjar, Mukki, and Halon Valleys. These four valleys were used as exclusive hunting grounds by the British. Significant over-hunting of the area's abundant wildlife led to a rapid decline in their numbers.

As a result, in 1931, these valleys were closed to hunting / checkers. In 1933, the Kanha Valley was declared a sanctuary with an area of 250 sq km. In 1935, Haloed Valley was added to the sanctuary which increased the park's area by an additional 300 sq km. Subsequently, in 1955, when Bandar Valley was added to the Sanctuary, the area came to be known as Kanha National Park. Mukki Valley was added to the park in 1970. By the time the sanctuary attained its National Park status, populations of both the Bengal Tigers and Barasingha / Swamp Deer had fallen to dangerously low levels.

When Project Tiger was launched in 1973, Kanha National Park was one of the nine Tiger Reserves in India that were selected. Kanha National Park's core area was by now 945 sq. km. - the largest wildlife reserve in Asia. In addition to the core zone, there is a buffer zone of 1,005 sq km falling in four forest divisions - Mandla, Balaghat, Kawardha and Dindori that surround the park. The expanded buffer zone is referred to as the Kanha Tiger Reserve.

2013. *Lantana*, an invasive bush, planted for its pleasant smell. But troublesome in the forest. Also invasive in the U.S. Sal forest. Nice trees. They were burning each side of the road as a fire break.

Found tiger tracks, pug marks. They make open sand areas, in which they check for tracks. Listening for alarm calls from deer or langurs, but heard none. langurs, half a dozen. swamp deer. barasingha (pix) *Cervus duvaucelii*

Those in two other vehicles had seen a tiger cross the road. Another vehicle had seen it cross another road. So we went to the likely area to spot it, and waited maybe half an hour or forty minutes, going up and down the road a bit.

But no tiger. We decided to go to another area where there is a tigress with 3 cubs, a year and a half old. 6 swamp deer. langurs. Reached that area to find it “very quiet.” One nice spotted deer buck, large antlers in the velvet. Returned to the first area.

Another jeep claimed to have heard some alarm calls. bamboo grass. bushes. common hoopie. swamp deer buck (pix). sambar. 2 gaur. seen in trees but not that well.

gaur, *Bos gaurus*. largest bovine in the world, a huge cow, or wild ox. Often called the Indian bison, but is not related to the American bison. A cross with domestic cattle is a “mithun.” Very susceptible to rinderpest and anthrax, which has decimated herds in the past. There is an Asiatic wild buffalo, *Bufalis arnee*, rare, dangerous. Troublesome because it breeds with cattle, but the cows cannot deliver the oversized calf. The water buffalo or domestic Asian water buffalo, *Bubalus bubalis*, is a large bovine animal, frequently used as livestock in India.

machua tree. *Madhuha indica*. They were burning the leaves beneath the tree, to clear the area. The flowers will drop down and they collect them for a week or so. The flowers are used to make wind, flavor cakes, as an oil ointment.

There was a Gonda young woman who rode in the jeep with us – supposedly learning to be a naturalist. It is required to take one with you. She couldn’t speak English and did nothing. She is paid for this. Some of the local naturalists who rode with us later did more talking and pointing out wildlife.

2013. March 5. Tuesday.

Out at 6.00 a.m. Cold and I used the blanket to break the wind.

Indian muntjac = barking deer. A small deer. Makes a barking sound. I hardly more than glimpsed it in the woods.

Met rangers on elephants. Mahut. Mahoot. The driver of an elephant. Asian turtle dove. I am now mostly listing only new species of birds seen. female swamp deer (pix), peacocks. spotted deer - may dozens seen during the day. hoopie, Indian roller. black shouldered kite. Researchers some years ago radio-collared nine tigers, and all died within a year or so. Presumably they had much older radio collar equipment. There is no radio collaring now. turtle

The tiger is a solitary hunter, unlike lions. They never hunt together, though young cubs will be together at kills. In Kanha, tiger names are keyed to the area of their territory. They do not use

numbers as in Ranthambore. 5 spotted deer bucks, running, leaping across the road. Aesthetically pleasing.

Breakfast in the park. A long drive and no tigers. spangled drongo = hair-crested drongo. We met the rangers on elephants again (pix). They saw a tiger shortly after we met them in the morning. Returned for lunch. Lunch outside, by now quite warm, though hardly hot.

Afternoon. Off at 2.45. We went to an area where some said they had heard the sound of cubs. Monsoon rains start mid-July, and continue to late September or October. The parks close then. Too wet to use the roads.

Leopard tracks seen wild hogs (pix) gaur (pronounced go uh, as in the Portuguese enclave Goa. (pix) largest bovine in the world. We have heard nothing of any kill sites.

Toward the end of the day, we waited quite a while (half an hour) at one site. They said a tiger had been seen there in the morning. Also they knew it was an area where a mother tiger and her cubs were frequently seen.

And suddenly: a tiger!

The car ahead (our group) first spotted it, with Rajveer, Tom and Sherry O'Shea.

They said they had heard a little noise in the leaves and spotted it, but had heard no alarm calls. Then the tiger came out on the road and I could see it quite well. Walked across the road slowly and I got a full side view. Splendid, and I could see the rippling muscles again. Then she went into the bushes and disappeared. Great luck, even if they knew the area in which to look. **Tom O'Shea in the car ahead of me got a great photo.**

This is the area known as Mahavir, and the name of this tiger's mother is Mahavir Bali (bali means tigress), which means the tigress of Mahavir. She has three cubs and the tiger I saw was one of her daughters. Two female cubs and one male cub. So this is a daughter of the Tigress of Mahavir. She is 18-20 months old, a subadult.

Saw two chickens on the way back. Red jungle fowl. So on one great day we saw a tigress and a leopard and on another great day we saw a tigress and the ancestor of all domestic chickens.

There are almost 65 tigers in Kanha, maybe 15 males. There are about 56 tigers in Ranthambore, maybe 12-15 males.

One elephant forest guard was killed in Kanha last year. He was not on an elephant but walking in the woods to get the elephant. It ate part of him, as also did her cubs, but they rescued part of his body.

peacocks. new birds: lesser adjutant stork. woolly necked stork. Eurasian turtle dove.

We watched a BBC film DVD during supper, narrated by David Attenborough. "The Tiger" made in 1986.

chēētal. Attenborough's pronunciation.

In the film a tiger kills a langur. langur "the eyes of the forest"

2013. March 6. Wednesday.

Out at 6.00 a.m. Fairly long queue at the entrance station.

swamp deer (pix), golden jackals (pix), found good pug marks, and a place they claimed the tiger had been sitting, with one spot with urine. Jungle owl

breakfast on the hood of the 4WD. black stork. 2 jackals lying the road. They just lay there, stayed and didn't spook for 20 minutes, later a 5th jackal running in the road ahead of the 4WD for quite a way, a quarter of a mile.

no tigers. They thought they heard a couple alarm calls, but mostly they were going where they thought the pug marks were headed. returned for lunch 11.30 outdoors.
off til 4,30 p.m. sal = *Shorea robusta*. shala tree - species of tree belonging to the Dipterocarpaceae family. often the dominant tree in the forests where it occurs, sometimes dense forests of huge trees. Evergreen or dry-season deciduous. In legend, Buddha was born under one. Sal is one of the most important sources of hardwood timber in India, with hard, coarse-grained wood that is light in colour when freshly cut, but becomes dark brown with exposure. The wood is resinous and durable, and is sought-after for construction, although not well suited to planing and polishing. The wood is specially suitable for constructing frames for doors and windows. The dry leaves of sal are a major source for the production of leaf plates and leaf bowls in northern and eastern India. The leaves are also used fresh to serve ready made paan (betelnut preparations) and small snacks such as boiled black grams, gol gappa, etc. The used leaves/plates are readily eaten by goats and cattle that roam the streets freely.

continued on visit to tribal villages, first village, Gonda people. for which the ancient super continent Gondwana land is named. woman sifting rice to get the fungus grains out. In their gardens, tomatoes, potatoes, maize, all from the New World. coriander.

woman making blocks for a house with walls made of mud, cow dung, and rice straw.

large dug well from which they dip water in buckets, and also fitted with an electric pump.

They irrigate their gardens Nov through June 15. Lots of hand pumps have been put in by the government, and women and youth often seen pumping and getting good flow of water, visited second village, Bega tribe. village name Cuichrangdur

No electricity in this village. though a tourist lodge had given for one main home a solar power unit that would light just two electric bulbs. The people in this village were moved out

of the park in the 1970's over 40 years ago, and some of the people remember this.

The government would like to re-locate them again and put this land in a buffer zone, but they don't want to do it, though I could wonder in this poverty whether their lot could be any worse if moved. Likely to be for the better. Returned and took a ride at twilight into dark over a road to look for tigers, which I thought wasted effort. But they did point out some fireflies in some dark woods. Returned and dinner outside by the fire.

2013. March 7, Thursday. up and out 6.00 a.m. frosty breath. 2 gaur (pix). 25 spotted deer. heard call of jungle fowl. white rumped shama. peacocks in display (pix). stayed quite a while at a spot where spotted deer were bunched up and looking up into the forest, not eating. The guide in another car said he had seen a jackal and thought a jackal had taken a fawn, which he heard scream.

breakfast in the forest in the pavilion area.

returned for lunch.

Left the hotel for drive to Naipur 1.00 p.m.

stopped to see fruit bats, roosting in some trees and Tom tried to get closer and scared them into some splendid flight displays

Indian flying fox
Pteropus giganteus

back on the road for a six hour drive to Naipur, which proved an ordeal.

One huge traffic jam of trucks stopped to pay their taxes crossing state borders, messed up by some road paving.

We could have gotten stuck there for the night, but the driver did a lot of pulling around and found some back alleys.

ox carts

lentils

The lentil (*Lens culinaris*) is an edible pulse/bean. It is a bushy annual plant of the legume family, grown for its lens-shaped seeds. It is about 40 centimeters (16 in) tall and the seeds grow in pods, usually with two seeds in each.

Lentils have been part of the human diet since the achromic (pottery nonproducing) Neolithic

times, being one of the first crops domesticated in the Near East. Archeological evidence shows they were eaten 9,500 to 13,000 years ago. Lentil colors range from yellow to red-orange to green, brown and black. Lentils also vary in size and are sold in many forms, with or without the skins, whole or split.

naan (bread). Naan or Nan is a leavened, oven-baked flatbread. It is typical of and popular in West, Central and South Asia. A typical naan recipe involves mixing white flour with salt, a yeast culture, and enough yogurt to make a smooth, elastic dough. The dough is kneaded for a few minutes, then set aside to rise for a few hours. Once risen, the dough is divided into balls, which are flattened and cooked. Served with butter or ghee melted on them. Nigella seeds are commonly added to naan as cooked in Indian restaurants.

drove through Fench Tiger Reserve, but did not stop

stopped at a restaurant for toilets with a banyan tree said to be nearly 500 years old.

Indian people were quite courteous without exception. The main challenge was long rides on bumpy roads through Indian villages, dodging everything from ox carts to huge lorries, motorcycles, bicycles, rickshaws, both pedal and motorized, monkeys to water buffalo. You need a good driver, a good horn, and good luck.

even bumpier 4WD roads.

reached Naipur, 7.00 p.m. and thankful the drive was over.

excellent hotel.

March 8, Friday.

Up at 4.30 a.m. breakfast at 5.30
6.00 off to the airport

Flight back through Jaipur and then to Delhi, 3 one half hours. fair flight.

Air India.
India has over a billion people, 1.3 billion.

reached Delhi. Long ride to visit Qutb = Qutub.

Qutub Minar, soaring high tower minaret, started 1193, after defeat of last Hindu kingdom.

slightly tilted, but nearly 1,000 years old.

lunch nice restaurant

to visit Humayun's tomb, something of a challenge to the Taj Mahal built by the senior wife of Humayun, second Mughal emperor.

to visit Kashmir gift store

fine dinner in Raddison Hotel

check in at airport

Delhi - Newark

depart 11.50 p.m.

long but more or less decent flight. 15 hours.

Halfway around the world and across an ocean I never saw, all in the dark.

Essentially we were stretching out the night - moving 500 mph and the daylight advancing 1000 mph

March 9, Saturday

Arrived in Newark in the dark.

Customs was a bit of hassle with heavy duffel bag and I found my Denver flight canceled on account of snow in Denver.

Got a standby for a 9.00 a.m. flight and got on it.

Wet runways and snow on the grass.

Reached Denver 11.15 a.m. landed in snowfall, with wet runways.

Green Ride home in snowfall. Wet roads, often slushy.

Home at 1.30 p.m.

46 hours since I woke up, though I slept pretty well on the plane.

Lots of complaints about the Forest Rights Act, or, full title: Scheduled Tribes and Other

Traditional Forest Dwellers (Recognition of Forest Rights), 2006. Each family is entitled to 4 hectares of land in the forest. Much abused, and people claiming land who live in cities. Tilson and Nyhus, pp. 306ff

In Nepal King George V and his party shot 39 tigers in 11 days in 1911-1912.

The Maharaja of Nepal and his guests shot 433 tigers between 1933 and 1940. p. 316

Noble royal hunters could brave dangers, and they also visited local chiefs and made some claims of protecting the people from tigers.

In Nepal, in a study a few large males dominated reproduction, having territories with several females. Other males could not command territories or did so only briefly, with little reproduction. This made for more inbreeding.

Further, when a bigger male took over the territory of a lesser male, he killed any cubs. Otherwise the female would not come into estrous for over a year. Overall, the primary cause of the death of cubs was infanticide. This further makes for less genetic diversity. pp. 335-336.

India 2013 Bird List

white wagtail - a Siberian migrant here now. common myna. house crow. rock pigeon
jungle babblers. rufous tree-pie. *Dendrocitta vagahunde* cf. magpie nicely seen
green sandpiper. A migrant. moorhen - like a coot. red-wattled lapwing, like plover
white throated kingfisher, *Halcyon coromonda*. white-breasted water hen
white-naped woodpecker. *Chrysocolaptes festivus*. rare here, an endemic. First heard, and
later well seen. peacocks peafowl. Indian pond heron. *Andeola greyii* seen with white
wings flapping common kingfisher, but it isn't common. red-vented bulbul. Oriental honey
buzzard. *Pernis ptilorhynchus* = Crested honey buzzard
comb duck = nakta - with a protuberance on its bill. black winged stilt. black-tailed godwit.
white-browed wagtail. *Motacilla maderaspatensis*. Gray heron. painted stork - 10-12
painted storks on an island (pix). great egret. *Casmerodius albus*. great thick-knee. *Esacus
recurvirostris* = Great stone-curlew. wood sandpiper. dusky crag martin. brown crane -
Amaurionis akool. unusual to see it so well. rose-ringed parakeet, nicely seen, drinking. large
gray babbler. spotted owlet, nicely seen on a snag
thick-billed curlew, crested serpent eagle - nicely seen. Indian cormorant. Indian darter =
anhinga. checkrow - an Accipiter hawk, nicely seen. Like a merlin. brown fish owl
gray Francolin, roadside large billed crow. plum-headed parakeet = *Psittacula cyanocephala*.
black stork - nicely seen. painted sand grouse. little egret. laughing dove Indian roller. large
egret. Northern pintail. common teal. purple heron. imperial eagle, nicely seen flying. little
grebe. greater coucal. intermediate egret. common greenshank. common redshank.
common teal. common coot - 70 coots in a long line on a pond. Indian spot-billed duck.
bar-headed goose - the highest flying bird in the world. greater spotted eagle. Northern

shoveler. Northern pintail. lesser whistling duck - I later heard the whistling in flight. Brahminy starling. purple gallinule. bronze-winged jacana. black-crowned night heron. jungle babbler. black-headed ibis, formerly called white ibis, purple heron. Eurasian marsh harrier. steppe eagle, gray hornbill. grey heron. green sandpiper. rosy-ringed parakeet. common teal. common crow red-wattled lapwing. bronze-winged jacana. dusky horned owl, adults and two young nicely seen greater spotted eagle. shovellers, lots of them. gadwall. Eurasian marsh harrier. Two of them. When they circled over the lake, this spooked the shovellers and ducks, who flew up in flocks. A few minutes later they would settle down and return. garganey - a duck something like a teal. Eurasian widgeon. glossy ibis. Indian spot-billed duck. Nicely seen in the scope, including the 'spot' on the bill, between the bill and eyes, a loreal spot. spotted owl. chestnut shouldered petronia, a sparrow hawk (rare). painted crane - juvenile. bluethroat - in the bushes, which I hardly saw lesser golden-backed woodpecker. greater spotted eagle. yellow bittern (rare) black bittern - I finally saw it. ruddy-shelduck. graylag goose..little green bee-eater European spoonbills, a dozen, on an island..Eurasian widgeon..white-throated kingfisher pheasant tailed jacana..tail is longer in the breeding season. green bee eaters Sarus crane. Two seen reasonably well, the tallest flying bird in the world. 1.6 meters. resident Some individuals can reach a height of 7 feet. bar-headed goose, close up comb duck, long-tailed shrike, lesser goldenback (woodpecker) = flame-backed woodpecker *Dinopium benghalense*, green pigeon - two glimpsed in the air. Others seen later. Yellow footed green pigeon. Egyptian vulture common hoopoe Asian turtle dove Indian roller black shouldered kite, spangled drongo = hair-crested drongo red jungle fowl.lesser adjutant stork. woolly necked stork. Eurasian turtle dove. jungle owl, white rumped shama

123 species seen

References

Richard Grimmett, Carol Inskipp, and Tim Inskipp, *Birds of the Indian Subcontinent*, Oxford University Press, 2011. Best of the bird guides.

Richard Grimmett, Carol Inskipp, and Tim Inskipp, *Birds of India: Pakistan, Nepal, Bangladesh, Bhutan, Sri Lanka and the Maldives*. Second edition. Princeton: Princeton University Press, 2012.

Looks like they did a volume with OUP in India and with Princeton UP.

George B. Schaller, *The Deer and the Tiger: A Study of Wildlife in India*. Chicago: University of Chicago Press, 1967, reprinted 1984. I read it in Tom O'Shea's copy in the Delhi airport.

Schaller is 80 years old, published a book of memories last year. He was born in Nazi Germany, father a German diplomat, mother an American.

She brought him to the U.S. after the war. (I later reviewed this book: *Tibet Wild: A Naturalist's*

Journeys on the Roof of the World. Washington: Island Press, 2012).

Sinharaja Tammita-Delgada, *A Traveller's History of India*, 5th ed., Northampton, MS: Interlink Books, 2011. Sherry O'Shea was reading a copy and I looked at it.

The Ranthambore Foundation publishes TigerLink, a news letter that serves as a valuable resource library and is a strong pressure lobby to counter misguided development policies of the government. It is distributed widely, especially among policy makers, decision makers, experts and NGO's concern with tiger conservation across the globe. It also serves as an information base for media professionals and those seeking concise information on tiger conservation issues.

<http://www.conservationindia.org/resources/report-tiger-link-%E2%80%94August-2011>

Valmiki Thapar, *The Tiger: Soul of India*. New Delhi: Oxford University Press, 2011. got it ILL from the University of Wyoming. Half reproductions of tiger in art and lore across the centuries, half text, quoting various others, and the author's own sightings of tigers. Nothing about tiger natural history or conservation.

Valmiki Thapar, *The Last Tiger*. New Delhi: Oxford University Press, 2006. Copy at CSU.

generally a bleak picture, with dysfunctional government, inept rangers, foresters, and much corruption and poaching. With extensive annexed documents, letters.

Ranthambore (Ranthambhore) is very fragile, a tiny island. Nearly 100,000 people with 40,000 livestock live around the periphery of the park. But it is still the finest place in the world to see wild tigers. p. 131.

Israel, Samuel and Toby Sinclair, eds. *Indian Wildlife*. Insight Guides. 2nd. ed. Boston: Houghton Mifflin, 1993. Useful description of both the wildlife and the park areas.

A tiger conference, "Tiger 2000" was held in London in 1997. A book came out of it:

J. Seidenstricker, S. Christie, P. Jackson, e's., *Riding the Tiger: Tiger Conservation in Human-Dominated Landscapes*. Cambridge University Press, 1999.

Ronald Tilson and Philip J. Nyhus, e's., *Tigers of the World: The Science, Politics, and Conservation of *Panthera tigris**. 2nd ed, Academic Press (=Elsevier), 2010, A first edition was 1987, printed typescript, and in CSU Library. I got the 2010 edition ILL from UC Boulder. Excellent resource and nicely done. Articles are seriously scientific but also relate conservation, people, policy problems, often in the first person experience of the

contributors. Some references above to this 2010 edition.

end India

March 12, 2013. Knee surgery, meniscus tear, so I wasn't doing much for the next couple weeks.

April 2-7, 2013. Utah Valley University, at Orem, below Salt lake, Symposium on Aldo Leopold, and spent one day with Giles. Nice views of Wasatch Mountains repeatedly. One morning of hard rain.

Apr 9, 2013. Record cold. Lowest daily high on record for this date. never got over 20 degrees, more or less.

April 10, Lowest daily low on record for this date, something in the single digits.

April 14-20, 2013. Richmond Virginia, Staunton, Rockbridge Baths, and Huntington WV. Went to the last of the IRT Science and Religion seminars, Sunday night, all day Monday, and Tuesday morning.

April 16, Tuesday. Drove to Staunton, via Bybees Road Baptist Church, visited Hebron Church, and my gravestone, and spent the night at 320 North New Street, in the old basement room. Drove up into the Shenandoah National Park for half an hour and saw splendid Bloodroot, *Sanguinaria canadensis*, maybe 200 plants in full bloom, and nothing else out. Mayapples coming up. Lots of good redbud on the drive up and in the valley. Some decent dogwood. Fine day.

April 17, Wednesday. Drove out through Rockbridge Baths, ate lunch by chance luck at a Wednesday noon lunch at Bethesda Presbyterian Church. Talked at some length with Ken Mohler, long a forester, and now a farmer here. Sent him copies of two of my books.

Continued through Goshen Pass, but now with little time to prowl. On to Huntington, WV, and sister Julia.

April 18, Thursday. Hiked the natural trail behind the Art Museum.

Blue violet *Viola soraria*

Round Leaved yellow violet. *Viola rotundifolia*.

White trillium. *Trillium grandiflorum*.

best event on the day, best of the trip. Maybe 400 trilliums in great bloom halfway down the Tulip Tree trail, in some of the wetter area where there is a draft into a creek. Splendid.

Red trillium. *Trillium erectum*. Maybe 70 lower down. In good bloom, though not opened up that much.

Cult-leaved toothwort. *Dentaria lacinata*.

Verbena, sp.

Bluets, *Hedyotis caerulea* = *Houstonia caerulea*.

Small-flowered crowfoot, *Ranunculus abortivus*

Potentilla

Anemonella thalictroides = *Thalictrum thalictroides*

Celandine Poppy, *Stylophorum diphyllum*

Spoke at Woodlands that night, on "Promised Land and Planet of Promise."

April 19, Friday. Drove to Richmond in rain all day, off and on hard rain.

Serviceberry, in good bloom in woods. *Amelanchier arborea*. Checked it where we had an in-car picnic lunch.

Henbit in Ann's lawn. *Lamium amplexicaule*.

April 20, Friday. Flew home.

April 29-May 3. Princeton on a Center for Theological Inquiry event. Nice dogwood.

May 5, 2013. Well Gulch Trail in Lory State Park, with Jane, Rolston, and Ellie Jane. Nice day, but cool for Jane. Looking for Pasqueflowers and found them, about two dozen. Area is badly burned from last summer's fires, but some Pasqueflowers still there. Recent big snows have left the area with late flowers, some crushed down. Also re-keyed Sugarbowls, *Ranunculus hirsutissima*. Met Fred Johnson coming out.

June 11-18, 2013, East Anglia, Norwich. ISEE Conference, University of East Anglia. With Jane.

June 11, Tuesday. Denver-Dulles-Heathrow. Late taking off in Denver because of the heat, which, they said, meant the plane needed to have fewer people on it. First they wanted three or four, then when we were all on the plane and thought we were ready to take off, they said they needed three more, and upped the price. But all this meant we had little time for the connection in Dulles. Walked onto the plane, being held for us, and ready to go. Decent overnight flight.

June 12, Wednesday. Landed Heathrow, and took a National Express bus to Norwich, nearly four hours, and took taxi to Earlham House Bed and Breakfast, then to the International Society of Environmental Ethics conference at East Anglia University. Decent conference, I was a commentator on papers by Phil Cafaro and Allen Thompson on the Anthropocene. Bus to and from B&B to East Anglia Conference site was expensive.

June 13, Thursday. Conference.

June 14, Friday. Conference, noon picnic outdoors, walk across an area they call "the broads," and around a lake, too windy for Jane.

"The Norfolk Broads" seems to refer generally to marshes, fens, rivers, lakes in East Anglia, often with navigable waters, and more or less managed over centuries, with various dykes, pumps, and drains, for agriculture, pasture, thatch, recreation, boating, footpaths, wildlife. They are often designated as ESAs. Environmentally Sensitive Areas. So humans have created the broads, within the constraints dictated by nature. Various floods have often disrupted this management.

Lots of Ivy-leaved Toadflax, *Cymbalaria muralis*, Kenilworth Ivy, in the walls all over town.

Hundreds of photos at:

http://www.google.com/search?q=%22Cymbalaria+muralis%22&lr=&hl=en&as_qdr=all&tbm=isch&tbo=u&source=univ&sa=X&ei=KFDHUbKGE-fuyAGE3IDICQ&ved=0CH4QIR4&biw=1024&bih=654

June 15, Saturday. Best day of the trip. Rented car with Phil Cafaro, Allen Thompson, Jane, and local guide, Tim Holt-Wilson. He does what he calls geoconservation, or geodiversity, in

with and under biodiversity. Concerned with the mix of nature and culture in the East Anglia landscape, and he was resolved to take us to the two wildest parts of East Anglia. (Address: 1 The Avenue, Upper Oakley, Diss, Norfolk, IP21 4AY. Diss is the name of a town. timholtwilsdon@onetel.com.)

Drove to St. Margaret's Church, Hales, an ancient church out in the open country, very scenic, and we were there under great sky, cloud, and lighting conditions. Yellow field of rape added to the color. St Margaret's Church is a Norman church, relatively unaltered by later forms of architecture. The church has a round tower with circular splayed windows that bear the impressions of basketwork from their construction. The apsidal chancel is decorated with blind arcading, and there is a nave doorway.

<http://www.heritage.norfolk.gov.uk/record-details?TNF223>

Pheasant and chicks. Some sugar beets in nearby fields.

Then to Hales Green, a commons area, mentioned in 13th century documents, with Hales Manor, or Hales Hall, a big country estate. Hales is a small parish in the southeast of the county. The village of Hales is in the far north and the parish landscape is one of scattered farms and clusters of settlement on the edges of Hales Green.

Hales Hall contains the remains of a late 15th century house built by James Hobart from 1478 onwards. This is variously incorporated into later building, 16th century. The only upstanding remains of the Hall are the gatehouse range and the large brick barn, which stand to the east of the moated site where the main house was constructed. The foundations of the late 15th century house and octagonal corner turrets are visible on the moated platform which is divided by an earthwork bank, probably a garden terrace. Roger de Hales almost certainly had a house here in the 12th century, which was associated with a deer park

<http://www.heritage.norfolk.gov.uk/record-details?MNF1053>

jackdaw. moorhen, chit-chat, chaffinch, house martin,

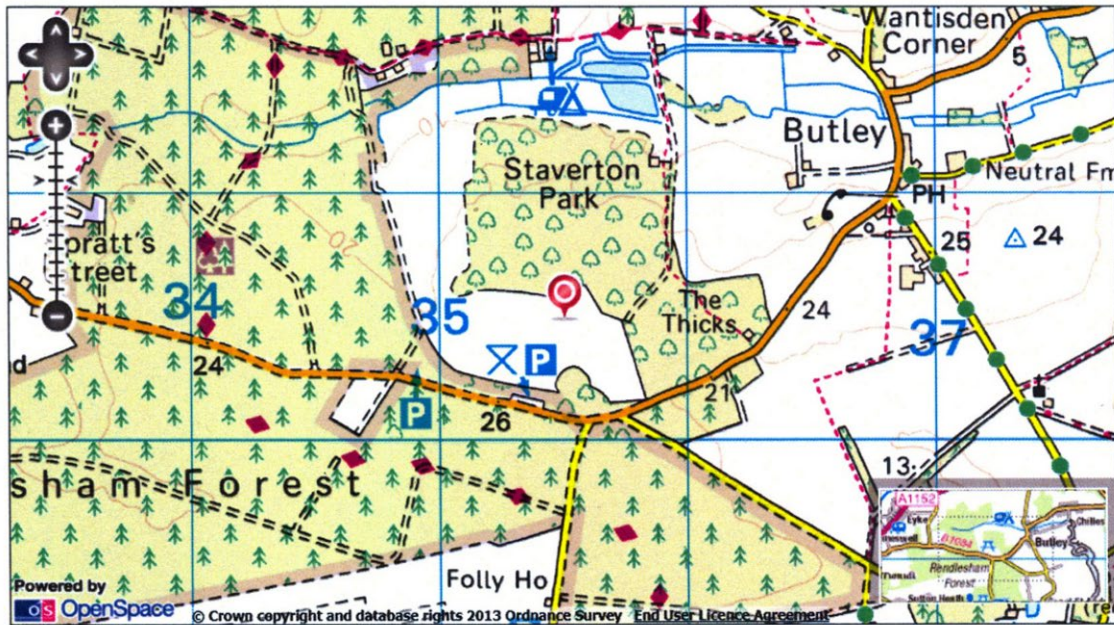
Then drive through Beccles, and reached Wrentham, on Route A12. Rhododendron roadside.

Reached Covehite, at the sea, with a spectacular ruined church, St. Andrew Covehite Here we started a hike over cliffs, 50-75 feet high, and eroding back a few feet each year.

Walked down a rough road, less than half a mile, with hawthorne hedges, Alexanders or Black Lovage, *Smyrniolus olusatrus* An umbel, looks a lot like Angelica.

Just as we reached the sea cliff, there were RAF planes flying overhead, one large one, maybe

a bomber or troop carrier, as big as a passenger jet, with five small fighter planes closely



surrounding it--which we later learned was part of the Queen/s birthday celebration.

This is an AONB, Area of Outstanding Natural Beauty. It is also a SSSI, Site of Special Scientific Interest.

Walked along the cliff over the beach, along a path that is eroded back each year, and new path created a few feet further inland. Nice surf. These are cliffs cut in fluvio-glacial sands,. This is the most rapidly eroding area on the English coast.

After perhaps a mile, came to a forest, with trees nearest the sea being killed by salt. Reached a pond, probably brackish.

avocet
little tern
great crested grebe

We couldn't find a place to eat and so we walked back to Southwold, a small beach resort, with lots of people, in much contrast to the Covehite area where we had just been. Fish and chips, decent lunch. Big gambling game room in the same building.

This is the county of Suffolk, the one above is Norfolk. Originally this meant the "south folk" and the "north folk."

Drove south some, through Yoxford, and Snape. On south through Tunstall. Reached Butley. Reached Staverton Park, a forested area, or at least the northern part of the area was called Staverton Park, the southern part "The Thicks." Wantidsen. Also a SSSI. Photo in Williamson, *Sanderlings*, p. 107.

Now raining hard, and we got out and walked in the rainy woods. Jane stayed in the car. Huge oaks, old, English oak, *Quercus robur*, although much wood had been cut out of them.

Also large holly trees, *Ilex aquifolia*, the area is as much of interest for the holly trees as for the oaks. As large holly trees as I have ever seen.

This kind of area is called a wood pasture, open canopy wood pasture, and cows might have been in it, but it is also kept for deer hunting.

About 200 acres of huge oak pollards, with records going back to 1268, variously owned.

Pollarding is a pruning system in which the upper branches of a tree are removed, promoting a dense head of foliage and branches. It has been done here since Medieval times.

Trees were pollarded for fodder to feed livestock, or for wood. Fodder pollards produced "pollard hay", which was used as livestock feed; they were pruned at intervals of two to six years so their leafy material would be most abundant. Wood pollards were pruned at longer intervals of eight to 15 years, a pruning cycle that tended to produce upright poles favored for fence rails and posts, as well as boat construction. Pollarded trees tend to live longer than unpollarded trees because they are maintained in a partially juvenile state, and they do not have the weight and windage of the top part of the tree. Older pollards often become hollow, so can be difficult to age accurately. Pollards tend to grow slowly, with narrower growth rings in the years immediately after cutting.

Roan tree, *Sorbus aucuparia*

Birch, *Betula pendula*. European white birch.

Bracken, *Pteridium aquilinum*

A forested area to the west of here a mile or two is known as Rendlesham Forest, a recreational area, and was the site of supposed UFO sightings in 1980, by US Air Force personnel who were then stationed in the area.

Tim wanted tea, and, again, we had trouble finding a place, though eventually found one. It was adjacent to a pond or lagoon.

oystercatchers

curlew

shelduck

Lots of references during the day to the Norman Conquest. The Norman conquest of England was the 11th-century invasion and occupation of England by an army of Norman, Breton, and French soldiers led by Duke William I of Normandy, later William the Conqueror. William, who defeated the Anglo-Saxon King Harold II of England at the Battle of Hastings on 14 October 1066, was crowned king in London on Christmas Day 1066. He then consolidated his control and settled many of his followers in England, introducing many governmental and societal changes.

Angles, hence England, Anglo, was derived from Angles, a tribe in northern Germany, in the region of Angeln.

Large sections of East Anglia were marshland and bogs until the 17th century, despite the construction of early sea barriers by the Roman Empire. During the 17th century the alluvial land was converted into arable land by means of systematic drainage using a collection of drains and river diversions.

In the 1630s thousands of Puritan families from East Anglia settled in the American region of New England, taking much East Anglian culture with them, as well as the name New England. East Anglia, with much of its earnings based on wool and textiles, was a rich area of England until the effects of the Industrial Revolution moved manufacturing to the Midlands and the North.

During the Second World War, the Royal Air Force and the United States Army Air Forces constructed many air bases in East Anglia for the heavy bomber fleets of the Combined Bomber Offensive against Nazi-occupied Europe. On average the American bases came once every eight miles. Building them was a massive civil engineering project that inevitably damaged the environment. East Anglia was chosen because it had considerable open space and level terrain and it was relatively close to mainland Europe, thus shortening flights and allowing for greater bomb loads. Remnants of some of these bases are still visible while a few remain in use. One, near Norwich, has become Norwich International Airport.

Much of East Anglia is flat land, often fenland and reclaimed marshland, though much of Suffolk and Norfolk is gently undulating with glacial moraine ridges providing steeper hills in areas such as North Norfolk.

The area near the sea, especially in Suffolk, is called the Sanderlings, or Sandlands. Sandy, whereas there is more clay further inland. Fluvio-glacial sand and gravel. Often acid soils.

Some of it is called "The Heaths," but I saw no heather. Apparently there are, or were, expanses of heather, or heather and grassland, also gorse, broom, and birch. But I gather the heaths were before that forests, the heather planted in or invading cut forests. Usually some visual framework of hedges, hedgerow trees, and woods. Some conifer plantations. Again, a mixture of human developments operating on a natural framework of geology and soils. Some peatlands, some bracken filled areas.

Tom Williamson, *Sandlands: The Suffolk Coasts and Heaths*. Windgather Press, 2005. ISBN 978-1-905119-02-8. 978-1-905119-02-8

Copy in CSU Library.

Tom Williamson, *The Norfolk Broads: A Landscape History*. Manchester: Manchester University Press, 1997. Copy in CSU Library. St. Martin's Press.

The map Tim had was Ordnance Survey: Woodbridge and Saxmundham # 212

June 18, Tuesday. Flew home, via Air Canada and Vancouver.

Flew north of Skye (Scotland), over the Hebrides (largest is island of Lewis), over Iceland, over middle Greenland, way north of Churchill (Canada), east of Yellowknife, and into Vancouver. Flight speed was over 500 mpg, Earth rotates at equator about 1000 mpg, but at this far north latitude, probably something about 500 mpg, so essentially we were flying into the sun at a rate that made the sun stand still. We arrived at Vancouver at more or less the time we took off from Heathrow.

Very decent flight, aisle and center seats toward the back, and not crowded.

Delay in Vancouver, about two hours, waiting for the pilots to come in on an inbound flight from Denver. There had been a tornado at Denver Airport. Tornado touched down briefly on the eastern runways, mid-afternoon. Also touched down on Pena Boulevard. Winds of 97 mph winds destroyed some communication equipment. At the alarm, thousands of passengers and staff took shelter in the tornado shelters, which are the toilets, and stayed there 30-40 minutes.. Traffic was briefly blocked by police from I-70 to Pena Boulevard. Nine flights were diverted to other cities.

end East Anglia trip

July 1, 2013. Monday. With Rolston and Ellie Jane in Roland Moore Park, returning home from the swings, Ellie spotted a nice deer. a doe, which later came out into full view.

July 2, Tuesday. Jane and I took Rolston and Ellie Jane to Rocky Mountain

National Park. Couldn't go up Bear Lake Road, due to construction. So we hiked Deer Ridge maybe an hour and a half. Then picnic at Hidden Valley, then to Endovally Picnic Area, at the start of Fall River Road, for a walk around. Kids played in a stream, off shoot of the main river, with enthusiasm, crawling under or over logs across the stream. Couple dozen elk in aspen at the start of the Moraine Park road.

Major tragedy with firefighters in Arizona, near Prescott, Yarnell fire. Nineteen killed, burned to death in a fire, the most killed in any one incident since 1931, before I was born.

July 18, 2013. Nine people were injured in a series of lightning strikes at Grant Family Farms north of Fort Collins. The strikes happened about 3:30 p.m. near the intersection of West County Road 72 and North County Road 17, Wellington Fire and Medical reported. They were evacuated by ambulance, to hospitals, two in critical condition. Others had only tingling sensations. Due to storm conditions, air ambulances could not be used.

That same day, a 65-year-old woman was struck by lightning on the Ute Trail in Rocky Mountain National Park. She was found by a park visitor and taken to a hospital about 1.00 p.m.

July 20, 2013. Gem Lake, alone. Big parking lot at the trailhead now, used by lots of people, but many are climbers going up in the Lumpy Ridge area somewhere. On the trail about 9.15, and steady climb, something of a challenge in the high steps. Not as far as I recalled, sign says 1.7 m., but there is pretty steady climb. At the Lake about 11.15, and stayed there until maybe 12.00 or so, eating lunch, and chasing off ground squirrels and chipmunks. Climb back down was again a challenge, now getting down the big steps, with dicey knees. But I made it, back about 1.30. The usual flora, no birds really. Nice day, clear and partly cloudy.

Drove home thru Glen Haven, with some cramping in Glen Haven, and I pulled off in the Post Office there. There had been a serious thunderstorm in the lower part of the Big Thompson Canyon, but I saw little rain. Last time I was at Gem Lake was Jan 15, 2004. On August 12, 1997, I led a hike to Gem Lake, leading a group from the Society for Contemporary Philosophy, about fifteen. There is another Gem Lake to which I hiked in the Encampment River region.

July 28-August 3, 2013. Virginia Beach and Dismal Swamp

Dismal swamp trip - Monday, July 29, 2013

Drove out, about an hour. Put in at a launch site on Route 17 on the eastern side of the Great Dismal Swamp Wildlife Refuge, a mile or two north of the Feeder Ditch.

We were in six kayaks, each seating two

1. David Rolston and me
2. Randy Rolston and Bonita, his wife
3. Lynn Ward and Mac
4. Carl LaChance and Manu
5. Kyler Rolston and Christopher
6. Cindy Allen and Sara Hudgens

We put in at maybe 1.30 p.m. We had to wear life jackets, which zipped up the front.

Started out on what is an inland portion of the Intracoastal Waterway, wide enough for cabin cruisers, etc., but we saw no traffic at all on it. Paddled this for a mile or two, headed south

passed an ancient cantilever bridge

passed a pontoon float-raft you could pull back and forth across the river

Then took a right turn and paddled for several hours on the “Feeder Ditch,” more narrow. Wide enough, trees on both sides, and once in a while a tree blown down into the ditch (as they are here called, though I might have called them canals). Forests on both sides, branches hanging out over the ditch so you could check the tree leaves, etc.

George Washington, or more accurately, Washington’s slaves, dug this ditch. The Corps of Engineers maintains it.

Some Spanish moss. The Dismal Swamp is as far north as Spanish moss grows (First Landings, Bald Cypress Nature Trail, guidebook).

No evident current, which made paddling easier.

Several black vultures overhead. One great blue heron.

Various birds could be heard in the bushes, maybe warblers.

10 miles of paddling to Lake Drummond. We reached a spillway, maybe 3.30 p.m. and had good lunch there. Nice grassy area, and a campground. Toilets and water, electricity. We had to pull the kayaks out and up a rail rack, and put them in maybe six feet higher than the ditch. There was a small dam and water spilling over it. This keeps the lake level where they want it.

Paddled a short distance now, maybe a quarter mile and we were on Lake Drummond.

Then paddled a mile or so down the lakeshore to find the big bald cypress trees

There were three of them.

First one, pictures of Dave and me.

Second one, we were on the shadow side, and got pictures in which the tree is dark.

Third one, furthest down, was the biggest one. You could take the kayak under the arched roots, though you had to lie down backwards in the boat to do this.

pictures of Dave and me here.

Most of the group got into the water here, standing waist high or a little more. They said there was a good sandy bottom. Also said there were cold and warmer parts of the water.

Back in the kayaks, we took the shoreline closer in coming back, where there were many good bald cypress. Kayaks got stuck several times on submerged logs. Maybe an hour here, and Randy was beginning to say we needed to paddle out to get out by dark--though we could paddle the last part in the dark if we wished.

Essentially no insects, though a couple said they saw a few mosquitoes.

Paddled out, now getting somewhat tired.

Out about 7.30 or 8.00 p.m. Twilight.

Drove back to the beach.

Edgar Allen Poe went into the swamp to commit suicide. He was thinking one should commit suicide in a dismal place. But he found the swamp so beautiful, he changed his mind.

Sailors wanted the swamp water on their ships. They claimed it didn't "spoil," when they kept it many months at sea. Water doesn't spoil, of course. What they seemed to have meant was that the tannin in the water, making it acidic, kept down the bacteria in the water that might cause disease.

Tuesday, July 30,

At the beach, Dave and I took the same kayak out to see dolphins. Saw bottle-nosed dolphins surfacing dozens of times, sometimes only 25 feet away from the kayaks. They were often surfacing two at a time.

Wore life jackets again. The only hard part of this was getting the kayak through the breaking surf. You had to push in, and get somebody to push out the kayak, and then paddle hard to get through the surf. Then it was easy, and no wind, or current, taking us out of the area. Out for perhaps an hour. Return similar, with more risk of the kayak being over turned.

ghost crabs on the beach, of some size.

Trip into First Landing State Park, Thursday, July 31, 2013.

Went in the south entrance and walked the Bald Cypress Nature Trail. Four of us. A bridge over the trail at the start was closed, so we had essentially to walk it in reverse. Did so with a nature guide booklet that Dave read at each marked point, which was reasonably informative.

