

STEWARDSHIP INCENTIVES PLAN

For:

Lily Gelb

Boulder, CO 80302
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Part of
NE1/4 SW1/4, Sec 26, T1N, R72W, S.P.M.

Prepared By:

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This management plan has been prepared at my request to guide my Stewardship management activities which I voluntarily apply on my property. I believe that activities recommended in this plan are appropriate to meet my objectives and will benefit the natural resources on my property. I intend to apply the recommended practices and to maintain them for a period of at least ten years, thus helping me to be a good steward of the forest and associated resources entrusted to me on my property.

Lily Gelb

Date

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OBJECTIVES: The forestry objectives for this property are:

1. Consistent with requirements of the Stewardship Incentives Program, to improve the health and vigor of the forest and enhance its productivity.
2. Follow principles of sustained yield forestry and multiple use management, giving particular attention to production of forest products and enhancement of wildlife habitat.
3. Preserve the aesthetic qualities of the property.
4. Protect the soil and water resources of the property.

AREA: The property contains 2.2 acres, all of which may be considered forested.

PROPERTY LOCATION: The property is located on the west corner of South Peak Road and South Peak Lane southwest of Sugarloaf Mountain.

ACCESS: The property is accessible from both roads and from a driveway.

TOPOGRAPHY: The property occupies a southeast facing slope on the west side of a tributary draw to Bummers Gulch. Elevation ranges from about 8100 feet above sea level at the south end to 8160 feet at the north end. Aspect is southeast at a slope of about 25%.

GEOLOGY: Precambrian rocks now about 1.8 billion years old were intruded about 1.7 billion years ago by Boulder Creek granodiorite. This formation is the bedrock throughout the property.

North-northwest trending faults of Precambrian Age pass east and west of the property. These and other similar faults in the area, have occasionally been reactivated.

Lower Paleozoic rocks (Cambrian through Mississippian) are missing in this area. It is thought these rocks once existed, but

were eroded away during Early Pennsylvanian times when the Boulder area was uplifted on the northeast flank of the Ancestral Front Range uplift, one of several northwest-trending mountain ranges that comprised the late Paleozoic Ancestral Rocky Mountains. These mountains (Ouachita Orogeny) resulted from the reactivation of Precambrian structures when Africa collided with South America and the southern edge of North America. Gravel and sediments washing off the Ancestral Front Range were deposited as the Fountain Formation which was later uplifted to form the Flatirons. By the late Paleozoic, the Ancestral Front Range was eroded to a set of low hills.

In the Early Cretaceous, the area began to subside and was eventually buried under almost 10,000 feet of marine sediment.

In the Late Cretaceous-Early Tertiary (about 67.5 million years ago), the Laramide Orogeny uplifted a mountain range with much the same configuration as the present day Front Range. Erosion about balanced uplift so that the relief was never great, much less than at present. By the Late Eocene, the uplift ceased, leaving a low-profile range of hills. Most of the faulting and eastward tilting that raised the Flatirons into position occurred during the Laramide Orogeny.

Intrusive volcanic activity occurred to the east during the Paleocene, but apparently did not involve this property.

During the Oligocene, this region was reduced to a plain, similar to eastern Colorado today with an elevation of about 3000 feet. In the Miocene, thermal uplift and east-west expansion formed the Rio Grande Rift and began the rise of the modern Front Range, which continues to rise today.

Though this property was never glaciated (The nearest glacier reached Tungsten, just below Barker Dam.), sediments eroding from it contributed to the sand and gravel deposits along Boulder Creek. Apparently, there is a connection between glacial advances and the creation of piedmont gravel fans.

SOILS: The entire property has a Juget soil type.

Juget Soil Series¹

The Juget series is made up of shallow, somewhat excessively drained soils. These soils formed on mountain slopes and ridges

¹Moreland, Donald E. and Moreland, Ronald C., Soil Survey of Boulder County Area, Colorado, USDA - Soil Conservation Service, Denver, 1975.

in sandy residuum weathered from granite. Slopes are 9 to 55 percent. Elevations are 6,300 to 8,200 feet. At lower elevations the native vegetation is mainly ponderosa pine, and at higher elevations it is Engelmann spruce and Douglas-fir with an understory of grass. Annual precipitation is 18 to 24 inches. Mean annual air temperature is 43° to 46° F., and the frost-free season is about 80 to 120 days.

