Trail Log - 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.

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.

February 2, 2016. Snowstorm, lasted 24 hours. 17 1/2 inches of snow measured on the patio. CSU and all schools closed.

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.

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.

Antelope

12
8
20
6
6
7
6
10
10
total 85

Some gusty spots to 35 mph+

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.com

supper

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, Thīer 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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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)
ltcarolan@optonline.net

Duane Campbell (Sammamish, WA) Seattle, works with Microsoft
duanec@dcampbell.com
Anita Campbell
anita@dcampbell.com

John and Robyn Hanson (Grand Marais, MN)
john.w.hanson@hotmail.com
Minnesota. couple who sometimes had wolves in their yard at home.

Tom Foster, white beard
tefoster@centurylink.net

Sarah Foster (Bozeman, MT)
bozemansaf@gmail.com

William (Bill) Tew Johns Hopkins, now Park City UT
wptew1@gmail.com

Pam, Pamela Maupin (Park City, UT)
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cell biologists, long at Johns Hopkins, now in Park City, UT

Julie Lodge from Arizona
& Terry Vipond (Pine, AZ)
jlodgedvm@gmail.com

Sue Gallagher (Alameda, CA) OB nurse
suevee1010@msn.com

Roosvelt 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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Leigh Ross, his wife, blonde, works in philanthropy
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Ray and Sue OB nurse
Raymond and Susan Mosher (Baldwinsville, NY)
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Jessica Latshaw, Saskatoon, SK. Anglican priest.
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Holmes Rolston (Fort Collins, CO)
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Brenda Papera (Program Assistant)
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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/

“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.”

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.

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.

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.

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.
926F adult black
992M adult male, black, called "Twin"

back to the Ranch. lunch

afternoon off.

cottontail near the cabin. rather tame, eating grass.

supper

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

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 move outside the park.

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.

talk by Rick McIntyre

Roosevelt got some great photos and a couple movie clips.

YellowstoneWolves.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 trot 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 wolves is the best pack 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.

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.

Wolf from the Junction Butte Pack - March 2016. Photo by Len Carolan.

pizza for supper.

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.

March 27, Easter Sunday. Took Rolston and Ellie out to Lory State Park to look for Pasqueflowers. Only found one in good bloom but did find the one, a Pasqueflower on Easter Sunday, and Easter is early this year. Half the trail and over half the landscape covered with snow from the midweek blizzard, and not too easy getting up parts of the trail -- though the kids thought it was fun falling down in the snow. Meanwhile I was thinking life returns even after blizzards - perhaps a metaphor for what has been happening in our family the last two weeks, with Shonny's surgery.

April 9, 2016. Philosophers' hike with Fred Johnson, John Didier, Fred Enssle. Arapaho Bend Natural Area. Just north of Harmony Transfer Parking lot, and there are two more parking lots. We went in the middle one. Ponds from gravel pits. Nice day. Nothing exciting and little birdlife, little on the water. Nice cormorant. Blackbirds. One meadowlark seen nicely in prime breeding color. Poudre River runs through it and was flowing fast. Little in flower. Nice cottonwood catkins. Western dock (*Rumex occidentalais*), leaves and last year's tall fruiting stalk, 6 feet high. Yarrow, foliage only. American yellowrocket (*Barbarea orthoceras*). Storksbill, Filaree (*Erodium cicutarium*), Geranium family. Low and barely above ground, but flowering.

Mid-April. Rabbit in the back yard.

May 8, 2016. Gateway Park, alone, mostly prowling. Nice day.
Strolled in the morning up toward the reservoir, looking for Pasqueflowers, and too late to find them. Up a bit on the Black Powder Trail. Lunched back at the car. Napped. Then a short walk on the nearby Overlook Trail. This latter trail is the one where the

last part of my Pasqueflower video was filmed.

Mouse-ear chickweed. *Cerastium strictum* billions ! of them. 5 petals so deeply notched that they appear to be ten.
Spring beauty. *Claytonia lanceolata*. thousands of them. Nice sight.
Yellow mustard - probably more than one species
Sand Lily. *Leucocrinum montanum*. Dozens in prime bloom.
One Pasqueflower gone to seed.
Pin cherry.
Gooseberry. *Ribes aureum*
Draba, which one?
Erigeron spp. Fleabane, white daisy with yellow center.
Yellow violet. *Viola nuttallii.*

Chorispora tenella, Blue Mustard, though the petals are as pinkish as they are blue. Petals are pinched inward at their base, a diagnostic mark. Weedy in roadsides, also in fields.