This is where the Dismal Swamp reaches the sea.

This is called First Landing State Park because when the first settlers first arrived here. The passengers were still on the Susan Constant; the captain, on April 26, 1607, read aloud to the passengers assembled on the deck, the laws and conditions of the new colony. They did not yet know they had reached a great swampland. Several weeks later, they decided to settle at Jamestown, dating that colony from May 13. So maybe you can say that America really began where the Dismal Swamp hits the sea. (from the Nature Trail Guide, of which I have a copy)

turtle on a log

trees: gum, bald cypress, maple, hickory
greenbriar vines
partridge berry on the ground

resurrection fern
2 turtles
lots of Spanish moss

good walkway, sometimes boarded. lots of good views of bald cypress swamps, with good cypress knees.

Cape Henry is only 3,000 - 3,500 years old.

A rare species here is called the chicken turtle, named for its long striped neck. The neck when stuck out is almost as long as its shell. There are only two places in Virginia to find it, and it is on Virginia's endangered species list. There is one but only one known in First Landings State Park. The populations are more or less stable in other southern states.

saw one red-bellied water snake, quite nicely, posed for us on a log. Only found in southeastern Virginia.

some shrubs in bloom and we took photos of them, later asked the naturalist, but she couldn't identify them. Maybe a *Clethra*.

Toward the shore, there are now forested high sand dunes interspersed in the swamp. We walked up some of them as the trail wound around.

We didn't really do more than half this trail, and then came out more or less midway, which was not far from the parking area.

August 9, 2013. Snowy Range, Medicine Bows with Fred Johnson.

Met him at Watson Lake and drove to Centennial and Libby Flats, nice day. Started hiking, walking, where we went in 2009. Open subalpine, alpine, with no trail, though there is a trace of an old road over part of it.

yarrow, *Achillea millefolium*

Taraxacum ceratophorum = *ovinum* Horned Dandelion, a large one, a native, but same genus as the common weed, introduced. Some even make it a subspecies of *Taraxacum officinale*, the common one. Tweedy Plantain. *Plantago tweedyi*. Alpine clover, Parry clover, *Trifolium parryi*. Tansy Aster, *Machaeranthera pattersonii*

Bistort *Bistorta bistortoides* = *Polygonum bistortoides*. Dusky Beard's Tongue *Penstemon whippleanus*. Subalpine Larkspur. *Delphinium barbeyi*. Rayless arnica *Arnica parryi*. Lovage. *Ligusticum porteri*. Redstem cinquefoil. *Potentilla rubricaulis*. Dwarf goldenrod *Solidago nana*. Thick-bracted Senecio. *Senecio crassulus*. Subalpine Arnica *Arnica mollis* Thousands of them, in magnificent display.. Willow herb *Epilobium alpinum* = *Epilobium anagallidifolium* ?? Alpine Mertensia

Mertensia alpina calyx split to the base. Tall Chiming Bells *Mertensia ciliata*.

Mountain death-camus. *Zygadenus elegans* also spelled *Zigadenus*. Alpine

Speedwell. *Veronica wormskjoldii* = *nutans*

Mountain blue violet. *Viola adunca*

Congesta sandwort *Arenaria congesta*

White campion *Silene scouleri*

White bog orchid *Habenaria dilatata* = *Platanthera* = *Limnorchis*

Kings Crown *Sedum integrifolium*

Queens Crown *Sedum rhodanthum*

Viviparous Bistort *Polygonum (Bistorta) viviparum* Lower bulbet with a small leaf coming out.

Slender hawkweed *Hieracium gracile*

Parry's lousewort *Pedicularis parryi*

Northern Gentian *Gentianella amarella*

Elephantella *Pedicularis groenlandica*

Arctic sage *Artemisia arctica*

Red prickly currant *Ribes montigenum*

Sibbaldia *Sibbaldia procumbens*

Black-headed daisy *Erigeron melanocephalus* blackish bracts

Antennaria sp.

Sun-loving aster *Aster foliaceus*

Yellow stonecrop *Sedum lanceolatum*

Sickle-top Lousewort *Pedicularis racemosa*

Lunch in good sunshine, but soon after started to rain, then graupel, hail, and everything else. Walked out in off and on rain, hail.

Had to search around for a pond we remembered with some interesting plants, and found it in the rain.

Kalmia microphylla Mountain Laurel

Gaultheria humifera Alpine Wintergreen. The low mat-forming mystery plant near the *Kalmia* and beside a pond. Best picture of it is in Joseph F. Duft and Robert K. Moseley, *Alpine Wildflowers of the Rocky Mountains* (Missoula, MT: Mountain Press, 1989, 1994), p. 151.

Barely 3 cm. high. "humifera" means "spreading over the ground." I had previously keyed it from the Wind Rivers in Wyoming. Weber, *Rocky Mtn Flora*, 1967, lists it as rare.

Saw lots more *Kalmia* coming down than I remembered from before.

Western Pearly Everlasting. *Anaphalis margaritacea*. Plant I brought in. White phyllaries ("pearly", and they keep well dried, "everlasting"). No rays. Trouble keying it because in nearly all the pictures I could find the phyllaries were spread out like petals, but not in the one I had.

Out about 2.30. Drove home, with quite hard rain between Centennial and Laramie, and some spectacular lightning, including one horizontal stroke across maybe 20 degrees of the horizon.

Home about 4.15.

Sept. 6, 2013. Lyon Gulch. Alone. Half a dozen bighorn rams, half curl, on the roadside on the way up. On the trail about 9.15, and got up top where the ruins are about 12.00. Slow and steady, but not that bad climbing. Couldn't find anything of the Griffith Homestead, about which I had an earlier note that it was a good ruin.

Lunched nearby and returned. Had to pick my way downhill looking for as flat a spot as I could find to place my feet. On the uphill stretches in here, I was having a tendency to cramp. But took it steady, shaking out the tendency to cramp as I could, and made it back about 3.30 p.m. This is about all the hiking I can now take - alas! Maybe a dozen people on the trail, often young women with dogs, which they did call and leash up when they saw me ahead of them on the trail.

September 11-18, 2013. Near record-breaking rains and flooding. CSU closed on Friday. 16 helicopters, including Chinooks and Blackhawks, used to rescue stranded people, though often unable to fly on account of weather. 7 dead, over 800 unaccounted for, though most of these were eventually found. Bridges out. I-25 to Denver closed for a day. Big Thompson Canyon road washed out. Lots of wash and debris in the mountains, but biggest troubles with the high river levels on the plains, sometimes 10 feet over flood level. Airlifted hundreds of people from campgrounds, homes and destroyed mountain communities. 85 children and 14 adults trapped while attending an outdoor by education camp near the mountain community of Jamestown. School group at an ecoweek at Estes YMCA had to be brought home to Fort Collins over Trail Ridge Road and through Wyoming. Town of Lyons destroyed, all roads cut off for exit, no power, no water, no sewage, residents evacuated. In Larimer County, 1,500 homes destroyed and 4,500 damaged. 200 businesses destroyed, 500 damaged. 11,700 under evacuation order.

October 17-24, 2013. Davidson, 60th Reunion and Eastern Mennonite University, Harrisonburg. Jane and I left crazy early on Thursday, flew through Chicago, where there was some wait, and to Charlotte. Rental car and crazy traffic Charlotte to Davidson on I-77, now getting dark. Stayed in the Guest House.

2013. Friday, Oct 18, Lunch with Andrew Lustig, who holds chair I endowed at Davidson, that evening a dinner.

2013. Saturday, Oct 19. Various activities, breakfast near Davidson College Presbyterian Church, a memorial service for those deceased. Sobering, over half my class are dead. But of the living more than half are here (maybe thirty-five), often with wives. Lunch, the new woman president spoke, football game in afternoon in some rain.

2013. Sunday, Oct. 20, flew to Charlottesville, got car, drove down Blue Ridge Parkway from Afton to Route 60 and into Lexington, visiting Elizabeth Welsh. She has just put Danny, her husband, into a home in Staunton. She is not sure he still knows she is his wife. Alas! spent Sunday night at 320 N. New Street.

2013. Monday, Oct. 21, to Hebron, then to Afton and drove north at a leisurely pace all day, lots of stops, and reached Big Meadows Lodge. Fortunately now open, though it had been closed for over three weeks with government shutdown and locked Congress.

I did a couple of short strolls, one at the start of the Rip Rap trail. Witch hazel, *Hamamelis virginiana*, in evident bloom. Decent leaf colors, though few reds. Jane came on this one.

Tuesday, Oct. 22, leisurely half day still on parkway. Cooler now. I did one hike about a mile. A few hemlocks in good shape, though the aphid has killed most of them. As we were leaving the park on Route 33, Jane saw a bear climbing over a stone roadside wall, though I did not see it.

Flowers mostly gone, though *Galinsoa parviflora* evident and more or less weedy. *Liatis*. Drove out to Cooks Creek Church, and found a few Rolston graves. Drove on to the area of the John Hinton Rolston homesite. Reached Joshua Wilton B&B in Harrisonburg, a fancy one.

2013. Wednesday, Oct. 23. Spoke at chapel, then a lunch, then two classes, and gave a main lecture, symposium. The worked me pretty hard. Main host: Christian Early.

2013. Thursday, Oct. 24. Drove to Charlottesville, and flew home.

2013. November 5-9, Caldwell Idaho, College of Idaho.

2013. Nov. 5, Tuesday, Flew to Boise, arrive about 5,00 p.m. and picked up by Laurie Henberg. Went to basketball game that night, lively competition between them and Northwest Nazarene University, in nearby town.

2013. Wednesday, Thursday, spoke in six classes, and gave Thursday night lecture, Three Big Bangs.

Nov., 8, Friday, day in Owyhee Mountains. Marv Henberg my host. He is president of College of Idaho, and an old friend. Owyhee is an old spelling for Hawaii, and some cowboys from Hawaii were once brought here, and the name stuck.

Drove south on Route 95, through some country with orchards, Pears, peaches, and apples. Crossed the Snake River.

Turn west at Succor Creek and go west, and after 2-3 miles pass into Oregon.

Malheur County, Oregon. Now very dry country and little inhabited. This is the least inhabited part of Oregon. This is BLM land.

Marv made a mistake and went too far and dropped into a Succor Creek Canyon, but it was quite scenic. Lots of potholes in the towering dark basalt rocks, giving it a Swiss cheese-like texture, or honey-combed texture. More so than I previously remember. hoodoos, a name for a carved hill, like a butte but more pointed on top. State Park and campground where the road nears the creek.

Returned and found the road we wanted, the Leslie Gulch Road, and drove it some distance to Juniper Gulch, with parking space and toilet. Proceeded now on foot. People go up the Gulch, called a slot gulch because it is narrow. Flat sandy floor bed maybe 15 feet wide is the floor of the wash and easy walking, with a few more difficult spots. Steep walls and pinnacle cliffs on either side. Hiked an hour or two, and had lunch. Cool, but reasonably pleasant. Biggest sagebrush I have seen. More than head high. Presumably *Artemisia tridentata*.

Hiked out maybe by 2.30 and drove back home. Marv had some people to see later that day

Steve Stuebner, *Boise Trail Guide*, 2008, ISBN 0-09644343-8-5. Describes this hike, which he calls a scramble.

2013. November 9, Saturday. Flew Boise to Denver and home.

2015. start

China: Monster Dam, Killer River Holmes Rolston III

The Three Gorges Dam, spread out before me, is, by most counts, the largest dam in the world. This gargantuan dam on the Yangtze River is about a mile and a third wide and

impounds more water than any other dam, creating a lake 400 miles long, about the length of Lake Superior. The dam generates more hydro power and provides more flood control and agricultural water than any other dam. Three Gorges is regarded as China's most ambitious project since the Great Wall.

The Yangtze River, along with the Yellow River, are China's two major rivers, both vital and both killer rivers. Chinese peasants have needed to live close to the rivers for their rice paddies, which left them especially vulnerable. A 1998 flood here killed 4,000 people and left 15 million homeless. Yangtze floods in 1931 killed 3.7 million people by drowning, water-borne diseases, and starvation, perhaps the worst natural disaster in the last century. The Yellow River has killed more people than any other river in human history.

Millions of people were forced by the dam to move. Thirteen major cities, 140 smaller cities and towns and 1,352 villages, 1,600 factories, and 700 schools were submerged. This was a gigantic relocation project, building thirteen replacement cities, sometimes with their famous temples dismantled and reconstructed. I saw many newly built apartments, chiseled into the mountain sides just above the present lake level.

The dam is placed below three narrow gorges: the Xiling Gorge, the longest and most perilous, above that the Wu Gorge, the deepest, the Witches Gorge, and most upstream the Qutang Gorge, only five miles but the most beautiful. There were cliffs 2400 feet high, fantastic rock towers, crags with ferns, trees growing in cracks on ledges. The canyons were weird and grotesque. I saw remnants of this above the lake, but most of it is now drowned.

Before, hundreds of men called "trackers," typically barefoot in harnesses at the stream's edge, without any path, pulled long ropes to get the junks upstream against raging currents. These trackers were often abused, treated like draft animals, whipped if they failed - though the Communists had stopped the latter practice.

I took a cruise on the lake, named Emerald Drop Lake. Since the lake is filling gorges, it is never very wide, but is quite long. The cruise is still scenic, but one has to imagine the spectacular lower gorges now drowned. There is a stark drawdown line a couple hundred feet high, leaving no vegetation anywhere near the lake.

We got as far as the Xiling Gorge, which earlier was the most dangerous. Only a few years old, the lake is already seriously polluted by pesticides, fertilizers, and sewage from the boats on it. The river is loaded with sediment, caught by the lake, deposited in the still water. This could fill the lake in less than fifty years.

In the city of Wuhan, a couple hundred miles downstream, where I was invited to speak at a conference on Chinese environmental aesthetics, my hosts showed me riverside apartments, recently built and expensive, on land that previously would have been regularly flooded.

One of the overlook sites displays a huge granite boulder taken from the bedrock on which

the dam is constructed, found to be especially well-suited for situating the dam and for use in building the foundations of the dam. They claim this excellent granite makes the Three Gorges "a divine dam site," an interesting turn of phrase for a Communist government.

From there I walked to another site, above the dam, where I could see two ships in the locks. There are two sets of five step locks, which take half a day to navigate. Also there is what they call a shiplift, a huge elevator that can lift a large ship vertically up to 175 meters in less than an hour. This is used mostly for passenger ships.

Earthquakes in China have killed almost as many people as their rivers. The official line is that the dam is in an area with quite infrequent and low-level earthquakes.

An appraisal by the US Geological Survey reached a different conclusion. The dam is situated near six fault lines. One, the Zigui-Badong fault, fifty miles upstream is considered likely to produce earthquakes that could impact the dam area. The huge weight of the reservoir may trigger fault lines. After the reservoir began filling in 2003, there was a Richter scale 3.4 earthquake along this fault. There have been scale 5 to 6 quakes in the past. The dam is built to withstand a scale 7 quake.

Before the Tangshan earthquake in 1976 in northeast China, no significant tremors there had ever been recorded. Suddenly a massive quake measuring 7.8 on the Richter scale occurred, killing more than 242,000 people.

Such a dam was first proposed in 1916 by Sun Yat-sen. Especially since previous governments proved unable for the task, the Communist government loves to celebrate this achievement. They preserve huge bulldozers and earth-moving equipment used to build the dam, praise the laborers and engineers in memorable photographs and art, and point to still bigger landscape management envisioned.

Any nation would celebrate such a dam, and rightly so, but Three Gorges is a perfect model for Communist glory in heroic labor. This masterpiece of human construction has replaced and tamed three gorges, masterpieces of nature.

The Communists envision what they call an "ecological civilization," by edict of their government, and much admired in the conference I attended. Well and good, but meanwhile I never saw more than a small patch of blue sky in the omnipresent grey haze the eight days I was there.

A Chinese environmental activist, a young mother named Chai Jing reports that Chinese skies are so hazy from pollution that she found grade school children who hardly knew that the sky is blue and had never seen white clouds. Nor had they seen a star. She made a documentary film on pollution in China, first with the backing of their environmental ministry, but after two days of letting it be seen, it was taken off the internet in China.

The Chinese have lived in harmony with nature for thousands of years, sustaining

themselves, as they like to say by careful management of a landscape they love. Capitalist development has brought serious challenges. In this new millennium, with the Three Gorges super-dam, they envision new frontiers of management and control of this fertile, killer river. My hosts were everywhere cordial, excited about their future. I left hoping they are right.

2015 end.

2019. November 8, 2013, and following. Super typhoon Haiyan hits the Philippines, and no doubt one of the biggest storms ever known, and said by some, by some measures at least, to be the biggest storm every known in human history. Sustained winds of 315 kph (195 mph) and gusts as strong as 380 kph (235 mph).

2019. November 28, 2013. Thanksgiving Day. Ran the Turkey Trot with Shonny and Ellie Jane and Rolston. 4 miles. 3000 runners. Did o.k. To my surprise, Shonny called later to say that I won the race. Well, more specifically, I won in my age group, over 75. More specifically still, I was the only one to run in that age group, or at least to finish. So I came in both first and last. It's not hard to win a race when you are the only one in it. Anyway, I got my name in the paper on the first sports page as a winner!!

December Some spells of below zero weather.

end 2013

2014

2013

2013. January 6, 2013. Went to Cleon and Betty Kimberling's wedding anniversary, a brunch at Highlands Camp, Mostly sunny, and not bad at Highlands. Took Rolston, and came back through Rocky Mountain National Park, so he could try out his binoculars, which he won as a Cub Scout award. Saw about two dozen elk, in half a dozen groups, some nice bulls, one particularly huge rack still really in town. Fern Lake Fire, starting in October, and continuing in various breakouts from smoldering throughout November and December, has burned much of Moraine Park. They were rather surprised by this, winds drove it down from Forest Canyon to Moraine Park and they even feared for the YMCA camp, which was not damaged.

2012 was the hottest year on record by an average of one degree F.

2013. January 13, 2013. Temperature -0.4 when I got up. Coldest day yet this winter, which has been rather cold, in the single digits at night, and no higher than teens and twenties in the day for several days.

2013. January 14, 2013. Temperature -1.4

2013. January 19, 2013. Drove up Poudre Canyon to survey the fire damage from the High Park Fire last summer. Second largest fire in Colorado history, and at one time over 1,900 people were fighting it. It was caused by a lightning strike and was first detected on the morning of June 9, 2012. It was declared 100 percent contained on June 30, 2012, See notes in Trail Log 2012.

Fine day. Little or no evidence of burn until about a mile before Stove Prairie turnoff. After that some burn now and again, and more on high ridges to the south. Canyon generally looks good, a couple places where the fire seems to have jumped the road south to north. No burn in evidence after Narrows, None in Rustic, Poudre Chapel area and further west.

Lunched at the wildlife turnoff (Big Bend) above the fish hatchery, and toward the end of lunch bighorns appeared. At one point I counted sixteen. Across the road but nicely visible. One had a yellow neck collar. Only one big ram, more than half curl. Others female, young males, and two yearlings. They stayed there over an hour, with several other cars stopping. I walked down to the campground, light snow on the ground, with lots of blown dry spots. Some deeper drifts. A dry winter so far.

On return drove up the Stove Prairie road about 4-5 miles, to the top. Lots of burn in here, but also patches and some larger areas that did not burn. I'm not sure how much just didn't burn and how much the fire fighters prevented from burning.

2013. January 27-31, 2013, Richmond. Meeting at Union Seminary, Sunday, Monday, Tuesday noon, and at Ann Bryant's until fly back Thursday.

2013. Wednesday was warmest day on record for January, in mid 70's. This produced a fast moving squall line, and much of Virginia, including Richmond city, was under a tornado watch Wednesday night, but nothing came of it, except some winds and rain. Thursday morning was sunny. Some of the annual spring weeds in bloom. Chickweed, *Stellaria media*, especially when we drove up to Marc Bryant's to check on a fire alarm. Various places: hairy bittercress, *Cardamine hirsuta*. Mint, henbit, *Lamium amplexicaule*.

On the Green Ride van home, I was spotted by Daniel McFee, who has read my work and used it in class. He teaches in Dept. of Religion and Philosophy, Mercyhurst University, Erie, Pa, north of Pittsburgh, Catholic school, and is often in Fort Collins, because he is married to an associate pastor at First Methodist Church, Fort Collins,

so he has wife and children here. He went to Marquette and Duke University.

India 2013

February 23-March 9, 2013.

2013. February 23, 2013. Saturday. Left 7.00 a.m., Green Ride pickup. Decent weather between storms, with another coming tonight.

Trouble in Denver with United because the travel agent had reversed my first and last names. Got that sorted out with a special agent there, but had relatively little time to make the plane.

In the process I lost my reserved aisle seats and she could only get me an aisle seat to Newark.

Decent flight to Newark, and an agent there was helpful. She got me a bulkhead middle seat, Newark to Delhi, which proved just fine. I had lots of leg room and could get up and out easily.

4 hours in Newark. Take off 8.40 p.m.

The flight was circumpolar, as we flew over Maine, Labrador, Greenland, Scandinavia, Russia far east of Moscow, and the right between Afghanistan and Pakistan, and on to Delhi. Over all this territory, I almost wondered if we might get shot down by the terrorists.

Smooth flight, 14 hours. 7,323 miles 1,604 miles - Denver to Newark 8,927 miles
Add in the Green Ride, and I traveled 9,000 miles.

Essentially we flew into the sun through a whole day. You could see the progressing daylight and dark on a screen right in front of you. Reached Delhi about 9.20 p.m. on

2013. February 24, Sunday.

The usual confusion through customs, though the agents were efficient. My bag had to be re-tagged in Denver with the name reversal, and I was apprehensive about it, but it did come through – almost the last bag.

2013. I met the trip guide, an Indian, Rajveer Singh. 45 minutes on a van to Maidens Hotel, northern part of Delhi. Decent hotel.

2013. February 25, Monday.

Delhi into Ranthambore Park (or spelled Ranthambhore) decent breakfast, and I slept well.

Some sightseeing. Definitely in the third world. Auto rickshaws, cycle rickshaws by the hundreds. India is right hand drive, from the English legacy. Delhi is the old Muslim capital. New Delhi was constructed by the British in the 1930's.

Delhi is on the Yamuna River, which I saw, drove alongside it. Second holiest river in India.

Delonix rizia, a red flowered roadside bush.

Acacia, by the river.

Indians chew a cheap and bad chewing tobacco. The national language is both Hindi and English. In Delhi the traffic sign boards are in four languages: Hindi, English, Punjabi, and Urdu.

Saw the old fort, a dramatic ruin.

Neem tree, a medicinal tree, *Azadirachta indica*

The leaves are used in India, Pakistan to give baths to children suffering from skin diseases. Elders find it useful in controlling high blood sugar level and is said to clean up the blood. Neem is also used to give baths to the Muslim dead. Neem leaves are dried in India, Pakistan and placed in cupboards to prevent insects eating the clothes and also while storing rice in tins(natural pesticide). Neem leaves are dried and burnt in the tropical regions of Pakistan to keep away mosquitoes. These leaves are also used in many Indian festivals by making them into garlands. The main trees are numbered by city authorities.

We visited a large roundabout with an Indian park in the center, the Arch of Triumph, a memorial to those Indians who died fighting for the British in World War I. Rhesus macaques - seen.

There are millions of stray dogs in India. People give them a little food, and tolerate them

Birds seen about the park.

White wagtail - a Siberian migrant here now

Common Myna

House Crow

Rock pigeon.

Driving along, there were myriads of portable stalls and hawkers.

Reached the train station. Crowded and confused. The guide engaged three porters to carry our luggage, partly on their heads, partly underarm, carried 3-4 blocks, and they waited to put it on the train. He said he knew one of the porters and called him on his cell phone to arrange it.

The train was a combination seat and sleeper deal, with bunks overhead and seats that can be folded down into a bed. 3-4 hours on the train. We passed, after dark,

through town of Mathura, a town where Krishna is said to have been born 3,500 years ago. Passed thousands of slum houses, in some deep poverty. We picked up a box supper in Bharatpur, and continued on the train, now rather dark with most of the passengers in the sleeper compartments, with curtains drawn. About 10.30 p.m., we got off at Sawal Madhopur. No porters and some troubles with luggage. Took two taxis to Tiger Den Resort, 20 minutes away. Decent large room.

2013. Tuesday, February 26. Ranthambore National Park.

The Ranthambore National Park, spread over 1,334 square kilometers, along with its nearby sanctuaries, the Salai Manning Sanctuary and the Kail Devi Sanctuary, offers the best sighting of tigers in natural habitat since the forest remains dry eight months a year. The deciduous forest receives very little rainfall and has sparse undergrowth, and chances are that the big cat will be sighted. Ranthambore has a well-laid-out network of foot trails in the forest, which is divided into eight tourism zones consisting of savannah grasslands, ravines, perennial lakes and streams.

2013. On July 24, 2012, the Supreme Court had announced an interim ban on tiger tourism in the core areas of tiger reserves across country. However, the court lifted the ban on October 17 as per the fresh guidelines framed by the National Tiger Conservation Authority (NTCA), which were notified on October 15. These guidelines permit tourism in 20 per cent of the core zone of tiger reserves.

Tourism season in Ranthambore begins on October 1, but this time with the court ban, bookings of Gypsies (a vehicle seating six) and canters (an open-topped truck seating 20) for a safari at the park hadn't begun until October 17. About 200 canters and an equal number of Gypsies operate safaris in Ranthambore. Drivers of these vehicles and about 125 guides are dependent on tiger tourism for their livelihood. As many as 1,040 tourists are allowed into the park every day, in two shifts of 520 each. The Supreme Court order lifting ban has infused fresh energy into not only the tourists, wildlife enthusiasts and tiger conservationists, but also in these people who depend on the tiger for their livelihood.

Various figures about the numbers of tigers, often 3,500 in all of Asia. In captivity, the best figures seem to be that there are 13,000 tigers, a somewhat enlarged figure from 12,164 found. This is 3-4 times the number now existing in the wild (3,500) Tilson and Nyhus, pp. 228-229.

tigers arrived in India, 12,000 years ago. p. 45. two million years fossil history, p. 53. biggest cat? biggest cat in the sense that the biggest tiger individuals are bigger than the biggest lion individuals. But averaged out, the two species are of similar size, tiger females are smaller than males, there is variation in the subspecies, and often the

weight of stomach contents is unknown. p. 61

The tiger is the biggest cat, 50 kilos heavier, and a head longer. BBC tiger program, right at the start. A tiger needs to kill one large deer or similar animal a week, afternoon. The tiger is successful in a hunt only 1 in 20 times. p. 178 Exxon Mobil continues to contribute over \$ 1 million a year to tiger conservation, p. 190. There are about twice the number of people living in the tiger's geographical range as there were forty years ago, when Tiger Project started, p. 19 There are no verifiable Indian tigers in zoos outside India. Mostly zoos have Sumatran and Amur tigers. p. 211. white tigers, pp. 234-235. They are not albinos.

Up at 5.00 a.m., for tea and cookies at 6.15. Full moon setting. Off about 6.45, three of us in one open-topped 4WD and three in another. With driver and guide. Long bumpy drive through a dry forest. 8 cheetal (spotted deer) with one nice buck. 10 cheetal. jungle babblers. We are going to zone 5. There is a mother tiger here with 3 cubs, 8 months old, and one adult male.

rufous tree-pie. *Dendrocitta vagahunde* cf. magpie nicely seen. green sandpiper. A migrant, moorhen - like a coot. red-wattled lapwing, like plover. white throated kingfisher, *Halcyon coromonda*. white-breasted water hen 6 cheetal Chital. Cheetal. Spotted Deer, *Axis axis*. India's most common and visible deer. The only prominently spotted deer in the country.

2013. 6 sambar (pix). *Cervus unicolor* - large deer with a shaggy, dark brown coat. They browse more than graze. Common over India. Often eaten by tigers. 4 sambar. 3 hanuman langurs. A primate, a kind of monkey. white-naped woodpecker. *Chrysocolaptes festivus*. rare here, an endemic. First heard, and later seen. 2 peacocks peafowl 8 peacocks 6 peacocks nilgai - 6, in bushes. 10 cheetal

The guide stopped the car to listen for the alarm calls of cheetal. When a tiger is near, they give alarm calls. Also the langurs give alarm calls. heard the rutting call of spotted deer, cheetal.

white naped woodpecker, well seen. Lots of large strangler fig trees. lots of birds at and around a sizeable lake, with a dam at the end. pond heron. *Andeola greyii*. common kingfisher, but it isn't common. red-vented bulbil. white throated kingfisher. Oriental honey buzzard. *Pternis ptilorhynchus* = Crested honey buzzard. crocodile (pix). comb duck = nakta - with a protuberance on its bill. black winged stilt. black-

tailed godwit

white-browed wagtail. *Motacilla maderaspatensis*. gray heron. painted stork.

Great egret *Casmerodius albus*, Great thick-knee. *Esacus recurvirostris* = Great stone-curlew

wood sandpiper dusky crag martin brown crane - *Amaurionis akool* unusual to see it so well

rose-ringed parakeet nicely seen, drinking Indian flap-shell turtle, seen through a foot or more of water. 6 cheetal. large gray babbler. five striped northern squirrel (p. 128 in Mammals)

buffalo - domestic. 10 langurs. 6 cheetal. 6 cheetal. 10 cheetal. spotted owl, nicely seen on a snag. 30 langur. returned, bumpy ride, about 10.30 for breakfast

2013. Only two vehicles in sections 1-2 had seen tigers, none in my group. There are huge vans with 30 people in them, and noisy engines. lunch. Back out at 2.30, to the same section 5

thick-bulled curlew. sambar buck. sambar doe. cheetal. sambar. nilgai 6 cheetal - bucks fighting (pix). 6 peacocks. back to the lake with the crocodile, now with two more, total 3. crested serpent eagle - nicely seen. 10 cheetal. sambar. greater coucal. cormorant. Indian darter = anhinga.

peacocks. 12 langurs. sambar, two together, and rufous tree-pies, picking insects off of them

2013. wild pig - rooting in the dirt. *Sus scrofa*. Ancestor of the domestic pig, domesticated for about 9,000 years. A group of pigs is called a "sounder."

checkrow - an Accipiter hawk, nicely seen in a tree, although we could not see the front. Like a merlin. Almost back to the lodge, there were a dozen vehicles, with a hundred or more observers, watching a leopard spectacularly high on the distant skyline, virtually at the summit. Head and shoulders looking over the valley. Returned to the lodge.

2013. Wednesday, Feb. 27. off at 6.25 am. Breakfast at 6.15 a.m. Full moon setting. brown fish owl. peacocks. gray Francois, roadside. rose-ringed parakeet. cheetal. sambar.

painted stork. sambar bucks, sparring. cheetal. rut call. nilgai, 30 wild pigs (pix)

common hoopoe. 12 sambar. We thought we heard sambar alarm calls, and we were trying to follow them. 20 cheetal

We had been assigned zone 3, but the guide thought there was too little action there,

which we drove through, so they moved into zone 4. There is a tag slot on the front of the vehicle which they changed from 3 to 4, and back again as we returned.

tiger scat, tiger tracks, We reached an area where they had just seen a tiger, but we missed it - too late.

large billed crow. A mile and a half up the road a van was paused and we stopped. They heard on a cell phone that the tiger was seen again back where we were. So a fast drive back where we were.

I saw the tiger, rather briefly but nicely, some 50, maybe 40 yards down in the bottom of a draw, looking down from above. I could see slowly moving stripes through the bushes. At times you could see most of the tiger, never all at once, but passing by. Stripes nicely seen, the tigress's head well seen, and you could see it from top back to feet. Splendid, saw it in a couple of openings, then it went behind a thick leaved green tree and came out beyond it. You could see her muscles rippling as she walked. Maybe a minute for the whole show.

2013. This tigress is T-16, named Machli, (pronounced muh ch lee), a female 13 years old, born 1997. (Spelling of her name varies, Machali on the park website, but mostly Machli elsewhere.) She has had four sets of cubs. 3 cubs in 2001, 2 cubs in 2002, cubs in 2005, 3 cubs in 2012, and all the cubs have survived. Her mother had the same name, which means fish. There is a fish shaped mark on the side of her face. She was often found cooling herself in water. She mated with Bamboo Ram. She is a good breeder. (Dates of her giving birth to cubs are not consistent in what I have read.)

2013. From the park website:

<http://www.ranthamborenationalpark.com/ranthambore-machali.html>

Machali (T-16), the royal tigress is the most famed in India and is exclusively the pride of Ranthambore National Park. The glorious palaces, lakes and fort of Ranthambore are the major strong hold of Machali. It is the most photographed tigress in Ranthambore and is also being known as the "lady of the lake" since it can mostly be found along the water territory of the jungle. The tigress Machali has long been under media spotlight and has gained tremendous attention amidst the vast ranges of animal and tiger lovers. There could be many reasons behind her fame but the one and only thing that has captivated many attentions are her muscular and majestic look and her dominance at the whole Ranthambore jungle. Films books and even life time awards are such accolades that have lifted her name to greater extent.

The most noticeable thing in Machali is in her name. She has the fish shaped marking on the left part of her face. Her legendary fight with 14 foot long crocodile has really created a history and it was the first time since such an encounter has been recorded and filmed. Interestingly, Machali has been photographed many times and have gained a lot of popularity amidst the wildlife lovers. Many documentaries and short films have been shot for her and she had been the star of the wild tiger world. In addition to this many books have been written on her and her park; and even received a TOFT Lifetime Achievement Award for her contribution to conservation and the wider Rajasthan economy.

This renowned tigress was first witnessed during monsoons in 1997, probably in July and this was the time when people impressed with her majestic look and flexible movements. She gave birth to three cubs, one female and the other two male by mating with a large male tiger called "Bamboo Ram". The female one was being named "Sundari (T-17)" and the cubs were named "broken tail" and "slant ear".

By the end of December 2001 both these cubs separated from Machali. Soon after Broken Tail and Slant Ear separated from Machali, she mated again with another male tiger called "Nick Ear". Bamboo Ram had died of old age when Broken Tail and Slant Ear were still with Machali and Nick ear had taken over his territory. By April 2002, Machali had given birth to her second litter, the two cubs named Jhumru (male) and Jhumri(female). By the end of 2004 Machali mated with another male tiger known as X-male and around March 2005 she again gave birth to two cubs namely Sharmeele (which means shy in Hindi) and Bahadur (Brave).

Machali became popular due to her muscular strength and was always being noticed for saving her cubs from other animals and male tigers. It is so interesting to learn that the male tigers really got afraid of her and upon intimidating they used to run away from her and her cubs. Since her common territory was the lakes around the Ranthambore Fort and so she had great encounters with many crocodiles; the legends of which are so popular even now.

Machali, the queen of the tiger dynasty is now in her devolving stage; a painful fact to be accepted. The royal tigress that once used to conquer the whole environment of Ranthambore for over a decade with her muscular hunks and impressive strength is now a toothless tiger that really needs feeding unlike the royal battle she won with 13 foot long crocodile at her enduring stage.

Certainly the elegance in her royalty still illuminates with her every movement and the grace is still clung with her every growing muscle. Perhaps this can easily be realized when she moves. Her inevitable legacy will survive forever. In fact, two of her daughters are now being shifted to Sariska Tiger Reserve when the reserve lost all its

count so as to continue the dynasty of the tigers to rule in the whole jungles of Rajasthan.

Today, Machali has grown old and has lost almost all of her teeth and most of her territory as well. But still her royalty resounds at every nook and corner of Ranthambore.

Times of India story:

<http://epaper.timesofindia.com/Default/Scripting/ArticleWin.asp?From=Archive&Source=Page&Skin=TOINEW&BaseHref=TOIJ/2010/09/06&PageLabel=1&EntityId=Ar00103&ViewMode=HTML&GZ=T>

Ranthambore 'Machli' on her last legs Anindo Dey |TNN

Jaipur: A young calf tied to a tree just outside the Lakarda outpost may look strangely out of place at Ranthambore National Park. However, conservation has its strange stories in the wild. The calf was kept as a reserved food for Machli, the most famous tigress of the national park. More than 15 years of age now — the maximum a tiger can live in the wild — Machli's health is often unstable and her future is "uncertain." In the event she was not able to hunt, the calf will be given to her.

"Sometimes she is not able to hunt for days together. In such cases, she shrinks in size and in extreme cases, she may die. Therefore, we have to be ready with such measures," explained R S Shekhawat, director of the park.

Machli or T-16, is not only the most famous tigress of the park — thanks to it being sighted by numerous visitors — it has also given as many as 11 cubs to the park. Hence there was no surprise when, in April last year, the Travel Operators For Tigers (TOFT) gave her the 'Lifetime Achievement Award.'

Machli had lost three of her teeth in fights with crocodiles to save her young ones in summer. "I have seen three instances when she killed a crocodile during my tenure. The crocodiles come up on dry land in summer and are a danger to the cubs," said Shekhawat.

But with years the story has changed. Conservationists, though not willing, when coaxed into it, agree that her future is uncertain. "Anything can happen to her anytime," they say.

Now she lives in the Lakarda area of the forest and has managed to add a bit more to her territory after the death of another tiger, T-4, beyond the Lakarda nullah.

2013. Fading Star . The tigress is also called Lady of the Lake . Is the most photographed tiger in the world. She even has a fan page on the Facebook 'Machli' contributed to Ranthambore economy

Jaipur: Ranthambore's oldest tiger, Machli, is finding it difficult to hunt for her food. "In her prime, she not only ruled the Lacerta area but also had the Malik tala, Tambakhan, Padam tala, Rajbag and a lot of other areas beyond the fort to her credit.

Eventually, her daughter, T-17, snatched away some of her territory and others too were taken away," says Schacht. In fact, two of the tigers relocated to Sariska are also her offspring.

According to an estimate by TAFT, Machli in the past 10 years has contributed more than \$10 million per annum to the economy of Ranthambore. Why then should a tigress so brave be called Machli ? "It's because of the marks on her face that resemble a fish," says Schacht. Something to watch out then for the lucky few who manage to spot her this time when the park reopens on October 1. (Her age in this article is older than others give.)

There is a BBC documentary, "Queen of the Tigers," by Colin Stafford-Johnson, aired October 19, 2012, which features her.

T-24, a tigress, which has no name, is 7 years old, and has killed 8 people. 7 of the eight killed were illegally in the forest. Last year, she killed two people, a teenager, and also the mother of a naturalist guide that Rajveer knows. She was illegally cutting grass inside the park.

That tiger this year killed and ate a ranger, in zones 1-2. She ate part of the ranger before they were able to rescue his body.

plum-headed parakeet = *Psittacula cyanocephala*. returned to lodge.

Trip to the Fortress of Ranthambore in the afternoon, built 10th century. With huge crowds of pilgrims there for the day. Afternoon safari in zone 2. I list now mostly new bird species we have not seen before. Drove some distance along a more or less stagnant stream, in rather good woods. checkrow - an *Accipiter*. black drongo - nicely seen. 2 crocodiles. nilgai (lots of pix). tiger scat (pix). We stopped at a ranger station. The ranger lives there. Solar panels, to pump water. There was an unusually clean toilet.

We stopped to look for a bird that Rajveer had heard call, and with outrageous good luck, Saw a leopard in the brush, only 15-20 yards away. It slipped further into the bush though it did not spook. I saw it maybe ten seconds, the upper half of the body and the head quite well. black-tailed mongoose, nicely seen. crested serpent eagle. We returned to camp and walked down to the river to see painted sand grouse. There were bats, greater mouse tailed bat. We saw in the dark painted sand grouse, but I would never have known what they were.

2013. Thursday, February 28.

Up at 4.30, breakfast 5.30, off at 6.10 for the train station. waning moon. We caught the train, this time a "chair car," and better than the sleeper. Some camels drawing carts. Reached Bharatpur about 10.30 a.m. transfer to the Bagh Hotel (means gardens) with extensive gardens. lunch.

2013. 2.00 p.m. To Keoladeo Ghana National Park. (pronounced kay lah d)

Once a hunting preserve developed by a maharaja in the 1800's, originally an oxbow lake and wetland, much enlarged and managed. went on a pedal rickshaw. little egret. Indian pond heron. laughing dove. Indian roller. large egret. Northern pintail.

common moorhen. common teal. purple heron. darter = anhinga. imperial eagle, nicely seen flying. little grebe. greater coucal. intermediate egret. common greenshank

common redshank. common teal. common coot. Indian spot-billed duck. black drongo. bar-headed goose, the highest flying bird in the world. Flies over the Himalayas. There is a documentary on this bird. glossy ibis. greater spotted eagle. 70 coots in a long line on a pond. Northern shoveler. Northern pintail. lesser whistling duck - I later heard the whistling in flight. nilgai - bluebull. Male dark grey-blue With the general shape of a horse (lots of pix later). Indian flap-shelled turtle - out on a bank. Brahminy starling. purple gallinule. bronze-winged jacana. spotted owlet. black-crowned night heron. painted stork. Indian cormorant. jungle babbler. black-headed ibis, formerly called white ibis. purple heron. Eurasian marsh harrier. steppe eagle. nilgai pix. wild pig. gray hornbill. There was not enough water coming into the reserve, and it was drying up. Rajveer took part in some protests that marched in the street and blocked some roads to get attention. They did get the water allotments they needed.

2013. Friday, March 1. All day at the Keoladeo Reserve. grey hornbill. grey heron. pond heron. seen with white wings flapping. We got into a boat, but waited a while to

get a second boat. Then for about an hour we were in boats, polled along a water course evidently dredged out some. Wetlands on both sides.

little egret. green sandpiper. The water was full of duckweed. Azolla. rosy-ringed parakeet. common teal. common crow. red-wattled lapwing. bronze-winged jacana. nilgai - female. sambar, dusky horned owl, adults and two young nicely seen. greater spotted eagle. We left the boats and walked along a dike. shovelers, lots of them. gadwall. Eurasian marsh harrier. Two of them. When they circled over the lake, this spooked the shovelers and ducks, who flew up in flocks. A few minutes later they would settle down and return. garganey - a duck something like a teal. Eurasian widgeon. glossy ibis. coots. Indian spot-billed duck. Nicely seen in the scope, including the "spot" on the bill, between the bill and eyes, a loreal spot. big bee hive in a tree, covered with still bees. spotted owlet. rhesus macaques. We reached some park buildings. chestnut shouldered petronia, a sparrow hawk (rare). black bittern. At park headquarters, Gertrude saw a jungle cat, as did Rajveer, but no one else saw it.

2013. Walk through the interpretive center. lunch on the lawn. back in rickshaws for the afternoon. painted crane - juvenile. bluethroat - in the bushes, which I hardly saw. lesser golden-backed woodpecker. greater spotted eagle. turtle. 10-12 painted storks on an island (pix). yellow bittern (rare). black bittern - I finally saw it.