In a representative profile the surface layer, about 6 inches thick, is dark-gray very gravelly sandy loam. The underlying material, about 5 inches thick, is brown very gravelly loamy sand. Underlying this layer is granite. Soil reaction is slightly acid.

Juget soils have rapid permeability. Available water capacity for the profile is low. Roots can penetrate to a depth of less than 20 inches.

These soils are used mainly for grazing, although some areas with scattered trees are used for recreation, forestry and homesites. The grass cover must be maintained to help prevent erosion.

Representative profile of Juget very gravelly sandy loam, in Jug-et-Rock outcrop complex, 9 to 55 percent slopes, located 2,540 feet north and 650 feet east of the southwest corner of sec. 11, T. 1 N., R. 71 W.:

- A1 - 0 to 6 inches, dark-gray (10YR 4/1) very gravelly sandy loam, black (10YR 2/1) when moist; weak, very fine, granular structure; soft, very friable; 60 percent gravel and stone; slightly acid; clear, smooth boundary.
- C - 6 to 11 inches, brown (10YR 5/3) very gravelly loamy sand, dark grayish brown (10YR 4/2) when moist; massive; hard, friable; about 80 percent fine gravel; slightly acid; clear, wavy boundary.
- R - 11 inches, hard granite bedrock.

The A1 horizon ranges from 4 to 8 inches in thickness and very gravelly sandy loam to very gravelly loamy sand in texture. Depth to bedrock ranges from 10 to 20 inches. The average rock fragment content of the soil ranges from 50 to 70 percent and is dominantly fine gravel.

Juget-Rock Outcrop Complex, 9 to 55 percent slopes (JrF). - This complex is made up of about 50 percent Juget very gravelly sandy loam and about 30 percent rock outcrop. The profile of the Juget soil in this complex is the one described as representative of the Juget series.

Included with this complex in mapping are small areas of Peyton soils near drainageways and a few small areas of Allens Park

soils. These included soils make up about 20 percent of each mapped area.

Runoff is rapid on this complex. The erosion hazard is high. Juget soils take in water rapidly, but they retain only limited amounts for plant use because of their shallow depth to bedrock.

None of this complex is suitable for cultivation. It is in grass and scattered trees and shrubs. In the past, it was used for grazing livestock and for forestry, but now many areas are used for homesites, recreational purposes, and wildlife habitat. (Capability unit VIIIs-1, nonirrigated; tree suitability group 2)

The south end of your property has Juget soils.

HISTORICAL LAND USE: This area was originally a mining area. The ruins of a tellurium smelter stand on property just east of yours. The presence of old fences attests to grazing in the early part of this century.

Though fire has been common in this area, the lack of fire scars on your trees suggests that this site has not been burned in the past 40 to 50 years.

Dwarf-mistletoe is present and has probably been present in the immediate area since pre-settlement days. It has all-but-exterminated the ponderosa pine forest that once covered this site.

DESIRED CONDITION: Healthy, vigorous, fully-stocked stands of trees are a goal of the Stewardship Incentives Program. This condition need not be achieved immediately, or even during the ten-year span of this plan, but progress should be made in this direction.

IMPACT ON NEIGHBORS & NEARBY COMMUNITIES: This property is bounded on the north, east and south by South Peak Road and South Peak Lane. It is bounded on the west by other private land. This lot is very exposed and visual impacts here will be readily seen from the nearby roads.

LOCAL MARKETS: You have less than two cords of firewood that could be salvaged in a dwarf-mistletoe control effort. This will be done on a one-time-only basis. Firewood and prodcut markets

are largely irrelevant to your efforts, as you will be using the wood yourself.

WETLAND AREAS: There are no Federal wetlands on this property.

WILDLIFE: Though no wildlife was observed during the field exam, this is typical habitat for Abert squirrels, foxes, deer, songbirds and woodpeckers.