May 7, 2016. Devils Backbone, with Fred Johnson, John Didier, Fred Enssle
Cold and windy. Lots of joggers, with big dogs even in the cold.

cutleaf vipergrass *Scorzonera laciniata*
Colorado locoweed *Oxytropis lambertii* pink-purplish
field milk vetch *Astragalus agrestis*
wild plum *Prunus americana* a number in good bloom.
blue mustard *Chorispora tenella*
bastard toadflax *Comandra umbellata*
Nuttall's violet *Viola nuttallii*
skunkbrush *Rhus aromatica*, flowers emerging, not full out
alpine besseya *Besseya alpina* Fred saw this up top. I didn't get quite that far.
hairy puccoon *Lithospermum croceum* yellow
common alumroot *Heuchera parvifolia*
death camas *Zigadenus paniculatus* - Fred saw it, I didn't.
sandlily *Leucocrinum montanum* Lots in splendid bloom
cutleaf Agroseris, *Agroseris glauca lacinata*
Western wallflower, *Erysimum asperum*

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.

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

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.
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?

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.

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.

met Shang-Jen-Chen, the president, relatively young, with Ph.D. from Princeton

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.

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 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. 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 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.

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.

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.

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 that in First Presbyterian Church, Fort Collins
three big PPT screens. 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.

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.

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.

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.

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 (taloes). 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, 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 restaurant in a bookstore, on 2nd floor.

Then taken to a campus hotel.

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.

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.

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, 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. 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

Rolston with Chen Chien-Jen (center) Vice-President of Taiwan

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.

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.

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.

ccchan@ntu.edu.tw

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).

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 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.

The day's trip circled around Yangmingshan National Park.

Drove back to Taipei, saw "101" the tallest building nearing the hotel. Back at the hotel at 5.00 p.m.

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
solfataras 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.

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.

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.

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.

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 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.

Banff and Icefields Parkway June 2016

June 24, 2016. Friday. Flew to Calgary.

Green Ride connections too close and we didn't make the 8.05 a.m. plane because they couldn't get our luggage on in time. So, fortunately, they put us on a flight a little after 11.00 a.m.

Landed in Calgary to have to wait on the tarmac because of a lightning storm, and baggage workers couldn't handle our baggage. After 45 minutes, we moved in close to the gate, but still had to wait on the plane another 45 minutes. Frustrating.

Templeton had arranged a pickup and they did meet us. Bussed to Banff, an hour and a half drive mostly on the Trans Canada Highway No. 1, to upscale Fairmont Hotel, and barely made the opening dinner Friday night on time.

June 25, Saturday. Meeting in morning. With two breakout sessions. Walked downtown in afternoon, a little over a mile, and with rain starting, caught a bus back to hotel.

June 26, Sunday. Up for a worship service, then breakfast.

Then meeting in the morning, one breakout session, and bused on Trans Canada Highway, to Lake Louise in the afternoon, with picnic lunch on the bus. Good guide on the bus.

The highway is fenced on either side. There are half a dozen "Animal crossings" in this

stretch of highway. The highway, four lane divided highway, cuts right across the park and disturbs animal behavior. They first tried animal underpasses, but these didn't work well. Animals used them, 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/

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. Canoed 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.

Jane bought some muskox yarn.

Dinner in the event at the Red Barn. Country style, with music. Enormous amounts of food.

Bused back, back in hotel about 10.00 p.m.

June 27, Monday.

Bus to Calgary airport and picked up rental car. Slower than I thought and we were not driving the Trans Canada Highway back until 1.00 p.m. or so. Made it to Banff, or the junction below it, and took Radium Spring turnoff, and found our evening hotel about 4.00 p.m. Baker Creek Lodge. Nice resort, with a jacuzzi in our room. Evening meal in their restaurant, some kind of local stew. Alberta is cattle country and they think well of their beef.

July 28, Tuesday. Up at 6.45 and breakfast in the room.

Left Baker Creek Lodge 9.45 and drove to Lake Louise skirting it to get on the Icefields Parkway, Route 95.

Some rain but later good weather. Nice drive north through super spectacular mountains, with larger and smaller glaciers.

Busy, especially in the pullover areas.

Some photos.

Crowfoot Glacier - photo
talus slopes - couple photos

Reached Saskatchewan River Crossing, “Crossroads,” and bought gas and Pepsi.

4 bighorn rams crossing on the bridge over the highway. Nice sight, and walked 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.

We picnicked in Rampart Creek hostel campground with some mosquitoes.

Reached Athabasca Glacier and Columbia Icefields up top.

Got waved by where I wanted to turn in and had to park in a huge overcrowded parking lot half a mile beyond. 500 cars in the lot. Walked stairs to Interpretative Center and Hotel.