We reached a Krishna Temple, Keoladeo Temple, more or less the center of the park, and oxbow lake. ruddy-shelduck. Indian flap shelled turtle, graylag goose, little green bee-eater. European spoonbills, a dozen, on a island. Eurasian widgeon. white-throated kingfisher. pheasant tailed jacana, tail is longer in the breeding season. green bee eaters. We walked in to see the Sarus crane. Two seen reasonably well, the tallest flying bird in the world. 1.6 meters. resident Some individuals can reach a height of 7 feet. Some individuals can live to be 80 years old. bar-headed goose, close up. comb duck. nilgai bull. cows. rickshaw ride back. long-tailed shrike. lesser goldenback (woodpecker) = flame-backed woodpecker Dinopium benghalense. green pigeon - two glimpsed in the air. Returned and stopped in an outdoor market.

English and Sanscrit are compulsory in the schools. People are 90% literate. In the lodge, the electric power was often off and on for several minutes, and I got to carrying my flashlight in my pocket, and even took it nearby when I took a shower.

2013. March 2, Saturday.

to the Taj Mahal. off at 8.00 a.m. in van, big piles of cow dung, to be burned as fuel, their main fuel. wheat fields. They plant in November and harvest in April. One crop.

Mostly harvested by hand in small fields. fields of mustard (= rape). Oilseed rape. (Brassica napus oleifera). They crush the seed for oil, also burn the stalks as fuel.

Rape seed is a major crop in India (mustard), grown on 13% of cropped land. Rapeseed oil is edible. It is the most favored vegetable oil in India for cooking, while in Europe it is used for the manufacture of biodiesel and is in great demand there. Rapeseed was the third leading source of vegetable oil in the world in 2000, after soy and palm. Rapeseed is the world's second leading source of protein meal. In Europe, rapeseed is primarily cultivated for animal feed and for biodiesel.

Natural rapeseed oil contains erucic acid, which is mildly toxic to humans in large doses but is used as a food additive in smaller doses. Canola is a specific variety of rapeseed bred to have a low erucic acid content. Canola was developed in Canada and its name is a combination of "Canada" and "Oil" (Canadian oil low acid).

2013. Reached Fatehpur Sikri. Joined by local guide. This is a huge red sandstone fortress built by Emperor Akbar and was the capital 1570-1585. Now a deserted city on top of a ridge. Various sandstone buildings in various stages of ruin and preservation. Parcheesi courtyard, with a huge Parcheesi board. Yellow footed green pigeon. roadside Eucalyptus. Egyptian vulture

Getting married now you both check your blood type and consult an astrologer. Reached Agra, a bustling third world city. water buffalo, dozens of them in the streets. Reached the Taj Mahal, accompanied by the same local guide. constructed 1631-1653 by Emperor Shah Japan, in memory of his wife. They were married 17 years and she produced 14 children, and died in childbirth. 20,000 people worked on building it.

Shan Japan, who built it, was deposed by his son Aurangzeb in the Agra Fort for the last eight years of his life, and kept in house arrest there. The Taj Mahal is on the Yamuna River. Semi-precious stones are inlaid in the walls.

Lunch - good lunch in a good restaurant. Visited Agra Fort, another huge sandstone fort, and walked through it. We saw the rooms where Shan Japan was imprisoned by his son. Returned to Bharatpur about 5.00 p.m.

2013. March 3, Sunday. Off at 8.00 a.m.. driving to Delhi.

We are going a different way for the first half of the trip to avoid protestors. They are jamming the main road, a protest march over pollution in the Yamuna River. Funds

were allocated for cleaning up the river, but lost in corruption. The result was several hours of driving through village India, totally third world. The people are poor, though not in desperate poverty.

Eucalyptus trees. Great piles of cow dung for fuel. The roads are halfway decent at best, often poor, broken, bumpy. The road is often worse in the towns, maybe better in the more open country. Went through a town, Karma, associated with Krishna. Finally, we got back on the main road. Rest stop and bought souvenirs for Rolston and Elie. Box lunch on the van. The roads have many speed bumps, as if these were needed. Often in the same town I saw palaces (usually defunct) and poverty. The driver got lost several times and had to ask bystanders for the route. Finally we reached the Delhi airport, about 2.00 for a 3.50 flight. The flight was half an hour late. Reached Raipur at sunset. Spent night in Babylon International Hotel. Flew in over lots of rice paddies, all dry now.

2013. March 4, Monday.

Nobel laureate Rudyard Kipling's *Jungle Book* (1894), long used by the Cub Scouts for its moral fables, is set in Kanha country.

Off at 8.00 a.m. We drove in two taxis to Kanha, through Gandal and Salatekri. The road is not shown on my India map, though I marked it in red. Paid toll in various places in wretched toll booths, and the toll roads seemed no better than the ordinary roads. Often the paved part of the road was only a single lane, wide enough for one vehicle. If you met someone coming, you had to get half the car off the road onto a dirt side strip. Likewise passing, you honked the horn, and the car or cart moved over and you passed with half the car off the blacktop on the dirt sidestrip.

Flame in the Forest. *Badaga monosperma*. A tree with orange-red flowers, with few or no leaves at flowering time. So it looks like a fire in the forest. Drove through a mountain forest. Good forest and no people. Then back on flat land with rice paddies.

India now has no vultures, or few. All were killed from a chemical used with people and livestock, when vultures ate the dead cattle. Diclofenac sodium, a painkiller given to sick cows and buffalo, and humans. It is banned for this use in the U.S., and now in India, but still used. It affects the vulture's liver and heart. It is used in treatment of some human illnesses.

Use of diclofenac in animals led to a sharp decline in the vulture population in the Indian subcontinent, 95% decline in 2003, 99.9% decline as of 2008. The mechanism is, it is presumed, renal failure, a known side effect of diclofenac. Vultures eat the

carcasses of livestock that have been administered veterinary diclofenac, and are poisoned by the accumulated chemical, as vultures do not have a particular enzyme to break down diclofenac. At a meeting of the National Wildlife Board in March 2005, the Government of India announced it intended to phase out the veterinary use of diclofenac.

The loss of tens of millions of vultures over the last decade has had major ecological consequences across the Indian subcontinent that pose a potential threat to human health. In many places, populations of feral dogs have increased sharply from the disappearance of Gyps vultures as the main scavenger of wild and domestic ungulate carcasses. Associated with the rise in dog numbers is an increased risk of rabies, possibly leading to the deaths of thousands of persons. The resulting multiplication of feral dogs in India and Pakistan has caused a multiplication of leopards feeding on those dogs and invading urban areas looking for dogs as prey, resulting in occasional attacks on human children.

The loss of vultures has had a social impact on the Indian Zoroastrian Parsi community, who traditionally use vultures to dispose of human corpses in Towers of Silence, but are now compelled to seek alternative methods of disposal.

2013. Reached Kanha, about 11.30, taking less time than predicted. The road into the resort looked terrible, but the resort was a large compound with elegant rooms. Resort named: The Baagh. (means "tiger")

Afternoon game ride, 2.45. Kanha National Park, in its current form, spans the Kanha, Banjar, Mukki, and Halon Valleys. These four valleys were used as exclusive hunting grounds by the British. Significant over-hunting of the area's abundant wildlife led to a rapid decline in their numbers.

As a result, in 1931, these valleys were closed to hunting / checkers. In 1933, the Kanha Valley was declared a sanctuary with an area of 250 sq km. In 1935, Haloed Valley was added to the sanctuary which increased the park's area by an additional 300 sq km. Subsequently, in 1955, when Bandar Valley was added to the Sanctuary, the area came to be known as Kanha National Park. Mukki Valley was added to the park in 1970. By the time the sanctuary attained its National Park status, populations of both the Bengal Tigers and Barasingha / Swamp Deer had fallen to dangerously low levels.

When Project Tiger was launched in 1973, Kanha National Park was one of the nine Tiger Reserves in India that were selected. Kanha National Park's core area was by now 945 sq. km. - the largest wildlife reserve in Asia. In addition to the core zone,

there is a buffer zone of 1,005 sq km falling in four forest divisions - Mandla, Balaghat, Kawardha and Dindori that surround the park. The expanded buffer zone is referred to as the Kanha Tiger Reserve.

2013. Lantana, an invasive bush, planted for its pleasant smell. But troublesome in the forest. Also invasive in the U.S. Sal forest. Nice trees. They were burning each side of the road as a fire break.

Found tiger tracks, pug marks. They make open sand areas, in which they check for tracks. Listening for alarm calls from deer or langurs, but heard none. langurs, half a dozen. swamp deer. barasingha (pix) *Cervus duvaucelii*

Those in two other vehicles had seen a tiger cross the road. Another vehicle had seen it cross another road. So we went to the likely area to spot it, and waited maybe half an hour or forty minutes, going up and down the road a bit.

But no tiger. We decided to go to another area where there is a tigress with 3 cubs, a year and a half old. 6 swamp deer. langurs. Reached that area to find it "very quiet." One nice spotted deer buck, large antlers in the velvet. Returned to the first area.

Another jeep claimed to have heard some alarm calls. bamboo grass. bushes. common hoopie. swamp deer buck (pix). sambar. 2 gaur. seen in trees but not that well.

gaur, *Bos gaurus*. largest bovine in the world, a huge cow, or wild ox. Often called the Indian bison, but is not related to the American bison. A cross with domestic cattle is a "mithun." Very susceptible to rinderpest and anthrax, which has decimated herds in the past. There is an Asiatic wild buffalo, *Bufalis arnee*, rare, dangerous. Troublesome because it breeds with cattle, but the cows cannot deliver the oversized calf. The water buffalo or domestic Asian water buffalo, *Bubalus bubalis*, is a large bovine animal, frequently used as livestock in India.

machua tree. *Madhuca indica*. They were burning the leaves beneath the tree, to clear the area. The flowers will drop down and they collect them for a week or so. The flowers are used to make wind, flavor cakes, as an oil ointment.

There was a Gonda young woman who rode in the jeep with us – supposedly learning to be a naturalist. It is required to take one with you. She couldn't speak English and did nothing. She is paid for this. Some of the local naturalists who rode with us later did more talking and pointing out wildlife.

2013. March 5. Tuesday.

Out at 6.00 a.m. Cold and I used the blanket to break the wind.

Indian muntjac = barking deer. A small deer. Makes a barking sound. I hardly more than glimpsed it in the woods.

Met rangers on elephants. Mahut. Mahoot. The driver of an elephant. Asian turtle dove. I am now mostly listing only new species of birds seen. female swamp deer (pix), peacocks. spotted deer - may dozens seen during the day. hoopie, Indian roller. black shouldered kite. Researchers some years ago radio-collared nine tigers, and all died within a year or so. Presumably they had much older radio collar equipment. There is no radio collaring now. turtle

The tiger is a solitary hunter, unlike lions. They never hunt together, though young cubs will be together at kills. In Kanha, tiger names are keyed to the area of their territory. They do not use numbers as in Ranthambore. 5 spotted deer bucks, running, leaping across the road. Aesthetically pleasing.

Breakfast in the park. A long drive and no tigers. spangled drongo = hair-crested drongo. We met the rangers on elephants again (pix). They saw a tiger shortly after we met them in the morning. Returned for lunch. Lunch outside, by now quite warm, though hardly hot.

Afternoon. Off at 2.45. We went to an area where some said they had heard the sound of cubs. Monsoon rains start mid-July, and continue to late September or October. The parks close then. Too wet to use the roads.

Leopard tracks seen wild hogs (pix) gaur (pronounced go uh, as in the Portuguese enclave Goa. (pix) largest bovine in the world. We have heard nothing of any kill sites.

Toward the end of the day, we waited quite a while (half an hour) at one site. They said a tiger had been seen there in the morning. Also they knew it was an area where a mother tiger and her cubs were frequently seen.

And suddenly: a tiger!

The car ahead (our group) first spotted it, with Rajveer, Tom and Sherry O'Shea.

They said they had heard a little noise in the leaves and spotted it, but had heard no alarm calls. Then the tiger came out on the road and I could see it quite well. Walked across the road slowly and I got a full side view. Splendid, and I could see the rippling muscles again. Then she went into the bushes and disappeared. Great luck, even if they knew the area in which to look. Tom O'Shea in the car ahead of me got a great photo.

This is the area known as Mahavir, and the name of this tiger's mother is Mahavir Bali (bali means tigress), which means the tigress of Mahavir. She has three cubs and the tiger I saw was one of her daughters. Two female cubs and one male cub. So this is a daughter of the Tigress of Mahavir. She is 18-20 months old, a subadult.

Saw two chickens on the way back. Red jungle fowl. So on one great day we saw a tigress and a leopard and on another great day we saw a tigress and the ancestor of all domestic chickens.

There are almost 65 tigers in Kanha, maybe 15 males. There are about 56 tigers in Ranthambore, maybe 12-15 males.

One elephant forest guard was killed in Kanha last year. He was not on an elephant but walking in the woods to get the elephant. It ate part of him, as also did her cubs, but they rescued part of his body.

peacocks. new birds: lesser adjutant stork. wooly necked stork. Eurasian turtle dove.

We watched a BBC film DVD during supper, narrated by David Attenborough. "The Tiger" made in 1986.

ch tal. Attenborough's pronunciation.

In the film a tiger kills a langur. langur "the eyes of the forest"

2013. March 6. Wednesday.

Out at 6.00 a.m. Fairly long queue at the entrance station.

swamp deer (pix), golden jackals (pix), found good pug marks, and a place they claimed the tiger had been sitting, with one spot with urine. Jungle owlet

breakfast on the hood of the 4WD. black stork. 2 jackals lying the road. They just lay there, stayed and didn't spook for 20 minutes, later a 5th jackal running in the road ahead of the 4WD for quite a way, a quarter of a mile.

no tigers. They thought they heard a couple alarm calls, but mostly they were going where they thought the pug marks were headed. returned for lunch 11.30 outdoors. off til 4,30 p.m. sal = Shorea robusta. shala tree - species of tree belonging to the Dipterocarpaceae family. often the dominant tree in the forests where it occurs, sometimes dense forests of huge trees. Evergreen or dry-season deciduous. In legend, Buddha was born under one. Sal is one of the most important sources of hardwood timber in India, with hard, coarse-grained wood that is light in colour when freshly cut, but becomes dark brown with exposure. The wood is resinous and durable, and is sought-after for construction, although not well suited to planing and polishing. The wood is specially suitable for constructing frames for doors and windows. The dry leaves of sal are a major source for the production of leaf plates and leaf bowls in northern and eastern India. The leaves are also used fresh to serve ready made paan (betelnut preparations) and small snacks such as boiled black grams, gol gappa, etc. The used leaves/plates are readily eaten by goats and cattle that roam the streets freely.

continued on visit to tribal villages, first village, Gonda people. for which the ancient super continent Gondwana land is named. woman sifting rice to get the fungus grains out. In their gardens, tomatoes, potatoes, maize, all from the New World. coriander. woman making blocks for a house with walls made of mud, cow dung, and rice straw. large dug well from which they dip water in buckets, and also fitted with an electric pump. They irrigate their gardens Nov through June 15. Lots of hand pumps have been put in by the government, and women and youth often seen pumping and getting good flow of water, visited second village, Bega tribe. village name Cuichrangdur

No electricity in this village. though a tourist lodge had given for one main home a solar power unit that would light just two electric bulbs. The people in this village were moved out of the park in the 1970's over 40 years ago, and some of the people remember this.

The government would like to re-locate them again and put this land in a buffer zone, but they don't want to do it, though I could wonder in this poverty whether their lot could be any worse if moved. Likely to be for the better. Returned and took a ride at twilight into dark over a road to look for tigers, which I thought wasted effort. But they did point out some fireflies in some dark woods. Returned and dinner outside by the fire.

2013. March 7, Thursday. up and out 6.00 a.m. frosty breath. 2 gaur (pix). 25 spotted deer. heard call of jungle fowl. white rumped shama. peacocks in display (pix). stayed quite a while at a spot where spotted deer were bunched up and looking up into the forest, not eating. The guide in another car said he had seen a jackal and thought a jackal had taken a fawn, which he heard scream.

breakfast in the forest in the pavilion area.

returned for lunch.

Left the hotel for drive to Naipur 1.00 p.m.

stopped to see fruit bats, roosting in some trees and Tom tried to get closer and scared them into some splendid flight displays

Indian flying fox
Pteropus giganteus

back on the road for a six hour drive to Naipur, which proved an ordeal.

One huge traffic jam of trucks stopped to pay their taxes crossing state borders, messed up by some road paving.

We could have gotten stuck there for the night, but the driver did a lot of pulling around and found some back alleys.

ox carts

lentils

The lentil (*Lens culinaris*) is an edible pulse/bean. It is a bushy annual plant of the legume family, grown for its lens-shaped seeds. It is about 40 centimeters (16 in) tall and the seeds grow in pods, usually with two seeds in each.

Lentils have been part of the human diet since the achromic (pottery nonproducing) Neolithic times, being one of the first crops domesticated in the Near East. Archeological evidence shows they were eaten 9,500 to 13,000 years ago. Lentil colors range from yellow to red-orange to green, brown and black. Lentils also vary in

size and are sold in many forms, with or without the skins, whole or split.

naan (bread). Naan or Nan is a leavened, oven-baked flatbread. It is typical of and popular in West, Central and South Asia. A typical naan recipe involves mixing white flour with salt, a yeast culture, and enough yogurt to make a smooth, elastic dough. The dough is kneaded for a few minutes, then set aside to rise for a few hours. Once risen, the dough is divided into balls, which are flattened and cooked. Served with butter or ghee melted on them. Nigella seeds are commonly added to naan as cooked in Indian restaurants.

drove through Fench Tiger Reserve, but did not stop

stopped at a restaurant for toilets with a banyan tree said to be nearly 500 years old.

Indian people were quite courteous without exception. The main challenge was long rides on bumpy roads through Indian villages, dodging everything from ox carts to huge lorries, motorcycles, bicycles, rickshaws, both pedal and motorized, monkeys to water buffalo. You need a good driver, a good horn, and good luck.

even bumpier 4WD roads.

reached Naipur, 7.00 p.m. and thankful the drive was over.

excellent hotel.

March 8, Friday.

Up at 4.30 a.m. breakfast at 5.30

6.00 off to the airport

Flight back through Jaipur and then to Delhi, 3 one half hours. fair flight.

Air India.

India has over a billion people, 1.3 billion.

reached Delhi. Long ride to visit Qutb = Qutub.

Qutub Minar, soaring high tower minaret, started 1193, after defeat of last Hindu kingdom.

slightly tilted, but nearly 1,000 years old.

lunch nice restaurant

to visit Humayun's tomb, something of a challenge to the Taj Mahal built by the senior wife of Humayun, second Mughal emperor.

to visit Kashmir gift store

fine dinner in Raddison Hotel

check in at airport

Delhi - Newark

depart 11.50 p.m.

long but more or less decent flight. 15 hours.

Halfway around the world and across an ocean I never saw, all in the dark.

Essentially we were stretching out the night - moving 500 mph and the daylight advancing 1000 mph

March 9, Saturday

Arrived in Newark in the dark.

Customs was a bit of hassle with heavy duffel bag and I found my Denver flight canceled on account of snow in Denver.

Got a standby for a 9.00 a.m. flight and got on it.

Wet runways and snow on the grass.

Reached Denver 11.15 a.m. landed in snowfall, with wet runways.

Green Ride home in snowfall. Wet roads, often slushy.

Home at 1.30 p.m.

46 hours since I woke up, though I slept pretty well on the plane.

Lots of complaints about the Forest Rights Act, or, full title: Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights), 2006. Each family is entitled to 4 hectares of land in the forest. Much abused, and people claiming land who live in cities. Tilson and Nyhus, pp. 306ff

In Nepal King George V and his party shot 39 tigers in 11 days in 1911-1912.

The Maharaja of Nepal and his guests shot 433 tigers between 1933 and 1940. p. 316

Noble royal hunters could brave dangers, and they also visited local chiefs and made some claims of protecting the people from tigers.

In Nepal, in a study a few large males dominated reproduction, having territories with several females. Other males could not command territories or did so only briefly, with little reproduction. This made for more inbreeding.

Further, when a bigger male took over the territory of a lesser male, he killed any cubs. Otherwise the female would not come into estrous for over a year. Overall, the primary cause of the death of cubs was infanticide. This further makes for less genetic diversity. pp. 335-336.

India 2013 Bird List

white wagtail - a Siberian migrant here now. common myna. house crow. rock pigeon
jungle babblers. rufous tree-pie. *Dendrocitta vagahunde* cf. magpie nicely seen
green sandpiper. A migrant. moorhen - like a coot. red-wattled lapwing, like plover
white throated kingfisher, *Halcyon coromonda*. white-breasted water hen
white-naped woodpecker. *Chrysocolaptes festivus*. rare here, an endemic. First
heard, and later well seen. peacocks peafowl. Indian pond heron. *Anas greyii*
seen with white wings flapping common kingfisher, but it isn't common. red-vented
bulbil. Oriental honey buzzard. *Pernis ptilorhynchus* = Crested honey buzzard
comb duck = nakta - with a protuberance on its bill. black winged stilt. black-tailed

godwit. white-browed wagtail. *Motacilla maderaspatensis*. Gray heron. painted stork - 10-12 painted storks on an island (pix). great egret. *Casmerodius albus*. great thick-knee. *Esacus recurvirostris* = Great stone-curlew. wood sandpiper. dusky crag martin. brown crake - *Amauronis akool*. unusual to see it so well. rose-ringed parakeet, nicely seen, drinking. large gray babbler. spotted owl, nicely seen on a snag thick-billed curlew, crested serpent eagle - nicely seen. Indian cormorant. Indian darter = anhinga. checkrow - an *Accipiter* hawk, nicely seen. Like a merlin. brown fish owl

gray Francois, roadside large billed crow. plum-headed parakeet = *Psittacula cyanocephala*. black stork - nicely seen. painted sand grouse. little egret. laughing dove Indian roller. large egret. Northern pintail. common teal. purple heron. imperial eagle, nicely seen flying. little grebe. greater coucal. intermediate egret. common greenshank. common redshank. common teal. common coot – 70 coots in a long line on a pond. Indian spot-billed duck. bar-headed goose - the highest flying bird in the world. greater spotted eagle. Northern shoveler. Northern pintail. lesser whistling duck - I later heard the whistling in flight. Brahminy starling. purple gallinule. bronze-winged jacana. black-crowned night heron. jungle babbler. black-headed ibis, formerly called white ibis, purple heron. Eurasian marsh harrier. steppe eagle, gray hornbill.

grey heron. green sandpiper. rosy-ringed parakeet. common teal. common crow red-wattled lapwing. bronze-winged jacana. dusky horned owl, adults and two young nicely seen greater spotted eagle. shovelers, lots of them. gadwall. Eurasian marsh harrier. Two of them. When they circled over the lake, this spooked the shovelers and ducks, who flew up in flocks. A few minutes later they would settle down and return.

garganey - a duck something like a teal. Eurasian widgeon. glossy ibis. Indian spot-billed duck. Nicely seen in the scope, including the 'spot' on the bill, between the bill and eyes, a loreal spot. spotted owl. chestnut shouldered petronia, a sparrow hawk (rare). painted crane - juvenile. bluethroat - in the bushes, which I hardly saw lesser golden-backed woodpecker. greater spotted eagle. yellow bittern (rare) black bittern - I finally saw it. ruddy-shelduck. graylag goose..little green bee-eater European spoonbills, a dozen, on a island..Eurasian widgeon..white-throated kingfisher

pheasant tailed jacana..tail is longer in the breeding season. green bee eaters Sarus crane. Two seen reasonably well, the tallest flying bird in the world. 1.6 meters. resident Some individuals can reach a height of 7 feet. bar-headed goose, close up

comb duck, long-tailed shrike, lesser goldenback (woodpecker) = flame-backed woodpecker *Dinopium benghalense*, green pigeon - two glimpsed in the air. Others seen later. Yellow footed green pigeon. Egyptian vulture common hoopie Asian turtle dove Indian roller black shouldered kite, spangled drongo = hair-crested drongo

red jungle fowl. lesser adjutant stork. woolly necked stork. Eurasian turtle dove. jungle owlet, white rumped shama

123 species seen

References

Richard Grimmett, Carol Inskipp, and Tim Inskipp, *Birds of the Indian Subcontinent*, Oxford University Press, 2011. Best of the bird guides.

Richard Grimmett, Carol Inskipp, and Tim Inskipp, *Birds of India: Pakistan, Nepal, Bangladesh, Bhutan, Sri Lanka and the Maldives*. Second edition. Princeton: Princeton University Press, 2012.

Looks like they did a volume with OUP in India and with Princeton UP.

George B. Schaller, *The Deer and the Tiger: A Study of Wildlife in India*. Chicago: University of Chicago Press, 1967, reprinted 1984. I read it in Tom O'Shea's copy in the Delhi airport.

Schaller is 80 years old, published a book of memories last year. He was born in Nazi Germany, father a German diplomat, mother an American.

She brought him to the U.S. after the war. (I later reviewed this book: *Tibet Wild: A Naturalist's Journeys on the Roof of the World*. Washington: Island Press, 2012).

Sinharaja Tammita-Delgada, *A Traveller's History of India*, 5th ed., Northampton, MS: Interlink Books, 2011. Sherry O'Shea was reading a copy and I looked at it.

The Ranthambore Foundation publishes TigerLink, a news letter that serves as a valuable resource library and is a strong pressure lobby to counter misguided development policies of the government. It is distributed widely, especially among policy makers, decision makers, experts and NGO's concern with tiger conservation across the globe. It also serves as an information base for media professionals and those seeking concise information on tiger conservation issues.

<http://www.conservationindia.org/resources/report-tiger-link-%E2%80%94August-2011>

Valmik Thapar, *The Tiger: Soul of India*. New Delhi: Oxford University Press, 2011. got it ILL from the University of Wyoming. Half reproductions of tiger in art and lore

across the centuries, half text, quoting various others, and the author's own sightings of tigers. Nothing about tiger natural history or conservation.

Valmik Thapar, *The Last Tiger*. New Delhi: Oxford University Press, 2006. Copy at CSU.

generally a bleak picture, with dysfunctional government, inept rangers, foresters, and much corruption and poaching. With extensive annexed documents, letters.

Ranthambore (Ranthambhore) is very fragile, a tiny island. Nearly 100,000 people with 40,000 livestock live around the periphery of the park. But it is still the finest place in the world to see wild tigers. p. 131.

Israel, Samuel and Toby Sinclair, eds. *Indian Wildlife*. Insight Guides. 2nd. ed. Boston: Houghton Mifflin, 1993. Useful description of both the wildlife and the park areas.

A tiger conference, "Tiger 2000" was held in London in 1997. A book came out of it:

J. Seidenstricker, S. Christie, P. Jackson, e's., *Riding the Tiger: Tiger Conservation in Human-Dominated Landscapes*. Cambridge University Press, 1999.

Ronald Tilson and Philip J. Nyhus, e's., *Tigers of the World: The Science, Politics, and Conservation of Panthera tigris*. 2nd ed, Academic Press (=Elsevier), 2010, A first edition was 1987, printed typescript, and in CSU Library. I got the 2010 edition ILL from UC Boulder. Excellent resource and nicely done. Articles are seriously scientific but also relate conservation, people, policy problems, often in the first person experience of the contributors. Some references above to this 2010 edition.

end India

March 12, 2013. Knee surgery, meniscus tear, so I wasn't doing much for the next couple weeks.

April 2-7, 2013. Utah Valley University, at Orem, below Salt lake, Symposium on Aldo Leopold, and spent one day with Giles. Nice views of Wasatch Mountains repeatedly. One morning of hard rain.

Apr 9, 2013. Record cold. Lowest daily high on record for this date. never got over 20 degrees, more or less.

April 10, Lowest daily low on record for this date, something in the single digits.

April 14-20, 2013. Richmond Virginia, Staunton, Rockbridge Baths, and Huntington WV.

Went to the last of the IRT Science and Religion seminars, Sunday night, all day Monday, and Tuesday morning.

April 16, Tuesday. Drove to Staunton, via Bybees Road Baptist Church, visited Hebron Church, and my gravestone, and spent the night at 320 North New Street, in the old basement room. Drove up into the Shenandoah National Park for half an hour and saw splendid Bloodroot, *Sanguinaria canadensis*, maybe 200 plants in full bloom, and nothing else out. Mayapples coming up. Lots of good redbud on the drive up and in the valley. Some decent dogwood. Fine day.

April 17, Wednesday. Drove out through Rockbridge Baths, ate lunch by chance luck at a Wednesday noon lunch at Bethesda Presbyterian Church. Talked at some length with Ken Mohler, long a forester, and now a farmer here. Sent him copies of two of my books.

Continued through Goshen Pass, but now with little time to prowl. On to Huntington, WV, and sister Julia.

April 18, Thursday. Hiked the natural trail behind the Art Museum.

Blue violet *Viola soraria*

Round Leaved yellow violet. *Viola rotundifolia*.

White trillium. *Trillium grandiflorum*.

best event on the day, best of the trip. Maybe 400 trilliums in great bloom halfway down the Tulip Tree trail, in some of the wetter area where there is a draft into a creek. Splendid.

Red trillium. *Trillium erectum*. Maybe 70 lower down. In good bloom, though not opened up that much.

Cult-leaved toothwort. *Dentaria lacinata*.

Verbena, sp.

Bluets, *Hedysotis caerulea* = *Houstonia caerulea*.

Small-flowered crowfoot, *Ranunculus abortivus*

Potentilla

Anemonella thalictroides = *Thalictrum thalictroides*

Celandine Poppy, *Stylophorum diphyllum*

Spoke at Woodlands that night, on "Promised Land and Planet of Promise."

April 19, Friday. Drove to Richmond in rain all day, off and on hard rain.

Serviceberry, in good bloom in woods. *Amelanchier arborea*. Checked it where we had an in-car picnic lunch.

Henbit in Ann's lawn. *Lamium amplexicaule*.

April 20, Friday. Flew home.

April 29-May 3. Princeton on a Center for Theological Inquiry event. Nice dogwood.

May 5, 2013. Well Gulch Trail in Lory State Park, with Jane, Rolston, and Ellie Jane. Nice day, but cool for Jane. Looking for Pasqueflowers and found them, about two dozen. Area is badly burned from last summer's fires, but some Pasqueflowers still there. Recent big snows have left the area with late flowers, some crushed down. Also re-keyed Sugarbowls, *Ranunculus hirsutissima*. Met Fred Johnson coming out.

June 11-18, 2013, East Anglia, Norwich. ISEE Conference, University of East Anglia. With Jane.

June 11, Tuesday. Denver-Dulles-Heathrow. Late taking off in Denver because of the heat, which, they said, meant the plane needed to have fewer people on it. First they wanted three or four, then when we were all on the plane and thought we were ready to take off, they said they needed three more, and upped the price. But all this meant we had little time for the connection in Dulles. Walked onto the plane, being held for us, and ready to go. Decent overnight flight.

June 12, Wednesday. Landed Heathrow, and took a National Express bus to Norwich, nearly four hours, and took taxi to Earlham House Bed and Breakfast, then to the International Society of Environmental Ethics conference at East Anglia University. Decent conference, I was a commentator on papers by Phil Cafaro and Allen Thompson on the Anthropocene. Bus to and from B&B to East Anglia Conference site was expensive.

June 13, Thursday. Conference.

June 14, Friday. Conference, noon picnic outdoors, walk across an area they call "the broads," and around a lake, too windy for Jane.

"The Norfolk Broads" seems to refer generally to marshes, fens, rivers, lakes in East Anglia, often with navigable waters, and more or less managed over centuries, with various dykes, pumps, and drains, for agriculture, pasture, thatch, recreation, boating, footpaths, wildlife. They are often designated as ESAs. Environmentally Sensitive Areas. So humans have created the broads, within the constraints dictated by nature. Various floods have often disrupted this management.

Lots of Ivy-leaved Toadflax, *Cymbalaria muralis*, Kenilworth Ivy, in the walls all over town. Hundreds of photos at:

http://www.google.com/search?q=%22Cymbalaria+muralis%22&lr=&hl=en&as_qdr=all&tbm=isch&tbo=u&source=univ&sa=X&ei=KFDHUbKGE-fuyAGE3IDICQ&ved=0CH4QiR4&biw=1024&bih=654

June 15, Saturday. Best day of the trip. Rented car with Phil Cafaro, Allen Thompson, Jane, and local guide, Tim Holt-Wilson. He does what he calls geoconservation, or geodiversity, in with and under biodiversity. Concerned with the mix of nature and culture in the East Anglia landscape, and he was resolved to take us to the two wildest parts of East Anglia. (Address: 1 The Avenue, Upper Oakley, Diss, Norfolk, IP21 4AY. Diss is the name of a town. timholtwilsdon@onetel.com).

Drove to St. Margaret's Church, Hales, an ancient church out in the open country, very scenic, and we were there under great sky, cloud, and lighting conditions. Yellow field of rape added to the color. St Margaret's Church is a Norman church, relatively unaltered by later forms of architecture. The church has a round tower with circular splayed windows that bear the impressions of basketwork from their construction. The apsidal chancel is decorated with blind arcading, and there is a nave doorway.

<http://www.heritage.norfolk.gov.uk/record-details?TNF223>

Pheasant and chicks. Some sugar beets in nearby fields.

Then to Hales Green, a commons area, mentioned in 13th century documents, with Hales Manor, or Hales Hall, a big country estate. Hales is a small parish in the southeast of the county. The village of Hales is in the far north and the parish landscape is one of scattered farms and clusters of settlement on the edges of Hales Green.

Hales Hall contains the remains of a late 15th century house built by James Hobart from 1478 onwards. This is variously incorporated into later building, 16th century. The only upstanding remains of the Hall are the gatehouse range and the large brick barn, which stand to the east of the moated site where the main house was constructed. The foundations of the late 15th century house and octagonal corner turrets are visible on the moated platform which is divided by an earthwork bank, probably a garden terrace. Roger de Hales almost certainly had a house here in the 12th century, which was associated with a deer park

<http://www.heritage.norfolk.gov.uk/record-details?MNF1053>

jackdaw. moorhen, chit-chat, chaffinch, house martin,

Then drive through Beccles, and reached Wrentham, on Route A12. Rhododendron

roadside.

Reached Covehite, at the sea, with a spectacular ruined church, St. Andrew Covehite
Here we started a hike over cliffs, 50-75 feet high, and eroding back a few feet each year.

Walked down a rough road, less than half a mile, with hawthorne hedges, Alexanders or Black Lovage, *Smyrnium olusatrus* An umbel, looks a lot like Angelica.

Just as we reached the sea cliff, there were RAF planes flying overhead, one large one, maybe a bomber or troop carrier, as big as a passenger jet, with five small fighter planes closely surrounding it--which we later learned was part of the Queen/s birthday celebration.

This is an AONB, Area of Outstanding Natural Beauty. It is also a SSSI, Site of Special Scientific Interest.

Walked along the cliff over the beach, along a path that is eroded back each year, and new path created a few feet further inland. Nice surf. These are cliffs cut in fluvio-glacial sands,. This is the most rapidly eroding area on the English coast.

After perhaps a mile, came to a forest, with trees nearest the sea being killed by salt. Reached a pond, probably brackish.

avocet

little tern

great crested grebe

We couldn't find a place to eat and so we walked back to Southwold, a small beach resort, with lots of people, in much contrast to the Covehite area where we had just been. Fish and chips, decent lunch. Big gambling game room in the same building.

This is the county of Suffolk, the one above is Norfolk. Originally this meant the "south folk" and the "north folk."

Drove south some, through Yoxford, and Snape. On south through Tunstall. Reached Butley. Reached Staverton Park, a forested area, or at least the northern part of the area was called Staverton Park, the southern part "The Thicks." Wantidsen. Also a SSSI. Photo in Williamson, Sanderlings, p. 107.

Now raining hard, and we got out and walked in the rainy woods. Jane stayed in the car. Huge oaks, old, English oak, *Quercus robur*, although much wood had been cut out of them.

Also large holly trees, *Ilex aquifolia*, the area is as much of interest for the holly trees as for the oaks. As large holly trees as I have ever seen.

This kind of area is called a wood pasture, open canopy wood pasture, and cows might have been in it, but it is also kept for deer hunting.

About 200 acres of huge oak pollards, with records going back to 1268, variously owned.

Pollarding is a pruning system in which the upper branches of a tree are removed, promoting a dense head of foliage and branches. It has been done here since Medieval times.

Trees were pollarded for fodder to feed livestock, or for wood. Fodder pollards produced "pollard hay", which was used as livestock feed; they were pruned at intervals of two to six years so their leafy material would be most abundant. Wood pollards were pruned at longer intervals of eight to 15 years, a pruning cycle that tended to produce upright poles favored for fence rails and posts, as well as boat construction. Pollarded trees tend to live longer than unpollarded trees because they

are maintained in a partially juvenile state, and they do not have the weight and windage of the top part of the tree. Older pollards often become hollow, so can be difficult to age accurately. Pollards tend to grow slowly, with narrower growth rings in the years immediately after cutting.

Roan tree, *Sorbus aucuparia*
Birch, *Betula pendula*. European white birch.
Bracken, *Pteridium aquilinum*

A forested area to the west of here a mile or two is known as Rendlesham Forest, a recreational area, and was the site of supposed UFO sightings in 1980, by US Air Force personnel who were then stationed in the area.

Tim wanted tea, and, again, we had trouble finding a place, though eventually found one. It was adjacent to a pond or lagoon.

oystercatchers
curlew
shelduck

Lots of references during the day to the Norman Conquest. The Norman conquest of England was the 11th-century invasion and occupation of England by an army of Norman, Breton, and French soldiers led by Duke William I of Normandy, later William the Conqueror. William, who defeated the Anglo-Saxon King Harold II of England at the Battle of Hastings on 14 October 1066, was crowned king in London on Christmas Day 1066. He then consolidated his control and settled many of his followers in England, introducing many governmental and societal changes.

Angles, hence England, Anglo, was derived from Angles, a tribe in northern Germany, in the region of Angeln.

Large sections of East Anglia were marshland and bogs until the 17th century, despite the construction of early sea barriers by the Roman Empire. During the 17th century the alluvial land was converted into arable land by means of systematic drainage using a collection of drains and river diversions.

In the 1630s thousands of Puritan families from East Anglia settled in the American region of New England, taking much East Anglian culture with them, as well as the name New England. East Anglia, with much of its earnings based on wool and textiles,

was a rich area of England until the effects of the Industrial Revolution moved manufacturing to the Midlands and the North.

During the Second World War, the Royal Air Force and the United States Army Air Forces constructed many air bases in East Anglia for the heavy bomber fleets of the Combined Bomber Offensive against Nazi-occupied Europe. On average the American bases came once every eight miles. Building them was a massive civil engineering project that inevitably damaged the environment. East Anglia was chosen because it had considerable open space and level terrain and it was relatively close to mainland Europe, thus shortening flights and allowing for greater bomb loads. Remnants of some of these bases are still visible while a few remain in use. One, near Norwich, has become Norwich International Airport.

Much of East Anglia is flat land, often fenland and reclaimed marshland, though much of Suffolk and Norfolk is gently undulating with glacial moraine ridges providing steeper hills in areas such as North Norfolk.

The area near the sea, especially in Suffolk, is called the Sanderlings, or Sandlands. Sandy, whereas there is more clay further inland. Fluvio-glacial sand and gravel. Often acid soils.

Some of it is called "The Heaths," but I saw no heather. Apparently there are, or were, expanses of heather, or heather and grassland, also gorse, broom, and birch. But I gather the heaths were before that forests, the heather planted in or invading cut forests. Usually some visual framework of hedges, hedgerow trees, and woods. Some conifer plantations. Again, a mixture of human developments operating on a natural framework of geology and soils. Some peatlands, some bracken filled areas.

Tom Williamson, Sandlands: The Suffolk Coasts and Heaths. Windgather Press, 2005. ISBN 978-1-905119-02-8. 978-1-905119-02-8
Copy in CSU Library.

Tom Williamson, The Norfolk Broads: A Landscape History. Manchester: Manchester University Press, 1997. Copy in CSU Library. St. Martin's Press.

The map Tim had was Ordnance Survey: Woodbridge and Saxmundham # 212

June 18, Tuesday. Flew home, via Air Canada and Vancouver.

Flew north of Skye (Scotland), over the Hebrides (largest is island of Lewis), over

Iceland, over middle Greenland, way north of Churchill (Canada), east of Yellowknife, and into Vancouver. Flight speed was over 500 mpg, Earth rotates at equator about 1000 mpg, but at this far north latitude, probably something about 500 mpg, so essentially we were flying into the sun at a rate that made the sun stand still. We arrived at Vancouver at more or less the time we took off from Heathrow.

Very decent flight, aisle and center seats toward the back, and not crowded.

Delay in Vancouver, about two hours, waiting for the pilots to come in on an inbound flight from Denver. There had been a tornado at Denver Airport. Tornado touched down briefly on the eastern runways, mid-afternoon. Also touched down on Pena Boulevard. Winds of 97 mph winds destroyed some communication equipment. At the alarm, thousands of passengers and staff took shelter in the tornado shelters, which are the toilets, and stayed there 30-40 minutes.. Traffic was briefly blocked by police from I-70 to Pena Boulevard. Nine flights were diverted to other cities.

end East Anglia trip

July 1, 2013. Monday. With Rolston and Ellie Jane in Roland Moore Park, returning home from the swings, Ellie spotted a nice deer. a doe, which later came out into full view.

July 2, Tuesday. Jane and I took Rolston and Ellie Jane to Rocky Mountain National Park. Couldn't go up Bear Lake Road, due to construction. So we hiked Deer Ridge maybe an hour and a half. Then picnic at Hidden Valley, then to Endovally Picnic Area, at the start of Fall River Road, for a walk around. Kids played in a stream, off shoot of the main river, with enthusiasm, crawling under or over logs across the stream. Couple dozen elk in aspen at the start of the Moraine Park road.

Major tragedy with firefighters in Arizona, near Prescott, Yarnell fire. Nineteen killed, burned to death in a fire, the most killed in any one incident since 1931, before I was born.

July 18. 2013. Nine people were injured in a series of lighting strikes at Grant Family Farms north of Fort Collins. The strikes happened about 3:30 p.m. near the intersection of West County Road 72 and North County Road 17, Wellington Fire and Medical reported. They were evacuated by ambulance, to hospitals, two in critical condition. Others had only tingling sensations. Due to storm conditions, air

ambulances could not be used.

That same day, a 65-year-old woman was struck by lightning on the Ute Trail in Rocky Mountain National Park. She was found by a park visitor and taken to a hospital about 1.00 p.m.

July 20, 2013. Gem Lake, alone. Big parking lot at the trailhead now, used by lots of people, but many are climbers going up in the Lumpy Ridge area somewhere. On the trail about 9.15, and steady climb, something of a challenge in the high steps. Not as far as I recalled, sign says 1.7 m., but there is pretty steady climb. At the Lake about 11.15, and stayed there until maybe 12.00 or so, eating lunch, and chasing off ground squirrels and chipmunks. Climb back down was again a challenge, now getting down the big steps, with dicey knees. But I made it, back about 1.30. The usual flora, no birds really. Nice day, clear and partly cloudy.