Threatened and Endangered

The U. S. Fish and Wildlife Service lists the following species for Boulder County:

American peregrine falcon, Falco peregrinus, Endangered
Bald eagle, Haliaeetus leucocephalus, Endangered
Whooping crane, Grus americana, Endangered
Eskimo curlew, Numenius borealis, Endangered
White-faced ibis, Plegadis chihi, Category 2
Mountain plover, Charadrius montanus, Category 1
Northern goshawk, Accipiter gentilis, Category 2
Black tern, Chlidonias niger, Category 2
Mexican spotted owl, Strix occidentalis lucida, Threatened
Loggerhead shrike, Lanius ludovicianus, Category 2
Boreal toad, Bufo boreas boreas, Category 2
Black-footed ferret, Mustela nigripes, Endangered
Preble's meadow jumping mouse, Zapus hudsonius preblei,
Category 2
Fringed-tailed myotis, Myotis thysanodes pahasapensis,
Category 2
North American wolverine, Gulo gulo luscus, Category 2
Swift fox, Vulpes velox, Category 2
Greenback cutthroat trout, Oncorhynchus clarki stomias,
Threatened
Plains topminnow, Fundulus sciadicus, Category 2
Rocky Mountain capshell, Acroloxus coloradensis, Category 2
Regal fritillary butterfly, Speyeria idalia, Category 2
Lost ethmiid moth, Ethmia monachella, Category 2

The following plants are also listed:

Bell's twinpod, Physaria bellii, Category 2
Larimer aletes, Aletes humilis, Category 2
Ute ladies'-tresses orchid, Spiranthes diluvialis,
Threatened
Colorado butterflyweed, Gaura neomexicana coloradensis,
Category 1
Showy prairie gentian, Eustoma graniflorum, Category 2
Pale moonwort, Botrichium pallidum, Category 2

Purple lady's slipper orchid, Cypripedium fasciculatum,
Category 2

The peregrine falcon and bald eagle have been observed in Boulder County numerous times since 1987. The white-faced ibis was observed just across the county line at Continental Pond in Weld County in the fall of 1994 and again this last summer.

The purple lady's slipper has been observed several times since 1987 and could well occur on this lot; although, it usually prefers wetter Douglas-fir sites.

The Mexican spotted owl occurred in Boulder County historically, but has not been seen here since the Threatened and Endangered Species Act passed in 1973. The nearest known nest is located south of Denver in Douglas County. A detailed search of Coal Creek, Boulder and Lefthand canyons and their tributaries in 1995 failed to turn up anything.

The northern goshawk is favored by the many age classes of trees created by rotational cutting. As long as buffer zones are left around nests (30 acres) and cutting activities avoid a fledging area (400 acres) during the fledging season, there should be no problems. Though this bird may occur in Boulder County, I am not aware of it.

To the best of my knowledge, the black-footed ferret is listed only because its prey (prairie-dogs) is found here. I do not know of any sightings. The ferret is a creature of the plains and would not pose a problem for most mountain projects.

The whooping crane was included on the list because it might come here during migration. Again, I am not aware of any sightings and it is a shore bird and very unlikely to be seen in the mountains. The same applies to the Eskimo curlew.

The Ute ladies'-tresses only occurs below 7000 feet; there may be some on this property. It would be wise to keep an eye out for it.

The black tern is a shorebird and is a concern around creeks and reservoirs, but not in the mountains, away from water.

The black-footed ferret, Preble's meadow jumping mouse, fringed-tailed myotis, Colorado butterflyweed and showy prairie gentian occur only in the plains. The mountain plover, northern goshawk, Mexican spotted owl and purple lady's slipper occur only in the mountains (except for a single spotted owl sighting in Adams County). Other listed species could occur in either mountains or plains, especially areas where forest and prairie intermix.