Cordial once we found the hotel, and an attendant (from Australia) took me back in a van and we found the car and I followed him back and he brought me around to a parking spot close in. Took the luggage all the way to the room.

The room had a spectacular view of the Athabasca in the distance, maybe three quarters of a mile off. A hundred years ago the glacier came down to where the road now is..

Ate supper in the cafeteria.

It is -40 degrees here in the winter.

No cell phone, but we did have internet.

Long lines to buy tickets to snowmobile trips onto the center of the lower glacier fields.

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.

Athabasca Glacier, Icefields Parkway. View from our Hotel Room Window

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.

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.

Shepherdia, with berries.

reached Jasper. Bought groceries and ate at a picnic table on the side street outside the store.

Checked by the Astoria Hotel and found the Jasper National Park Interpretative Center. Good bookstore.

Rest of the afternoon spent driving 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 and I got a decent picture.

Bear with two cubs - Maligne Lake road

Reached Lake Maligne, and walked around. Parking area too far from the boat dock and never found the interpretative center.

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.

returned to Jasper. Bought gas and got enough food for supper at the grocery store.

Room was too small and the worst of the trip.

Thursday, June 30.

Drove to Calgary. Left 7.20 a.m.

Often hard rain to the Icefields, though the mountains were in and out of the clouds, often a nice sight.

in light rain

reached Saskatechewan River Crossing 10.30 a.m., and bought lunch. Sunny through here.

Ate lunch almost at Lake Louise in picnic area, with Jane in car to avoid mosquitoes and rain, and me at the picnic table getting the food ready to eat in light rain.

reached Trans-Canada Highway and hard rain.

photos of animal crossings.

reached Banff and drove back into Fairview Hotel so Jane could use toilet.

downpour to nearly to Calgary, and some hail hitting hard on the car.

I had to drive quite slowly owing to poor visibility and lots of splatter.

This was the longest really hard downpour I recall driving in.

Rain stopped and cleared some 25 km from Calgary, and we found the hotel.

Residence Inn, quite nice.

Friday, July 1.

marvelous breakfast.

Got lost going to the airport, misled by Google maps, also by airport detour signs that were no longer functional.

I had to go back to the hotel and get a map to go a long way around, three sides of a large quadrangle to get on the north side of the airport.

Fairly long lines for security and customs. U.S. Customs is here in Calgary.

Good flight.

Got on the 3.10 Green Ride Limo, and very slow on I-25, bumper to bumper. July 4 weekend.

Home 5.15 p.m.

Fall River Road - July 12, 2016. with Fred Johnson.

mostly the plants list.

yarrow. *Achillea lanulosa*.

Oenothera sp. Evening primrose

Grindelia subalpina. Subalpine gumweed

Potentilla fissa Leafy cinquefoil. *Drymocallis*

Rosa woodsii (*blanda* in Ackerfield)

Arnica latifolia. Broad-leaved Arnica

Galium boreale. Northern bedstraw

Geranium caespitosum. Pineywoods geranium

Heraculum spondylium. Cow parsnip

Mertensia ciliata. Tall chiming bells

Lonicera involucrata. Bush honeysuckle

Epilobium angustifolium. Fireweed

Jamesia americana. Waxflower

Solidago sp.

Sedum lanceolatum. in some spots spectacular on rock slopes

Erigeron pinnasectus. Pinnate-leaved daisy

Eriogonum umbellatum. Sulfur flower

Allium cernuum. Nodding onion

Apocynum androsaemifolium. Spreading dogbane

Goodyera oblongifolia. Rattlesnake Plantain. Orchid. Flower heads not yet open.

Polemonium viscosum. Sky Pilot

Chimaphila umbellata. Pipsissewa (Prince's Pine)

Habenaria = *Platanthera dilatata*. White bog orchid

Sambucus racemosa elder, in bloom

Polygonum bistortoides. Bistort

Pedicularis racemosa. Sickle-top lousewort

Paintbrush. spp.

Penstamon whippleanus. Whipple's penstamon

Grimmia affinis ?? moss on flat rocks, white hairtips

Pyrola = Moneses uniflora. Wood nymph single nodding flower

Equisetum. Horsetails.

Heuchera parviflora. Common Alumroot

Pedicularis groenlandica. Elephantella

Thermopsis rhombifolia. Golden banner

Circium scopulorum. Frost ball. Thistle

reached Chapin Pass, with some short trails, but still no trails to Chapin, Chiquita, and Ypsilon

> 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

Sedum integrifolium. King's crown.

lunched on grass just above timberline. perfect day and good view.