Drove home thru Glen Haven, with some cramping in Glen Haven, and I pulled off in the Post Office there. There had been a serious thunderstorm in the lower part of the Big Thompson Canyon, but I saw little rain. Last time I was at Gem Lake was Jan 15, 2004. On August 12, 1997, I led a hike to Gem Lake, leading a group from the Society for Contemporary Philosophy, about fifteen. There is another Gem Lake to which I hiked in the Encampment River region.

July 28-August 3, 2013. Virginia Beach and Dismal Swamp

Dismal swamp trip - Monday, July 29, 2013

Drove out, about an hour. Put in at a launch site on Route 17 on the eastern side of the Great Dismal Swamp Wildlife Refuge, a mile or two north of the Feeder Ditch.

We were in six kayaks, each seating two

1. David Rolston and me
2. Randy Rolston and Bonita, his wife

3. Lynn Ward and Mac
4. Carl LaChance and Manu
5. Kyler Rolston and Christopher
6. Cindy Allen and Sara Hudgens

We put in at maybe 1.30 p.m. We had to wear life jackets, which zipped up the front. Started out on what is an inland portion of the Intracoastal Waterway, wide enough for cabin cruisers, etc., but we saw no traffic at all on it. Paddled this for a mile or two, headed south

passed an ancient cantilever bridge

passed a pontoon float-raft you could pull back and forth across the river

Then took a right turn and padded for several hours on the "Feeder Ditch," more narrow. Wide enough, trees on both sides, and once in a while a tree blown down into the ditch (as they are here called, though I might have called them canals). Forests on both sides, branches hanging out over the ditch so you could check the tree leaves, etc.

George Washington, or more accurately, Washington's slaves, dug this ditch. The Corps of Engineers maintains it.

Some Spanish moss. The Dismal Swamp is as far north as Spanish moss grows (First Landings, Bald Cypress Nature Trail, guidebook).

No evident current, which made paddling easier.

Several black vultures overhead. One great blue heron.

Various birds could be heard in the bushes, maybe warblers.

10 miles of paddling to Lake Drummond. We reached a spillway, maybe 3.30 p.m. and had good lunch there. Nice grassy area, and a campground. Toilets and water, electricity. We had to pull the kayaks out and up a rail rack, and put them in maybe six feet higher than the ditch. There was a small dam and water spilling over it. This keeps the lake level where they want it.

Paddled a short distance now, maybe a quarter mile and we were on Lake Drummond.

Then paddled a mile or so down the lakeshore to find the big bald cypress trees

There were three of them.

First one, pictures of Dave and me.

Second one, we were on the shadow side, and got pictures in which the tree is dark.

Third one, furthest down, was the biggest one. You could take the kayak under the arched roots, though you had to lie down backwards in the boat to do this.
pictures of Dave and me here.

Most of the group got into the water here, standing waist high or a little more. They said there was a good sandy bottom. Also said there were cold and warmer parts of the water.

Back in the kayaks, we took the shoreline closer in coming back, where there were many good bald cypress. Kayaks got stuck several times on submerged logs. Maybe an hour here, and Randy was beginning to say we needed to paddle out to get out by dark--though we could paddle the last part in the dark if we wished.

Essentially no insects, though a couple said they saw a few mosquitoes.

Paddled out, now getting somewhat tired.

Out about 7.30 or 8.00 p.m. Twilight.

Drove back to the beach.

Edgar Allen Poe went into the swamp to commit suicide. He was thinking one should commit suicide in a dismal place. But he found the swamp so beautiful, he changed his mind.

Sailors wanted the swamp water on their ships. They claimed it didn't "spoil," when they kept it many months at sea. Water doesn't spoil, of course. What they seemed to have meant was that the tannin in the water, making it acidic, kept down the bacteria in the water that might cause disease.

Tuesday, July 30,

At the beach, Dave and I took the same kayak out to see dolphins. Saw bottle-nosed dolphins surfacing dozens of times, sometimes only 25 feet away from the kayaks. They were often surfacing two at a time.

Wore life jackets again. The only hard part of this was getting the kayak through the breaking surf. You had to push in, and get somebody to push out the kayak, and then paddle hard to get through the surf. Then it was easy, and no wind, or current, taking us out of the area. Out for perhaps an hour. Return similar, with more risk of the kayak being over turned.

ghost crabs on the beach, of some size.

Trip into First Landing State Park, Thursday, July 31, 2013.

Went in the south entrance and walked the Bald Cypress Nature Trail. Four of us. A bridge over the trail at the start was closed, so we had essentially to walk it in reverse. Did so with a nature guide booklet that Dave read at each marked point, which was reasonably informative.

This is where the Dismal Swamp reaches the sea.

This is called First Landing State Park because when the first settlers first arrived here. The passengers were still on the Susan Constant; the captain, on April 26, 1607, read aloud to the passengers assembled on the deck, the laws and conditions of the new colony. They did not yet know they had reached a great swampland. Several weeks later, they decided to settle at Jamestown, dating that colony from May 13. So maybe you can say that America really began where the Dismal Swamp hits the sea. (from the Nature Trail Guide, of which I have a copy)

turtle on a log

trees: gum, bald cypress, maple, hickory
greenbriar vines
partridge berry on the ground

resurrection fern
2 turtles

lots of Spanish moss

good walkway, sometimes boarded. lots of good views of bald cypress swamps, with good cypress knees.

Cape Henry is only 3,000 - 3,500 years old.

A rare species here is called the chicken turtle, named for its long striped neck. The neck when stuck out is almost as long as its shell. There are only two places in Virginia to find it, and it is on Virginia's endangered species list. There is one but only one known in First Landings State Park. The populations are more or less stable in other southern states.

saw one red-bellied water snake, quite nicely, posed for us on a log. Only found in southeastern Virginia.

some shrubs in bloom and we took photos of them, later asked the naturalist, but she couldn't identify them. Maybe a *Clethra*.

Toward the shore, there are now forested high sand dunes interspersed in the swamp. We walked up some of them as the trail wound around.

We didn't really do more than half this trail, and then came out more or less midway, which was not far from the parking area.

2013. August 9, 2013. Snowy Range, Medicine Bows with Fred Johnson.

Met him at Watson Lake and drove to Centennial and Libby Flats, nice day. Started hiking, walking, where we went in 2009. Open subalpine, alpine, with no trail, though there is a trace of an old road over part of it.

yarrow, *Achillea millefolium*

Taraxacum ceratophorum = *ovinum* Horned Dandelion, a large one, a native, but same genus as the common weed, introduced. Some even make it a subspecies of *Taraxacum officinale*, the common one. Tweedy Plantain. *Plantago tweedyi*. Alpine clover, Parry clover, *Trifolium parryi*. Tansy Aster, *Machaeranthera pattersonii*

Bistort *Bistorta bistortoides* = *Polygonum bistortoides*. Dusky Beard's Tongue

Penstemon whippleanus. Subalpine Larkspur. *Delphinium barbeyi*. Rayless arnica

Arnica parryi. Lovage. *Ligusticum porteri*. Redstem cinquefoil. *Potentilla rubricaulis*.
 Dwarf goldenrod *Solidago nana*. Thick-bracted Senecio. *Senecio crassulus*.
 Subalpine Arnica *Arnica mollis* Thousands of them, in magnificent display.. Willow
 herb *Epilobium alpinum* = *Epilobium anagallidifolium* ?? Alpine Mertensia
Mertensia alpina calyx split to the base. Tall Chiming Bells *Mertensia ciliata*.
 Mountain death-camus. *Zygadenus elegans* also spelled *Zigadenus*. Alpine
 Speedwell. *Veronica wormsjoldii* = *nutans*
 Mountain blue violet. *Viola adunca*
 Congesta sandwort *Arenaria congesta*
 White campion *Silene scouleri*
 White bog orchid *Habenaria dilatata* = *Platanthera* = *Limnorchis*
 Kings Crown *Sedum integrifolium*
 Queens Crown *Sedum rhodanthum*
 Viviparous Bistort *Polygonum (Bistorta) viviparum* Lower bulbet with a small leaf
 coming out.
 Slender hawkweed *Hieracium gracile*
 Parry's lousewort *Pedicularis parryi*
 Northern Gentian *Gentianella amarella*
 Elephantella *Pedicularis groenlandica*
 Arctic sage *Artemisia arctica*
 Red prickly currant *Ribes montigenum*
 Sibbaldia *Sibbaldia procumbens*
 Black-headed daisy *Erigeron melanocephalus* blackish bracts
Antennaria sp.
 Sun-loving aster *Aster foliaceus*
 Yellow stonecrop *Sedum lanceolatum*
 Sickie-top Lousewort *Pedicularis racemosa*
 Lunch in good sunshine, but soon after started to rain, then graupel, hail, and
 everything else. Walked out in off and on rain, hail.
 Had to search around for a pond we remembered with some interesting plants, and
 found it in the rain.

Kalmia microphylla Mountain Laurel
Gaultheria humifera Alpine Wintergreen. The low mat-forming mystery plant near the
Kalmia and beside a pond. Best picture of it is in Joseph F. Duft and Robert K.
 Moseley, *Alpine Wildflowers of the Rocky Mountains* (Missoula, MT: Mountain Press,
 1989, 1994), p. 151. Barely 3 cm. high. "humifera" means "spreading over the
 ground." I had previously keyed it from the Wind Rivers in Wyoming. Weber, *Rocky
 Mtn Flora*, 1967, lists it as rare.

Saw lots more *Kalmia* coming down than I remembered from before.

Western Pearly Everlasting. *Anaphalis margaritacea*. Plant I brought in. White phyllaries ("pearly", and they keep well dried, "everlasting"). No rays. Trouble keying it because in nearly all the pictures I could find the phyllaries were spread out like petals, but not in the one I had.

Out about 2.30. Drove home, with quite hard rain between Centennial and Laramie, and some spectacular lightning, including one horizontal stroke across maybe 20 degrees of the horizon.

Home about 4.15.

2013. Sept. 6, 2013. Lyon Gulch. Alone. Half a dozen bighorn rams, half curl, on the roadside on the way up. On the trail about 9.15, and got up top where the ruins are about 12.00. Slow and steady, but not that bad climbing. Couldn't find anything of the Griffith Homestead, about which I had an earlier note that it was a good ruin.

Lunched nearby and returned. Had to pick my way downhill looking for as flat a spot as I could find to place my feet. On the uphill stretches in here, I was having a tendency to cramp. But took it steady, shaking out the tendency to cramp as I could, and made it back about 3.30 p.m. This is about all the hiking I can now take - alas! Maybe a dozen people on the trail, often young women with dogs, which they did call and leash up when they saw me ahead of them on the trail.

September 11-18, 2013. Near record-breaking rains and flooding. CSU closed on Friday. 16 helicopters, including Chinooks and Blackhawks, used to rescue stranded people, though often unable to fly on account of weather. 7 dead, over 800 unaccounted for, though most of these were eventually found. Bridges out. I-25 to Denver closed for a day. Big Thompson Canyon road washed out. Lots of wash and debris in the mountains, but biggest troubles with the high river levels on the plains, sometimes 10 feet over flood level. Airlifted hundreds of people from campgrounds, homes and destroyed mountain communities. 85 children and 14 adults trapped while attending an outdoor by education camp near the mountain community of Jamestown. School group at an ecoweek at Estes YMCA had to be brought home to Fort Collins over Trail Ridge Road and through Wyoming. Town of Lyons destroyed, all roads cut off for exit, no power, no water, no sewage, residents evacuated. In Larimer County, 1,500 homes destroyed and 4,500 damaged. 200 businesses destroyed, 500 damaged. 11,700 under evacuation order.

2013. October 17-24, 2013. Davidson, 60th Reunion and Eastern Mennonite University, Harrisonburg. Jane and I left crazy early on Thursday, flew through Chicago, where there was some wait, and to Charlotte. Rental car and crazy traffic

Charlotte to Davidson on I-77, now getting dark. Stayed in the Guest House.

2013. Friday, Oct 18, Lunch with Andrew Lustig, who holds chair I endowed at Davidson, that evening a dinner.

2013. Saturday, Oct 19. Various activities, breakfast near Davidson College Presbyterian Church, a memorial service for those deceased. Sobering, over half my class are dead. But of the living more than half are here (maybe thirty-five), often with wives. Lunch, the new woman president spoke, football game in afternoon in some rain.

2013. Sunday, Oct. 20, flew to Charlottesville, got car, drove down Blue Ridge Parkway from Afton to Route 60 and into Lexington, visiting Elizabeth Welsh. She has just put Danny, her husband, into a home in Staunton. She is not sure he still knows she is his wife. Alas! spent Sunday night at 320 N. New Street.

2013. Monday, Oct. 21, to Hebron, then to Afton and drove north at a leisurely pace all day, lots of stops, and reached Big Meadows Lodge. Fortunately now open, though it had been closed for over three weeks with government shutdown and locked Congress.

I did a couple of short strolls, one at the start of the Rip Rap trail. Witch hazel, *Hamamelis virginiana*, in evident bloom. Decent leaf colors, though few reds. Jane came on this one.

2013. Tuesday, Oct. 22, leisurely half day still on parkway. Cooler now. I did one hike about a mile. A few hemlocks in good shape, though the aphid has killed most of them. As we were leaving the park on Route 33, Jane saw a bear climbing over a stone roadside wall, though I did not see it.

Flowers mostly gone, though *Galinsoa parviflora* evident and more or less weedy. *Liatris*. Drove out to Cooks Creek Church, and found a few Rolston graves. Drove on to the area of the John Hinton Rolston homesite. Reached Joshua Wilton B&B in Harrisonburg, a fancy one.

2013. Wednesday, Oct. 23. Spoke at chapel, then a lunch, then two classes, and gave a main lecture, symposium. The worked me pretty hard. Main host: Christian Early.

2013. Thursday, Oct. 24. Drove to Charlottesville, and flew home.

2013. November 5-9, Caldwell Idaho, College of Idaho.

2013. Nov. 5, Tuesday, Flew to Boise, arrive about 5,00 p.m. and picked up by Laurie Henberg. Went to basketball game that night, lively competition between them and Northwest Nazarene University, in nearby town.

2013. Wednesday, Thursday, spoke in six classes, and gave Thursday night lecture, Three Big Bangs.

2013. Nov., 8, Friday, day in Owyhee Mountains. Marv Henberg my host. He is president of College of Idaho, and an old friend. Owyhee is an old spelling for Hawaii, and some cowboys from Hawaii were once brought here, and the name stuck.

Drove south on Route 95, through some country with orchards, Pears, peaches, and apples. Crossed the Snake River. Turn west at Succor Creek and go west, and after 2-3 miles pass into Oregon. Malheur County, Oregon. Now very dry country and little inhabited. This is the least inhabited part of Oregon. This is BLM land.

Marv made a mistake and went too far and dropped into a Succor Creek Canyon, but it was quite scenic. Lots of potholes in the towering dark basalt rocks, giving it a Swiss cheese-like texture, or honey-combed texture. More so than I previously remember. hoodoos, a name for a carved hill, like a butte but more pointed on top. State Park and campground where the road nears the creek.

Returned and found the road we wanted, the Leslie Gulch Road, and drove it some distance to Juniper Gulch, with parking space and toilet. Proceeded now on foot. People go up the Gulch, called a slot gulch because it is narrow. Flat sandy floor bed maybe 15 feet wide is the floor of the wash and easy walking, with a few more difficult spots. Steep walls and pinnacle cliffs on either side. Hiked an hour or two, and had lunch. Cool, but reasonably pleasant. Biggest sagebrush I have seen. More than head high. Presumably *Artemisia tridentata*.

Hiked out maybe by 2.30 and drove back home. Marv had some people to see later that day. Steve Stuebner, Boise Trail Guide, 2008, ISBN 0-09644343-8-5. Describes this hike, which he calls a scramble.

2013. November 9, Saturday. Flew Boise to Denver and home.

2015. start

2015. May 18-26, 2015 - Wuhan, China. Conference on Chinese Environmental

Aesthetics

2015. May 18, Monday. Up at 2.00 a.m. and off at 2.45 without breakfast. I had to take the Jeep to Harmony Transfer Center because Green Ride did not have enough pickup drivers. Shonny will pick up the Jeep later today. Reached Denver 4:35 am. Take off to Detroit 6.10 a.m. and uneventful flight.

Beijing flight delayed for takeoff about 40 minutes because they don't want us arriving before our allotted time. There is a strong tailwind and we could arrive 45 minutes earlier than expected. Flew far north over Hudson's Bay, over the polar ocean and north of Alaska and down across Siberia. All of which I never saw, though it was daylight outside, the windows were closed. Ground speed, 642 mph
Tail wind 120 mph - and you usually don't have tail winds on this flight. Altitude 33,000 ft. later and most of the trip 39,000 ft. Distance 6,729 miles. 14 hours. I had a good aisle seat with window seat next, the two seat row.

My entertainment screen wouldn't go off the bright welcome screen, a nuisance. They tried to reset it several times. It worked once but soon returned to the unwanted bright screen. May 19, Tuesday - though there never was a night.

Four hours in Beijing, and the Wuhan plane was about an hour late. Ate one of Jane's sandwiches for supper. The domestic gate was very crowded and minimal English. We were put on a bus, crowded, and taken out to the plane. China Southern Airlines, a Delta affiliate.

Met at the airport by Xie Meng Yen and Gao Shan. She instantly took my photo with the two of them (used a bystander) and sent it out to all her friends on the Chinese version of facebook. Taken to a car with a university driver, and driven 45 minutes to the hotel. On the way in drove over the famous long old bridge over the river. Decent hotel, on campus. Got to bed about 1.30 a.m.

2015. May 20, Wednesday. Up at 7.00 a.m. and decent sleep. Breakfast in the hotel. It proved hard to get coffee, or milk. There was a hot yogurt of some sort. Decent food, and I preferred hardboiled eggs, some weiner saussages, and some of the breads that weren't bad. I have the day before the conference starts this evening with a dinner.

They took me around the campus, on a long walk. A sort of forested campus. There are more trees on the campus than in the rest of the city. Went to an art museum with Gao Shan.

large portrait of Mao. large painting of Chinese Soldier overlooking the Yellow River.
and an interesting guide - a volunteer from the University studying English.
lunch - with the Dean of the College Ming Zhang, went to MIT. nap in afternoon
evening - dinner, big round table, two of them and many of the international guests
had arrived. Arto Haapala, University of Helsinki. elmi Järviluoma-Mäkelä,
University of Eastern Finland (formerly Joensuu, does a lot with native peoples
Yrjö Sepänmaa, University of Eastern Finland (formerly Joensuu)
Wu Zin, Chinese, teaches at William and Mary, Williamsburg, VA
Yoshio Shmizu, older, Japan

Main conference host: Chen Wang-heng, School of Urban Design at Wuhan University

May 21, Thursday. Spoke at 8.30 a.m. supposedly the kick off speaker.
Went o.k. They got the PowerPoint to work well off my flash drive. But they cut me to
25 minutes. Earlier I had been told 30-40 minutes, but they had some kid-student-
who was a zealous time keeper. I don't think I would have come across the Pacific to
speak 20 minutes. I just dropped the last two sections of the paper. In the course of
the conference, half the speakers were forced out by this time keeper.

Conference papers are not detailed here. See conference program in the
Conference file.

2015. May 22. I spent the morning in conference session. Speakers spoke in
Chinese, with some English summary/translation, or in English with some Chinese
summary/translation. Lnnch at the restaurant 15 minutes walk away. Afternoon: tour
of the city arranged for by Zhao Hongmei. She wrote the book about me:

Zhao, Hong-mei. Mei Xue Zou Xiang Huang Ye: Lun Luo Er Si Dun Huan Jing Mei Xue Si
Xiang (Aesthetics Gone Wild: On the Thought of Rolston's Environmental Aesthetic).
Beijing: Chinese Social Science Publishing Co., 2009. ISBN 978-7-5004-8146-1.

She also translated "From Beauty to Duty: Aesthetics of Nature and Environmental
Ethics," in Arnold Berleant, ed., Environment and the Arts: Perspectives on
Environmental Aesthetics (Aldershot, Hampshire and Burlington, VT: UK: Ashgate
Publishing, 2002), pages 127-141.

Reprinted, translated by Zhao, Hongmei into Chinese, "Cong mei dao zeren: ziran de
meixue yu huanjing lunlixue (From Beauty to Responsibility: Natural Beauty and
Environmental Ethics). Pages 24-40 in Hubei University, Hubei Center for Morality
and Civilization, Jiazhilun yu lunlixue yanjiu (Axiology and Ethics) (Beijing: Chinese

Social Science Publishing Co, 2009). ISBN 978-7-5004-7967-3.

She is about 45 years old, teaches at Hubei University in Wuhan, which she pointed out to us. She has a son in college.

Yang Yinzi, who wrote the book: *Lunli De Shengtai Xiagglu, Ecological Direction of Ethics: Research on Holmes Rolston's Environmental Ethics*, 2010, a woman, was not present.

2015. Saturday, last conference day. Google is blocked by the Communist government. But various of them seem to know how to get around it. E-mail in the hotel no longer working. Breakfast and back to last day of the conference. I managed to send an e-mail to Jane on a student's computer. Cloudy day.

2015. On the poster thain is Mount Everest, for which their name is Jolomo Lungma, or Qomolangma. The Tibetan name for Mount Everest is romanized as Qomolangma, "Holy Mother." It is also popularly romanised as Chomolungma and (in Wylie) as Jo-mo-glang-ma or Jomo Langma. The official Chinese transcription is simplified is Zhumùlangma Feng ("Chomolungma Peak"). It is also infrequently simply translated into Chinese as Shèngmu Feng, "Holy Mother Peak"). In 2002, the Chinese People's Daily newspaper published an article making a case against the use of "Mount Everest" for the mountain in English, insisting that it should be referred to as "Mount Qomolangma", based on the local Tibetan name. The article argued that British colonialists did not "first discover" the mountain, as it had been known to the Tibetans and mapped by the Chinese as "Qomolangma" since at least 1719.

The building on the poster is the Forbidden City.

Feng Su (Sue) wants comments on Prof. Chen's book. She translated the book.

175265857@99.com

suesue0606@qq.com

2015. May 24, Sunday.

Quick breakfast, 7.30 a.m., taxi, 7.45, to train station, with Gao Shan.

There at 8.00 a.m., Nice train, high speed train, at 8.36 a.m.

Train to YiChang Dong, smooth ride, 2 hours. Before the high speed train, the ride was 5 hours.

Lots of washing seen hanging out the apartment porches.

Gao Shan's husband is doing a Ph.D., at the University of Wisconsin in Milwaukee, on Global Information Systems.

The city I was in is Wuhan, which is in Hubei province. Three Gorges Dam is also in Hubei province.

Went by lots of tall apartment buildings, better and worse. Also industrial areas, frequent construction.

Sizeable fields of corn
Extensive rice paddies

terrain got more mountainous

some gorges
went through Fairy Stream Tunnel

reached Yi Chong Dong

taxi to bus station, forty minutes,
then bus

reached the hotel. Wu Chang, the name of the town where the hotel is. Bus just put us off with 200 yard walk to the hotel. Fancy hotel. Checked in 10 minutes in hotel

and walked some distance in some confusion about how to catch the boat.

Finally reached a place where we could buy tickets.

With more confusion about which bus to get on to go to the boat.

Reached the boat and had to ride down a high-water-low-water elevator cable car
and finally got on the boat.

Got on the upper deck, open, where we could see better, and for which we had to pay more.

Boat cruised maybe an hour to Xi Ling Gorge, a dangerous one, now flooded, and then turned around.

Gray skies, hazy with pollution

stark drawdown scar line a couple hundred feet thick

on the return not far from where we started, they claimed you could see the upper rim of the dam - not very evident in the haze.

Returned to the hotel.

Decent hamburger while Gao Shan had noodles, and was much amused by our having Western food and Eastern food at the same meal.

2015. May 25, Monday.

Walked down to center area, as yesterday.

Waited until 8.00 a.m., to get tickets, window not open, though we were told the bus was leaving at 8.00 a.m.

Got on bus.

Passed lots of power lines, from the generating stations.

Drove over something crossing the river, looked light it might be some part of the dam.

Bus drove down, then climbed a hill.

Got to an area where we got off the bus and rode escalators and walked some to get to a high viewpoint.

Dim view of the dam from the top.

Huge chunk of granite on display, said to be an unusually good granite, well-suited for

situating the dam and for use in building the foundations of the dam.

A "divine dam site" !!!

Walked to another site, above the dam, where you could see two ships in the locks.

Long walk down, and eventually caught the bus.

To third sight, closest to the dam.

You were always seeing the dam through a haze. Walked 15 minutes in to the viewing site, and 15 minutes back.

See separate notes on the Three Gorges Dam.

Caught a bus back to the center.

Went across a big white suspension bridge going and coming.

Back to the hotel with a good walk and got bags, and caught # 8 bus with some wait.

Bus went through long tunnels

2015. May 24, Sunday, train to

Three Gorges boat cruise

2015. May 25, Monday. bus for views of dam

In eight days, I barely saw once a tiny blue bit of sky.

train back to Wuhan

Good ride. Good seat.

Reached Wuhan. Train station very crowded.

250 people in line to get a taxi. But they pleaded that I was a foreigner, and we got a taxi in ten minutes.

I was met at the train station and taken to my former hotel, but I had to transfer to a new one, in town.

They said it would be no problem transferring the Chinese money I had been given for the air ticket (some of which I was spending for the Three Gorges Trip). But they banks were closed.

Made the hotel transfer and then had a meal with Zhu Jie, my principal host, drove Volkswagen, and Qi Jun, to whom I gave the money. He said he would transfer it to Gao Shan and her husband would transfer it to me in the U.S. Which did happen, but with some hassles a week later, with Wells Fargo hardly knowing what was going on.

So-so night in a hot room, but the e-mail did work.

Gao Shan
Room 406 B2 Building
R&d Residential Apartment
No. 366 Linqun Street
Suzhou Dushu Lake
Science Education & Innovation District
Suzhou, P.C: 215123 Jiangsu Province
CHINA

2015. May 26 Tuesday, flew home

Up at 4.00 a.m., Swiss miss and cheese crackers for breakfast. Picked up at 5.30 a.m. Raining hard. They helped with baggage.

Plane take off 7.50 a.m.

Decent cup of coffee on the plane.

Reached Beijing. Hassle getting through the airport. I had to pick up mu luggage and

wheel it, in a cart, about a quarter mile but one of the staff was very helpful leading me and helping me.

Got on the trans-Pacific plane, Delta, with little time to spare, but they we were held on the runway for an hour—didn't want us to arrive too early in Detroit.

Plane was only two-thirds full. I had an aisle seat with an empty seat beside me.

Flew polar route as before, at 39,000 ft., ground speed 550 mph.

Reached Detroit.

end of Wuhan, China trip.

2015 end

2016 start Taiwan only

Taiwan 2016

2016. May 30, 2016. Monday, Left home, 2.00 p.m., fearing long lines in security in Denver,. 7.05 p.m. take off for Vancouver, BC, reached Vancouver 9.00 p.m. got lost a bit but found EVA airlines and checked in. got sent to Premium Lounge, with free food, good food. Business class, B747-400. nice seat and empty beside me.

2016. May 31, Tuesday, Take off 2.00 a.m. Dinner: King crab on cucumber skewer. smoked salmon and cream cheese on dark rye
grilled scollop with Asian pear salad. pan-fried Chilean sea bass with Sage cream sauce. fruit and apple cheese cake.

Crossed the International dateline maybe 4.00 a.m., when 4.00 a.m. May 31, skipped 24 hours to suddenly become June 1, 4.00 a.m. So I lived only about 4 hours of May 31, and my June 1 was cut short on the front end by 4 hours.

Slept well, seat reclines for sleeping

2016. June 1, Wednesday

breakfast. Western style. sugar for the coffee is crystals on the end of a stick stirrer. 6,322 miles. arrived in Taipei in the dark but walked off the plane at sunrise met easily, by Tom Yeh <tomglory@seed.net.tw> in good car. Taken to YMCA hotel, showered and slept

2016. 11.30 a.m. lunch with Tzu-Mei. evening a festive welcoming dinner, moderated by Dr. King (chief forester in Taiwan, learned forestry in the U.S.) and about 30 others, members of her board. They gave me a painting of six roses, one for each decade of our marriage. All framed. They subsequently mailed it to Fort Collins. Some give and take dialogue with the group.

Taiwan has a new woman president, new party in power. Have the last 8 years, since I was here, been better or worse for environmental conservation?

2016. June 2. Thursday. Besides Tzu-Mei, my two traveling companions are
1. Yu-Ping Chen, executive secretary of TESA (Taiwan Ecological Stewardship Association), now Tzu-Mei's replacement. She studied one year at Norwich University in UK and one year at Exeter University, UK, mostly on a campus they have in Cornwall, a science campus. She has M.S. degrees from both schools. (She quit the job about September 2016)

2. Chou-Li Lin (Ali), Project Secretary. half time. studied in Australia, Queensland University, studied "development." Worked in London at a small NGO two years. Is chair of an Earth Charter Taiwan Youth Group (ECTY). Went to an Earth Charter meeting in Costa Rica. She constantly found cold Cokes for me. e-mail: <chouli.lin@gmail.com>

Left hotel late, 8.15 a.m., and barely got to the Presbyterian Church of Taiwan headquarters on time to do the talk. 8.30-9.00 a.m. "Christianity Gone Wild" to 40 people. Seemed to go well. good translator. Joshua. Jen-Shiang Lien, a local pastor who majored in English in college. then to Taiwan Theological Seminary on a nice campus. With rain. 11.00-12.30, "Preaching on the Environment," without PowerPoint in a nice chapel with 150 students and faculty, with a lot of rain outside, even making it a bit noisy inside.

Introduced by Yang-en Cheng, the Dean, relatively young, with Ph.D. from Princeton Theological Seminary in history. Here he is Professor of Church History and Director of Archival Center, Taiwan Theological College and Seminary.

Kuo-Long Ching lawyer, once served as their EPA Executive Director was once in physics department of National Taiwan University, served two years in Indonesia as a volunteer professor. light lunch with half a dozen faculty afterward. then car to a train/subway and then to the main train station and high Speed Rail to Yunlin. rice fields and development high rise buildings side by side. picked up by woman in a good car and taken to Chiayi City to a local NGO meeting at what they called the Taiwan Library (featuring pre-Chinese library materials) and winged it for an

hour on smart growth.

The provinces here have names and often the central city has the same name.
four provinces down the east coast

Taichung province and city
Chunghua province and city
Yunlin province and city
Chiayi province and city

considerable sugar cane

that night at a quite nice hotel with big supper around a spinning center table.

2016. June 3, Friday. white herons. wind turbines. taken to Formosa Plastics, with 90 smokestacks, emitting pollution. Which they say has been 90% reduced.
looked at oysters on the seacoast right outside the plant, which have been deformed by the plant's pollution. The coastline once to protect them has sunk and the plant and oysters are closer than anticipated.

2016. This area is called How-May-Li. There has been a loss of about 400 meters from shore to ocean. The sand is disappearing and the lagoon is losing its water. There used to be thousands of pine trees and redwood on the east side of the shore, but now they are all gone. Fishing industries have declined, and typhoon damage is worse. Villagers and members of the Presbyterian Church have protested.

The issue seems to be that when the port of Pu-Tai was built ten years ago, they dredged and moved sand to the north to make the port deep enough for big ships. That made sand from the south, where How-May-Li is, flow north. There are several jurisdictions involved and protests are passed around from one jurisdiction to another. The protestors want an embankment on the sound of Pu-Tai port toward the ocean side to block sand flow northward. Saw mudskippers, quite active. Visited a wetland overlook, with the plastics plant in the distance.

Interviewed by some TV reporter. NTDTV. New Tang Dynasty TV. The Tang Dynasty, A.D. 618-907, was the most glistening historic period in Chinese history.

visited a farmer doing hydroponics, raising some kind of greens. Also farm gardens nearby raising celery and other things.

Taken to a hostel/farm, and had only 1 hr 15 minutes before the talk. So I didn't go

out to supper with them. They brought me some supper which I ate later.
Hostel room was adequate but first couldn't find the bathroom switch, which proved to be on the outside of the building through another door.
talk:: "One Health - Eco-Health" in "Big City" church to audience of 125, some confusion about the PowerPoint, but I used it. short version.
hostel room was air-conditioned but too noisy and blew on me too much. I turned it off.

2016. June 4, Saturday. Wakened by chickens calling and geese honking, two in the barnyard. breakfast outdoors, not much, duck egg pickled.
soy milk hot. Soybean oil mixed into milk, much liked in Taiwan. Left 9.15 a.m.
passed lots of duck farms. Beijing duck much eaten in Taiwan, also Japan.
good to get back in a cool van. passed green bananas on trees in fields.
Betel nut shops with flashing lights. several sections of elevated highways to permit continuing use of the land below

reached HSR station, Tai-Chung station. a rather cosmopolitan station, with a McDonalds, a Muslim prayer room and a "Muslim friendly toilet"?? "what you need in a Muslim-friendly toilet is water to wash yourself; you need a lot of room; and the orientation has to be correct, and there are some other factors as well."

On HSR train to Taipei Agatha Tzeng, Yi-Neng. Young woman on train with us, studied forest ecology. Once the sign at the end of the car read: Current train speed is 246 km per hour (= 153 mph). Reached Taipei, and confusion in the underground train station. trying to find simple restaurant/fast food Western style
ate shrimp on spaghetti - not bad. reached YMCA hotel, and afternoon there.
long nap. supper there, and quiet evening.

2016. June 5, Sunday. breakfast, pickup at 9.15 for Ho-Ping church. Spoke to 250 in congregation. good choir. good electronic organ, good grand piano.
far better electronics than in First Presbyterian Church, Fort Collins
three big PPT screens. Hymn texts there on screen. four pastors, one a woman.
My sermon: "Promised Land and the Planet with Promise, translated into Taiwanese, not Chinese.

Finished and some confusion, then taxi to the next church, Shung-Lien Church
The church is in a big building, more or less in the center of the city, 11 floors high, and they rent out floors 1-5 to businesses. Big lunch on a table prepared for us, with too much food. But after us, others came. Then a wait in a side room for an hour and a half.

Taiwan does not have a replacement birth rate. Birth rate is 1.03, not 2.2. The birth rate has dramatically declined in the last 10 years.

From a Voice of America broadcast, August 16, 2011.

Taiwan announced this week that its fertility rate had fallen below one baby per woman, worrying the government about its future supply of manpower and brain power. Taiwan's rate of 0.9 is now the world's lowest, but other developed Asian economies are close behind.

Taiwan's fertility rate of 0.9 puts the island in the same league with other Asian territories that have industrialized and urbanized. The Chinese territory of Macau recorded a fertility rate of 0.92, and the next lowest rate belongs to Hong Kong at 1.07. Singapore, Japan and South Korea also have some of the world's lowest birthrates. Officials in Taipei partly blame the Chinese zodiac calendar for the drop. 2010 was the Year of the Tiger, considered inauspicious for births.

But the drop is also part of a broader regional trend. A shift away from traditional rural lifestyles has allowed women easier access to university education and the time-consuming jobs that follow. Pricey childcare and later education in already-expensive Asian cities strain family budgets. Chinese people have traditionally preferred large families, but some say that, in Taiwan, Hong Kong and Singapore, career advancement has overtaken that goal.

2.00 p.m. to 4.30, "Christians in the Wilderness." presentation and responses two and a half hours. PowerPoint advance worked quite poorly. Translator was Joshua Jen-Shiang Wen.

1. responded to by Wei-jen Liang, a pastor here. who had been translator for me once eight years ago in one of the Taipei University events, earlier a plant pathologist.
2. Responded to by Yi-Ren Lin, ecologist formerly at Providence University, now in Taipei. He is the one who studied under Sam Berry in London. There he had made up a book of my PowerPoint slides and a couple of my articles, including some Chinese added to my PowerPoint, especially the Bible quotations.

At both church services, there was Terng-Jen Wen, Ph.D., professor, Safety, Health, and Environmental Engineering, National Yunlin University of Science and Technology, Yunlin. With his family. He heard me in Yunlin and came up. Also present was Peter Chen, whom I met in 2008 at Tunghai University, a little south of Providence University (where I did bird watching) and who was and is keen on his founding and promoting of Golden Autumn Earth Day. He wanted me to come

back to Taiwan in October for the celebration of that day, but I declined.

Taken to supper at a restaurant (with brief stop at my hotel) by Tung-Jye Wu, call him TJ. Legislative assistant for new legislator Kyen-yuh Wu. TJ was a former director of an NGO that dealt with pollution and GMO foods. He paid the wrong bill, for the next table, and I teased him about it - legislator assistant ought to be able to pay the bills right.

2016. June 6, Monday. breakfast and walked to the train station, 8.40. On train 9.20 a.m., to Yi-Lan, around on the west side, near the coast. Said to be the most eco-friendly province; they had rejected some polluting industries. Near the city the train is mostly underground. Later, train went through a nice gorge, forested, rocks in the river. Often rather mountainous, we rode along the Pacific Ocean. Some distance out, Turtle Island. Quite scenic.

I was to give a talk to a conference of NGO workers, who were meeting in an old school building, now used for community programs. Repeated the talk "One Health - Eco-Health," short version. Audience was 100 of them in a room at desks in an old school classroom, many of them teachers. Translated by Joshua. Afterwards lunch with 20 of them in a room there.

Then taken on a drive in a Mercedes Benz, by Eric Cheng-Fung Chen, president of Sun Foundation, an operator of eco-friendly activities there. He is on Tzu Mei's board. Also in the car, in the front seat, was Peter Chung-Jing Pan, secretary of Sun Foundation and in charge of their environmental education program. He gave me a tiny glass bottle of pigeon peas and another small glass bottle of *Bischofia javanica* seeds. See below.

Saw Taro, a food plant with large leaves. *Colocasia esculenta* is a tropical plant grown primarily for its edible corms, the root vegetables most commonly known as taro. It is believed to be one of the earliest cultivated plants. Linnaeus originally described two species which are now known as *Colocasia esculenta* and *Colocasia antiquorum* of the cultivated plants that are known by many names including eddoes, dasheen, taro, but many later botanists consider them all to be members of a single, very variable species, the correct name for which is *Colocasia esculenta*.

Taro was probably first native to the lowland wetlands of Malaysia (taloos). Estimates are that taro was in cultivation in wet tropical India before 5000 BC, presumably coming from Malaysia, and from India further transported westward to ancient Egypt, where it was described by Greek and Roman historians as an important crop. In India, saw pigeon peas growing in fields.

The pigeon pea (*Cajanus cajan*) is a perennial legume. Since its domestication in India at least 3,500 years ago, its seeds have become a common food grain in Asia, Africa, and Latin America. It is consumed on a large scale mainly in south Asia and is a major source of protein for the population of that subcontinent. Being a legume, the pigeon pea enriches soil through symbiotic nitrogen fixation. The crop is cultivated on marginal land by resource-poor farmers.

Pigeon peas are very drought-resistant, so can be grown in areas with less than 650 mm annual rainfall. With the maize crop failing three out of five years in drought-prone areas of Kenya, a consortium led by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) aimed to promote the pigeon pea as a drought-resistant, nutritious alternative crop.

Then taken to a 300 year old tree, hanging over the road.

Bischofia javanica blume = *Bischofia trifoliata*

Bishopwood, javawood, toog

Evergreen tree, milky sap. Leaves alternate, long-petioled, trifoliolate (3 leaflets); leaflets shiny, bronze-toned, oval-elliptic, male and female flowers on separate plants. Fruit pea-sized, berrylike, fleshy,

The natural occurrence of *Bischofia javanica* extends from India and the lower Himalayas through China, southern Japan and tropical Asia to north-eastern Australia and the Pacific. It is locally planted in its natural area of distribution and elsewhere, including East Africa and South Africa. In Kenya it is planted as a plantation species, e.g. in the Kakamega area. Locally it has become naturalized in evergreen forest. Various uses of its parts. Introduced to Florida for ornament, and has become weedy there. Some farmers were taking local Taiwanese on a tour around, here to see the tree, riding in a buggy pulled by small tractors rigged up for this.

Saw Betel nut trees. Very tall, thin, you might first mistake them for palms. also called areca nut. Chewed, much by truck drivers, but ruins their teeth and is carcinogenic. not really a nut but a berry. Often chewed with some leaf wrapped around the seed. A stimulant. Chewing dates back thousands of years.

The Japanese had a training airport for training Taiwanese to be suicide bombers in this area.

Considerable rain showers off and on. driven to the Dongshan River Ecoark Park on the Dongshan River. guide, and took boat ride for maybe half an hour.

black crowned night heron. yellow headed heron. Park has recently been renovated and re-named. Riding back through the villages and towns with endless shops I was reminded of Hitler's remark that England is a nation of shopkeepers,

Taken to train station and train to Hua-Lien, 1 hour 20 minutes, through interesting country and pickup at station and driven to campus

National Tung-Hua University, by a faculty member in environmental education. supper in a restaurant in a bookstore, on 2nd floor. Then taken to a campus hotel.

2016. June 7, Tuesday. Up for breakfast 7.30 a.m. Taken to university for talk: "Earth Ethics: Facing the Environmental Crisis" good PPT, audience 150, all graduate students. The students here are mostly doing an M.S. only, not Ph.D. Joshua translating. I found it hard to stand for 2 hours. I asked for a chair for Q&A. Question on appetites vs. addiction. (from my use of Pleistocene appetites, questioner thought I should say addictions). "After 1950 (referencing the PPT graphs) our appetites became addictions." A dozen students crowded around me afterward with various questions. Keen interest. Lunch in an upscale restaurant. I ate squid. Not bad. Car drive back to Hua-lien and train 2 1/2 hours back to Taipei. The walk in the main train station is long because of the considerable underground shopping malls, and out to the YMCA hotel. dinner at the YMCA hotel. Liquid sugar for your iced tea.

2016. June 8, Wednesday.

Up at 6.30 a.m., breakfast 7.00 a.m.

and 9.15 to meet environmental officials at the Presidential Palace. Chung-Chuan Chen met in the presidential palace will attend my lecture at National Taiwan University as a commentator. He went to Harvard. Kuen-yuh Wu, the legislator. He apparently was not directly elected but the winning party gets to appoint several more legislators and he was one of them. Tung-Jye Wu (TJ). Legislative assistant for new legislator Kyen-yuh Wu. I had supper with him a couple days back.

After 20 minutes the vice president came in. Tsai Ing-Wen won the election and has become Taiwan's first female president. Her party is the Democratic Progressive Party (DPP), and her win is only the second time in Taiwan's history that the ruling Kuomintang (KMT) party has been dethroned.

Chen Chien-Jen, an epidemiologist known for his influential studies on the dangers of

arsenic and hepatitis as well as his handling of the SARS outbreak in 2003, is the island's vice president. SARS initially emerged in mainland China but quickly spread across many parts of the world. SARS was exacerbated in Taiwan because the United Nations recognizes China's claim that Taiwan is part of China, and thus refuses to give it an independent seat at meetings of the World Health Organization. Excluded from international discussions and sample sharing, Taiwan's outbreak spiraled out of control even as authorities elsewhere were getting a grip on the epidemic.