Wildlife Habitat Opportunities: There are a number of practices that could be implemented to enhance the property's usefulness to various species of wildlife. Several ideas are:

1. Create woodpecker and cavity-nesting bird habitat by killing selected trees and letting them stand. As these trees die, they are attacked by woodborers and other insects which provide food for woodpeckers. As the trees decay, woodpeckers build nests in them, providing housing for themselves and other cavity-nesting birds, such as flycatchers (Woodpeckers are perfectionists; it takes them five or six tries before they get the hole just right; the extra holes are available for other animals to use.). Between seven and fifteen snags could be left on this lot. This needs to be decided before the dwarf-mistletoe work is done so that appropriate trees can be left.
2. Slash left over from dwarf-mistletoe cutting could be piled to create shelter for small animals ("bunny houses"). A few larger pieces will be needed to hold slash off the ground and permit access, so some three-to-six diameter material will need to be preserved during cutting. These are constructed shelter piles and not just a haphazard pile designed more to make the site look nice than to provide animal cover.
3. A wildlife thicket of golden currants or other fruit-producing shrub could be planted at the north end of the property. The Stewardship Incentives Program will contribute \$280 toward a tenth-acre thicket of 272 plants. Because such a thicket usually costs about \$1300, it might be wise to forego cost-sharing in favor of a smaller thicket, say 100 plants in a 36' X 36' square. Such a planting could be put in place for about \$400.00.

INVENTORY: The entire property is in the ponderosa pine/Douglas-fir/Arizona fescue ecotype.

The Stand (2.2 acres) is a ponderosa pine stand occupying most of the property (See map.). There is not a commercial volume of sawtimber present. Dwarf-mistletoe is a serious problem, having infected nearly every tree. Dwarf-mistletoe reduction and use of the resulting wood as firewood is recommended. Total stocking runs about 300 cubic feet per acre.

SILVICULTURAL OBJECTIVES: Free stands from dwarf-mistletoe. This should be done by dwarf-mistletoe reduction, involving cutting of heavily-infected trees, followed by three-to-five consecutive years of pruning residual trees clean. Following the last cleaning, stands need to be planted to bring stocking to 100

growing stock level (GSL).

Once dwarf-mistletoe control is established, the lot should be reforested with ponderosa pine and/or white fir.

A windbreak along the west property line is recommended to keep wind from hitting the house directly. To be effect, the planting needs to consist of at least three rows of trees (Five is better.).

The first (upwind) row should be a low-growing shrub like currants or, possibly, American plums. The middle row should be a medium-height species such as Rocky Mountain juniper or caragana. The inside row should be ponderosa pines. There are pros and cons to each species and a discussion is needed prior to selecting the ones to use.

1998 costs for such a planting are listed below:

50 Golden currants:	\$ 21.50
30 Rocky Mountain junipers:	28.80
30 Ponderosa pines:	<u>28.80</u>
Sub-total, Trees:	\$ 79.10
Sales Tax:	<u>3.28</u>
TOTAL, TREES:	\$ 82.38
620 Feet, weed barrier:	\$ 223.20
700 6" Staples:	<u>49.00</u>
Sub-total, Materials:	\$ 272.20
Sales Tax:	<u>18.78</u>
TOTAL, MATERIALS:	\$ 290.98
Hand plant 110 Trees:	\$ 220.00
Lay 620 feet weed barrier:	<u>223.20</u>
TOTAL, LABOR:	\$ 443.20
TOTALS:	
Seedlings:	\$ 82.38
Materials:	290.98
Labor:	<u>443.20</u>
GRAND TOTAL:	\$ 816.56

The Stewardship Incentives Program would contribute \$200.00 toward the cost of this planting (\$531, if the \$1000 per acre cap is removed.).

IMPLEMENTATION SCHEDULE:

There is no minimum treatment rate.

The schedule below is suggested, not required.