Aquilegia coerulea. Colorado columbine

Mertensia alpina. Alpine bluebells..

Erysimum asperum. Western wallflower

Phlox pulvinata. Alpine phlox

Silene acaulis. Moss campion

Minuartia (= Arenaria) nutallii. Sandwort Minuopsis names differ

Trifolium dasyphyllum. Alpine clover

Caltha leptosepala. Marsh Marigold. No *Trollius* seen.

reached the visitor center.

Androsace septentrionalis (occidentalis). Northern Rockjasmine

return on Trail Ridge Road.

Phacelia sericea. Purple fringed Phacelia

200 elk nicely seen with quite scenic background.

Tetraneuris (Hymenoxys) acaulis (brevifolia). Goldflower Names differ.

deer near roadside

Gaillardia aristata. Brown-eyed Susan

Monarda fistulosa. *Wild Bergamot*

nice day all around.

July 18-22, 2016, Norfolk, Virginia Beach, Family Reunion.

July 18, Monday., Up early for 8.20 a.m. flight to Chicago. No problem.
Flight from Chicago to Norfolk, had to sit on the tarmack 45 minutes while they changed a tire on the plane.

met David Rolston at the airport.

Walked down to the beach that evening at twilight. Good sunset at the same time as moonrise.

July 19, Tuesday. 10-12.30. Walked in First Landing State Park with Dave Rolston and Randy Gore, mostly along a beach, then back on a road. Some nice Spanish moss in here. Saw several birds we identified as juvenile yellow crowned night heron, and

watched them stalk and catch crabs, grasshoppers. There had been a fox in this part of the park that had attacked people's pets, maybe some people. Maybe rabid, so some trails were discouraged.

Early to mid afternoon on the beach and I got in the water.

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, watched at some length. One turtle on a log. Lots of sweet gum.

Wednesday afternoon 4.00, visit with Jeb Tolley, Kay Tolley, and Susan Clements, formerly in the Walnut Grove Church, Bristol, Va. Jeb has had a kidney transplant but is doing well. Kidney donated by his wife, Marsha.

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

Dolphin with barnacle *Xenobalanus globicipitus* on fin

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 thousand 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.

July 22, Friday. Left the beach house 11.45, for 2.30 p.m. takeoff. Flew home, through Dulles. Norfolk to Dulles o.k., but plane hot, small propeller plane. Dulles to Denver left late but made up the time. Home at 11.30 p.m. Took all day.

September 1, Thursday. Hike to Cub Lake. RMNP, alone.

Nice day, good weather, but the 4.6 miiles left me whipped. Trail goes out across Moraine Park over several ridges, ups and downs, then goes west up the gradually narrowing Moraine Park, lots of level hiking and some ups and downs, as the rail stays on the north side of the wetlands.

Then the trail begins to climb pretty much in woods. Reached Cub Lake about 12.30, two hours of slow hiking, 2.3 miles. Kept moving and didn't try to do much with the flowers. Good bracken, some good ponderosas. Good trail, though often quite rocky spots and some high stepping.

Cub Lake is not attractive, area burned in 2012. Water lilies at one end. Ate there, and trudged out. Got out about 3.15. Lots of people on the trail, though not all that crowded. I have never done this trail before, though I had seen Cub Lake coming in from the other side.

Sept. 17, 2016. Bobcat Ridge Natural Area, morning hike with Fred Johnson, John Didier, Fred Enssle, and Pat McKee. Drove there by the Loveland , Route 34, Thompson school route. Not too far from the Masonville Post Office. Last turnoff is on County Road 32C., a little south of Masonville, with sign on the Masonville Road.

Rather developed as a natural area, parking lot, corrals for horses, toilets, and two rangers at the entrance. I don't think I have ever been here before, certainly since this development. Basically none of their trails are shown on my old topo map. On trail about 9.15 a.m. Did what they call the Valley Loop Trail, going slightly uphill, 0.48 miles, then a north trending trail, 1.25 miles, reaching the Powerline Trail, and down it 0.48 miles, then return 0.81 miles on a lower trail/road, pretty much a level walk. Did it o.k, but had to keep moving to be out by noon. Spent some time looking at flowers.
Lots of rabbitbrush in good bloom. (*Ericameria nauseosa*, formerly *Chrysothamnus nauseosus*)

Sunny, pleasant day. On the whole rather scenic, rolling grasslands with some groves of lodgepole and some ponderosa in the draws and swales. Trail camera on the trail and those photographs are online at:
http://www.fcgov.com/naturalareas/pdf/bcr-camera-summary.pdf.