It was Chen, who was appointed health minister as the epidemic was escalating in Taiwan, who headed containment efforts. He bolstered attempts to isolate patients so as to prevent spread in hospitals, and boosted screening for fever. Chen attended the National Taiwan University, and received his Sc.D in human genetics and epidemiology from Johns Hopkins University. He began his medical career by researching hepatitis B, and helped raise awareness about vaccination for the disease in Taiwan. Chen further researched on the liver cancer risk of people with hepatitis B. Chen also discovered a link from arsenic to blackfoot disease. The arsenic research led to the revision of international health standards for arsenic exposure. He found out and told the Taiwan medical doctors what the Chinese were hiding from them. That made him a local hero.

Chen served as Minister of Health from 2003 to 2005. Chen led the National Science Council from 2006 to 2008. Visit with the vice-president and other dignitaries. Visit was to have been half an hour but he extended it another 15 minutes. He had in hand a paper with some quotations of mine on it. He had done his homework. He is Roman Catholic.

2016. Back to hotel. 1.00 p.m. to National University of Taiwan, College of Social Science, for talk 2.00 - 4.30 p.m. "One World/One Health." I gave the talk seated, with moderator on my left and commentator on my right. The moderator was Chou Kuei Tien, Professor, NTU Graduate Institute of National Development, Ph.D. in Sociology, University of Munich. College of Social Sciences, National Taiwan University, Risk Society and Policy Research Center. The commentator, Chang-Chuan Chen, went to Harvard and did studies in pollution levels from the Formosa plastics plants. Ph.D., Air Pollution Control, Harvard School of Public Health, 1990. M.S., Industrial Hygiene and Air Pollution Control, Harvard School of Public Health, 1987. B.S., Chemistry and Biology, National Taiwan University, College of Medicine, 1982.

Joint-appointed Investigator, Division of Environmental Health and Occupational Medicine, National Health Research Institutes, Taiwan (2004-present)
- Director of Institute of Occupational Medicine and Industrial Hygiene, College of

Public Health, National Taiwan University, Taiwan (1999-2005)

- Takemi Fellow in International Health, Harvard University, USA (1997-1998)

- Fulbright Visiting Scholar (1997-1998)

Dr. Chan has over 70 conference papers and project reports related to environment, health, risk assessment, environmental management, and international health funded by Taiwan EPA, Taiwan DOH, National Research Council, Ministry of Economic Development, Council of Labor, National Health Research Institute, Taipei City, Kaoshung City, Taipei County and private companies. Also, he has over 60 scientific papers in English on health, environment and labor issues.

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2016. June 9, Thursday. Picked up at 10.00 in nice car and driven not knowing where I was going. scenic road. Driver for the next two days: Simon Lin, Se-Hong Lin, spoke English well. works for First Aromatics, but knows the trees and wildlife rather well. Drove out to east coast, and to Yehliu Geopark. Yehliu is a cape in Wanli District, New Taipei, Taiwan. The cape, known by geologists as the Yehliu Promontory, forms part of the Dailiao Miocene. There is a long promontory, about 1.7 km; the widest area in between is shorter than 300 m. There is a lot of rock carving caused by wave attack, rock weathering, earth movement and crustal movement, resulting in an unusual sea-erosion geological landscape. There are many "mushroom rocks" where a rounded head (harder rock) sits on top of a pedestal (weaker rock eroded away some).

206. Took boardwalk half a mile to see "The Queen," a rock formation on the coast suggesting a queen. Had some cold drinks sitting in the shade on some steps and a young kid wanted to speak to me since he was learning English. Offered me some candy from a box of little candy bits he had. Returned, left the park, and lunch in a Chinese restaurant. Then drove more or less circling around the north coast and stopped at Stone Trench of Laomei, and Green Reef.

North Coast of Guanyinshan National Scenic Area. The Laomei Stone Trench Coast is located at Northeast coastline in Taiwan. The Stone Trench was formed when the coastal strata uplifted and the softer parts of the coral stone were eroded away by wave action. The trench is formed of the harder stone that was left. they will covered with seaweed on March and April every year.

Green Reef Coast. Laomei Green Reef is a beach located at north coast of Taiwan, famous because of its wave-cut volcanic lava covered with green seaweeds. The

day's trip circled around Yangmingshan National Park.

2016. Drove back to Taipei, saw "101" the tallest building nearing the hotel. Back at the hotel at 5.00 p.m.

2016. June 10, Friday. Drove up to Yang-Ming Shan National Park, where the volcanic activity is. I was here on November 14, Friday, 2008. Slow drive up because lots of traffic, often bumper to bumper and at snail's pace.

Taiwan has three deer:

1. Formosan sika deer. *Cervus nippon*. Spotted deer. The sika deer was previously found from northern Vietnam in the south to the Russian Far East in the north, it is now uncommon in these areas, excluding Japan, where the species is overabundant.

The Taiwan Formosan sika deer is a subspecies, endemic to the island of Taiwan. The Formosan sika, like most of the terrestrial fauna and flora of Taiwan, arrived on the island during Pleistocene glacial periods when lower sea levels connected Taiwan to the Asian mainland.

2. Formosan sambar deer. *Rusa unicolor*. The sambar is a large deer native to the Indian subcontinent, southern China and Southeast Asia. The sambar deer (*Rusa unicolor*) population in Taiwan has expanded rapidly in the last 20 years, Population estimates are typically made by noticing how much tree bark they eat.

3. Formosan barking deer. Reeve's muntjak. *Muntiacus reevesi*. The Formosan subspecies is *Muntiacus reevesi micrurus* (Taiwan). A small deer native to China. They are typically only 16 inches in height at the shoulder, although some individuals have reached 31 inches. Males develop small two to three inch antlers and inch long tusk-like upper canine teeth, which are used both for fighting and defense. Females develop smaller canines and pedicels (small bony knobs) instead of antlers. These unusual animals are sometimes called 'barking deer,' due to the loud bark-like sound they make when alarmed. I glimpsed one in Kanha National Park in India, March 5, 2013.

Nice ferns on the drive up. Elder in bloom. Reached the volcanic area. Our guide for the day in the park was Li-Chang Lu, been in the park for twenty years or more, and a member of Tzu Mei's Board. Enthusiastic guide. Also an elder in a Presbyterian Church.

fumaroles

sofataras Solfatara seems to be a volcano in Italy, giving its name to vents with sulfurous fumes

hot springs

Xiaoyoukeng - name of the fumarole area.

small flower in the wall: *Mazus pumilus*

Long ride to the second site. Excellent GPS in the car. Eventually reached Four Sulfide Hill, or the Devil's Place. The area was mined for the sulfur by the Japanese, also by Chang Kai Shek. Walked around some here, including a dicey walk over a makeshift bridge to see some ruined mill sites. Many tree ferns. Some big ones. *Cyathea lepifera*. *Cyathea* is a genus of tree ferns, the type genus of the fern order Cyatheales. They are mostly terrestrial ferns, usually with a single tall stem. 'Flying Spider-monkey Tree Fern' - the species gets this name from the uncurling of new fronds looking like monkey arms.

2016. Then back to the car and over a mountain to a second site.

Then had a picnic lunch, walking up a trail alongside the road and reaching a sheltered picnic area, with memorials to Syunichi Sasaki Syuniti (Shun'ichi) Sasaki (1888–1960), Japanese botanist, and Robert Swinhoe (1836-1877) Japanese occupation was 1985-1945. Robert Swinhoe was an English biologist who worked as a Consul in Formosa. Lunch was something semi-hard-soft, wrapped up in some leaf. Then walk down to a gardening area. Organic gardening.

2016. Eagle seen in the sky. *Spilomis cheela*. Crested serpent eagle. A noisy bird.

Common. Drive out, huge line of incoming traffic, crawling in. Back in town, met with Dr. King over a drink. Then taken to airport and checked in.

Business class, got to use their Infinity Lounge, with good free food. Take off: 11. 50 p.m. crossed the international dateline, so got to live Friday, June 10 a second time.

2016. Friday, June 10, 2nd time. Slept very well, 8 1/2 hours passed before I knew it, though I had some twisting and turning in the semi-reclined position.

The breakfast was too Asian to suit me. the flight is only 10 hours coming back, with tailwind. taxi to hotel in Vancouver. I had to take the big suitcase even tho it was checked through to Denver. Called Jane.

2016. June 11, Saturday. Up at 3.45 a.m. and granola and coffee in the room.

On shuttle at 5.00 a.m., airport at 5.20. Fairly long line through security. You entered the USA in Vancouver, through U.S. customs and immigration there.

2 1/2 hours to Denver. Lucked up and caught an earlier limo. Home about 1.30 to find Shonny and John, Rolston and Ellie working in the yard, painting the fence, and eating lunch. Glad to be home, But the weather is hot.

June 15, 2016. TAIPEI -- A magnitude 4.3 earthquake rocked Eastern Taiwan Tuesday, the Central Weather Bureau reported later that day. The temblor occurred at 5:40 p.m. and was centered 39.1 kilometers southwest of Hualien County Hall at a depth of 15.2 km.

2016. Taiwan

Wolf Week - Yellowstone - March 13-19, 2016.

2016. March 13, Sunday. Left about 7.00 a.m, having just changed to Daylight time. Sunrise about when I hit the I-25. Apprehensive for the week about Shonny facing tongue and neck surgery. Perfect day for the driving. Blue sky, some lovely clouds. No snow on the plains, except in a few hillside blow areas, or at snowfences. Later, cloudy bright. Lunch at Sheridan visitor center, 1.15. Reached Hardin 3.30 p.m. 85 Antelope. Some gusty spots to 35 mph+

2016. March 14, Monday. Off about 8.00, overcast. Hard rain through Billings area and some frozen rain but road only wet. Then rain stopped and cloudy. Some blue and considerable sun. Crazy Mountains spectacular with snow cover, clouds, and blue sky. reached Gardiner about 11.30. 6 elk in Yankee Jim Canyon. Entered the park. 1 elk, 4 bison, 20 bison driving to Mammoth. There was a grizzly on a bison carcass at Blacktail Ponds, nicely seen with some sun, and then a blasting storm for 30 minutes, too windy to watch with scope or try photos. Then sun again. 2 coyotes. The bear had pulled the carcass out of the ice, ate on it and sat on it for two days. Lots of ravens. Eventually the bear left.

Further down, toward Tower, saw wolves (with many others watching). The Prospect Peak Pack. Eventually saw three grey and once black nicely in the scope. The wolves were near, or at least in the scope, seemingly near 30 bison. This was luck. and we did not see this pack again during the week. continuing toward Lamar, 30 bison, 30 bison reached the ranch and moved in. Cabin 8

Cabin mates: John Dickinson, Houston, TX, did geophysics, now somewhat recently retired jadickinson@swbell.net

Lee Dalton, now Ogden, Utah. Sometime seasonal naturalist at Yellowstone, for 25 years or so a 4th grade teacher in a small town near Phoenix.

ldalton84404@gmail.comSsupper

Evening. Introductions and welcome to the week.

Instructors: Shauna Baron - whom I have had several times before
Resident Instructor, Yellowstone Association Institute
406-223-3142 cell

Joshua Theurer, Th er new to me. Th-eye-er rhymes with fire
went to school Univ Wyoming, Laramie, and had read some of my materials in a class
he took there.

Joshua Theurer Resident Instructor
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P. O. Box 742
Gardiner, MT 59030
jtheurer@yellowstoneassociation.org

Rob Bush, Campus Director. manages the ranch, which they now call a campus.
Career in the Marines, retired, did a few other things, and took this job. He had some
interests in science and religion and recognized who I was, especially the Templeton
Prize, and he called to the attention of the group that I had won it.

Len Carolan (Program Assistant)
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Duane Campbell (Sammamish, WA) Seattle, works with Microsoft
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Minnesota. couple who sometimes had wolves in their yard at home.
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cell biologists, long at Johns Hopkins, now in Park City, UT
Julie Lodge from Arizona
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Sue Gallagher (Alameda, CA) OB nurse

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Roosevelt Montas, New York, Columbia University. born in Dominican Republic, and went to Columbia University, where he is now director of the Center for the Core Curriculum, a required humanities program for the freshman and sophomore years at Columbia.

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Brenda Papera (Program Assistant)

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2016. March 15, Tuesday. up at 5.00 a.m. Breakfast 6.00 a.m. off at 7.00 a.m.

still rather dark went west to a pull off and listened. Nothing. to Tower and toilet.

Then found the Junction Butte pack. 5 greys, 2 black. grey collared male - 911M

black pup (which means yearling) with often raised tail, which was new to me.

On tail positions see diagram, p. 91. in L. David Mech and Luigi Boitani, eds., Wolves: Behavior, Ecology, and Conservation. University of Chicago 2003. in CSU Library.

with diagram from Schenkel, R., 1947 Ausdrucks-studien an wolfen [Expression studies on wolves] in Behavior 1:81-129 [translation from German by F. Harrington].

This is on a David Mech website: <http://www.davemech.org/schenkel/>

2016. "Below you can download a pdf version of Schenkel's 1947 "Expressions

Studies on Wolves." This is the study that gave rise to the now outmoded notion of

alpha wolves. That concept was based on the old idea that wolves fight within a pack to gain dominance and that the winner is the "alpha" wolf. Today we understand that

most wolf packs consist of a pair of adults called "parents" or "breeders," (not "alphas"), and their offspring."

2016. afternoon. off and nap, shower. I didn't do any of the hikes. Two hikes each afternoon a hard one and an easy one. The hard one today went up to the wolf pens above the bunkhouse.

2016. March 16, Wednesday. went up to Soda Butte, nothing. went west to Boulder pull off to watch a perched golden eagle. There Shauna found wolves on the skyline. The Junction Butte Pack, the same pack as yesterday. Saw eight wolves at once on the skyline, nicely seen profiled, sometimes in full sun, aesthetically great. And, with Shauna's spotting, we found these wolves ourselves, with no help from anybody with radio. Some upraised tails again. They gathered close and Joshua said they would howl. He claimed to hear a very faint howl. I did not hear anything.

2016. Specimen Ridge. So called because it contains excellent petrified tree remains, some still upright. The rock is andesite, not the more usual rhyolite or basalt here.

Tower and toilet stop. Bback to Soda Butte, at a stop called Hitching Post (where horses are unloaded from vans for trail riders). We walked out a bit to a rise to see four wolves nicely seen profiled against the snow. Well seen. This is the Lamar Canyon Pack. I saw only four but others saw five, the whole pack.

926F adult black. 992M adult male, black, called "Twin" back to the Ranch. lunch. afternoon off. cottontail near the cabin. rather tame, eating grass.

2016. Supper. Evening talk. Brenna Cassity, NPS. world project. She keeps the statistics. 100 wolves in 11 packs. From 1926-1995 no wolves, and elk population exploded. The young males and females may be the more aggressive hunters, more so than the older dominant wolves, though the older ones may make the kills. Canine distemper, kills half the pups, a virus. One worry is that the wolves become somewhat habituated to seeing humans around, and this makes them easier to kill be hunters when the same moves move outside the park.

2016. March 17, Thursday. Went to Slough Creek and walked out to Bob's Knob (named for Bob Landis). Cold, but nothing. Geese in the creek. Back to toilet at the ranch. headed east. redtail hawk perched in tree out in the valley. Reached Footbridge Parking area (where there is a footbridge across Soda Butte Creek not far away). saw the Lamar Canyon Pack again. I saw three wolves, mostly 2 blacks, sometimes well. Others saw four. I did hear one howling, briefly but clearly. After a half hour or so, the wolves were more or less bedded down, barely in sight. 6-8 bighorns, three nicely profiled on the skyline.

2016. Talk by Rick McIntyre. Roosevelt got some great photos and a couple movie clips. .mov file with the cell phone mount, which he had borrowed from Joshua. The wolf in his video is 993M, a black adult, dark black. Back to the ranch. lunch. 2.30 p.m. All five of the Lamar Canyon Pack came in a fast trop past the bunkhouse across the river. Nicely seen profiled against the snow.

Supper. evening program, wrap up. Canines have a tail gland maybe six inches down the tail that gives off odors. This is on wolves and coyotes, and there but nonfunctional on dogs. 14 wolves seems to be the maximum size, beyond which packs will split. 8 is the best size for killing elk. 10 is the best size for killing bison. Len Carolan gave me a great photo of a wolf he had just taken. He was in a "sit spot" he likes, near the confluence of the Lamar and the Yellowstone river, and the wolf came right by him, a female pup. He took the photo when the wolf was within 10 yards of him. Says he was not afraid. This wolf was from the Junction Butte Pack.

2016. Friday, March 18. Breakfast and packed up. Left about 8.00 a.m. Road to Mammoth was o.k, but some icy road spots. Had to stop for a badly crippled bison in the road. 150 bison, more or less. Reached Mammoth. Managed to talk via cell phone with Jane and found out about Shonny's surgery. Difficult making the cell phone work, partly because her cell wouldn't work well inside the hospital. Reached Livingston, for lunch. Reached Hardin. Pizza for supper.

2016. March 19, Saturday. Up at 4.45, off 6. 10 a.m. Drove about an hour in dark and twilight. Sunrise a little before reaching Sheridan. Reached Cody about 10.15 a.m. Lunched on crackers in Chugwater. Some antelope along the way, but I didn't try to count them. Reaching Fort Collins, I went directly to the hospital to see Shonny, about 2.45 p.m.

Yellowstone wolves end

2017. start

2017. January 21, 2017. North Shields Ponds, with Fred Johnson, Fred Enssle, and Pat McKee. Two ponds, each with a loop, the first and smaller, half a mile, the second and larger a further mile. 1.5 miles total circle. Ponds frozen and trails frozen, with icy spots. Part of the trail runs along the Poudre River. Common Golden-eye seen well there off and on ten minutes, constantly going underwater to feed and popping back up. Mostly cottonwoods. Pin cherry (*Prunus pensylvanica*) with a little dried fruits still on.

Alder. Ash, presumably Green Ash (*Fraxinus pensylvanica*) with a few long seed

Pods still on. Box-elder (*Acer negundo*), with lots of fruit, samaras. February, mild

2017. Feb. 11, 2017. Shonny has a crocus in bloom in her back yard.

2017. Feb. 16, Crocus in bloom at edge of front porch.

2017. Feb. 18. Lee Martinez Park to Poudre River Trail, with Fred Johnson, Fred Enssle, and John Didier. Nice day, a little cloudy. Cache La Poudre River Corridor Natural Areas, North. From parking lot, walked a trail s.e. to pick up a river's edge dirt trail back n.w. (Small area east of the river here is called "River's Edge"). Reached Salyer area and continued upriver to McMurry area and crossed river to southside (on a bridge being repaired, which we weren't supposed to cross). Then returned s.e. on the Poudre River Trail. Couple miles of walking. Mostly cottonwoods, elms (Siberian elms, presumably planted, boxelder). A few Canada geese, pair of mallards, some smaller birds not well seen. Something sounding like a warbler. Some elm buds opening up with flower anthers sticking out. Little or no ice on the river.

Figured out from dry standing plants, *Oenothera villosa*, Hairy Evening Primrose, This isn't even in my old Weber, though it may be what he calls *O. strigosa*. It is in Ackerfield. Disturbed soil, most of North America. I don't find that I have previously keyed it.

Figured out from dry standing plants, *Carduus nutans*, musk thistle, nodding thistle, Invasive from Eurasia, a pest all over. I don't find that I have keyed it. My old Weber says recently established weed and Harrington suspects it is in Colorado but has no record. (= *C. leiophyllus*) Ackerfield says it is recently incredibly invasive, not known in Colorado until the 1950s.

2017. February 21, 2017. RMNP via Lyons. Left 8.30 a.m., windy and very dusty air blowing over the road where there had been recent plowing. Reached Loveland to find that Route 34 to Estes Park was closed, for rebuilding a bridge. Seems to have been closed some time as there were detour signs posted all the way via Lyons to Estes. More dust driving south, but in clearer spots you could see Pike's Peak far south.

2017. Reached Estes, Moraine Park, and walked in the Cub Lake Trail a quarter mile, latter part over walked over snow. Lunched in car with a magpie sitting on my outside rear view mirror hoping for a handout. Mountains quite scenic with snow, though always some clouds surrounding, which mostly added to the aesthetics.

Drove to Bear Lake. 7 mule deer roadside. Used my crampons, tied on at the center

of my boots, which worked well. Walked some in the Bear Lake area. Nap at Hallowell Park. Returning, 31 elk seen, a couple yearling males, and 3 mule deer at the edge of the herd. Drove back through Lyons, home about 5.30 p.m.

2017. March 2-4. Nassau for Templeton nominations committee meeting. Outdoor barbeque and some drives around, dinner at a seashore restaurant at dusk. Otherwise nothing outdoors.

2017. March 15-17, Oregon State Corvallis. Two hour and a half shuttle from Portland to Corvallis, south half reasonably scenic, along the Willamette River and some good coniferous forests, lots of rain.

2017. April 8, 2017. Watson Lake with Fred Johnson, John Didier, Fred Enssle. Parked at the main area, walked up the road, then south side of lake, then a trail by the river. Various weedy early flowers. Cottonwoods in good bloom, and we discovered they are dioecious, male trees, and female trees, with long flowering sprays, 5-6 inches long. Gulls on lake and near the more or less defunct fish hatchery, maybe ring-billed gulls. A couple cormorants. A few geese.

2017. April 9, 2017. Palm Sunday. Pasqueflowers at Well Gulch, Lory State Park. Picked up Rolston at 1.00 p.m. and drove to the park via the rim high road. Nice day but windy. Reached Lory State Park. Walked up the Well Gulch trail, having to persuade Rolston that it wasn't too windy. Covered him up with my jogging blazer. You did have to pause and catch yourself in the wind, maybe 25-30 mph. Found spring beauty, yellow violets, prickly pear cactus almost in bloom.

Then two fine clumps of Pasqueflower, one splendid in full bloom and nicely in the sunshine. Counted 11 blossoms in the two clumps. One and a half feet from the trail on the right, upslope side. Maybe 200 yards up from the bench, with no. 14. The better clump is probably what Fred Johnson had sent me a photo of a couple days back. Didn't see anybody else on the trail. Walked up a couple hundred yards more but saw no more Pasqueflowers. Lot's of spring beauties.

Returned to car, slowly, as you had to watch your downsteps in the wind. Drove to the end of the road, then home, via the Bellvue road, about 4.00 p.m. One deer on the Horsetooth drive. Wild plum in fine bloom in the park and elsewhere roadside. I must have seen 100,000 blossoms, on several thousand bushes.

2017. April 24-26. University of Wisconsin, Stevens Point. Flew there with

supposedly early a.m. take off. But pilots needed their sleep, so late take off. Arrived Mosinee = Central Wisconsin Airport, late afternoon.

2017. Apr 24, Monday. Did a hike/stroll with Chris Diehm and some students. Much about the various oaks we saw. Chris knew them, bark and all.

2017. Tuesday, April 25. Met with classes variously and lectured in the evening. Large audience, 350-400 students and faculty, some from town.

2017. Wednesday, April 26. In the morning visited several wet areas with decent birding, though not much flora out. mostly water birds. Stevens Point has a big cheese factory. Lots of cows in Wisconsin. To the airport about noon, and flew home.

I came back sick with bronchial cough and pretty much shut in for three weeks.

2017. May 18, 2017. Snow dump, University closed. Much damage to trees, oval closed from fallen tree limbs several days. 8-10 inches, and more predicted, which did not arrive.

June 1-4, 2017. International Society for Environmental Ethics (ISEE) at Highlands Camp, Allenspark. Drove up Thursday, June 1, after a lunch celebrating our wedding anniversary, no. 61. Nice drive, nice day, through Lyons.

2017. Friday, program all day. Nice day, short rainstorm.

2017. Saturday, June 3. Afternoon, led hike to the Pool, with about eight in the party. Trail in surprisingly good shape after the big snow dump May 17-19. Allenspark had 42 inches. Park service had cleared some branches from the trail, though there was evident wind and snow damage trailside and in the further woods.

In the party, Benn Johnson, grad student at University of North Texas, and Rika Tsuji, Japanese graduate student there. Also Jeremy Bendik-Keymer, Case Western Reserve University, Cleveland, and his partner Misty Morrison. an artist much interested in learning the plants. Also Jeffrey Spike, medical ethics University of Houston, and his wife, Elizabeth Spike, teaches environmental science at an upscale private school and active in Houston area Sierra Club, and son Hume. Also Geoffrey Frasz. Also Claire Williams, Australian woman in environmental law. In bloom: A lot of Thermopsis, Golden Banner. Considerable Hydrophyllum, water leaf. Lots of pin cherry.

Went rather slowly and time passed. Reached the Arch Rocks area about 5.00 p.m., where I turned around and returned, with Elizabeth Spike. The others went on to the Pool. Elizabeth and I got back to the trailhead about twenty minutes before the rest of the group. Frasz and Benn saw two mink.

Had just about the right amount of time to get to the Tavern 1929, Mary's Lake Lodge for a banquet meal. Supposedly a 1929 tavern, maybe once on this spot, but all the buildings here are recent and huge development.

2017. July 18, 2017. Zimmerman Lake Trail with Fred Johnson, also wetland on Laramie River Road. Met Fred at Watson's Lake Parking lot and drove up Poudre Canyon. 8-10 deer, mostly as twos and threes roadside. Reached the Zimmerman Lake Trailhead about 9.00 a.m. Off on a meandering hike toward the Lake, mostly looking at wildflowers and what mosses we could find. Lots of Polytrichum, almost a ground cover on the roadside banks in places. juniper Polytrichum moss. Polytrichum juniperinum

Mitella stauropetala, Side-flowering mitrewort. Flowers with little or no pedicel secund on a long stalk. Flower petals have linear lobes, three-parted. Wet areas. Weber says rather rare. I had collected it before but forgotten it. Fred also found: Mitella pentandra. Cypripedium fasciculatum. Purple, or clustered, Lady Slipper. Saw two of them, Weber says very rare, but Ackerfield says uncommon. I had collected it before, on Rawah Lakes Trail. alpine leafybract aster - Symphyotrichum foliaceum

beautiful cinquefoil - Potentilla pulcherrima, thickleaf ragwort - Senecio crassulus weak saxifrage - Saxifraga rivularis, Whipple's penstemon - Penstemon whippleanus. Alpine bistort - Bistorta vivipara. Yarrow - Achillea millefolium. Orange Agoseris - Agoseris aurantiaca. pincushion beardtongue - Penstemon procerus. Rocky Mountain goldenrod - Solidago multiradiata. Coulter's fleabane - Erigeron coulteri. alpine speedwell - Veronica wormskjoldii. long-stalked starwort - Stellaria longipes. tall chiming bells - Mertensia ciliata. arrowleaf ragwort - Senecio triangularis. sulphur paintbrush - Castilleja sulphurea. Payson's lousewort - Pedicularis bracteosa var. paysoniana. Hemlock parsley - Conioselinum scopulorum. Jacob's ladder - Polemonium pulcherrimum. Fendler's cowbane - Oxypolis fendleri. sickletop lousewort - Pedicularis racemosa. Elephantella - Pedicularis groenlandica. heartleaf Arnica - Arnica cordifolia. splitleaf Indian paintbrush - Castilleja rhexiifolia. fivestamen miterwort - Mitella pentandra See above. Small-flowered miterwort - Mitella stauropetala One-sided marsh marigold - Caltha leptosepala. witches' hair lichen - Alectoria sarmentosa. Arizona calcareous moss - Mnium arizonicum. mountain sweet-cicely - Osmorhiza.

berteroi. heartleaf buttercup - *Ranunculus cardiophyllus*. elegant death camas - *Anticlea elegans*. mountain parsley - *Cymopterus lemmonii*. Virginia strawberry - *Fragaria virginiana*. heart-leaved twayblade - *Listera cordata*. white bog orchid - *Platanthera dilatata*. clustered lady's slipper - *Cypripedium fasciculatum*. wooly hawkweed - *Hieracium triste*. milkflower willowherb - *Epilobium lactiflorum*. different-nerve sedge - *Carex heteroneura*. beautiful fleabane - *Erigeron formosissimus*

brook saxifrage - *Micranthes odontoloma*. mountain gooseberry - *Ribes montigenum*. whortleberry - *Vaccinium myrtillus*. Douglas fir - *Pseudotsuga menziesii*. Spruce, Engelmann - *Picea engelmannii*. bluntseed sweetroot - *Osmorhiza depauperata*. pearly everlasting - *Anaphalis margaritacea*. clover-leaf rose - *Sibbaldia procumbens*. wild candytuft - *Noccaea fendleri*.

Never got to the lake. Ate lunch at a streamside, a little below the old sawmill.

Previous trips to Zimmerman Lake:

March 25, 1972, skiing

July 27, 1980, with Giles

January 20, 1986, on snowshoes with Giles

January 27, 1990, on snowshoes alone

October 1, 2000, with Bill Forbes

June 24, 2006, with Julia and Gray

Trees here are Engelmann spruce and Doug fir.

Returned and drove to Jan McKee's wetland site on the Laramie River road, Found it with little trouble, and walked across it on as dry spots as we could find, often walking in 2-3 inches of water.

June 21, 1989. Jan McKee's study site on Larimer River Road. Spent day collecting mosses with her. Of particular interest in the site is *Salix candida*, known from only two stations in Colorado, but probably overlooked.

The oily film on water in the bog is not plant oils but a bacteria. A USGS study team has worked this site, since there were traces of radon gas here and presumed uranium below. They cored the peat bog, down about 15 feet or so, which is dated back 16,000 years, when it was a lake in glacial times. Someone in the East is figuring out the pollen. There are two head-high willows in here: *Salix plantifolia*, newer twigs red, and *S. monticola*, yellow twigs. To separate *S. candida*, from *S. brachycarpa*, also low and similar, also lanate, see notes. It's easy.

The site is rather notably well developed with *Helodium blandowii*, in the transition zone on the far side.

The 321-acre Boston Peak Fen Research Natural Area (RNA) is near the southern end of the Green Ridge. Plants that survive in fens are uniquely adapted to their alkaline environment. The Boston Peak Fen RNA contains a unique wetland ecosystem of sedge fens and willow carrs (willow communities) containing uranium-enriched peat, several rare plant species, and the complete watershed for this fen. (enlarged to 550 acres?)

Petrographic reconnaissance of uraniferous fractures in Precambrian gneisses, Laramie River valley, Larimer County, Colorado. Open-File Report 95-242. By: Francis Allan Hills

<https://pubs.usgs.gov/of/1995/0242/report.pdf>

Uranium entrapment in wetlands: A case study at the Boston Peak fen, Colorado, U.S.A by Otton, J.K.; Zielinski, R.A.; Platt Bradbury, J.; Robbins, E.I.; Owen, D.E.; Madole, R.F.; Schumann, R. R.

http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/38/063/38063299.pdf

https://inis.iaea.org/search/search.aspx?orig_q=RN:38063359

ABSTRACT: The Boston Peak Fen: a Multidisciplinary Case Study of a Uraniferous Mountain Wetland

D. E. Owen, J. K. Otton, R. R. Schumann, R. A. Zielinski, J. P. McKee, E. I. Robbins, F. A. Hills

Uranium (U) enrichments as high as several thousand ppm occur in surficial, organic-rich sediments of mountain wetlands, which provide natural laboratories for studying the transport and fixation of U. Boston Peak fen covers about 8 ac in the glaciated upper Laramie River valley of north-central Colorado. The valley follows a north-trending fault zone that was active as late as the Oligocene. The fen is bounded primarily by Precambrian rocks along the sides and upper end and by a postglacial landslide deposit on the lower end. Ground-water hydrology is characterized by a basal, confined, gravelly, locally artesian aquifer overlain by lacustrine clay and an unconfined peat aquifer. Faults and fractures in the bedrock are conduits for uraniferous waters that enter the fen through seeps and springs. Present-day

vegetation communities are controlled by peat thickness and seasonal groundwater fluctuations.

Uranium mineralization in the fen is closely related to its depositional history. Immediately after the landslide dammed the valley floor, a pond formed and began filling with silt and clay. About 10,000 years ago, pond weeds became established and organic productivity increased. During this time, U was sorbed from the pond water by organic matter in the sediment, forming layers containing 10 to 150 ppm U (dry weight). About 3000 years ago, downcutting of the spillway and sediment infilling resulted in depths shallow enough for the establishment of peat-forming sedges. Since then, up to 3.5 m of peat has accumulated. During this time, ground-water recharge zones in the fen became point sources of metal input, and as much as 3300 ppm U (dry weight) accumulated locally in the peat.

AAPG Search and Discovery Article #91002©1990 AAPG Rocky Mountain Section Meeting, Denver, Colorado, September 16-19, 1990

<http://www.searchanddiscovery.com/abstracts/html/1990/rms/abstracts/1340d.htm>

saw: red sandspurry. *Spergularia rubra*. shrubby cinquefoil. star gentian. pink pyrola. purple avens *Geum rivale*. white geranium. elephantella. western polemonium *Polemonium occidentale*. white bog orchid. *Platanthera dilatata*. formerly *Habenaria dilatata*. Lots of it.

Drove home.

Aulacomnium palustre. Ribbed bog moss

Early August - lots of rather cool weather and rain.

2017. August 19, 2017. Trail Ridge Road, alone. Left home about 8.30 a.m. Lovely day, only a few clouds in the sky. Still lots of construction on Route 34 from Loveland to Drake, seriously rebuilding two or three stretches of the highway.

Reached RMNP, and in Horseshoe Meadows, where the sheep come down, there were 17 bighorn sheep. Others said 18 but I only saw 17. Half ewes, half yearling males, and a couple lambs. Hanging around in the wetlands there. Watched them 40 minutes. I don't recall seeing this many in one group at a time. Wyoming ground

squirrel, picketpin.

Climbed Trail Ridge Road, lots of traffic. Walked out the Forest Canyon overlook. So much traffic in the Visitor Center parking lot that they were holding cars out on the highway in the entry lane, and only letting 6-8 go in every fifteen minutes. I only needed a rest stop there.

Lunched up at the overlook over Mt. Ida, Specimen Mtn, and the Never Summers. Ate in the car, too windy to eat outside. But a good event. Returned, 18 elk up top, all cows. Napped at Hidden Valley and drove home.

2017. Sept 5-11. 2017. Trip to Richmond, Shenandoah National Park, and Shannon Bryant's wedding on York River.

2017. Sept 7. Drove via I-64 to Shenandoah National Park. There is a rest area with vending machines just west of Ivy exit. Hiked Rip trail to Calvary Rocks. Nice day. Cool. Hiked on AT about 45 minutes, then on Rip Rap trail about an hour, one mile to Calvary Rocks. Oaks, hickories, laurel, azalea, lots of sassafras. Witch hazel. Trail goes slabside down mostly, but then a climb up to Calvary Rocks. Trail well kept and I did o.k. Lunched in the car on return, about 1.30 p.m. Milkweed, goldenrod.

Previous Rip Rap hikes when a teenager, June 26, 1973, May 12, 2004, Oct. 16. 2015.

Meandered north to Big Meadows Lodge by about 4.30 p.m.

Galinsoga about the Big Meadows Lodge area.

Decent room on the back side, though room tended to overheat. Cool outside.

Good meal, Yankee Pot Roast, but three times as much food served as I needed. Cell phone works here.

2017. Sept. 8. Up at 6.00 a.m., coffee and snacks in room for breakfast, and off about 8.00 a.m. 4 deer, one a buck on way out, then 3 deer up close on highway. Then saw a small black bear crossing the highway. Bear-shaped, quite black, size of a mid sized dog. Nice sight. In vicinity of Bearfence Mountain Parking area.

Squirrel. Dogwood, sumac with big red berries. Tried to find the Sawmill Run trail from parking lot at Jarman Gap, and found it overgrown and remnants of it, but not hikeable. There was a trail to Sawmill Run Shelter half a mile down, which I backpacked June 26, 1973. Formerly, there was a usable road through this gap. [Andrew H. Myers, "The Creation of the Shenandoah National Park: Albemarle Cultures in Conflict," The Magazine of Albemarle County History, vol. 51, 1993, pp. 52-89, on p. 57]

So I went up the other side to the AT and hiked that an hour and a half.

Lots of white pine, plantain, roadside. Virginia creeper. knot weed. orange jewelweed, spotted jewelweed, spotted touch-me-not. Impatiens capensis. striking orange flower with curved tail. Christmas fern, lots of it. came to a spring, with weak flow. Large beech tree. unknown shrub with simple leaf and elongated red berry. ragweed.

Drove to Zion Crossroads, milkshake for lunch, about 1.30 p.m. Back to Ann's about three o'clock, disappointed that Jennings Bunch was ill and could not be there. White pine, greenbriar

2017. Sept 9. Drove to tidewater and went to Shannon's wedding. Fell and cut back of my left wrist at the patio of the upscale home where we were staying a quarter mile up from the home of the wedding site. Patched up by Marc Bryant, who was a medic in the Marines.

2017. Sept. 10. Drove back to Richmond.

2017. Sept. 11. Flew home. Take off 4.00 p.m. Home about 8.30 p.m.

2017. Sept. 20, 2017. Aspen, Ward, with Jane, Bill and Augusta Forbes. Left about 9.00 a.m. and drove to Lyons. Up St. Vrain Canyon, and excellent aspen as soon as we turned onto the Peak to Peak Highway. Nice day and aspen colors excellent in the good sun against the conifers. Drove up the Brainard lake Road, still excellent aspen until halfway up.

Lunched at the fine picnic area at the lake. A bit cool, needed jackets, but good sun and a fine lunch. Drove around some up there, then returned, now going to Estes Park on the Peak to Peak Highway. Eight or ten elk in the distance at Moraine Park but none well seen. Drove back, arriving for a fine dinner at Shonny's about 6.15 p.m.

2017. Sept. 22, 2017. Trail Ridge Road, with Jane, Bill and Augusta Forbes. Left about 9.30 a.m. in his car. Blue sky, nice temperature. Reached RMNP and drove up Trail Ridge Road, still blue sky and nicely scenic, rather good aspen. Too cold to be out much up top, but Bill, Augusta, and I walked down to the Forest Canyon overlook.

Lots of traffic. Reached the Visitor Center and Store. About 12 elk with one very nice bull down in the cirque valley below the visitor center, seen reasonably well with binoculars. Still nice weather but more clouds. Returned and ate picnic lunch at Hidden Valley in the shelter, temperature and wind o.k. for a comfortable lunch.

Drove down the Beaver Meadows side and there were maybe two dozen elk in the trees, that could be seen off and on as they moved about. A couple nice bulls here and heard half a dozen bugling calls well. Surprisingly, the weather, here at least, had cleared up and good sun. Continuing some good aspen.

Took Bear Lake Road and at the Moraine Park visitor center two dozen elk nicely out in the open and rather close to the road in full sun. A couple of good bulls.

Drove to Bear Lake intending to walk around it and couldn't get a parking space. Returned to Glacier Gorge and couldn't get a parking space there either. Now about 4.30 p.m. so we just drive home. One deer.

September 24-25. Lots of rain and much cooler. We were lucky with the weather.

2017. November 23, 2017. Thanksgiving. Did the Turkey Trot with Shonny. Rolston and Ellie Jane joined us halfway, at the City Park, unregistered participants. Did o.k., but enough pounding on pavement. Got a bit of a bloody toe from a toenail too long on right foot. Lovely weather, 20 degrees above normal. In the 70s.

2017 end

where is 2016,, 2018?

2019. November 8, 2013, and following. Super typhoon Haiyan hits the Philippines, and no doubt one of the biggest storms ever known, and said by some, by some measures at least, to be the biggest storm every known in human history. Sustained winds of 315 kph (195 mph) and gusts as strong as 380 kph (235 mph).

2019. November 28, 2013. Thanksgiving Day. Ran the Turkey Trot with Shonny and Ellie Jane and Rolston. 4 miles. 3000 runners. Did o.k. To my surprise, Shonny called later to say that I won the race. Well, more specifically, I won in my age group, over 75. More specifically still, I was the only one to run in that age group, or at least to finish. So I came in both first and last. It's not hard to win a race when you are the only one in it. Anyway, I got my name in the paper on the first sports page as a winner!!

December Some spells of below zero weather.

end 2013

2014

2014. Mongolia: Horses Wild and Free Again

Holmes Rolston, III I reached the ridge top and there they were -- the stallion out front and five mares, his harem, following. I celebrated seeing the only wild horse, Przewalski's horse, once extinct, now restored, again free in Hustai National Park, Mongolia.

Mongolians call this horse the takhi, which means a "spirited horse." No one was ever able to break, or tame, this horse. Domestic horses have been bred from other species.

The horses moved down the neighboring ridge, nicely profiled against the skyline. They were making their way down to drink. We followed.

Finding greener grass near the river, they paused to graze -- fortunately, for we got our closest views. Using binoculars, I examined each of the seven. The takhi is a stocky horse with short legs and looks somewhat like a coarse domestic pony. Their mane is stiff, erect, mohawk-like. There is no forelock.

When they lifted their heads to look around, I could see the massive head with long face and a big jaw. Their ears are long and stand up straight. Their eyes are set far back in the skull, giving a wide field of view.

These are in summer coat, short and smooth, beige, with yellowish white on the muzzle and belly. Their lower legs are dark. Sometimes their legs have stripes, but I couldn't see any.

Two mares were pregnant. Hurrah! That is further proof of this most successful restoration of the oldest breed of horse today, the one surviving prehistoric horse. This horse has 66 chromosomes, two more than domestic horses.

Wild horses were dominant on landscapes in Asia and Europe in Pleistocene times. The zebra is the wild horse in Africa today, also never domesticated. Eurasian wild horses continued into human memory. In earlier centuries, the wild tarpan, now extinct, was present.

In 1226, Genghis Khan was startled when wild horses crossed the path ahead of him. His own horse reared and he was tossed to the ground.

Przewalski was a famous Russian naturalist who discovered this horse in 1879. Some ancient cave drawings suggest the Przewalski horse, 20,000 years ago. Earlier travelers had reported seeing wild horses, but Przewalski brought them to the attention of the Western and scientific world.

The full-grown horses proved impossible to catch, but some foals were caught. They were sent to European zoos and, aggressive in captivity, proved difficult to keep alive.

Przewalski's horse became extinct in the wild in the 1960's. The last well-documented recorded sighting was a lone stallion in the Dzungarian Gobi Desert by a

Mongolian scientist in 1969.

The species survived because of the captive breeding of about a dozen founder animals--nearly lost in World War II. In 1969, the only horses were in a zoo in Munich and a zoo in Prague. But veterinarians persisted. Now there are some 2000 in zoos around the world. The Denver zoo has four.

Mongolia was Communist from 1921-1990. With the breakup of the Soviet Union, Mongolia became an independent democratic nation. Some Dutch conservationists saw an opportunity and found the new nation receptive.

I saw horses everywhere on the landscape, maybe ten thousand of them. Horses are historically a linchpin of their cultures. "A man without a horse is like a bird without wings," according to an old proverb.

Mongolians have traditionally depended on the five "snouts" or "muzzles": horses, camels, sheep, cattle or yaks, and goats. Horses are used for herding the hundred thousand sheep and goats that I also saw.

Mongolia today has two million horses and three million people. Since a million people live in the capital Ulaanbaatur, in rural Mongolia there are as many horses as people. So the Mongolians welcomed the return of its most charismatic extinct species.