- 1998: Remove heavily-infected dwarf-mistletoe trees. Prune residual trees. Pile slash as animal shelter, or remove from site, as desired. Salvage firewood.
- 1999: Prune dwarf-mistletoe.
- 2000: Prune dwarf-mistletoe.
- 2001: A. Prune dwarf-mistletoe.
B. Plant windbreak along west property line.
- 2002: A. Prune dwarf-mistletoe.
B. Re-plant failed windbreak seedlings (usually about 15%).
- 2003: A. Prune dwarf-mistletoe (This should be the last pruning, if others have been thorough.).
B. Start reforestation plantings. Use 25% white fir/75% ponderosa pine mix. A density of 435 trees per acre (10' X 10' spacing) including existing trees is the objective (Ponderosa establishes better than other trees and with the dwarf-mistletoe gone, this will be a good choice. White fir is immune to ponderosa pine dwarf-mistletoe and establishes much easier than Douglas-fir.). Note: reforestation plantings are eligible for cost-sharing, a 10% investment tax credit on unreimbursed expenses and costs can be amortized over 84 months (straight-line amortization, half-year convention) and deducted from income.
C. Revise this plan as needed. "The best-laid plans of mice and men...."
- 2004: Re-plant failed seedlings in reforestation area.
- 2005-2008: Prune dwarf-mistletoe and replant failed seedlings as needed.

SUMMARY:

With the help of cost-sharing programs, and tax benefits, this property can provide years of enjoyment and homes for animals. For many years to come, you can enjoy your forest. With people like you taking care of our forests, their well-being is assured.

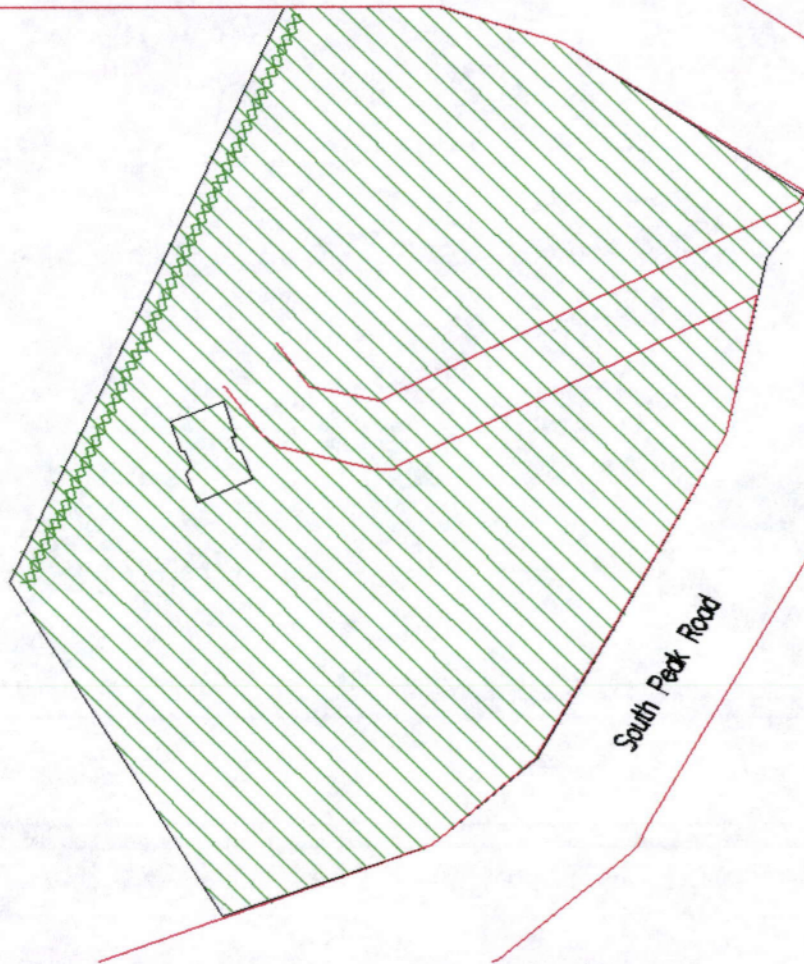
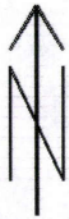
Thank you.

Respectfully submitted by,

Douglas J. Stevenson
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Scale: 1:1055; 1 Inch = 88 Feet

South Peak Lane



South Peak Road

Lily Gelb

NE1/4 SW1/4, Sec 26, T1N, R72W, S.P.M.

— Property Line
— Road
○○○○○○ Windbreak

□ Ponderosa Pine

Drawn By: Douglas J. Stevenson

October 17, 1998