Out about noon and returned via Masonville and Horsetooth Reservoir, stopping at Fred Enssle's (and Halcy's) home in the hills surrounding Horsetooth Reservoir. On the western side just beyond where it tops out, take Deer Trail, dirt road, then Valley Vista Road. Nice home with a veranda overlooking wild area and the Horsetooth.

September 24-25, 2016. Colorado Native Plant Society Annual Meeting, Boulder.

Saturday. Up early and off still in the dark at 6.30 a.m. Arrived in plenty of time, at the McAllister Building on a part of the University of Colorado campus called the Sustainability, Energy, and Environment Complex (SEEC). not far off the Foothills Parkway. Parking $ 10 for the day.

Dieter Wilken, 40 Years of Change in Bioinfomatics. Several good conversations with him, long ago at CSU in the herbarium, and now retired from 30 years at Santa Barbara botanic gardens in California.

lots of recognition of founders 40 years ago

0n the board is 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. Good conversation with her.

Bill Weber, “Colorado and the World.” He is in wheelchair, but stool 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 basiodomycetes 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.

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.

Tim Hogan, works in the CSU herbarium, and knows my work, also that of Phil Cafaro

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.

Pizza supper with the group, then to the motel, Broker Motel, which I had located at a break in the afternoon. Decent, not outstanding. Good night.

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.

Great confusion about where to meet. I had left the motel in plenty of time with some confusion about where I was going, said to be the Flatirons Vista/Doudy Draw Trailhead, west of Highway 93, south of Boulder. My maps seemed to place it near Eldorado Springs, and I found that turnoff, but in a big gas station/convenience store the (oriental) clerks did not know. Eventually found the Doudy Draw Trailhead, with big parking lot (and parking fee) and others going on the hike, but no leaders. Turned out

the Flatirons Vista and the Doudy Draw were two different trailheads, and took half an hour to get this sorted out Trial leader eventually showed up and we followed her to a somewhat obscure parking area off Route 93.

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.

Two coyotes seen nicely, running across the grasslands.

Off in the distance was a line of trees (ponderosas) lining a draw.

The grassland vegetation here is more or less good at resisting weed invasions.

There is a red clay layer some 50 cm down, which blocks and holds water in the rocky soul.

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.

Made our way back, seemed to me the long way round, on the other side of the pond. Back at the car *about 12.15 p.m.*

I couldn't keep a list of all the species pointed out, but some of them were"
Andropogon gerardii, Big Bluestem
Artemisia frigida, Fringed Sage
Asclepias stenophylla, Narrow leaved milkweed
Aster porteri, Porter aster, in bloom
Bouteloua curtipendula, Sideoats gramma
Bromus japonicus, Japanese brome, a weed
Buchloe dactyloides, Buffalograss
Carex pensylvanica ssp. heliophila, Sun Sedge
Carex stenophylla ssp. eleocharis, Needleleaf sedge
Chondrosum gracile, Blue gramma
Comandra umbellata ssp pallida, Bastard Toadflax, a troublesome weed.
nipple cactus
Draba reptans, Carolina draba
Elymus elymoides, Squirrel tail
Epilobium ciliatum, Fringed willowherb
Eremogone fendleri, Sandwort. Arenaria
Grindelia squarrosa, Curly cup gumweed
Hesperostipa comata. Needle and thread grass
Hypericum perforatum, St. John's wort, which they consider a weed
Muhlenbergia montana, Mountain muhly
Muhlenbergia richardsonis, Mat muhly
Oenothera caespitosa ssp. macroglottis, Evening primrose
Opuntia macrorhiza, Prickly pear cactus
Padus virginiana ssp. melanocarpa, Chokecherry. She puts *Prunus* in *Padus*.
Poa compressa, Canada bluegrass. with debate about whether it is an exotic here
Psoralidium tenuifolium, Wild alfafa, surfpea
Schizachyrium scoparium, Little bluestem
Yucca glauca, Spanish bayonet

Drove home, arriving 3.15 p.m.

From Boulder Parks and Open Space website:

Jewel Mountain HCA (Habitat Conservation Area)

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.

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 southnof 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.

Ratibida columnifera, prairie coneflower With long cone.

Mentzelia multiflora, Adonis blazingstar

Cercocarpus montanus, Mountain mahogany

Grindelia squarrosa, curlycup gumweed. With sticky and recurved ends on the phyllaries.

Various conversations about aesthetic experiences there great and small (including the seeds).

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.

Dec 7, 2016. 5 ½ inches of snow fell during the night.

Dec 8, 2016. -4° when I got up.

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.

end of 2017 Trail-log