The Dutch conservationists created the Foundation for the Preservation and Protection of the Przewalski Horse (FPPPH). They worried about the narrow genetic base, created a stud book, and selected the best to be released.

As I landed at the Ulaanbaatur airport, I recalled how hundreds of Mongolians waited for hours at the airfield on June 5, 1992 watching for an airplane to land and hoping to catch a glimpse of the crates each of which contained a takhi to be returned to the wild.

Reintroducing these captive-born horses exposed them to climate extremes, water and food shortage, disease, and predators. Wolves killed eight in one night, though healthy adult horses can defend themselves by kicking and biting. A stallion may also bite and kick his mares to get them to do what he wishes.

As we were returning to camp, to our surprise, we found a second group, a half dozen even closer. One mare had a foal, six weeks old, sticking close to mamma and trying to nurse. We watched them twenty minutes. A lone stallion up the hill later joined the main group.

I left hoping wolves would not get this foal. Wolves prefer to take foals, and may take up to one third of them, as happened in 2002-2004, when they killed 36 foals. Mongolians hate wolves, which also prey on their livestock.

The horses I saw were all born wild. Only one old horse, now some 20 plus years old survives from a second group reintroduced, born in the Netherlands. There are 33 groups in the park, in total over 220 animals.

In one of the villages, at what they call the Nadaam festival, we watched a horse race. Mongolians do not race around a track, but over a distance course, in this

case 25 kilometers. Children are riding as soon as they walk, so before they reach their teens they are excellent riders. These light youngsters are preferred as jockeys..

We saw dust in the distance, and a minute later the winning horse came over the finish line, instantly followed by the second horse, which had no rider. The jockey had fallen off somewhere back. But this horse still placed second. We protested: But it had no jockey. The reply was: We were racing horses, not people!

I was lucky to see argali, the largest, most robust bighorn sheep. There were two rams, splendidly profiled on the skyline in profile, with their enormous corkscrew curved horns. A group of eleven below climbed a saddle and disappeared.

Mongolians still hunt with trained raptors. I held a golden eagle they had captured as an eaglet and raised, now a huge bird with wingspan as wide as I am tall, six feet.

Ninety percent of Mongolia is arid grassland steppe or desert. You can drive all day without seeing a tree, on unimproved roads that are only a track. The Gobi is the world's coldest northernmost desert: bleak, stony, vast, harsh--even extremely hot in summer.

Mongolia is the most thinly populated country in the world. Driving to our ger camp there, and back two days later, nearly five hours of driving across the thin, rocky grassland track, we did not meet a single oncoming vehicle.

The Gobi is where Roy Chapman Andrews, the famous paleontologist, found the first dinosaur eggs--when a fellow researcher accidentally fell down a cliff face. We visited that area and saw a clutch of eggs in a museum, surprisingly small--not much bigger than a potato.

We were fortunate to find some university students who had researched ancient costumes. They made their own, the men outfits for horsemen soldiers, the women for noble ladies. They were modeling them on a Buddhist temple grounds for a television show. I left convinced that Mongolia's cultural and natural history both are unique on Earth.

2014. Wolf Week - Yellowstone Mar 3-9, 2014.

2014. Mar 3, Monday. Left 6.15 a.m., about daybreak.

Decent driving, dry road I-25 north, after snow on Saturday and Flurries on Sunday.

Later, wind gusts 25-30 mph, and a little blowing snow.

Gas in Cody about 10.00 a.m., and road north even better.

Blue skies and/or partly cloudy. Lunch in Sheridan at the information center, rest area.

On I-90 some wet spots, maybe icy. Reached Hardin, 3.15 p.m. pizza and milkshake.

2014 March 4, Tuesday. Up at 5.00 a.m., and took two hours to get off. Lots of ice on windshield. I-90 - wet and hard to tell whether wet or black ice, but lots of water

thrown onto my windshield by passing trucks. Later, and lower, got good dry road, at least in my lane. Sign before Livingston: Due to avalanche threat I-90 closed at St. Regis Pass (west of Missoula). Reached Gardiner about 11.30 and lunched at Mammoth Hot Springs. Nice day, some sun and bright on the snow.

Maybe 100 bison in groups of 10-20 from Gardiner to Mammoth. Returned to Gardiner and saw Jo Arney half an hour. Drove out to Lamar Ranch. Maybe another 75 buffalo on the way out. Wolf week leaders:

Sauna Baron, whom I have had before.

Shauna: sbaron@yellowstoneassociation.org

Charlie: cypylejr@aol.com

Carolyn Harwood, P. O. Box 463. Gardiner, Mt 59030

charwood@yellowstoneassociation.org

sent her New Env Ethics

Len Carolan, 31 Caroline Ave.

Setayket, NY 11733

very helpful volunteer, bus driver

ltcarolyn@optonline.net

sent him Green Fire and New Env Ethics.

The other volunteer and driver

Charlie: cypylejr@aol.com

2014. March 5, Wednesday

Up 4.45, breakfast at 6.00, out at 7.00.

Went to Slough Creek and walked out to Bob's Knob, between a quarter and a half mile, on packed snow. I took ski pole and carried tripod and scope, o.k., but had to watch my step, not to posthole in the snow.

Saw rather well in scope four wolves, off and on, eventually all rather bedded down in a rendezvous site, on something of a hill. Good light and well seen against the snow. Looking west and over the river. These were wolves in the Junction Butte pack. 869M (male), gray yearling. Had bad mange. 907F (female) a pup, yearling. Mangy tail. and two uncollared grey. only wolves have a number.

Below was an old kill site, with ravens on it. A fox came by the old kill site, nicely seen. Young bald eagle in a tree, overlooking the kill site.

After half an hour, somebody spotted two more wolves behind us (looking east) on a ridge, also of the Junction Butte pack. These were 890M Alpha male. Black. 870F Alpha female. Formerly in the Mollies Pack. These too rather well seen, and aesthetically positive, with the morning light on them and some clouds over them and over the ridge they were on.

890M was nicknamed "Patch" before he was radio-collared because of the pattern of hair loss due to his mange infection. His fur coat has returned and he seems healed of mange. He became alpha after "Puff," a past pack member, disappeared and one called "New Male" was killed by other wolves.

870F was born in 2008 or 2009. During the 2012/2013 breeding season 870F was injured and lost her position as alpha female of the Junction Butte pack. Later in 2013, she traveled with her neck pointed down, as if she is always smelling the ground. In November 2013 she seemed healed and regained her alpha status within the pack. Total of six wolves seen here.

Returned, pit stop at the Ranch, and drove east. 2 coyotes in Lamar Valley, so that makes already a three canid day. 3 common golden eyes on the river. Drove to the confluence. Some beaver activity seen here, cut logs. Bighorn sheep in scope in the distance, on the south side of the river. Golden eagle in flight in the sky. Golden eagles have a little more dihedral, and the head sticks out as much as the tail. Bald eagle wings are flatter and smaller head, almost a headless eagle with a tail.

At Soda Butte: 2 ravens picking at the bones of a carcass, a month old, but which had been deeply buried in the snow. Coyote passing by. We watched it 5-10 minutes. Returned to ranch, 11.00 a.m. Lunch and program and wolf and dog evolution.

One group went hiking to the wolf den site where I had been before, and the other hiked up to the Rose Creek release site behind the ranch. I did not go, since I had been to both before.

Junction Butte Pack. The most recently formed pack was named the Junction Butte pack in October 2012. Junction Butte is the name of a feature on the landscape. This pack began when 838M (original Junction Butte alpha male) dispersed from the Agate Creek pack with two females. In April 2012, the females disappeared but later that month 838M was seen with two new unknown females and an uncollared gray adult nicknamed "Puff", originally from the Blacktail Deer Plateau pack. During the first year, this pack had 3 collared wolves (838M, 777M, 823F) join the pack and subsequently die (2 killed by other wolves, 1 legally harvested in Montana), leaving the pack untrackable using telemetry equipment. When 838M died, "Puff" became

the alpha male. With numerous uncollared gray adults in the pack, identifying individuals and determining monthly pack compositions has proved difficult. After 870F lost her status as the alpha female during the 2013 breeding season, "Ragged Tail" paired with the alpha male "Puff" to become the new alpha female. At some point in October, "Ragged Tail" disappeared and 870F regained her alpha status; the fate of "Ragged Tail" is unknown. Around the same time, the alpha male "Puff" also disappeared (fate unknown) and "New Male" briefly acted as alpha male until he was found killed by other wolves (likely the 8-mile pack) at a carcass. He was identified by a distinctive scar under his right eye (seen during the necropsy and matched with photos from the Yellowstone Wolf: Project Citizen Science website). The only remaining adult male in the pack is 890M, who has paired with 870F as alpha. 869M still has a minor mange infection, 907F (newly collared gray female pup) has mange that is progressing, and 906M (newly collared black yearling male) is mange-free.

Good shower and repaired cracks in my fingers with SuperGlue. Went down to the bunkhouse for supper about 5.00 and discovered that three wolves could be seen off the back porch. 755M, dark, nearly black. 911M. also an uncollared black female. Two wolves challenged a big bull elk a couple of times, and he lunged toward them and stood his ground, and the wolves eventually backed off and disappeared over the ridge.

Also later a fourth wolf behind them, 889F, who had been limping. But I couldn't detect any limp, and they said it is getting well. But it was still too injured to stay up with the other three, and would go some, and then stop and rest. These four are a "group" within the Junction Butte pack, and if they stay together and have pups, they will be called a pack.

Note on black wolves: Melanism in the gray wolf, *Canis lupus*, is caused by a different melanocortin, a melanistic K locus mutation in North American wolves that derives from past hybridization with domestic dogs in Asia, has risen to high frequency in forested habitats, The correspondence between coat color and habitat is often attributed to natural selection but rarely is supporting evidence provided at the molecular level. In North American gray wolves, coat color frequencies differ between wolves of forested and open habitats throughout western North America, including Denali National Park and the Kenai Peninsula in Alaska, and much of the Canadian Arctic. These differences are especially dramatic between wolves of the high tundra that are migratory and follow barren ground caribou to their breeding areas, and wolves that are year-round residents in the neighboring boreal forest and hunt non-migratory prey. Dark-colored wolves are extremely rare in the tundra, but increase in frequency toward forested areas. The potential selective value of dark vs. light coat color has been suggested to include concealment during predation.

2014. The hikers that went up the Rose Creek to the release site had a double three dog day. Saw another fox.

2014. Evening program: Matt Metz. Research Associate, Yellowstone Wolf Project. There is a year round staff of ten. He does population biology.

014. In 1995, 14 wolves were brought to the park from Alberta, Canada, held in acclimation pens for 10 weeks, and then released. These Initial founder wolves, named for the geographic locales at which they were acclimated, were on Yellowstone's northern range, in the Lamar Valley and nearby. In 1996, an additional 17 wolves were transplanted from British Columbia and released in more widespread locations throughout the park. Total 31 wolves. In 1995–96, a companion effort to restore wolves to central Idaho occurred, using a simpler technique without acclimation.

The population peaked in 2003 at 174 wolves. The wolf population has subsequently declined, primarily because of fewer elk, also because of mange and distemper. There is some debate whether the fewer elk result from wolf predation or from other causes, such as two hard winters. Probably both, with extreme weather the biggest factor earlier, 130% of normal snowpack, and wolf predation the biggest factor later. The current wolf count is approximately 89 wolves, 41 on the northern range, and 48 in the interior. The present population is considered stable. A wolf's peak reproductive capacity peaks at four years, and declines thereafter.\\Mange graphs.

The northern population is much more seriously affected by mange than the interior population, presumably because it is more dense, and this spreads mange. Canine distemper comes in cycles, and almost all of the pups die. About 50% of the wolves that die are killed by other wolves.

Yellowstone Citizen Science lists 33 defunct packs, so they reform often. Bison in the interior are an important food source for wolves, especially in winter. But not of the northern wolves, who eat mostly elk. Up to 139 ravens have been counted at a wolf kill. A bear will take over a wolf kill, especially a grizzly, but even a large black bear. Over 100,000 people a year see Yellowstone wolves, and the total has reached perhaps a million over the years, since reintroduction.

2014. March 6, Thursday. Breakfast 6.00 a.m. some rain in the night. Temperature 37° Out at 7.00 a.m., driving east. 2 coyotes. 1 fox, presumably the same one seen yesterday. ravens on something, probably a buried carcass

Cougar kittens are born mostly in September and October, but can be born any month of the year. Carolyn has seen cougars in the park several times.

Common goldeneyes, several of them, which is less common than the Barrows. Reached Round Prairie West. ravens, one eagle, later an adult bald eagle on a recent carcass. clear lines of tracks in the snow above the carcass, but no wolves seen. Others had seen two wolves earlier. One mountain goat in far distance, barely seen until it turned so you could see its profile. Looked like a patch of dirty snow on snow, white on white. A wolf can eat 20 pounds of food, and may gorge themselves to avoid scavengers getting their kill.

Some rain. Fox seen again on return, and it crossed the road just behind the van. Lunch, and talk about wolf pups and their stages of growth. More rain. One group went to Pebble group hiking on snowshoes. Another went to Specimen Mountain. I showered. Rain turned to snow. The Virginians went to Cooke City and saw one moose, and the two wolves on the carcass at Round Prairie.

Evening program, George Buman. I had him as an instructor in a previous year. displacement - communication about what is absent.

2014. March 7, Friday. joined by Danielle Oyler, who is leading Wolf Week next week. went to Bob's Knob, and saw the Junction Butte Pack. 870F Alpha, gray. 870F was injured in a tie while breeding, by another wolf, in the neck. A sister became for a while the Alpha female. But she recovered. 890 M black uncollared pup, which at times tried to play with the 890 black, jumping around at and on it, but 890 M wasn't much interested in play. Others had seen 5 wolves, I saw only three.

A dozen or so mallards in the river. 2 beavers seen swimming in the river. We listened the radio signals of 870F and 890M on the researcher's receiver. returned to ranch, then walked out on snowshoes, in bright sun, to cottonwoods out in the valley and towards the river, to see where beavers had cut some large cottonwood trees. returned to ranch, and I got out of my long johns.

lunch. Drove east. bighorn sheep on the other side of the van, which I couldn't see. Snowshoe walk to a carcass, largely buried, and talk about the carcass, winter kill. nice antlers. Maybe half a mile. More trouble here to avoid postholing - falling into holes in the soft snow. Others did, especially in an area where the snow had covered sage brush and made them invisible. getting colder, and graupel snow.

Returned. Drove east and looked at the carcass of yesterday at Round Prairie, from a point on the Pebble Creek road, but no wolves. 5 eagles, 3 on the carcass. But it was hard to tell if they were immature bald or golden eagles. ravens, magpies. Returning, coyote digging in the snow, and pulled out a big bone. came quite close the road and well seen. 25% of the wolves have radio collars, which are put on with helicopters, and tranquilizer darts. They don't like to dart the same wolf more than 2-3 times.

Talk on the van by Rick McIntyre. Rick McIntyre has been watching wolves 17 years, claims 4,800 days of observation. Pack size is 4-20. The bite of a wolf can exert 1,000 pounds of pressure, twice that of a German shepherd. 4-5 years of age is their average life span.

snow fleas. Snow fleas are not fleas, but springtails: hexapods with two tail-like appendages that fold up under the body and then extend to fling the springtail into the air. They live in soil, leaf litter, and under bark, where they feed on plant material, and perhaps scavenge some animal matter. On warm days in late winter, they emerge onto old snow, feeding on bacteria and plant material. They mate in spring, and females lay eggs in the soil. Nymphs grow rapidly, and by the following winter they look like adults.

<http://www.esa.org/esablog/research/snow-fleas-helpful-winter-critters-2/>

or

<http://www.ext.colostate.edu/pubs/insect/05602.html>

Dinner. Evening talk by Cheyenne Burnett on mange and a Yellowstone Citizen website. Mange is caused by a mite of European origin. *Sarcoptes scabiei*. Mange was introduced deliberately to kill coyotes in the early 1900s. But they never saw mange in the wolves until 2007. Why? Not sure. Yellowstone Wolf: Project Citizen Science. www.yellowstonewolf.org has a history of the packs.

2014. March 8, Saturday. Up at 5.30 a.m., virtually cloudless sky, full or stars Venus prominent on the eastern horizon. Left 8.15 a.m. 14°, by far the coldest morning I was here. Had a lot of hard scraping to do on the jeep windshield and windows, and eventually let it warm up 15 minutes before moving it..

5-6 miles west of Tower Junction, but before Blacktail Plateau, there was a group watching wolves at great distance. Two grey, and one black, three wolves, but you couldn't really tell they were wolves until they moved. Junction Butte pack, according

to one researcher there. So the wolves had moved considerable distance since yesterday.

Frequently bison on the road, and at times it was difficult to get by them. When they went off into the snow, they were frequently breaking through the snow and falling, stumbling. Reached Gardiner. Called Jane. In Paradise Valley, 15 mule deer, close to the road. I turned around and watched them a while. Nicely seen white with black tipped tails. White-tails are here, but only the underside of the tail is white (which goes up like a flag when they run).

Lunch in Livingston, windy, cloudy bright. Two dozen deer seen from I-90, probably also mule deer, I couldn't be sure while driving. Reached Super 8, Hardin, about 4.00 p.m. \$ 77.14. 406-665-1700. I-90 was dry all the way, and much easier driving than last Tuesday.

2014. March 9, Sunday. Changed to Daylight Savings Time. Left 6.15 a.m, 41° F, and drove in the dark, dawn at the Wyoming line, sunrise a little before Sheridan. Some high spots in here were 53° F, higher spots warmer than the lower ones. Dry road and landscape with much less snow than a week ago. No wind. Reached Casper, 10.15 a.m., and now windy. Reached Wheatland, and lunch. Now high winds, blowing so hard it was difficult to get out of the car. In one spot there was low visibility due to sand and dust in the air. I-25 signs: Extreme wind danger, 70+ mph gusts. 50+ at Cheyenne. A semi had blown over and was in the media strip, with rescue truck still there, not far from the Colorado line.

Temperature in the 60s, and by Fort Collins 70-72°. Home about 2.30 p.m.

2014 end

2015. start

May 18-26, 2015 - Wuhan, China. Conference on Chinese Environmental Aesthetics

May 18, Monday. Up at 2.00 a.m. and off at 2.45 without breakfast. I had to take the Jeep to Harmony Transfer Center because Green Ride did not have enough pickup drivers. Shonny will pick up the Jeep later today. Reached Denver 4:35 am. Take off to Detroit 6.10 a.m. and uneventful flight.

Beijing flight delayed for takeoff about 40 minutes because they don't want us arriving before our allotted time. There is a strong tailwind and we could arrive 45 minutes earlier than expected. Flew far north over Hudson's Bay, over the polar ocean and

north of Alaska and down across Siberia. All of which I never saw, though it was daylight outside, the windows were closed. Ground speed, 642 mph. Tail wind 120 mph - and you usually don't have tail winds on this flight
Altitude 33,000 ft. later and most of the trip 39,000 ft. Distance 6,729 miles.
14 hours. I had a good aisle seat with window seat next, the two seat row.

My entertainment screen wouldn't go off the bright welcome screen, a nuisance. They tried to reset it several times. It worked once but soon returned to the unwanted bright screen.

2015. May 19, Tuesday - though there never was a night. Four hours in Beijing, and the Wuhan plane was about an hour late. Ate one of Jane's sandwiches for supper. The domestic gate was very crowded and minimal English. We were put on a bus, crowded, and taken out to the plane. China Southern Airlines, a Delta affiliate.

Met at the airport by Xie Meng Yen and Gao Shan. She instantly took my photo with the two of them (used a bystander) and sent it out to all her friends on the Chinese version of facebook. Taken to a car with a university driver, and driven 45 minutes to the hotel. On the way in drove over the famous long old bridge over the river. Decent hotel, on campus. Got to bed about 1.30 a.m. 1015.

2015. May 20, Wednesday. Up at 7.00 a.m. and decent sleep. Breakfast in the hotel. It proved hard to get coffee, or milk. There was a hot yogurt of some sort. Decent food, and I preferred hardboiled eggs, some weiner saussages, and some of the breads that weren't bad. I have the day before the conference starts this evening with a dinner.

2015. They took me around the campus, on a long walk. A sort of forested campus. There are more trees on the campus than in the rest of the city.

Went to an art museum with Gao Shan. large portrait of Mao. large painting of Chinese Soldier overlooking the Yellow River. and an interesting guide - a volunteer from the University studying English.

lunch - with the Dean of the College Ming Zhang, went to MIT. nap in afternoon.

evening - dinner, big round table, two of them and many of the international guests had arrived.

Arto Haapala, University of Helsinki
Helmi Järviluoma-Mäkelä, University of Eastern Finland (formerly
Joensuu, does a lot with native peoples
Yrjö Sepänmaa, University of Eastern Finland (formerly Joensuu)
Wu Zin, Chinese, teaches at William and Mary, Williamsburg, VA

Yoshio Shmizu, older, Japan

Main conference host: Chen Wang-heng, School of Urban Design at Wuhan University

2015. May 21, Thursday. spoke at 8.30 a.m. supposedly the kick off speaker. went o.k. They got the PowerPoint to work well off my flash drive. But they cut me to 25 minutes. Earlier I had been told 30-40 minutes, but they had some kid-student-who was a zealous time keeper. I don't think I would have come across the Pacific to speak 20 minutes. I just dropped the last two sections of the paper. In the course of the conference, half the speakers were forced out by this time keeper.

Conference papers are not detailed here. See conference program in the Conference file.

2015. Friday, May 22

I spent the morning in conference session. Speakers spoke in Chinese, with some English summary/translation, or in English with some Chinese summary/translation. lunch at the restaurant 15 minutes walk away.

Afternoon: tour of the city arranged for by Zhao Hongmei. She wrote the book about me:

Zhao, Hong-mei. Mei Xue Zou Xiang Huang Ye: Lun Luo Er Si Dun Huan Jing Mei Xue Si Xiang (Aesthetics Gone Wild: On the Thought of Rolston's Environmental Aesthetic). Beijing: Chinese Social Science Publishing Co., 2009. ISBN 978-7-5004-8146-1.

She also translated "From Beauty to Duty: Aesthetics of Nature and Environmental Ethics," in Arnold Berleant, ed., Environment and the Arts: Perspectives on Environmental Aesthetics (Aldershot, Hampshire and Burlington, VT: UK: Ashgate Publishing, 2002), pages 127-141.

Reprinted, translated by Zhao, Hongmei into Chinese, "Cong mei dao zeren: ziran de meixue yu huanjing lunlixue (From Beauty to Responsibility: Natural Beauty and Environmental Ethics). Pages 24-40 in Hubei University, Hubei Center for Morality and Civilization, Jiazhilun yu lunlixue yanjiu (Axiology and Ethics) (Beijing: Chinese Social Science Publishing Co, 2009). ISBN 978-7-5004-7967-3.

She is about 45 years old, teaches at Hubei University in Wuhan, which she pointed out to us. She has a son in college.

Yang Yinzi, who wrote the book: Lunli De Shengtai Xiagglu, Ecological Direction of Ethics: Research on Holmes Rolston's Environmental Ethics, 2010, a woman, was not present.

2015. May 23, Saturday, last conference day

Google is blocked by the Communist government. But various of them seem to know how to get around it. E-mail in the hotel no longer working.

Breakfast and back to last day of the conference. I managed to send an e-mail to Jane on a student's computer. Cloudy day.

On the poster, the mountain is Mount Everest, for which their name is Jolomo Lungma, or Qomolangma. The Tibetan name for Mount Everest is romanized as Qomolangma, "Holy Mother." It is also popularly romanised as Chomolungma and (in Wylie) as Jo-mo-glang-ma or Jomo Langma. The official Chinese transcription is simplified is Zhumùlangma Feng ("Chomolungma Peak"). It is also infrequently simply translated into Chinese as Shèngmu Feng, "Holy Mother Peak"). In 2002, the Chinese People's Daily newspaper published an article making a case against the use of "Mount Everest" for the mountain in English, insisting that it should be referred to as "Mount Qomolangma", based on the local Tibetan name. The article argued that British colonialists did not "first discover" the mountain, as it had been known to the Tibetans and mapped by the Chinese as "Qomolangma" since at least 1719. The building on the poster is the Forbidden City.

Feng Su (Sue) wants comments on Prof. Chen's book. She translated the book.

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suesue0606@qq.com

2015. May 24, Sunday. Quick breakfast, 7.30 a.m., taxi, 7.45, to train station, with Gao Shan. There at 8.00 a.m., Nice train, high speed train, at 8.36 a.m. Train to YiChang Dong, smooth ride, 2 hours. Before the high speed train, the ride was 5 hours. Lots of washing seen hanging out the apartment porches. Gao Shan's husband is doing a Ph.D., at the University of Wisconsin in Milwaukee, on Global Information Systems.

The city I was in is Wuhan, which is in Hubei province. Three Gorges Dam is also in Hubei province. Went by lots of tall apartment buildings, better and worse. Also

industrial areas, frequent construction. Sizeable fields of corn. Extensive rice paddies. terrain got more mountainous. some gorges. went through Fairy Stream Tunnel. reached Yi Chong Dong. taxi to bus station, forty minutes, then bus. reached the hotel. Wu Chang, the name of the town where the hotel is. Bus just put us off with 200 yard walk to the hotel. Fancy hotel. Checked in 10 minutes in hotel and walked some distance in some confusion about how to catch the boat. Finally reached a place where we could buy tickets. With more confusion about which bus to get on to go to the boat.

Reached the boat and had to ride down a high-water-low-water elevator cable car and finally got on the boat. Got on the upper deck, open, where we could see better, and for which we had to pay more. Boat cruised maybe an hour to Xi Ling Gorge, a dangerous one, now flooded, and then turned around. Gray skies, hazy with pollution. stark drawdown scar line a couple hundred feet thick. on the return not far from where we started, they claimed you could see the upper rim of the dam - not very evident in the haze.

Returned to the hotel. Decent hamburger while Gao Shan had noodles, and was much amused by our having Western food and Eastern food at the same meal.

2015. May 25, Monday.

Walked down to center area, as yesterday. Waited until 8.00 a.m., to get tickets, window not open, though we were told the bus was leaving at 8.00 a.m. Got on bus. Passed lots of power lines, from the generating stations. Drove over something crossing the river, looked light it might be some part of the dam. Bus drove down, then climbed a hill. Got to an area where we got off the bus and rode escalators and walked some to get to a high viewpoint.

Dim view of the dam from the top. Huge chunk of granite on display, said to be an unusually good granite, well-suited for situating the dam and for use in building the foundations of the dam. A "divine dam site" !!! Walked to another site, above the dam, where you could see two ships in the locks. Long walk down, and eventually caught the bus. To third sight, closest to the dam.

You were always seeing the dam through a haze. Walked 15 minutes in to the viewing site, and 15 minutes back. See separate notes on the Three Gorges Dam. Caught a bus back to the center. Went across a big white suspension bridge going and coming. Back to the hotel with a good walk and got bags, and caught # 8 bus with some wait. Bus went through long tunnels

May 24, Sunday, train to Three Gorges boat cruise.

May 25, Monday. bus for views of dam. In eight days, I barely saw once a tiny blue bit of sky. train back to Wuhan. Good ride. Good seat.

Reached Wuhan. Train station very crowded. 250 people in line to get a taxi. But they pleaded that I was a foreigner, and we got a taxi in ten minutes. I was met at the train station and taken to my former hotel, but I had to transfer to a new one, in town. They said it would be no problem transferring the Chinese money I had been given for the air ticket (some of which I was spending for the Three Gorges Trip). But their banks were closed.

Made the hotel transfer and then had a meal with Zhu Jie, my principal host, drove Volkswagen, and Qi Jun, to whom I gave the money. He said he would transfer it to Gao Shan and her husband would transfer it to me in the U.S. Which did happen, but with some hassles a week later, with Wells Fargo hardly knowing what was going on. So-so night in a hot room, but the e-mail did work.

Gao Shan
Room 406 B2 Building
R&d Residential Apartment
No. 366 Linqun Street
Suzhou Dushu Lake
Science Education & Innovation District
Suzhou, P.C: 215123 Jiangsu Province
CHINA

May 26 Tuesday, flew home

Up at 4.00 a.m., Swiss miss and cheese crackers for breakfast. Picked up at 5.30 a.m. Raining hard. They helped with baggage. Plane take off 7.50 a.m. Decent cup of coffee on the plane. Reached Beijing. Hassle getting through the airport. I had to pick up my luggage and wheel it, in a cart, about a quarter mile but one of the staff was very helpful leading me and helping me.

Got on the trans-Pacific plane, Delta, with little time to spare, but they we were held on the runway for an hour—didn't want us to arrive too early in Detroit. Plane was only two-thirds full. I had an aisle seat with an empty seat beside me. Flew polar route as before, at 39,000 ft., ground speed 550 mph. Reached Detroit.

end of Wuhan, China trip.

2015, end

2016. Rolston Endowed Chair in Environmental Ethics at CSU. Shockley, Kenneth, Inaugural Lecture in Holmes Rolston III Endowed Chair in Environmental Ethics and Philosophy, October 14, 2016. "What We Need to Flourish: Rethinking External Goods and the Ecological Systems that Provide Them." 1 hour, 11 minutes.

How should we balance the need for development with the need for environmental protection? Too often development and environmental protection are thought of as being at odds. Shockley argues that just as development requires we support robust social systems, so it requires we support robust ecological systems. Rather than being at odds with one another, development requires robust environmental protection.

start 2016

2016. January 23, 2016. Mixed up hike/stroll with philosophers. Fred Johnson, John Didier, Fred Enssle. We were to do Devil's Backbone, and found it closed due to mud and ice. Confusion, and we decided to try Coyote Ridge Trail. But we found the footpath icy, although the landscape wasn't that bad. Then we tried to find Cathy Fromme Prairie; we could see a parking lot from Taft Hill, but couldn't figure out how to get to it, got lost in subdivision. Eventually found it, and walked a hour or so, first through the trail underpass under Taft Hill, but that turned back into town, so we returned and walked east. Nice day. Lot's of bikers, joggers, and people walking dogs. One good raptor, probably a golden eagle. Some prairie dogs. Landscape and our street has had snow on it for two months—even though 2015 was the hottest year on record in Colorado.

2016. January 29. Up Poudre Canyon with Rolston. Nice day, though snow is promised tonight. Left about 9.00 a.m., in sunshine. Walked around the Gateway Park 45 minutes or so. There is a bird feeder in the backyard of a house there (ranger's house) that draws some birds. Lots of Stellar's jays, sparrows. Rolston got his feet and shoes wet and pants up to his knees from falling into snow, while I was watching birds. Poudre is over half surface frozen.

Meandered some more and lunched in the area about the fishery where you often see bighorns, but saw none. Cloudy bright and dry until about the Case's, then light rain,

and towards the end of lunch, light snow. Drove on to Big South trailhead, now solid snow cover but clear, if wet, road. Magpies, ravens.

The canyon as a whole looks pretty good after the fires a couple years back. Parts of the canyon are evidently burned badly, however. Many memories of the canyon in former years and of things I once did that I can no longer do.

2016. February 2, 2016. Snowstorm, lasted 24 hours. 17 1/2 inches of snow measured on the patio. CSU and all schools closed.

2016. February 27. Stroll in Riverbend Ponds Natural Area with philosophers. Fred Johnson, John Didier, Fred Enssle. Nice day. Two males widgeons, nicely seen. I haven't seen a widgeon in several years. Two pairs of ringbill gulls, well seen. One was flying and nicely mirrored over the still lake in its acrobatics. Hundreds of geese. One robin and several redwing blackbirds. But less bird activity than I might have thought. None on the river.

Crocuses. Last couple days of February there were 1-2 of the old ones near the porch. By first week of March we had 12-15 of the new ones several feet out from the porch and by March 8-10, maybe thirty in splendid bloom. Maybe 35 violets in bloom in the back yard north of the lilacs.

2016. March 13, Sunday - March 19, 2016. Yellowstone wolf week. March 13, Sunday. Left about 7.00 a.m, having just changed to Daylight time. Sunrise about when I hit the I-25. Apprehensive for the week about Shonny facing tongue and neck surgery.

Perfect day for the driving. Blue sky, some lovely clouds. No snow on the plains, except in a few hillside blow areas, or at snowfences. Later, cloudy bright. Lunch at Sheridan visitor center, 1.15. Reached Hardin 3.30 p.m. Counted 85 antelope. wind some gusty spots to 35 mph+

2016. March 14, Monday. Off about 8.00, overcast. Hard rain through Billings area and some frozen rain but road only wet. Then rain stopped and cloudy. Some blue and considerable sun. Crazy Mountains spectacular with snow cover, clouds, and blue sky. reached Gardiner about 11.30. 6 elk in Yankee Jim Canyon. Entered the park

elk

and 24 bison 20 bison driving to Mammoth. There was a grizzly on a bison carcass at Blacktail Ponds, nicely seen with some sun, and then a blasting storm for 30 minutes,

too windy to watch with scope or try photos. Then sun again. 2 coyotes. The bear had pulled the carcass out of the ice, ate on it and sat on it for two days. Lots of ravens. Eventually the bear left.

Further down, toward Tower, saw wolves (with many others watching). The Prospect Peak Pack. Eventually saw three grey and once black nicely in the scope. The wolves were near, or at least in the scope, seemingly near 30 bison. This was luck. and we did not see this pack again during the week. Continuing toward Lamar 60 bison.

Reached the ranch and moved in, cabin 8

Evening. Introductions and welcome to the week. Instructors: Shauna Baron - whom I have had several times before. Resident Instructor, Yellowstone Association Institute

Rob Bush, Campus Director. manages the ranch, which they now call a campus. Career in the Marines, retired, did a few other things, and took this job. He had some interests in science and religion and recognized who I was, especially the Templeton Prize, and he called to the attention of the group that I had won it.

2016. March 15, Tuesday up at 5.00 a.m. Breakfast 6.00 a.m. off at 7.00 a.m.

Found the Junction Butte pack. 5 greys, 2 black.grey collared male - 911M

black pup (which means yearling) with often raised tail, which was new to me.

On tail positions see diagram, p. 91. in L. David Mech and Luigi Boitani, eds., Wolves: Behavior, Ecology, and Conservation. University of Chicago 2003. in CSU Library.

with diagram from Schenkel, R., 1947 Ausdrucks-studien an wolfen [Expression studies on wolves] in Behavior 1:81-129 [translation from German by F. Harrington]

This is on a David Mech website: <http://www.davemech.org/schenkel/>

"Below you can download a pdf version of Schenkel's 1947 "Expressions Studies on Wolves." This is the study that gave rise to the now outmoded notion of alpha wolves. That concept was based on the old idea that wolves fight within a pack to gain dominance and that the winner is the "alpha" wolf. Today we understand that most wolf packs consist of a pair of adults called "parents" or "breeders," (not "alphas"), and their offspring."

2016. March 16, Wednesday. Shauna found wolves on the skyline. The Junction Butte Pack, the same pack as yesterday. saw eight wolves at once on the skyline, nicely seen profiled, sometimes in full sun, aesthetically great. And, with Shauna's spotting, we found these wolves ourselves, with no help from anybody with radio. Some upraised tails again. They gathered close and Joshua said they would howl. He claimed to hear a very faint howl. I did not hear anything.

Specimen Ridge. So called because it contains excellent petrified tree remains,

some still upright. The rock is andesite, not the more usual rhyolite or basalt here.

Back to Soda Butte, at a stop called Hitching Post (where horses are unloaded from vans for trail riders). We walked out a bit to a rise to see four wolves nicely seen profiled against the snow. Well seen. This is the Lamar Canyon Pack. I saw only four but others saw five, the whole pack.

Evening talk. Brenna Cassity, NPS. wolf project. She keeps the statistics. 100 wolves in 11 packs. From 1926-1995 no wolves, and elk population exploded. The young males and females may be the more aggressive hunters, more so than the older dominant wolves, though the older ones may make the kills. Canine distemper, kills half the pups, a virus. One worry is that the wolves become somewhat habituated to seeing humans around, and this makes them easier to kill by hunters when these wolves move outside the park.

2016. Saw the Lamar Canyon Pack again. I saw three wolves, mostly 2 blacks, sometimes well. Others saw four. I did hear one howling, briefly but clearly. After a half hour or so, the wolves were more or less bedded down, barely in sight. 6-8 bighorns, three nicely profiled on the skyline. Talk by Rick McIntyre. Roosevelt got some great photos and a couple movie clips 2.30 p.m. All five of the Lamar Canyon Pack came in a fast trot past the bunkhouse across the river. Nicely seen profiled against the snow. 14 wolves seems to be the maximum size, beyond which packs will split. 8 wolves is the best pack size for killing elk. 10 is the best size for killing bison.

2016. Taiwan 2016. 2016. May 30, 2016. Crossed the International dateline maybe 4.00 a.m., when 4.00 a.m. May 31, skipped 24 hours to suddenly become June 1, 4.00 a.m. So I lived only about 4 hours of May 31, and my June 1 was cut short on the front end by 4 hours. A festive welcoming dinner, moderated by Dr. King (chief forester in Taiwan, about 30 others, members of her board. High Speed Rail to Yunlin The provinces here have names and often the central city has the same name. four provinces down the east coast. Once I was celebrated with a big supper around a spinning center table; they all wanted me to taste this that brought to be with their spoons..

2016. June 3, Friday. Wind turbines. Taken to Formosa Plastics, with 90 smokestacks, emitting pollution. Which they say has been 90% reduced. Looked at oysters on the seacoast right outside the plant, which have been deformed by the plant's pollution. The coastline once preserved to protect them has sunk and the plant and oysters are closer than anticipated.

This area is called How-May-Li. There has been a loss of about 400 meters from

shore to ocean. The sand is disappearing and the lagoon is losing its water. There used to be thousands of pine trees and redwood on the east side of the shore, but now they are all gone. Fishing industries have declined, and typhoon damage is worse.

The issue seems to be that when the port of Pu-Tai was built ten years ago, they dredged and moved sand to the north to make the port deep enough for big ships. That made sand from the south, where How-May-Li is, flow north. There are several jurisdictions involved and protests are passed around from one jurisdiction to another. The protestors want an embankment on the sound of Pu-Tai port toward the ocean side to block sand flow northward. Saw mudskippers, quite active. Visited a wetland overlook, with the plastics plant in the distance.

Interviewed by a TV reporter. NTDTV. New Tang Dynasty TV. The Tang Dynasty, A.D. 618-907, was the most glistening historic period in Chinese history. Visited a farmer doing hydroponics, raising some kind of greens. Also farm gardens nearby raising celery and other things.

2016. June 4, Saturday. Betel nut shops with flashing lights. several sections of elevated highways to permit continuing use of the land below. reached HSR station, Tai-Chung station. a rather cosmopolitan station, with a McDonalds, a Muslim prayer room and a "Muslim friendly toilet"?? "what you need in a Muslim-friendly toilet is water to wash yourself; you need a lot of room; and the orientation has to be correct, and there are some other factors as well."

HSR train to Taipei. Once the sign at the end of the car read: Current train speed is 246 km per hour (= 153 mph). Taiwan does not have a replacement birth rate. Birth rate is 1.03, not 2.2. The birth rate has dramatically declined in the last 10 years. From a Voice of America broadcast, August 16, 2011. Taiwan announced this week that its fertility rate had fallen below one baby per woman, worrying the government about its future supply of manpower and brain power. Taiwan's rate of 0.9 is now the world's lowest, but other developed Asian economies are close behind.

Taiwan's fertility rate of 0.9 puts the island in the same league with other Asian territories that have industrialized and urbanized. The Chinese territory of Macau recorded a fertility rate of 0.92, and the next lowest rate belongs to Hong Kong at 1.07. Singapore, Japan and South Korea also have some of the world's lowest birthrates. Officials in Taipei partly blame the Chinese zodiac calendar for the drop. 2010 was the Year of the Tiger, considered inauspicious for births.

But the drop is also part of a broader regional trend. A shift away from traditional rural

lifestyles has allowed women easier access to university education and the time-consuming jobs that follow. Pricey childcare and later education in already-expensive Asian cities strain family budgets. Chinese people have traditionally preferred large families, but some say that, in Taiwan, Hong Kong and Singapore, career advancement has overtaken that goal.

Train through a nice gorge, forested, rocks in the river. Often rather mountainous, we rode along the Pacific Ocean. Some distance out, Turtle Island. Quite scenic.

Saw Taro, a food plant with large leaves. *Colocasia esculenta* is a tropical plant grown primarily for its edible corms, the root vegetables most commonly known as taro. It is believed to be one of the earliest cultivated plants.

Taro was probably first native to the lowland wetlands of Malaysia (taloos). Estimates are that taro was in cultivation in wet tropical India before 5000 BC, presumably coming from Malaysia, and from India further transported westward to ancient Egypt, where it was described by Greek and Roman historians as an important crop. Also in India.

Saw pigeon peas growing in fields. The pigeon pea (*Cajanus cajan*) is a perennial legume. Since its domestication in India at least 3,500 years ago, its seeds have become a common food grain in Asia, Africa, and Latin America. It is consumed on a large scale mainly in south Asia and is a major source of protein for the population of that subcontinent. Being a legume, the pigeon pea enriches soil through symbiotic nitrogen fixation. The crop is cultivated on marginal land by resource-poor farmers.

Pigeon peas are very drought-resistant, so can be grown in areas with less than 650 mm annual rainfall. With the maize crop failing three out of five years in drought-prone areas of Kenya, a consortium led by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) aimed to promote the pigeon pea as a drought-resistant, nutritious alternative crop.

Then I was taken to a 300 year old tree, hanging over the road. *Bischofia javanica* blume = *Bischofia trifoliata*. Bishopwood, javawood, toog. Evergreen tree, milky sap. Leaves alternate, long-petioled, trifoliate (3 leaflets); leaflets shiny, bronze-toned, oval-elliptic, male and female flowers on separate plants. Fruit pea-sized, berrylike, fleshy. The natural occurrence of *Bischofia javanica* extends from India and the lower Himalayas through China, southern Japan and tropical Asia to north-eastern Australia and the Pacific. It is locally planted in its natural area of distribution and elsewhere, including East Africa and South Africa. In Kenya it is planted as a plantation species, e.g. in the Kakamega area. Locally it has become naturalized in evergreen forest. Various uses of its parts. Introduced to Florida for ornament, and has become weedy there. Saw Betel nut trees. Very tall, thin, you might first mistake

them for palms. Also called areca nut. Chewed, much by truck drivers, but ruins their teeth and is carcinogenic. not really a nut but a berry. Often chewed with some leaf wrapped around the seed. A stimulant. Chewing dates back thousands of years.

The Japanese had a training airport for training Taiwanese to be suicide bombers in this area. Driven to the Dongshan River Ecoark Park on the Dongshan River. Guide, and took boat ride for maybe half an hour.

Riding back through the villages and towns with endless shops I was reminded of Hitler's remark that England is a nation of shopkeepers.

2016. June 8, Wednesday. Taken to meet environmental officials at the Presidential Palace.

Chung-Chuan Chen, whom I met in the presidential palace, will attend my lecture at National Taiwan University as a commentator. He went to Harvard.

Kuen-yuh Wu, the legislator. He apparently was not directly elected but the winning party gets to appoint several more legislators and he was one of them.

Tung-Jye Wu (TJ). Legislative assistant for new legislator Kyen-yuh Wu.

Tsai Ing-Wen won the election and has become Taiwan's first female president. Her party is the Democratic Progressive Party (DPP), and her win is only the second time in Taiwan's history that the ruling Kuomintang (KMT) party has been dethroned.

Chen Chien-Jen, an epidemiologist known for his influential studies on the dangers of arsenic and hepatitis as well as his handling of the SARS outbreak in 2003, is the island's vice president. SARS initially emerged in mainland China but quickly spread across many parts of the world. SARS was exacerbated in Taiwan because the United Nations recognizes China's claim that Taiwan is part of China, and thus refuses to give it an independent seat at meetings of the World Health Organization. Excluded from international discussions and sample sharing, Taiwan's outbreak spiraled out of control even as authorities elsewhere were getting a grip on the epidemic.

Chen, who was appointed health minister as the epidemic was escalating in Taiwan, headed containment efforts. He bolstered attempts to isolate patients so as to prevent spread in hospitals, and boosted screening for fever. Chen attended the National Taiwan University, and received his Sc.D in human genetics and epidemiology from Johns Hopkins University. He began his medical career by researching hepatitis B, and helped raise awareness about vaccination for the disease in Taiwan. Chen further researched on the liver cancer risk of people with hepatitis B. Chen also discovered a link from arsenic to blackfoot disease. The

arsenic research lead to the revision of international health standards for arsenic exposure. Chen served as Minister of Health from 2003 to 2005. Chen led the National Science Council from 2006 to 2008.

Visit with the vice-president and other dignitaries. Visit was to have been half an hour but he extended it another 15 minutes. He had in hand a paper with some quotations of mine on it. He had done his homework. He is Roman Catholic. The Chinese refused to give the Taiwanese information on the SARS virus, so he said he would find out and went to medical authorities in the U.S. under whom he had studied and found out.

2016. June 9, Thursday. Taken to Yehliu Geopark. Yehliu is a cape in Wanli District, New Taipei, Taiwan. The cape, known by geologists as the Yehliu Promontory, forms part of the Dailiao Miocene. There is a long promontory, about 1.7 km; the widest area in between is shorter than 300 m. There is a lot of rock carving caused by wave attack, rock weathering, earth movement and crustal movement, resulting in an unusual sea-erosion geological landscape. There are many "mushroom rocks" where a rounded head (harder rock) sits on top of a pedestal (weaker rock eroded away some). Took boardwalk half a mile to see "The Queen," a rock formation on the coast suggesting a queen.

Was driven circling around the north coast and stopped at Stone Trench of Laomei, and Green Reef. North Coast of Guanyinshan National Scenic Area
The Laomei Stone Trench Coast is located at Northeast coastline in Taiwan. The Stone Trench was formed when the coastal strata uplifted and the softer parts of the coral stone were eroded away by wave action. The trench is formed of the harder stone that was left. They will be covered with seaweed on March and April every year.
Green Reef Coast. Laomei Green Reef is a beach located at north coast of Taiwan, famous because of its wave-cut volcanic lava covered with green seaweeds.

Circled around Yangmingshan National Park. In Taipei, saw "101" then the tallest building in the world and built like a pendulum to withstand earthquakes..

2016. June 10, Friday. Driven to see Yang-Ming Shan National Park, with volcanic activity. is. I was here on November 14, Friday, 2008.

Taiwan has three deer:

1. Formosan sika deer. *Cervus nippon*. Spotted deer. The sika deer was previously found from northern Vietnam in the south to the Russian Far East in the north, it is now uncommon in these areas, excluding Japan, where the species is overabundant.

The Taiwan Formosan sika deer is a subspecies, endemic to the island of Taiwan. The Formosan sika, like most of the terrestrial fauna and flora of Taiwan, arrived on the island during Pleistocene glacial periods when lower sea levels connected Taiwan to the Asian mainland.

2. Formosan sambar deer. *Rusa unicolor*. The sambar is a large deer native to the Indian subcontinent, southern China and Southeast Asia. The sambar deer (*Rusa unicolor*) population in Taiwan has expanded rapidly in the last 20 years, Population estimates are typically made by noticing how much tree bark they eat.

3. Formosan barking deer. Reeve's muntjak. *Muntiacus reevesi*. The Formosan subspecies is *Muntiacus reevesi micrurus* (Taiwan). A small deer native to China. They are typically only 16 inches in height at the shoulder, although some individuals have reached 31 inches. Males develop small two to three inch antlers and inch long tusk-like upper canine teeth, which are used both for fighting and defense. Females develop smaller canines and pedicels (small bony knobs) instead of antlers. These unusual animals are sometimes called 'barking deer,' due to the loud bark-like sound they make when alarmed. I glimpsed one in Kanha National Park in India, March 5, 2013. Impressive ferns in Taiwan, which they eat, as did I. Also Tree ferns. Four Sulfide Hill, or the Devil's Place. The area was mined for the sulfur by the Japanese, also by Chang Kai Shek. Walked around some here, including a dicey walk over a makeshift bridge to see some ruined mill sites.

Many tree ferns. Some big ones. *Cyathea lepifera*. *Cyathea* is a genus of tree ferns, the type genus of the fern order Cyatheales. They are mostly terrestrial ferns, usually with a single tall stem. 'Flying Spider-monkey Tree Fern' - the species gets this name from the uncurling of new fronds looking like monkey arms.

Visited a sheltered picnic area, with memorials to Syunichi Sasaki Syuniti (Shun'ichi) Sasaki (1888–1960), Japanese botanist, and Robert Swinhoe (1836-1877) The Japanese occupation was 1985-1945. Robert Swinhoe was an English biologist who worked as a Consul in Formosa. *Spilomis cheela*. Crested serpent eagle. A noisy bird. Flying home crossed the international dateline, so got to live Friday, June 10 a second time. The flight is only 10 hours coming back, with tailwind. Entered the USA in Vancouver, through U.S. customs and immigration there.

2016. June 15, 2016. TAIPEI -- A magnitude 4.3 earthquake rocked Eastern Taiwan Tuesday, the Central Weather Bureau reported later that day. The tremor occurred at 5:40 p.m. and was centered 39.1 kilometers southwest of Hualien County Hall at a depth of 15.2 km.

2016. Banff and Icefields Parkway. June 24, 2016. Friday. Flew to Calgary.

Bussed to Banff, an hour and a half drive on the Trans Canada Highway No. 1, to upscale Fairmont Hotel,

2016. June 25, Saturday. On trans-Canada Highway but predators learned to lurk near the entrances and capture the deer and elk using them. So they built animal overpasses. Expensive to build and they make them with trees and dirt so the animals feel at home. They even lower the centers so the animals see little of the highway when crossing. With a total of 44 wildlife crossing structures (six overpasses and 38 underpasses), and 82 km of highway fencing, Banff National Park has the most wildlife crossing structures and highway enclosure fencing in a single location on the planet. Since 1996, continuous research and monitoring of the wildlife crossing structures has contributed to improvements in subsequent phases of the Trans-Canada Highway Twinning Project. Parks Canada has become a world leader in highway wildlife mitigations.

Most recently, Parks Canada has collaborated with the Western Transportation Institute (Montana State University), the Miistakis Institute of the Rockies, and the Woodcock and Wilburforce Foundations on research and monitoring of the wildlife crossings. Using auto cameras, over 200,000 animal crossings have been recorded here. Since, 1992, this is the longest on-going wildlife crossing research and monitoring program in the world. They also use track pads, sandy areas, to check for animal tracks. Wolverines have used it. "Monitoring since 1996 shows that fencing has reduced animal accidents by at least 80% and facilitated over 160,000 animal crossings through underpasses and overpasses." (Parks Canada website, a little old.)

They also snag hair, to find out if these are different bears, etc., and find that about 20% of the bear population uses the crossings. Montana State University is active in this study. Grizzlies prefer the wide-open overpasses while black bears primarily used the underpasses. Roughly equal numbers of males and females for both species used the crossings. Cougar prefer the underpasses. They don't work well for pronghorn antelope. There is a website at: <http://www.highwaywilding.org/>
The trees are mostly lodgepole pine, spruce, some Douglas fir.

Reached Lake Louise. I took canoe ride, with eight in the big old canoe, all paddling. Made of wood and a hundred years old, though parts of it have been replaced. Good guide. Heather Dill Templeton and son in front of me. Nice weather and calm water. Canoeed to end of lake and more or less around the lake. Something over two miles. Glaciers at the end of the lake constantly in view.

2016. Icefields Parkway, Route 95. Some rain but later good weather. Nice drive north through super spectacular mountains, with larger and smaller glaciers. At Saskatchewan River Crossing, "Crossroads," 4 bighorn rams crossing on the bridge over the highway. right by the car. They did have big horns. This species is *Ovis canadensis*, and the species has heavy horns. Alberta is prime hunting for bighorn sheep, with world records. Reached Athabasca Glacier and Columbia Icefields up top. Hotel room with a spectacular view of the Athabasca in the distance. A hundred years ago the glacier came down to where the road now is.. It is -40 degrees here in the winter.

The Columbia Icefield is located in the Canadian Rockies astride the Continental Divide along the border of British Columbia and Alberta, Canada. It is the largest icefield in the Rockies. The ice field lies partly in the northwestern tip of Banff National Park and partly in the southern end of Jasper National Park. It is about 325 square kilometres (125 sq mi) in area, 100 meters (330 ft) to 365 meters (1,198 ft) in depth and receives up to 7 meters (280 in. = 23 feet) of snowfall per year. It has been there since before *Homo sapiens* appeared on the Earth (238,000 to 126,000 BC). There have been several advances and retreats.

There are much larger, vast ice fields in the Alaska-Canada border region such as the Juneau Icefield, near Alaska's capital city, Juneau, and the ice sheets of the northeastern Arctic on Ellesmere Island and Greenland.

The Columbia Icefield was one of the last major geological features to be discovered by Europeans in western Canada, due to its isolation and harsh weather conditions. In April 1827, Scottish botanist David Douglas was crossing Athabasca Pass—a major trading route located north of the Icefield—when he climbed one of the adjacent mountain peaks. He reported his first ascent in his journal, describing it (incorrectly) to be 6,000 metres (20,000 ft) in height.

In the summer of 1884, geology professor Arthur Philemon Coleman explored the Great Divide from Banff to Jasper in search of Douglas' giant peak. While unsuccessful, he did discover the route that would become the Icefield Parkway. In July 1898, British explorer J. Norman Collie and his friends Hugh Stutfield and Herman Wooley set off in search of Douglas' giants, equipped by the famous Banff outfitter Bill Peyto. On the morning of August 18, Collie and Wooley climbed the east side of Mount Athabasca, moved up the glacier when the ridge gave way to crumbling rock, and made their way to the summit, where they discovered an ice field that extended to almost every horizon.

In 1932, three skiers reached the Columbia Icefield, climbed to the summit of Snow

Dome, and then made a downhill run descent of almost 3,000 metres (9,800 ft) which lasted for 50 kilometres (31 mi)—the longest continuous ski run in Canadian history up to that point.

The icefield feeds eight major glaciers, including: Athabasca Glacier, Castleguard Glacier, Columbia Glacier, Dome Glacier, Stutfield Glacier, Saskatchewan Glacier. The Athabasca River and the North Saskatchewan River originate in the Columbia Icefield, as do tributary headwaters of the Columbia River. The icefield is atop a triple Continental Divide.

1. The Athabasca River flows north into Lake Athabasca in northeastern Alberta and thence by the Slave River and Great Slave Lake to the Mackenzie River and on northward through Yukon territory, a distance of some 2,500 miles (4,000 km), into the Arctic Ocean at Inuvik, a town in the Northwest Territories of Canada.
2. The North Saskatchewan River flows eastward across the provinces of Alberta, Saskatchewan, and Manitoba for a distance of some 1,600 miles (2,600 km) into the Hudson Bay, an extension of the Atlantic.
3. Drainage from the ice field's northwestern rim flows down the Fraser and Columbia rivers into the Pacific Ocean. The Columbia flows a sinuous 1,240 miles (2,000 km) to its outlet between Oregon and Washington.

2019. July 29, Wednesday. drove north to Jasper. great stretches of driving on the edges of braided glacial flats, filled with rock flour. Visited Athabasca Falls. The whole river flows through a narrow chute in hard quartzite, a spectacular location. Below the falls are 14 species of native fish. Above the falls only one - the bull trout. Nobody knows how it got there - relic of Pleistocene times, or moved upstream by native Americans?

Bull trout are members of the char subgroup of the salmon family, which also includes the Dolly Varden, lake trout, and Arctic char. They can grow to more than 20 pounds (9 kg) in lake environments. Bull trout that live in streams rarely exceed 4 pounds (2 kg). Bull trout and Dolly Varden look very similar, and were once considered the same species. Taxonomic work, published in 1978 and accepted by the American Fisheries Society in 1980, identified bull trout as distinct from the Dolly Varden.

Historically bull trout occurred throughout the Columbia River Basin, east to western Montana, south to the Jarbidge River in northern Nevada, the Klamath Basin in

Oregon, the McCloud River in California and north to Alberta, British Columbia, and possibly southeastern Alaska. Today bull trout are found primarily in upper tributary streams and several lake and reservoir systems; they have been eliminated from the main stems of most large rivers. The main populations remaining in the lower 48 states are in Montana, Idaho, Oregon and Washington with a small population in northern Nevada. Bull trout are now extinct in northern California.

Drove up the Maligne Lake road, walked in a bit to Maligne Canyon, another slot canyon. black bear seen close roadside, eating Shepherdia berries. 6 bighorn ewes and 2 lambs roadside. 3 bighorn rams, near roadside.

Black bear with 2 small cubs seen at length with a hundred persons watching from the road, bears out in an open grassy area. Grass often high enough to obscure the small cubs. Cubs sometimes actively playing with one another. Nice through binoculars. Reached Lake Maligne, Maligne Lake is famed for the color of its water, the surrounding peaks, the three glaciers visible from the lake and Spirit Island, a frequently photographed islet. The lake is located 44 km (27 mi) south of Jasper town. Maligne Lake is approximately 22.5 km (14.0 mi) long and is 97 m (318 ft) at its deepest point, in the south end of the lake. It averages 35 m (115 ft) in depth. It sits at approximately 1,670 m (5,480 ft) above sea level. Easily visible from the Maligne Lake Day Lodge are Leah and Samson Peaks and Mount Paul to the east, and Mounts Charlton, Unwin, Mary Vaux and Llysfran Peak to the south and west. The Charlton, Unwin and Maligne glaciers are visible from the lake, which contains a self-sustaining population of introduced rainbow trout and brook trout.

Wildlife is abundant along this high altitude lake. Grizzly bear, black bear, mule deer, caribou, wolves, moose, and mountain sheep are some of the larger mammals that frequent the lake area during the summer season. Bald eagles, golden eagles and osprey also frequent the area and live off the fish populations. whitetail deer.

2016. Thursday, June 30.

Drove to Calgary in the longest really hard downpour I recall driving in.
July 18-22, 2016,

2016. Norfolk, Virginia Beach, Family Reunion.

2016. July 19, Tuesday. 10-12.30. Walked in First Landing State Park with Dave Rolston and Randy Gore. Nice Spanish moss in here.

2016. July 20, Wednesday. Walked a swamp route in First Landing State Park with Dave Rolston and Joan Rolston LaChance. The second half of this was the same as the route we walked in 2013. Nice woods and swampy woods. Higher parts are residual sand dunes. Good blacksnake, maybe 3.5-4 ft long. Lots of sweet gum.

2016. July 21, Thursday. Went out in the kayak, two person kayak, with Randy Gore in the rear. Relatively calm waters but tricky getting out and in past the breakwater surf. Out a quarter mile or so, found many dolphins, bottle nose dolphins, often breaking water 4-6 feet from the kayak, and sometimes worried that they might overturn the kayak. Often heard them blowing out air. Saw dolphins perhaps 150 times, with Randy's estimate that we might have seen 40-50 different dolphins. One dolphin had a rocky-looking barnacle evident on its dorsal fin, several times seen. Most of the other barnacles had something else, longer and more flexible, attached to their upper dorsal fin. Nobody knew what this was, but we googled it when we got back. It turned out to be another kind of barnacle.

Xenobalanus globicipitus. The attachment is apparently not parasitic, the barnacle only gets a free ride, and more successfully filters out the food it needs.

Lots of small fish, menhaden, breaking the water. You could never actually see the fish.

Atlantic menhaden are silvery colored fishes characterized by a moderately compressed body and a black spot on their shoulder behind their gill openings. They can reach a size of approximately 15 inches. The Atlantic menhaden (*Brevoortia tyrannus*) is a North American species of fish in the herring family.

Atlantic menhaden are found in the North Atlantic coastal and estuarine waters from Nova Scotia south to northern Florida. They are commonly found in all salinities of the Chesapeake Bay and Mid-Atlantic water. They swim in large schools that stratify by size and age along the coast. Younger and smaller fish are found in the Chesapeake Bay and southern coastline while older, larger fish are found along the northern coastline.

Atlantic menhaden are filter feeders, meaning that they collect food by filtering water through modifications of the branchial apparatus (gill arches and gill rakers). Atlantic menhaden's diet depends on the size of their gill rakers, which change as menhaden age. When the rakers are smaller, which generally correspond to when they are under the age of 1, Atlantic menhaden feed primarily on phytoplankton. As they age and their gill rakers grow larger, menhaden shift their diet to primarily consume zooplankton.

Menhaden have historically been used as a fertilizer for crops. It is likely that menhaden is the fish that Squanto taught the Pilgrims to bury alongside freshly planted seeds as fertilizer. Other uses for menhaden include: feed for animals, bait for fish, oil for human consumption, oil for manufacturing purposes and oil as a fuel.

source.

In the early years of the United States, Atlantic menhaden were being harvested by thousands of ships of fishermen. The Atlantic coastline was lined with processing facilities to quickly transform the fish into a product of worth, typically oil but later fish meal became more popular. Tragedy of the commons set in and the menhaden population began to dwindle. Many of these small companies could not manage, which left only a handful of menhaden fishing companies to remain on the Atlantic coast.

While many sources today claim that the menhaden is inedible, the fish were once consumed as sardines might be, or fried. Maine fisherman, for example, would eat fried pogies for breakfast. The fish that were not sold for bait would be sold to the poorer classes for food.

2016. Sept. 17, 2016. Bobcat Ridge Natural Area, morning hike with Fred Johnson, John Didier, Fred Enssle, and Pat McKee. Trail camera on the trail and those photographs are online at: <http://www.fcgov.com/naturalareas/pdf/bcr-camera-summary.pdf>.

216. September 24-25, 2016. Colorado Native Plant Society Annual Meeting, Boulder. with Judy von Ahlefeldt, whom I taught long ago, now seventy one years old. Wrote the book on the black forest. Published a newsletter, Black Forest News for 17 years. The Black Forest fire, June 11, 2013, destroyed her home, one of her horses, and most of her belongings. She lost her 304-page doctoral dissertation on the climate and vegetation of Black Forest. She lost the notes and photos for Thunder, Sun and Snow, her book about the history of the forest. her.

Bill Weber, "Colorado and the World." He is in wheelchair, but stood up and gave a vigorous speech. Praised Toby Spribille and his recent discovery that lichens have three symbionts, not two. He grew up in a Montana trailer park and had so little education no American university would take him, so he went to the University of Gottingen, and got a Ph.D. He returned to Montana and joined the lab of symbiosis specialist John McCutcheon, who convinced him to supplement his formidable natural history skills with some know-how in modern genetics. The two started studying two local lichens that are common in local forests and hang from branches like unruly wigs. One is yellow because it makes a strong poison called vulpinic acid; the other lacks this toxin and is dark brown. They clearly look different, and had been classified as separate species for almost a century. But recent studies had suggested that they're actually the same fungus, partnered with the same alga. So why are they different?

Lichenologists all thought that the fungi in the partnership belonged to a group called the ascomycetes—so Spribille had only searched for ascomycete genes. Almost on a whim, he broadened his search to the entire fungal kingdom, and found something bizarre. A lot of the genes that were activated in the lichens belonged to a fungus from an entirely different group—the basidiomycetes. "That didn't look right," says McCutcheon. "It took a lot of time to figure out."

At first, the two thought that a basidiomycete fungus was growing on the lichens. Perhaps it was just a contaminant, a speck of microbial fluff that had landed on the specimens. Or it might have been a pathogen, a fungus that was infecting the lichens and causing disease. But when Spribille removed all the basidiomycete genes from his data, everything that related to the presence of vulpinic acid also disappeared. "That was the eureka moment," he says. "That's when I leaned back in my chair." That's when he began to suspect that the basidiomycete was actually part of the lichens—present in both types, but especially abundant in the yellow toxic one.

Throughout his career, Spribille had collected some 45,000 samples of lichens. He began screening these, from many different lineages and continents. And in almost all the macrolichens—the world's most species-rich group—he found the genes of basidiomycete fungi. They were everywhere. The basidiomycetes are in the outermost part of the crust, surrounding the other two partners. "They're everywhere in that outer layer," says Spribille.

But they are not easy to see, nor easy to identify. Unless you know what you are looking for there is no reason why you'd think there are two fungi there, rather than one—which is why no one realized for 150 years. Spribille only worked out what was happening by labeling each of the three partners with different fluorescent molecules, which glowed red, green, and blue respectively. Only then did the three species symbiosis become clear. He was recently awarded the main lichenological prize in Finland. Weber had helped him identify some lichens.

2016. John Emerick, Forty Years of Change at Rocky Mountain National Park.
Jennifer Ackerfield, Botany is not Dead, but this (Herbarium) Plant Is/
SEINet - seems to be a good botany website. phenology - Phenology is the study of periodic plant and animal life cycle events and how these are influenced by seasonal and interannual variations in climate, as well as habitat factors (such as elevation). Phenology has been principally concerned with the dates of first occurrence of biological events in their annual cycle. Examples include the date of emergence of leaves and flowers, the first flight of butterflies and the first appearance of migratory birds, the date of leaf coloring and fall in deciduous trees, the dates of egg-laying of birds and amphibia, or the timing of the developmental cycles of temperate-zone

honey bee colonies. Phenology is formed from a Greek root, "pheno" which means "to appear," as also in phenotype.

2016. Sunday, field trip to Jewel Mountain Tallgrass Prairie, City of Boulder Open Space and Mountain Parks. Led by Lynn Riedel and Lynne Sullivan. Lynn Riedel is an ecologist hired by Boulder Open Space, specializes in prairies and knew the area and the grasses and other plants quite well. Lynne Sullivan is a volunteer who also knew the area well. This Jewel Mountain area really has no Jewel Mountain; the name survives from a real estate company that once might have developed it. Nor is it in Boulder County, but in Jefferson County. City of Boulder bought it some fifteen years ago. It is not open to the public, not yet at least. They claim they need to get wildlife restored here, and study the grasslands first. There is an elk herd here, and cattle are still allowed to graze. They think they know how to help restore the prairie with cattle grazing only in the early spring and some in fall.

Three hours walk across grassland, with scenic flatiron wooded hills on the near horizon. Excellent weather, though windy. They find three types of prairie here: (1) Tallgrass prairie, (2) Shortgrass Prairie, and (3) Mixed Prairie. I might have expected tallgrass to be knee high, shortgrass to be ankle high, but they define them by composition, what species are there. In their sense tallgrass prairie can be short (stunted), and is here where there is little rainfall. They often find plants here that are disjuncts, otherwise found in the montane and subalpine, or far east on the plains. They call these "rare," and some of them are seldom found. One only known from here.

The area is Rocky Flats, a continuation of the infamous Rocky Flats Arsenal, which means more or less flatland too full of rocks to plow. So we were constantly negotiating rocks, mostly less than a foot in dimension, often rounded and themselves flat, ancient glacial till, now moved out of the flatirons, or perhaps deposited here millions of years ago. I couldn't have done it safely without my hiking sticks, though only one or two of the others had a pole. They claim the surface has been rather stable for a couple million years.

They point out how the grass and plant composition can shift this way and that from one place to another, with subtle differences in soil, water, slope. We were given a species list with several hundred species on it. Climbed a knoll to find a pond, 1/3 the size of a football field, which they claimed was natural, fed by underground springs. But it had an evident berm at one end, and seemed to have been at least enlarged by humans. Windy up here.

Made our way to the draw with the ponderosa pines lined on its edge. Lots of the usual foothills shrubs here, cottonwoods in the bottom. This is, I think, Coal Creek,

flowing out of Coal Creek Canyon. The grassy flats beneath Jewel Mountain are relatively undamaged because its stony soil was too difficult for settlers to plow. This unusual "xeric" (dry land) tall grass prairie is home to a number of rare butterflies such as the Arogos and Crossline Skippers. Jewel Mountain is home to elk herds that migrate between the mountains and eastern plains. Southern Arapaho cultural sites also make this an important area. Jewel Mountain HCA is not open to public access.

2016. November 5, 2016. Coyote Ridge morning hike with Fred Johnson, John Didier, Fred Enssle. Parked at the parking lot on Taft Hill Road, one mile south of the trash dump landfill and south of Trilby road. Sunny day, cool at the start, but warmed quickly. On the trail at 9.00 a.m. Walked about a mile on more or less level plains, past several prairie dog colonies, active and some close up. Then the terrain got more interesting, some ups and downs and reached a cabin/restroom, locked, which belongs now to the park. Continued to where the trail enters a gorge and walked through that, reaching another valley with trail zig-zaging up Coyote Ridge, which we did not attempt. Returned and out about 11.30
Physaria bellii, Front Range twinpod. Not seen, but interpretive sign had photo and said it is rare, but found in this area.

2016. November 13, 2016. Supermoon. Huge full moon in the early evening sky. The gap between the Earth and the moon closed to its shortest point, known as the perigee - a distance of 221,525 miles. The last time the moon was this close to the Earth was in 1948.

The reason the distance varies is the moon's slightly elliptical orbit. On average, it is 238,900 miles from the Earth, but at the perigee it is about five per cent closer. At its furthest orbital point from the Earth, the apogee, it is five per cent more distant. The impressive sight happens when a full moon is closest to Earth. It orbits our planet in an oval shape so sometimes it comes closer to us than at other times. To us Earthlings, the moon appears 30 per cent brighter and 14 per cent bigger. The moon won't come this close to Earth again until November 25, 2034.

2016. Dec 7, 2016. 5 ½ inches of snow fell during the night. Dec 8, 2016. -4° when I got up.

2016. Dec. 10. Hike/stroll in the CSU Environmental Learning Center east on Drake, with Fred Johnson, Fred Enssle, and Pat McKee. (Not John Didier).
Weather had moderated some, but I was dressed for cold, long johns and big down jacket. About 20-22° while walking. Landscape pretty well covered with snow, but paths had been more or less packed down by some walkers. Took a loop, the larger

loop, more or less 1 ½ miles, parts of it along the Poudre River. Rather good tracks of various kinds in the snow. Rabbits, deer. Geese constantly overhead, hundreds of them, and some in the fields. One group of small birds, unidentified. Nice view of a large owl we spooked, presumably a great horned owl. Although the trails had been walked some in the snow, I don't think we saw or passed anybody else.

2016. Taiwan 2016 May 30, 2016. Monday, Left home, 2.00 p.m., fearing long lines in security in Denver, 7.05 p.m. take off for Vancouver, BC, reached Vancouver 9.00 p.m. got lost a bit but found EVA airlines and checked in,.
got sent to Premium Lounge, with free food, good food. Business class, B747-400. nice seat and empty beside me.

2016. May 31, Tuesday, Take off 2.00 a.m. Dinner: King crab on cucumber skewer. smoked salmon and cream cheese on dark rye. grilled scallop with Asian pear salad. pan-fried Chilean sea bass with Sage cream sauce. fruit and apple cheese cake.

2016. Crossed the International dateline maybe 4.00 a.m., when 4.00 a.m. May 31, skipped 24 hours to suddenly become June 1, 4.00 a.m. So I lived only about 4 hours of May 31, and my June 1 was cut short on the front end by 4 hours.
slept well, seat reclines for sleeping

June 1, Wednesday. breakfast. Western style. Sugar for the coffee is crystals on the end of a stick stirrer. 6,322 miles. Arrived in Taipei in the dark but walked off the plane at sunrise. Met easily, by Tom Yeh <tomglory@seed.net.tw> in good car. taken to YMCA hotel, showered and slept. 11.30 a.m. lunch with Tzu-Mei.
Evening a festive welcoming dinner, moderated by Dr. King (chief forester in Taiwan) and about 30 others, members of her board. Gave me a painting of six roses, one for each decade of our marriage. All framed. They subsequently mailed it to Fort Collins. Some give and take dialogue with the group.
Taiwan has a new woman president, new party in power.
Have the last 8 years, since I was here, been better or worse for environmental conservation?

2016. June 2. Thursday. Besides Tzu-Mei, my two traveling companions are

1. Yu-Ping Chen, executive secretary of TESA (Taiwan Ecological Stewardship Association), now Tzu-Mei's replacement.
She studied one year at Norwich University in UK and one year at Exeter University, UK, mostly on a campus they have in Cornwall, a science campus. She has M.S.

degrees from both schools. (She quit the job about September 2016)

2. Chou-Li Lin (Ali), Project Secretary. half time. studied in Australia, Queensland University, studied "development." Worked in London at a small NGO two years. Is chair of an Earth Charter Taiwan Youth Group (ECTY). Went to an Earth Charter meeting in Costa Rica. She constantly found cold Cokes for me. e-mail: <chouli.lin@gmail.com>

2016. Left hotel late, 8.15 a.m., and barely got to the Presbyterian Church of Taiwan headquarters on time to do the talk.

8.30-9.00 a.m. "Christianity Gone Wild" to 40 people. Seemed to go well. good translator. Joshua. Jen-Shiang Lien, a local pastor who majored in English in college.

2016. then to Taiwan Theological Seminary on a nice campus. with rain. 11.00-12.30, "Preaching on the Environment," without PowerPoint in a nice chapel with 150 students and faculty, with a lot of rain outside, even making it a bit noisy inside. Introduced by Yang-en Cheng, the Dean, relatively young, with Ph.D. from Princeton Theological Seminary in history. Here he is Professor of Church History and Director of Archival Center, Taiwan Theological College and Seminary.

2016. Kuo-Long Ching lawyer. once served as their EPA Executive Director was once in physics department of National Taiwan University served two years in Indonesia as a volunteer professor. light lunch with half a dozen faculty afterward. then car to a train/subway and then to the main train station and high Speed Rail to Yunlin. rice fields and development high rise buildings side by side. picked up by woman in a good car and taken to Chiayi City to a local NGO meeting at what they called the Taiwan Library (featuring pre-Chinese library materials) and winged it for an hour on smart growth.

2016. The provinces here have names and often the central city has the same name. four provinces down the east coast

Taichung province and city
Chunghua province and city
Yunlin province and city
Chiayi province and city

2016. Considerable sugar cane. that night at a quite nice hotel with big supper around a spinning center table.

2016. June 3, Friday. white herons. wind turbines. taken to Formosa Plastics, with 90 smokestacks, emitting pollution. Which they say has been 90% reduced.

looked at oysters on the seacoast right outside the plant, which have been deformed by the plant's pollution. The coastline once to protect them has sunk and the plant and oysters are closer than anticipated.

This area is called How-May-Li. There has been a loss of about 400 meters from shore to ocean. The sand is disappearing and the lagoon is losing its water. There used to be thousands of pine trees and redwood on the east side of the shore, but now they are all gone. Fishing industries have declined, and typhoon damage is worse. Villagers and members of the Presbyterian Church have protested.

The issue seems to be that when the port of Pu-Tai was built ten years ago, they dredged and moved sand to the north to make the port deep enough for big ships. That made sand from the south, where How-May-Li is, flow north. There are several jurisdictions involved and protests are passed around from one jurisdiction to another. The protestors want an embankment on the sound of Pu-Tai port toward the ocean side to block sand flow northward. Saw mudskippers, quite active. Visited a wetland overlook, with the plastics plant in the distance.

Interviewed by some a TV reporter. NTDTV. New Tang Dynasty TV. The Tang Dynasty, A.D. 618-907, was the most glistening historic period in Chinese history. Visited a farmer doing hydroponics, raising some kind of greens. Also farm gardens nearby raising celery and other things. taken to a hostel/farm, and had only 1 hr 15 minutes before the talk. So I didn't go out to supper with them. They brought me some supper which I ate later.

2016. Hostel room was adequate but first couldn't find the bathroom switch, which proved to be on the outside of the building through another door. talk:: "One Health - Eco-Health" in "Big City" church to audience of 125, some confusion about the PowerPoint, but I used it. short version. hostel room was air-conditioned but too noisy and blew on me too much. I turned it off.

2016. June 4, Saturday. Wakened by chickens calling and geese honking, two in the barnyard. breakfast outdoors, not much, duck egg pickled. soy milk hot, soybean oil mixed into milk, much liked in Taiwan. left 9.15 a.m. Passed lots of duck farms. Beijing duck much eaten in Taiwan, also Japan. good to get back in a cool van. passed green bananas on trees in fields. Betel nut shops with flashing lights. several sections of elevated highways to permit

continuing use of the land below.

2016. reached HSR station, Tai-Chung station. a rather cosmopolitan station, with a McDonalds, a Muslim prayer room and a “Muslim friendly toilet”?? “what you need in a Muslim-friendly toilet is water to wash yourself; you need a lot of room; and the orientation has to be correct, and there are some other factors as well.” on HSR train to Taipei

2016. Agatha Tzeng, Yi-Neng. Young woman on train with us, studied forest ecology. Once the sign at the end of the car read: Current train speed is 246 km per hour (= 153 mph). Reached Taipei, and confusion in the underground train station trying to find simple restaurant/fast food Western style. Ate shrimp on spaghetti - not bad. reached YMCA hotel, and afternoon there. long nap supper there, and quiet evening.

2016. June 5, Sunday. breakfast, pickup at 9.15 for Ho-Ping church. Spoke to 250 in congregation. good choir. good electronic organ, good grand piano. far better electronics than in First Presbyterian Church, Fort Collins three big PPT screens with Hymn texts there. four pastors, one a woman sermon: “Promised Land and the Planet with Promise” translated into Taiwanese, not Chinese.

Finished and some confusion, then taxi to the next church, Shung-Lien Church The church is in a big building, more or less in the center of the city, 11 floors high, and they rent out floors 1-5 to businesses. big lunch on a table prepared for us, with too much food. But after us, others came. Then a wait in a side room for an hour and a half.

2016. Taiwan does not have a replacement birth rate. Birth rate is 1.03, not 2.2. The birth rate has dramatically declined in the last 10 years. From a Voice of America broadcast, August 16, 2011. Taiwan announced this week that its fertility rate had fallen below one baby per woman, worrying the government about its future supply of manpower and brain power. Taiwan’s rate of 0.9 is now the world’s lowest, but other developed Asian economies are close behind.

2016. Taiwan’s fertility rate of 0.9 puts the island in the same league with other Asian territories that have industrialized and urbanized. The Chinese territory of Macau recorded a fertility rate of 0.92, and the next lowest rate belongs to Hong Kong at 1.07. Singapore, Japan and South Korea also have some of the world's lowest birthrates. Officials in Taipei partly blame the Chinese zodiac calendar for the drop. 2010 was the Year of the Tiger, considered inauspicious for births.

But the drop is also part of a broader regional trend. A shift away from traditional rural lifestyles has allowed women easier access to university education and the time-consuming jobs that follow. Pricey childcare and later education in already-expensive Asian cities strain family budgets. Chinese people have traditionally preferred large families, but some say that, in Taiwan, Hong Kong and Singapore, career advancement has overtaken that goal.

2016. 2.00 p.m. to 4.30, "Christians in the Wilderness"

presentation and responses two and a half hours. PowerPoint advance worked quite poorly. Translator was Joshua Jen-Shiang Wen. 1. responded to by Wei-jen Liang, a pastor here. who had been translator for me once eight years ago in one of the Taipei University events, earlier a plant pathologist.

2. Responded to by Yi-Ren Lin, ecologist formerly at Providence University, now in Taipei. He is the one who studied under Sam Berry in London. There he had made up a book of my PowerPoint slides and a couple of my articles, including some Chinese added to my PowerPoint, especially the Bible quotations.

At both church services, there was Terng-Jen Wen, Ph.D., professor, Safety, Health, and Environmental Engineering, National Yunlin University of Science and Technology, Yunlin. With his family. He heard me in Yunlin and came up. Also present was Peter Chen, whom I met in 2008 at Tunghai University, a little south of Providence University (where I did bird watching) and who was and is keen on his founding and promoting of Golden Autumn Earth Day. He wanted me to come back to Taiwan in October for the celebration of that day, but I declined.

Taken to supper at a restaurant (with brief stop at my hotel) by Tung-Jye Wu, call him TJ. Legislative assistant for new legislator Kyen-yuh Wu. TJ was a former director of an NGO that dealt with pollution and GMO foods. He paid the wrong bill, for the next table, and I teased him about it - legislator assistant ought to be able to pay the bills right.

2016. June 6, Monday. breakfast and walked to the train station, 8.40. On train 9.20 a.m., to Yi-Lan, around on the west side, near the coast. Said to be the most eco-friendly province; they had rejected some polluting industries. Near the city the train is mostly underground. Later, train went through a nice gorge, forested, rocks in the river. Often rather mountainous, we rode along the Pacific Ocean. Some distance out, Turtle Island. Quite scenic.

2016. I was to give a talk to a conference of NGO workers, who were meeting in an old school building, now used for community programs. Repeated the talk "One Health - Eco-Health," short version. 100 of them in a room at desks in an old school classroom, many of them teachers. Translated by Joshua. Afterwards lunch with 20 of them in a room there.

2016. Then taken on a drive in a Mercedes Benz, by Eric Cheng-Fung Chen, president of Sun Foundation, an operator of eco-friendly activities there. He is on Tzu Mei's board. Also in the car, in the front seat, was Peter Chung-Jing Pan, secretary of Sun Foundation and in charge of their environmental education program. He gave me a tiny glass bottle of pigeon peas and another small glass bottle of *Bischofia javanica* seeds.

Saw Taro, a food plant with large leaves. *Colocasia esculenta* is a tropical plant grown primarily for its edible corms, the root vegetables most commonly known as taro. It is believed to be one of the earliest cultivated plants. Linnaeus originally described two species which are now known as *Colocasia esculenta* and *Colocasia antiquorum* of the cultivated plants that are known by many names including eddoes, dasheen, taro, but many later botanists consider them all to be members of a single, very variable species, the correct name for which is *Colocasia esculenta*.

Taro was probably first native to the lowland wetlands of Malaysia (taloos). Estimates are that taro was in cultivation in wet tropical India before 5000 BC, presumably coming from Malaysia, and from India further transported westward to ancient Egypt, where it was described by Greek and Roman historians as an important crop. In India,

Saw pigeon peas growing in fields. The pigeon pea (*Cajanus cajan*) is a perennial legume. Since its domestication in India at least 3,500 years ago, its seeds have become a common food grain in Asia, Africa, and Latin America. It is consumed on a large scale mainly in south Asia and is a major source of protein for the population of that subcontinent. Being a legume, the pigeon pea enriches soil through symbiotic nitrogen fixation. The crop is cultivated on marginal land by resource-poor farmers.

Pigeon peas are very drought-resistant, so can be grown in areas with less than 650 mm annual rainfall. With the maize crop failing three out of five years in drought-prone areas of Kenya, a consortium led by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) aimed to promote the pigeon pea as a drought-resistant, nutritious alternative crop.

2016. Then taken to a 300 year old tree, hanging over the road.
Bischofia javanica blume = *Bischofia trifoliata*
Bishopwood, javawood, toog

Evergreen tree, milky sap. Leaves alternate, long-petioled, trifoliolate (3 leaflets); leaflets shiny, bronze-toned, oval-elliptic, male and female flowers on separate plants. Fruit pea-sized, berrylike, fleshy, The natural occurrence of *Bischofia javanica* extends from India and the lower Himalayas through China, southern Japan and tropical Asia to north-eastern Australia and the Pacific. It is locally planted in its natural area of distribution and elsewhere, including East Africa and South Africa. In Kenya it is planted as a plantation species, e.g. in the Kakamega area. Locally it has become naturalized in evergreen forest. Various uses of its parts. Introduced to Florida for ornament, and has become weedy there. Some farmers were taking local Taiwanese on a tour around, here to see the tree, riding in a buggy pulled by small tractors rigged up for this.

2016. saw Betel nut trees. Very tall, thin, you might first mistake them for palms. also called areca nut. Chewed, much by truck drivers, but ruins their teeth and is carcinogenic. not really a nut but a berry. Often chewed with some leaf wrapped around the seed. A stimulant. Chewing dates back thousands of years.

The Japanese had a training airport for training Taiwanese to be suicide bombers in this area.

2016. considerable rain showers off and on. Driven to the Dongshan River Ecoark Park on the Dongshan River. guide, and took boat ride for maybe half an hour. black crowned night heron. yellow headed heron. Park has recently been renovated and re-named. Riding back through the villages and towns with endless shops I was reminded of Hitler's remark that England is a nation of shopkeepers,

2016. Taken to train station and train to Hua-Lien, 1 hour 20 minutes, through interesting country and pickup at station and driven to campus. National Tung-Hua University, by a faculty member in environmental education. Supper in a restaurant in a bookstore, on 2nd floor. Then taken to a campus hotel.

2016. June 7, Tuesday. Up for breakfast 7.30 a.m. to university for talk: "Earth Ethics: Facing the Environmental Crisis" good PPT, audience 150, all graduate students. The students here are mostly doing an M.S. only, not Ph.D. Joshua translating. I found it hard to stand for 2 hours. I asked for a chair for Q&A.

2016. Question on appetites vs. addiction. (from my use of Pleistocene appetites, questioner thought I should say addictions). "After 1950 (referencing the PPT graphs)

our appetites became addictions.”A dozen students crowded around me afterward with various questions. Keen interest. Lunch in an upscale restaurant. I ate squid. Not bad. Car drive back to Hua-lien and train 2 1/2 hours back to Taipei.

The walk in the main train station is long because of the considerable underground shopping malls. and out to the YMCA hotel. dinner at the YMCA hotel. Liquid sugar for your iced tea.

2016. June 8, Wednesday. Up at 6.30 a.m., breakfast 7.00 a.m. and 9.15 to meet environmental officials at the Presidential Palace. Chung-Chuan Chen met in the presidential palace will attend my lecture at National Taiwan University as a commentator. He went to Harvard.

Kuen-yuh Wu, the legislator. He apparently was not directly elected but the winning party gets to appoint several more legislators and he was one of them.

Tung-Jye Wu (TJ). Legislative assistant for new legislator Kyen-yuh Wu. I had supper with him a couple days back. After 20 minutes the vice president came in.

Tsai Ing-Wen won the election and has become Taiwan’s first female president. Her party is the Democratic Progressive Party (DPP), and her win is only the second time in Taiwan’s history that the ruling Kuomintang (KMT) party has been dethroned.

Chen Chien-Jen, an epidemiologist known for his influential studies on the dangers of arsenic and hepatitis as well as his handling of the SARS outbreak in 2003, is the island's vice president. SARS initially emerged in mainland China but quickly spread across many parts of the world. SARS was exacerbated in Taiwan because the United Nations recognizes China’s claim that Taiwan is part of China, and thus refuses to give it an independent seat at meetings of the World Health Organization. Excluded from international discussions and sample sharing, Taiwan’s outbreak spiraled out of control even as authorities elsewhere were getting a grip on the epidemic.

It was Chen, who was appointed health minister as the epidemic was escalating in Taiwan, who headed containment efforts. He bolstered attempts to isolate patients so as to prevent spread in hospitals, and boosted screening for fever. Chen attended the National Taiwan University, and received his Sc.D in human genetics and epidemiology from Johns Hopkins University. He began his medical career by researching hepatitis B, and helped raise awareness about vaccination for the disease in Taiwan. Chen further researched on the liver cancer risk of people with hepatitis B. Chen also discovered a link from arsenic to blackfoot disease. The

arsenic research lead to the revision of international health standards for arsenic exposure. So he found out from his John Hopkins University contacts what the Chinese did not want him to know and the Taiwanese consider him a local hero.

Chen served as Minister of Health from 2003 to 2005. Chen led the National Science Council from 2006 to 2008. Visit with the vice-president and other dignitaries. Visit was to have been half an hour but he extended it another 15 minutes. He had in hand a paper with some quotations of mine on it. He had done his homework. He is Roman Catholic.

2016. Back to hotel. 1.00 p.m. to National University of Taiwan, College of Social Science, for talk 2.00 - 4.30 p.m. "One World/One Health." I gave the talk seated, with moderator on my left and commentator on my right.

The moderator was Chou Kuei Tien, Professor, NTU Graduate Institute of National Development, Ph.D. in Sociology, University of Munich. College of Social Sciences, National Taiwan University, Risk Society and Policy Research Center.

The commentator, Chang-Chuan Chen, went to Harvard and did studies in pollution levels from the Formosa plastics plants.

Ph.D., Air Pollution Control, Harvard School of Public Health, 1990.

M.S., Industrial Hygiene and Air Pollution Control, Harvard School of Public Health, 1987.

B.S., Chemistry and Biology, National Taiwan University, College of Medicine, 1982.

Joint-appointed Investigator, Division of Environmental Health and Occupational Medicine, National Health Research Institutes, Taiwan (2004-present)

- Director of Institute of Occupational Medicine and Industrial Hygiene, College of Public Health, National Taiwan University, Taiwan (1999-2005)

- Takemi Fellow in International Health, Harvard University, USA (1997-1998)

- Fulbright Visiting Scholar (1997-1998)

Dr. Chan has over 70 conference papers and project reports related to environment, health, risk assessment, environmental management, and international health funded by Taiwan EPA, Taiwan DOH, National Research Council, Ministry of Economic Development, Council of Labor, National Health Research Institute, Taipei City, Kaoshung City, Taipei County and private companies. Also, he has over 60 scientific papers in English on health, environment and labor issues.

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2016. June 9, Thursday. Picked up at 10.00 in nice car and driven not knowing where I was going. scenic road. Driver for the next two days: Simon Lin, Se-Hong Lin, spoke English well. works for First Aromatics, but knows the trees and wildlife rather well.

Drove out to east coast, and to Yehliu Geopark. Yehliu is a cape in Wanli District, New Taipei, Taiwan. The cape, known by geologists as the Yehliu Promontory, forms part of the Daliao Miocene. There is a long promontory, about 1.7 km; the widest area in between is shorter than 300 m. There is a lot of rock carving caused by wave attack, rock weathering, earth movement and crustal movement, resulting in an unusual sea-erosion geological landscape. There are many “mushroom rocks” where a rounded head (harder rock) sits on top of a pedestal (weaker rock eroded away some).

2016. Took boardwalk half a mile to see “The Queen,” a rock formation on the coast suggesting a queen. Had some cold drinks sitting in the shade on some steps and a young kid wanted to speak to me since he was learning English. Offered me some candy from a box of little candy bits he had. Returned, left the park, and lunch in a Chinese restaurant. Then drove more or less circling around the north coast and stopped at Stone Trench of Laomei, and Green Reef. North Coast of Guanyinshan National Scenic Area. The Laomei Stone Trench Coast is located at Northeast coastline in Taiwan. The Stone Trench was formed when the coastal strata uplifted and the softer parts of the coral stone were eroded away by wave action. The trench is formed of the harder stone that was left. they will covered with seaweed on March and April every year.

2016. Green Reef Coast. Laomei Green Reef is a beach located at north coast of Taiwan, famous because of its wave-cut volcanic lava covered with green seaweeds. The day’s trip circled around Yangmingshan National Park.

Drove back to Taipei, saw “101” then the tallest building in the world nearing the hotel. There is an engineering feature allowing the whole building to sway like a pendulum. Back at the hotel at 5.00 p.m.

2016. June 10, Friday. Drove up to Yang-Ming Shan National Park, where the volcanic activity is. I was here on November 14, Friday, 2008. Slow drive up because lots of traffic, often bumper to bumper and at snail’s pace.

Taiwan has three deer:

1. Formosan sika deer. *Cervus nippon*. Spotted deer. The sika deer was previously found from northern Vietnam in the south to the Russian Far East in the north, it is now uncommon in these areas, excluding Japan, where the species is overabundant.

The Taiwan Formosan sika deer is a subspecies, endemic to the island of Taiwan. The

Formosan sika, like most of the terrestrial fauna and flora of Taiwan, arrived on the island during Pleistocene glacial periods when lower sea levels connected Taiwan to the Asian mainland.

2. Formosan sambar deer. *Rusa unicolor*. The sambar is a large deer native to the Indian subcontinent, southern China and Southeast Asia. The sambar deer (*Rusa unicolor*) population in Taiwan has expanded rapidly in the last 20 years, Population estimates are typically made by noticing how much tree bark they eat.

3. Formosan barking deer. Reeve's muntjak. *Muntiacus reevesi*. The Formosan subspecies is *Muntiacus reevesi micrurus* (Taiwan). A small deer native to China. They are typically only 16 inches in height at the shoulder, although some individuals have reached 31 inches. Males develop small two to three inch antlers and inch long tusk-like upper canine teeth, which are used both for fighting and defense. Females develop smaller canines and pedicels (small bony knobs) instead of antlers. These unusual animals are sometimes called 'barking deer,' due to the loud bark-like sound they make when alarmed. I glimpsed one in Kanha National Park in India, March 5, 2013.

2016. Nice ferns on the drive up. Elder in bloom. Reached the volcanic area. Our guide for the day in the park was Li-Chang Lu, been in the park for twenty years or more, and a member of Tzu Mei's Board. Enthusiastic guide. Also an elder in a Presbyterian Church.

fumaroles

solfatara Solfatara seems to be a volcano in Italy, giving its name to vents with sulfurous fumes

hot springs

Xiaoyoukeng - name of the fumarole area.

small flower grows in the wall: *Mazus pumilus*

2016. Long ride to the second site. Excellent GPS in the car. Eventually reached Four Sulfide Hill, or the Devil's Place. The area was mined for the sulfur by the Japanese, also by Chang Kai Shek. Walked around some here, including a dicey walk over a makeshift bridge to see some ruined mill sites.

Many tree ferns. Some big ones. *Cyathea lepifera*. *Cyathea* is a genus of tree ferns, the type genus of the fern order Cyatheales. They are mostly terrestrial ferns, usually with a single tall stem. 'Flying Spider-monkey Tree Fern' - the species gets this name from the uncurling of new fronds looking like monkey arms.

Then back to the car and over a mountain to a second site.

Then had a picnic lunch, walking up a trail alongside the road and reaching a sheltered picnic area, with memorials to Syunichi Sasaki Syuniti (Shun'ichi) Sasaki (1888–1960), Japanese botanist, and Robert Swinhoe (1836-1877) Japanese occupation was 1985-1945. Robert Swinhoe was an English biologist who worked as a Consul in Formosa.

Lunch was something semi-hard-soft, wrapped up in some leaf. Then walk down to a gardening area. Organic gardening. Eagle seen in the sky. *Spilomis cheela*. Crested serpent eagle. A noisy bird. Common. Drive out, huge line of incoming traffic, crawling in. Back in town, met with Dr. King over a drink.

2016. Then taken to airport and checked in for flight back to U.S. Business class, got to use their Infinity Lounge, with good free food. Take off: 11. 50 p.m.

crossed the international dateline, so got to live Friday, June 10 a second time.

2016. Friday, June 10, 2nd time. Slept very well, 8 1/2 hours passed before I knew it, though I had some twisting and turning in the semi-reclined position. The breakfast was too Asian to suit me. The flight is only 10 hours coming back, with tailwind. Taxi to hotel in Vancouver. I had to take the big suitcase even tho it was checked through to Denver. Called Jane.

2016. June 11, Saturday. Up at 3.45 a.m. and granola and coffee in the room. On shuttle at 5.00 a.m., airport at 5.20. Fairly long line through security. You entered the USA in Vancouver, through U.S. customs and immigration there. Then 2 1/2 hours to Denver. Lucked up and caught an earlier limo. Home about 1.30 to find Shonny and John, Rolston and Ellie working in the yard, painting the fence, and eating lunch. Glad to be home, But the weather is hot.

June 15, 2016. TAIPEI -- A magnitude 4.3 earthquake rocked Eastern Taiwan Tuesday, the Central Weather Bureau reported later that day. The temblor occurred at 5:40 p.m. and was centered 39.1 kilometers southwest of Hualien County Hall at a depth of 15.2 km.

end Taiwan 2016.

2019. Published at this time: Holmes Rolston III, *Science and Religion for Youth*, Elm Hill, A Division of HarperCollins Christian Publishing. www.elmhillbooks.com.

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(Hardbound) ISBN 1-595559937 (paperback). Nashville, Tennessee.

end 2016

2018 start

2018. February 27-March 1. Nassau, Templeton Foundation. Mostly indoors, but did see some flowers in good bloom driving around. Nassau was hit by hurricanes Irma and Maria last fall, and blew over many palm trees, Some still seen fallen. Rather unusually, Irma sucked water away from the beaches. On return Atlanta was in rain but on takeoff to Denver we flew over some white flowered trees, plums presumably, in full bloom.

2018. March 25, Palm Sunday. One Pasqueflower seen in Lory State Park. A bit pale but in fine bloom. Fred Johnson saw a nice plant in bloom several days ago and sent me a photograph. He said go on up until there is a part of the trail that heads northwest for some time, a quarter mile or more. Then the trail takes a sharp turn southeast and you are very soon coming into more trees. He said walk not more than 100 feet and look uphill. They can be seen from the trail. I never found what Fred saw but I scrambled up the hill and looked around half an hour. I did find the one, but it wasn't in sight of the trail.

2018. April 24-April 30. Richmond-Fredericksburg, Mary Washington University
April 24, Tuesday, left home at 2.35 a.m. Quite a hassle, pat-down search in Denver, for some reason. Some walking in Chicago, but o.k. Arrived Richmond 3.10 p.m., and got rental car..

2018. April 25, Wednesday. Drove to Pocahontas State Park. dogwoods in full bloom, and many pink dogwoods. Wisteria floribunda in good bloom in patches along the road. At Pocahontas State Park, hiked several hours, then lunched and hiked higher up, still in the park, on a horse trail. titmouse calling

April 26, Thursday, drive to Fredericksburg. main host Jason Matzke, Dept. Philosophy, Classics, He was a graduate student at Michigan State University when I spoke there once, and picked me up at their airport and took me out to dinner on the University credit card, which he celebrates in his memory. Jodie Hayob, his partner, a geologist. interested in the rocks in s.w. Virginia

2018. April, 27, Friday. In the conference all day. Met Beth (Elizabeth) Singleton, who is doing a Ph.D. under Phil Clayton, Claremont, on religion, ethics, and society. "Earth Bodies: An Ecofeminist Ethic of Adaptation in the Body of Gaia." She is finishing up, living currently in Iowa. My talk, their keynote address. 4.00 - 5.30 p.m.

Went well, with lots of Jason's students joining the group.

2018. April 28, Saturday, in the conference all day

2018. April 29, Sunday. Breakfast with Gilmore McLean, Christopher Preston's student, doing an M.A. with him at University of Montana. She was an undergraduate at Mary Washington University. Her paper: "Wilderness: Reanimating the Corpse of Intrinsic Value." Conference ended at noon.

Drove to Richmond. Flew home.

2018. May 29. At Dean Biggins' home and vicinity.. There and in Rocky Mountain National Park, Fall River Road and Trail Ridge Road, June 28, 2018 identified about 150 plants, including Pygmy bitterroot, *Lewisia pygmaea*. nice find, in good flower, adjacent to roadside. Sprague Lake Picnic Area and lunched there, not in the main picnic area, which was crowded, but back toward the entrance at a decent picnic table beside a creek.

2018. July 13-15, 2018. First Presbyterian Church Camp, Glacier Basin Campground, Rocky Mountain National Park. Pitched the big Eureka tent getting help from a couple men nearby. Tent was up before noon. You have to keep your food in bearboxes. But there are a number of them, and plenty of room. Hunderstorm in mid-afternoon, with serious rain. But our tent was up, also a good shelter from sun and storm, which later the wind did blow down. Camping next door, towards Long's Peak. Natasha, (maybe Natalia) born in Russia, and adopted here, junior high age and very pleasant to us, often carried things over from the BearBox for Jane

One couple has a daughter Elizabeth Ryan (Indian woman, mid-thirties, with pretty smile). She is an ecologist, on the faculty at CSU, Dept of Environmental and Radiological Health Sciences, College of Vet Med, formerly did ecology, but now works more in toxicology. Does the toxicology of polluted soils in developing nations, and the health effects on people there, especially youth.

After volunteering with the Peace Corps in Nepal, Dr. Elizabeth Ryan found herself pondering her next steps. How could she advance herself in the sciences while still helping to address critical problems of the developing world? Work with Hawk Watch led to an interest in toxicology, particularly immunotoxicology which looks at toxicant effects on the immune system. She then attended the University of Rochester where she received her master's degree and PhD in molecular and environmental medicine.

With my postdoc, I received training in human clinical trial work, particularly in cancer control and prevention. After her postdoc, Dr. Ryan moved to Colorado with her

family. Her career at Colorado State began in the Department of Horticulture, focused on cancer prevention with the Crops for Health program. She then joined the Department of Environmental and Radiological Health Sciences. She has a joint appointment with the Department of Food Science and Human Nutrition, the Colorado School of Public Health, and numerous collaborators from both plant and biomedical sciences.

"Initially, my interests were primarily in the role of toxicology in the prevention of disease," Dr. Ryan said. "How can we reduce environmental exposures and intervene without medications before people get sick? Now, I'm also looking at the small molecules in food and how diet can impact recovery from and protection against chronic and infectious diseases. I'm interested in learning more about how we can use food to maintain or restore health here in the United States and abroad."

Dr. Ryan recently received Phase 2 funding from the Bill and Melinda Gates Foundation to continue to pursue an innovative global health research project titled "Studying How Rice Bran Augments Mucosal Immunity." She is married to Timothy (Tim) Ryan, an American epidemiologist, who says he sees me every day in Johnson Hall where he works. He works with the CSU One Health Institute, of which the office is in Johnson Hall.

One Health Institute "At its core, there is a simple idea that's been around for thousands of years: health for all of us - people, animals, places - depends on thinking about all of us as a system, as one. At its core, there is a simple idea that's been around for thousands of years: health for all of us - people, animals, places - depends on thinking about all of us as a system, as one."

2018. They met at the University of Rochester, where her dad was then on the faculty there. Thampi and Liziamma Mathai, conservative Christians, were in and out of First Pres Presbyterian FC during the debates about FPC staying or leaving the UPUSA,

Also at the camp: Patty Baker, who makes the Sunday morning announcements at FPC. Rick Robertson, never saw him with shoes on. Sells real estate. Married to Deanna - who is an elder in the church and works at the front desk in the church office (as a volunteer). He says her church interests are fine with him but he doesn't want to go to church. He said he'd like to talk further with me, and I told him to contact me and we could go to lunch. Gary Rutner, from Culpepper, Virginia, is married to Pam Armstrong, on the staff of the church, woman with the bad arm. He spoke to me a number of times.

I gave discussion/talk Friday night. Started with the "Do you know your environment

quiz, interactively. Then moved from Israel as a promised land to Earth as a planet with promise. Saturday: Joined by Dean and Denise Biggins, who camped near us. I had started a list of plants around the campground and after lunch we walked around some more and came up with a partial and guestimate list.

Plants around campground. Introduced. Lodgepole pine, *Pinus contorta* From Dean Biggins research. "It has become naturalised in some areas including New Zealand, and more locally in Britain; in New Zealand this has become a serious problem adversely affecting native vegetation (papers in Richardson 1998). Although contradictory, both the Latin and common names accurately describe the species: members of subsp. *contorta*, first observed growing near the Pacific Ocean (where David Douglas collected and described the species), are intricately contorted by the effects of wind and salt spray; while trees of subsp. *latifolia*, the commonest tree in Wyoming and much of the remainder of the Rocky Mountains, grow tall and slender, making them ideal material for the lodge-poles of Plains Indian tipis." I also saw comments about the twisted needles on another web site.

moose droppings seen As soon as soon as we got up, next day, a Sunday, bull moose seen eating, maybe 30 yards from tent, at end of woods, eating willows and other rather woody vegetation. Watched it, later with dozens of people, over an hour. Great views, especially with binoculars.

2018. November 12-14, Templeton Prize, King Abdullah II of Jordan, Templeton laureate, prize awarded in Washington National Cathedral.

2018. November 12, Monday, flew to Washington, stayed at Fairmont Hotel Washington in Georgetown. Late arrival due to de-icing in Denver and late reaching Chicago. Taxi line 300 yards long.

2018. Nov. 13, Tuesday. Bused from hotel to Washington Cathedral. High security and long wait out in very cold windy air and in the dark to get in and pass security. Eventually, when they found out who I was, they did seat me up front on the first row, expecting also Paul Davies, who never showed up. Sat beside Randolph Marshall Hollerinth, Dean of the Cathedral. Don Lehr recognized me and helped. Also Iain Torrance found me with cordial greeting. He endorsed Abdullah for the prize.

Ceremony included António Guterres, Secretary-General of the United Nations (Portugal), Hamza Yusuf, faculty Zaytuna College, Berkeley, Ca, America's first accredited Muslim liberal arts college, Miroslav Volf, Yale, various dancers and

singers, including a youthful Jordanian-American Emanne, National Music Conservatory Orchestra,

At the reception afterward, I met him, told him who I was, congratulated him as being the second Muslim to receive the prize. We shook hands, and he asked about my winning the prize, what I had done to win it, and congratulated me. I had been told "No pictures," but people were taking photos all over the place, perhaps a hundred trying to photograph him, often seemed to be embassy officials and personnel from other Middle East countries stationed in Washington. Trouble getting a taxi back to the hotel.

2018. November 19, 2018. Monday. Flew to Birmingham on my birthday. Big surprise, Shonny, John, Rolston, and Ellie Jane had also flown to Birmingham, on another airline, unknown to us.

2018. Nov. 20. Tuesday. Bill Forbes drove us to farm, with Augusta driving another car. Farm house upstairs has been rebuilt with toilet and two remodeled bedrooms. Looks good and we slept well.

2018. Nov. 21, Wednesday. Old smokehouse has been moved but still stands. Walked around the farmhouse area, by the carriage house, and down to the old pumphouse area, with watering trough still there, and located the old well area. Recalling tales of the past. Blacksmith shop is still standing. Bill has a new calf born last night. Drove the car out to see it. Drove to see a huge beech tree on the bluff that had blown down. Some nice leaf colors in here. John, Bill, Shonny and kids made their way down to see the old fishpond spring.

2018. Drove on the south side across mother's land, which I sold to Bill, and down to Lake Mary, with some difficulty finding the road to the lakeside. Drove to Steve DeYampert's land to see an enlarged house he has built there, many cows in his fields. Stopped on return at Andrew's (former slave) old houses several of them, where we once saw the daffodil in bloom.

2018. Rankin Sherling wanted to meet me and stopped by. He is historian at Marion Military Institute, and researches the history of Presbyterians in Alabama. I could give him the story back to the Presbyterian ancestors at Duncan's Creek, SC. Sherling has a book, *The Invisible Irish*, on the Scotch Irish. *The Invisible Irish: Finding Protestants in the Nineteenth-Century Migrations to America*. 978-0-7735-4623-3. McGill-Queen's University Press. 2015. Montreal, Canada.

2018. Drove to Fairview Cemetery, which we managed to find, and found Dr. Daniel

Long's grave (1786-1861) and his wife Mary Long's grave (1803-1884). Getting dark. Ellie and Rolston had been enjoying driving the Gator (ATV) around near the farmhouse. Since we have arrived three calves have been born in the field west of the house and we can spot them with binoculars and then walk out to see them closer. They are as yet unable to stand and nurse.

2018. Nov. 22, Thursday. Thanksgiving Day. Dinner at the farm with Bill and Augusta Forbes, Gusta Forbes Vos, Billy and Janet Forbes, Shonny and John Vander Vliet, and Rolston and Ellie Jane.

2018. Nov 23, Only Jane and myself left in the farmhouse for that night. Couldn't find any matches. Asked Bill later and he said he uses fire starter gadgets, doesn't like matches because if mice and rats gnaw them, then can strike them and start a fire. (Mice do seem to gnaw through insulation on electric wires). When he leaves the house for B'ham, Bill also turns off the power at the main switchbox panel upstairs, for fear of a lightning strike starting a fire.

2018. Nov. 24, Saturday. I drove the CVC they left us to Marion and we looked around. Also found out what time the church service was (11.00 a.m.). At the Presbyterian Church. Also drove around Judson College. Back to the farm to watch the Alabama-Auburn football game. Later Billy Forbes returned without Janet.

2018. Nov. 25, Sunday. Went to church in Marion, and then drove to Uniontown. Got a policeman to help us find the Uniontown Cemetery, and managed to find the gravestones of W. L. Long and Willie Smith Long (my grandparent).

2018. Nov. 26, Monday. Nov. 27, Tuesday. Drove to Mobile National Cemetery, 1201 Virginia Street, Mobile, AL 36604. Drove through some older parts of Mobile with magnificent overhanging trees, forming a tunnel over some of the streets. Also magnificent older mansions. Found the cemetery and grave of 2nd Lt Lucius Lee Deyampert, born 7/29/1920, died 1/11/1944, buried first in North Bengal, India, and later moved to Mobile, section 7, site 2168. He was a pilot and navigator on a B-17, flying cargo over the hump (Himalayas) to the Flying Tigers in Claire Lee Chennault group of about 60 airplanes in China, possibly other supplies for the Chinese, trying to help Chang Kai Shek defeat the Japanese. Lots of graves here. The son of Geronimo is buried here. He was detained by the military and got sick and died in Mobile.

2018. Went to the Fort of Colonial Mobile, built first in 1702. Lots of flintlock rifles in an armory here. Flintlock muskets were the mainstay of European armies between 1660 and 1840. A musket was a muzzle-loading smoothbore long gun that was loaded with a round lead ball. Hammer with flint hit pan and spark ignited fuse into the firing

chamber.

Windy and cold. Went to eat, drove through a tunnel under the Mobile River, and then on an elevated causeway about halfway across the Mobile Bay to a restaurant on the causeway. All the buildings here are elevated one story because the causeway regularly floods during storms. Nice bowl of shrimp gumbo. Drove out on Route 2 and back on I-10.

Returned and went to the Arizona battleship. Walked on the deck where the big guns are. These could shoot large shells 20 miles with accuracy. Lots of other guns, often against air attacks. Shot down 22 enemy airplanes. Loaded weighed 45,000 tons. Crew 127 officers and crew of 2,205 enlisted men, up to 2,500 men, Largely fought in the Pacific. Went to a lower deck and saw 15 minute video of the Arizona in some battles, big guns going off and films of shooting down Japanese kamikaze fighter planes. Impressive and sad. Walked around on that deck. Walked through the plane museum

2018. Walked through the submarine. USS Drum. Commissioned Nov. 1, 1941, Crew was 7 officers and 65 enlisted men. Once we got under top deck and inside, we walked and scrambled through the length of the submarine, with something of a challenge to get through 12-15 small compartment doors (hatches) which they once used to shut off various compartments in emergencies. Saw torpedoes. Hard for me these days to get my leg lifted up that high, unless I also lift it. Met a man inside, now a volunteer helper, who once served in the navy on this submarine, also later on nuclear submarines. Out to supper with another bowl of gumbo, better still, and the largest old fashioned chocolate milk shake I ever drank.

2018. Nov 26, Wednesday. Left Mobile, driving I-65 to Route 21 North. Lots of cottonfields, the cotton being harvested. Reached Monroeville, and ate lunch in an ancient and picturesque café near the Courthouse. After lunch Jane and Augusta walked through the courthouse to a museum there. Monroeville was the home of Harper Lee, who wrote *To Kill a Mockingbird*, also of Truman Capote, a writer. Gregory Peck was here when *To Kill a Mockingbird* was filmed.

Crossed the Alabama River on a high and long bridge, high enough to let barge traffic under it. Then reached Route 5, on which we had come down, and on to Marion. Stopped so that Jane could pick some cotton! Back at the farm about 3.30 p.m. 9 hungry cats, hanging around on the porch waiting to be fed. One of Bills three calves has died.

2018. Nov. 27. Drove into town for Bill to get a camper license. Black vultures eating

an armadillo killed on the road. Bill says when out in the fields he sees an armadillo almost every day. Sees a coyote a couple times a month.,

end 2018

start 2019

2019. March 13, 2019. Blizzard. A "bomb cyclone," which is characterized by a sudden and significant drop in atmospheric pressure. Quick storm, rain earlier in the day, then heavy wind and snow developing in a few hours in the afternoon. Everything was already closed anticipating the storm, schools, CSU, most government offices, even the post office closed at 1.00 p.m. and mail deliveries stopped. A cyclone – specifically, an extratropical cyclone, to distinguish from its tropical counterpart – is a large weather system with low pressure at the center and precipitation along cold and warm fronts. These storms are very common in autumn, winter and spring in the middle latitudes. The central and eastern United States typically see several over the course of a cool season.

What, then, distinguishes a "bomb" from a run-of-the-mill cyclone? The term was coined by famed meteorologists Fred Sanders and John Gyakum in a 1980 paper, and was inspired by the work of the Swedish meteorological pioneer Tor Bergeron. It describes a cyclone in which the central pressure drops very rapidly – an average of 24 millibars in 24 hours, at Bergeron's latitude of 60 degrees north (the value becomes a bit smaller at lower latitudes). This is a lot when considering that variations of 10 or 15 millibars are typical over the course of any given week. "Given their explosive development, it was an easy path to take to just call these systems 'bombs,' Gyakum said.

Snow stopped by 8.00 p.m. but high winds continued blowing it. Decent weather but lots of ice frozen on even snow plowed streets the next day.

2019. Shonny has some crocus, but we haven't seen any. March 20. First day of spring. Crocus in bloom in front yard.

2019. April 19, 2019. Pasque flowers on Good Friday Well Gulch in Lory State Park with Fred Johnson. Drove out to Fred's House reaching him by 10.00 a.m. Cloudless skies. 5905 Blue Spruce Drive. His paved driveway is the second driveway on the left. The numerals "5905" are arranged vertically on a post at the bottom of the driveway. Drove into the park in his car, so I didn't have to pay the park fee. Reached Well Gulch. Nature Trail trailhead. Busy with a couple of school groups led by park rangers and teachers. Salt and Pepper, Lomatium orientale. Spring Beauty,

Claytonia rosea = C. lanceolata Eventually hundreds of them. White to rose colored, especially the anthers. Weber and Ackerfield make this two species, with this one C. rosea. Wavyleaf Dandelion. Nothocalis cuspidata. Storksbill. Erodium cicutarium. Yellow Alyssum. Alyssum alyssoides. a mustard. Clematis. Clematis hirsutissima in good bloom, but only one plant so found. Galium spurium. Bedstraw vining, Ells calls it Stickywilly but I never heard this name. Yellow violet. Viola nuttallii. Physaria (Lesquerella) montana.

2019. Found two dozen pasqueflowers in full bloom, often in clumps of 6-8. Lovely sights. All were to the north side of the trail and required scrambling 30 yards off the trail. Continued up the trail and found a dozen more. Continued to where the trail returns to woods and drops down into a gulch drainage, but did not go all the way up to the trail junction T where the Well Gulch Nature Trail meets the main Well Gulch Trail, and where I found them in previous years.

2019. Apr. 30, 2019. Late snow. Snowing when I got home yesterday, and snowed off and on all night, 6-8 inches on picnic table at breakfast. Little on the streets.

2019. May 1, 2019. We have lived in this house fifty years today!!!

2019. June 21-24, 2019. Templeton Annual meeting in Nassau. Mostly a stay inside a fancy hotel. Hotel complex keeps a pen, size of a tennis court, with some 15 flamingos in it, which we watched half an hour before a dinner.

2019. July - John Vander Vliet has been building a tool shed in our backyard, helped by Rolston, especially carrying the long panels and 2/4s.

2019. July 10-14, 2019. International Society for Environmental Ethics (ISEE) Annual Meeting in H. J. Andrews Experimental Forest, Oregon.

July 10, Wednesday, up at 1.00 a.m., to catch shuttle at 2.30 a.m. to arrive at Denver Airport at 4.00 a.m. 6.40 a.m. Delta flight to Seattle and then to Eugene, Oregon arrive at 10.45 a.m. Found others, and waited until about 2.00 for Allen Thompson, who had his car and drove us to the forest. Lots of winding around busy streets and thoroughfares, including a stretch on I-5, then winding up a highway with Christmas tree farms and fruit tree orchards, also winter wheat already cut. Then drive along McKenzie River and turn to wind uphill (Blue Creek, I think) and reach the Experimental Forest.

2019. Jerry Franklin, "Against the Grain," Science 6 October 2017. Vol. 358 (issue 6359):24-27. Once director here, then: let nature take its course. But now he

advocates more forest management, including selective cutting, to speed up the regeneration process.

The H.J. Andrews Experimental Forest: Seventy Years of Pathbreaking Forest Research. 2018. Robbins, William G. 2018. The H.J. Andrews Experimental Forest: Seventy Years of Pathbreaking Forest Research. Oregon Historical Quarterly. 119(4): 454-485. doi: 10.5403/oregonhistq.119.4.0454

<https://andrewsforest.oregonstate.edu/publications/5082>

Their website: <https://andrewsforest.oregonstate.edu/>

OSU research magazine, Terra, Seedbeds of Collaboration

Cooperation sprouts alongside firs and hemlocks in the H.J. Andrews Experimental Forest

<http://terra.oregonstate.edu/2019/05/seedbeds-of-collaboration/>

2019. Papers and program went on Wednesday night, all day Thursday, and morning of Friday.



Discovery hike Friday afternoon.

Mostly terrain I could handle but at steep spots I held on to Allen Thompson. I didn't try to finish the last part of it. We hit a road where Allen and I walked back to the camp.

Doug fir *Pseudotsuga menziesii* named after David Douglas, exploring Oregon 1825-1827,

Western Hemlock. *Tsuga heterophylla* Often with droopy top

trillium

huckleberry

Oxalis Sour grass

Mahonia (former genus), Oregon-grape. Holly-grape. *Berberis aquifolium* (present genus) State flower of Oregon. (Barberry Family) dark blue berries resemble grapes bigleaf maple. *Acer macrophyllum*.

Western red cedar. *Thuja plicata*.. Leaves supposedly look like a butterfly or bow tie from below.

Vine maple *Acer circinatum*. Erect shrub with helter-skelter branching, crooked stems, looking for light, up to a small tree. Distinctive leaf.

Elk clover. *Aralia californica*. *Araliaceae*. Ginseng Family. the only member of the ginseng family native to California and southwestern Oregon. It is also called California aralia and California spikenard. Prominent shrub in these woods, though hard to find in the manuals.

Oplopanax horridum is Devil's Club

Kinnikinnic. *Arctostaphylos uva-ursi*.

Rhododendron. *Rhododendron macrophyllum*. Pacific rhododendron.

Tim Fox gave a talk on spotted owls. He went to University of Wyoming and worked in spotted owls for 10-15 years. He has read some of my work. Now he does other things, including works with native Americans with claims in the Andrews area. He produced with his mouth various kinds of owl calls.

Literature:

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<https://video.nationalgeographic.com/video/news/00000147-44e1-d0da-a567-5cf7c4480000>

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2019. July 14, Saturday. Flew home. Meeting continued all morning, with some sub-meetings surrounding lunch. I needed to get away, with Allen Thompson driving, and we did get away about 2.30 p.m. with some concern about getting there in time for a 5.06 p.m. takeoff to Seattle. I needed a comfortable 4.15 check-in at the latest, or they might refuse to check my bag. Got there about 3.45, it was o.k.. Reached Seattle for a 7.36 p.m. takeoff.

But reaching Denver I reset my wallet watch one hour the wrong way and that messed me up. I waited two hours for the limo, but I missed the one I was supposed to take which would have been earlier. But they re-scheduled me on a later one. Had to change to a local van in Loveland from which they made Fort Collins home deliveries. This did mean I was 3.15 a.m. getting home. Whipped.

2019. August 31-September 1. Redfeather Lakes to visit Shonny on her newly acquired property there. Shonny picked up Jane and me at 11.00 a.m., in her car and

we drove to Red Feather, or more accurately the Crystal Lakes area, a private area 6-7 miles west of Redfeather lakes. A lot of upgraded gravel-dirt road, basically all the way from Red Feather village to her property. This sits on the n.w. side of an airstrip there. Crystal Lake was once called Panhandle Reservoir, and sits on Panhandle Creek. A community center with store and meeting hall, restrooms and showers, is called Base Camp

2019. Did little that afternoon. Did drive up above west end of Crystal Lake to a pond where John, Rolston, Ellie tried some fishing. I walked across the small dam and a bit on some trails into the woods on the far side of the dam. Found small tree of Douglas Fir. *Pseudotsuga menziesii*

The mountain on their skyline to the west is Black Mountain (summit 9949 feet). This area was once Black Mountain Ranch. (Both shown on South Bald Mountain topo.) Rick Vander Vliet and his wife are here, in their camper. Rick had a huge dog, named Jack, and Shonny had her Sunshine, which were simultaneously amusing, Sunshine's antics about Jack, and a nuisance. Supper was Texas hash that Jane had made and brought up. Their trailer is on an open sage brush area. This has been a wet year for them and everybody else, but still seemed quite dry.

Plants around the camper. Sulphur flower. *Eriogonum umbellatum*

Gooseberry. *Ribes*. Don't know which one. *Penstemon*

Slept in their bedroom, decent bed but very little room to maneuver around it to get in and out of the bed. Toilet and shower at one end of the room, which was also the toilet for everybody else, who came in a different door. Comfortable the first half of the night and then got a little cool.

2019. September 1. Sunday. Slow start, coffee in mug outside, Shonny was still sleeping on a pull out bed in the kitchen main room area. Eventually got a nice brunch about 10.30 a.m., cinnamon buns and some biscuits she had baked.

2019. John and I took off, maybe 11.30 to hunt up Creedmore Lakes. Found the Prairie Divide Road, dirt becoming rougher, and reached Creedmore Lakes, lot jammed with cars. Walked a trail/road that we thought would take us to the lakes, but failed, and turned back after maybe half a mile of hiking, although the trail probably did go to the upper lakes. Some good ponderosa pines in here. Passed lots of old fire pits.

Back to the parking lot and took a trail down to the first lake, maybe .2 mile and a rough road, but something of a scramble for me. Did it slowly with my hiking poles. Lots of people camped along the way. Got down to the lake, seen nicely. Returned.

Started back home about 2.00 p.m., slow driving over the rough road. There is a road

turnoff up goes down Bull Creek, which is the Prairie Divide Road continuing. A road off this goes to Lost Lake, and the road continues on and back to Red Feather Lakes that way.

John took a loop off it to find where a friend had a cabin. Got back to camp maybe 3.00 p.m. and slow afternoon after that. Joined in camp by a Stephanie, who is buying the lot next to Shonny. Joined by Terry DeZeeuw and his wife Elaine, and their two children. They eventually went off to see if they could find a moose.

Campfire. New moon. Venus in the evening sky. Maybe 8.30 left to come back to Fort Collins with Terry DeZoeuw and his family. Home about 10.00 p.m. Enough day. In the eastern U.S. Hurricane Dorian is hitting the Florida, Georgia, and South Carolina coasts, 3 million people under mandatory evacuation up the coast.

2019. October 16. Wednesday. Went to memorial service for Heather Prochaska, wife of Mark Prochaska, at the Timberline Church, Gave a prayer and committal. Daughters Hanna and Kylie, twins adopted from China. Lots of firefighters and five trucks.

2019. November 25-26. Started snowing hard about supper time, Monday. Snowed all night and continuing Tuesday hard until early afternoon. The 15.5 inches of snow that were recorded in Fort Collins was the second most snow on record in Fort Collins in November. Jane had an appointment for some serious dental work and that got cancelled. John Papile snowplowed the driveway and his big snowblower could hardly handle it.

2019. November 27, Tuesday. Official low -1°. Our back porch 4.3°. Lost TV signal from snow piled up over the TV satellite dish on the roof.

2019. December 25. This was something of a blue Christmas. On Christmas Eve, my seminary roommate, Bob Crumby, died in Nashville, Tennessee. We had been in steady contact over seven decades. He was in our wedding, and the last person alive that was in the wedding. All of us are a year closer, and us seniors are a lot closer to facing the great beyond.

end 2019

2020.

start 2020



Chambers Lake = Cameron Peak Fire - August 18, 2020 - from Poudre Pass Road



Indian Peaks as seen from Brainard Lake.



Comet NEOWISE 2020.

2020/2021.

“Ecological Aesthetics and Ethics in the Post Epidemic Era” Online at:
<https://hdl.handle.net/10217/233885> Rolston was invited to and prepared and delivered a video presentation to the International Symposium on the Development of Ecological Aesthetics in the Post Epidemic Era, held August 28-29, 2021 at Shangdong University, Shangdong, China. Videographer: Ron Bend, CSU Media. Includes Chinese text following Dr. Rolston's lecture.

finish 2020.

2021.







Scattering the ashes of Giles Rolston in the Arapaho and Roosevelt National Forests.



Scattering the ashes of Giles Rolston in the Arapaho and Roosevelt National Forests.

Library of Congress Number: B818 .R665 2008

2021. *Animals: Mentality & Morals 2021* is a special publication arranged by the Colorado State University Department of Philosophy, during the failing health of Bernard E. Rollin and presented to him a few days before his death on November 19, 2021. The principal producer was Richard F. Kitchener. A small number of copies was printed, both hardbound and paper. There are seven contributors to the anthology. This anthology was first undertaken in 2016 but not published at that time. 129 pages.

Reprinted here is the Rolston contribution: "Animal Welfare and Environmental Ethics"

<https://hdl.handle.net/10217/234039>

Bernard Rollin's main concerns are domestic and research animals. Tens of thousands of such animals have endured less suffering as a result of Rollin's seminal work. Animals are of moral concern because they have conscious interests, or telos. Rollin has theoretical or in-principle ideals that are unlikely to be accepted as current practice. In result he adopts more moderate moral principles. In the fair-contract, husbandry dimension of agriculture, the farmer takes care of the cows and pigs, recognizing their rights, and then eats them, or sells them to be eaten. Environmental ethicists add that there are considerations in a more complex ethic, predation for example, that cannot be reached by conferring rights on them. Rollin reaches a strange combination of kinship and chasm separating human and animal minds. Rollin's account of any deeper environmental ethics for a biospheric Earth is unsatisfactory, as is any respect for life beyond respect for sentience, especially his concepts of endangered species.

2021. "Ecological aesthetics and ethics in the post epidemic era." Dr. Rolston was invited to and prepared and delivered a video presentation to the International Symposium on the Development of Ecological Aesthetics in the Post Epidemic Era, held August 28-29, 2021 at Shangdong University, Shangdong, China. Online at: <https://hdl.handle.net/10217/233885> Includes Chinese text following Dr. Rolston's lecture.

The largest and most threatening pandemic in human history has humbled arrogant humans, locked us up. The virus in a couple months has stymied human achievements, aspirations, and freedoms. The upsetting surprise is that this tiny bit of nothing, not even alive, that you can't see even with a microscope, is upsetting our local and our global ecologies. We wonder why and how viruses can have their place in a wonderland biosphere. One big worry is that, developing a vaccine, we will miss this opportunity for more caring, love, and solidarity in our human communities, for pandemic justice. Biological nature is always giving birth, always in travail. Death is a necessary counterpart to the advancing of life. The music of life is in a minor key. The

global Earth is a land of promise, and yet one that has to be died for. Earthen natural history might be called the evolution of suffering, or, equally, the evolution of caring. Life is perpetually perishing, yet perpetually regenerated, redeemed. In the post pandemic normal, it is impossible to go back to where we were. We must embrace nature and culture on Earth as it is and as it is becoming. Videographer: Ron Bend, CSU Media. 35 minutes 59 seconds

2022. Libenson, Sam and Justin Wong, "An Interview with Holmes Rolston III," *The Harvard Review of Philosophy* 29 (2022):131-136.

Online at: <https://hdl.handle.net/10217/235823>

Holmes Rolston is interviewed by Sam Libenson and Justin Wong. Environmental ethics is about appropriate caring and respect for wonderland Earth and its inhabitants, each flourishing according to its own nature. Earth is a marvelously distinct planet with the richness of life that has evolved here. A wonderland? Life contains information, encoded in genes, about how to construct and maintain an ongoing form of life. This is more marvelous than elsewhere in the universe so far as we know. Part of the meaning of life can be found in science, but not the deeper meanings in religion. We ought to use technology save half-Earth.

2022. December 2, 2022

Mauna Loa, the world's largest active volcano, began erupting this week for the first time since 1984.

2023. Rolston Professor Willa Swenson-Lengyel in Zoom Interview with Holmes Rolston. February 10, 2023 at 12.00 p.m. MST = 2.00 p.m. EST 44 mins, 14 secs. Anne Wills, Chair of Religious Studies at Davidson College also present.

Online at: <https://hdl.handle.net/10217/236269>

Rolston presents a series of two dozen slides that describe how he moved from being an undergraduate in physics and math at Davidson College in the 1950's through a career in science and religion for which he was in 2003 awarded the Templeton Prize in Buckingham Palace by Prince Philip and Jack Templeton. He immediately donated the prize, worth about \$1.5 million, to Davidson College to establish an endowed chair in science and religion. Rolston engages in conversation with Willa Swenson-Lengyel, who in 2022 became the second person named to the chair, about why she took the position and what she expects to accomplish in it. Discussion of liberal arts and teaching the promising Davidson students how to think creatively in multiple disciplines.