

STEWARDSHIP INCENTIVES PLAN

For:

Erwin & Janet Goldman
2038 Magnolia Drive
Nederland, CO 80466

Part of the
SE1/4 NW1/4, Sec 5, T1S, R71W, 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.

Elmina "Bunny" Spangler

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 5.5 acres, all of which may be considered forested.

PROPERTY LOCATION: The property is located on the northwest side of Magnolia Road, about 2.0 miles southwest of Boulder Canyon Road.

ACCESS: The property is accessible by a driveway from Magnolia Road. This is the only feasible access.

TOPOGRAPHY: The property is on top of Magnolia Ridge, immediately southwest of the old Magnolia townsite. Elevation ranges from about 7280 feet above sea level at the northeast corner to about 7360 feet on top of the ridge west of the house. Aspect is northeast with slopes up to 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: Juget Soil Series¹

The Juget series is made up of shallow, somewhat excessively drained soils. These soils formed on mountain slopes and ridges in sandy residuum weathered from granite. Slopes are 9 to 55 percent. Elevations are 6,300 to 8,200 feet. At lower eleva-

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

tions 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 VIIs-1, nonirrigated; tree suitability group 2)

Your property is entirely on Juget soils.

HISTORICAL LAND USE: The area was surveyed between August 10, 1867 and August 27, 1868 by T. M. Field and F. F. Brune. This township is famous for the errors that occurred in the original survey. To find out what really happened, the General Land Office added a new baseline about one-half west of your place in 1915. A dependent resurvey by nine different surveyors was completed in 1927. Many identifying survey caps in the township were placed during this survey. Magnolia Road is shown on the Surveyor General's map of 1929 as "Road to Boulder." It's a pretty safe bet that this area was cut for mine timbers and firewood about the time Magnolia was founded. Into the 1930s the forest was cut and burned repeatedly and had little opportunity to regrow.

Fire scars on nearby properties indicate a fire about 1853. According to local legend, Arapahos angered at being cheated by whites, burned most of Boulder County. (A more likely explanation is that settlers were extremely careless with fire and dozens of small fires left burning would coalesce during dry weather to go rolling off as a vast sea of flame.)

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: In your immediate vicinity, the land is divided into a confusing hodge-podge of mine claims interspersed with U. S. Forest Service land. It is difficult to tell who owns what. The visual impact of dwarf-mistletoe cutting to your neighbors will probably be slight because most of the lot is hidden from the road by the crest of

the hill. Because of the heavy infection rate, cutting and pruning will probably be extensive.

LOCAL MARKETS: You have less than ten 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 product markets are largely irrelevant to your efforts.

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 has been observed just across the county line at Continental Pond in Weld County in the fall of 1994.

The purple lady's slipper has been observed several times since 1987.

The Mexican spotted owl occurred in Boulder County historically, but has not been seen here since the Threatened and Endangered Species Act was 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.). Snags at least 10.0 inches in diameter are needed at a rate of 2.3 per acre in areas more than 300 feet from the meadows, this should be increased to at least 3.0 per acre (maximum of 7.0 snags per acre) near the meadows.
2. There is little that can be done to benefit deer on a property this small. Forest management practices encourage deer, which encourage mountain-lions, which take deer, dogs, cats, an occasional jogger and have even been known to attack children. The following practices will benefit deer, as much as is possible:
 - A. When dwarf-mistletoe cuts are made, care must be taken not to produce openings larger than 300 feet across, and to leave cover strips at least 300 feet in width connecting sapling and pole stands.
 - B. Cutting should be done as quickly as possible to minimize animal disturbance. This restricts the choice of cutters to those capable of completing the project quickly and requires short-term cutting Agreements.
 - C. After all dwarf-mistletoe is removed from a portion of a stand, the cut patches should be allowed to restock themselves. If natural regeneration is not restocking the site at the end of five years, planting is recommended on the south side; the north side will retain adequate stocking, even after a dwarf-mistletoe cut.
3. Meadows (both natural and artificial) can be used by western blue birds if there is adequate nesting cover nearby. Thinning work eliminates nesting trees, unless special efforts are made to preserve useable trees. These are snags located at 100-yard intervals around the perimeter of the cut. They

are created by girdling selected trees: these trees must be at least ten inches in diameter; trunks must be sheltered by foliage from other trees; and there can be no tall grass or forbs around the stump.

It takes several years for a girdled tree to die and decay enough that woodpeckers will build nesting sites in it. In the mean-time nesting boxes should be put up. These should meet the same requirements for spacing and location as nesting trees.

4. 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-inch 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.

In order to meet Stewardship requirements, at least one of the above practices must be implemented. Cost-sharing will probably not be available (The practices are not required if cost-sharing is not available.).

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

The stand is a ponderosa pine pole stand, heavily stocked. Most of the site is accessible to someone with a pickup. The stand gives way to Douglas-fir as it breaks over to the west. Dwarf-mistletoe is common with many heavy infections. Dwarf-mistletoe reduction, thinning and sale of thinning products as firewood is recommended. Total stocking runs about 1200 cubic feet per acre or 120 square feet of basal area 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 at least five consecutive years of pruning residual trees clean. Following the fourth cleaning, stands need to be planted to bring stocking to 100 growing stock level (GSL).

The property needs no activities beyond dwarf-mistletoe control.

A Defensible Space practice around the house, in combination with dwarf-mistletoe control is recommended to enhance fire safety.

IMPLEMENTATION SCHEDULE:

There is no minimum treatment rate.

The schedule below is suggested, not required.

- 1999: Remove heavily-infected dwarf-mistletoe trees. It would be a good idea to the first dwarf-mistletoe treatment at the same time as the cutting. Prune residual trees free of visible dwarf-mistletoe. Combine dwarf-mistletoe treatment with Defensible Space practice.
- 2000: Prune dwarf-mistletoe.
- 2001: Prune dwarf-mistletoe.
- 2002: 1. Plant areas opened up by dwarf-mistletoe pruning. If you "reforest" at least one acre each year, you can make use of the Federal 10% investment tax credit and deduct an amortised amount from income (84 months, straight-line method, half-year convention). Consult your tax preparer for details.
2. Prune dwarf-mistletoe.
- 2003: 1. Replant failed seedlings (Expect about 15% losses that will need replacing.).
2. Prune dwarf-mistletoe (This should be the last pruning, if others have been thorough.).
- 2004: Have this plan updated, if needed. "The best-laid plans of mice and men...."
- 2005-2008: Rest on laurels. Dwarf-mistletoe is extremely difficult to eradicate this way. Infections are easy to miss and there is an incipient-stage infection in which the dwarf-mistletoe is in the tree, but not putting out aerial shoots. It takes time for these missed shoots and incipient-stage shoots to show up. That is the reason for the repeated pruning. Also, it would be wise to go over the site in later years to make sure that things are still going well.
- 2009: Rest on laurels. Prepare new plan (Stewardship Incentives Plans are only good for ten years, so if you are interested in obtaining further cost-sharing or just want an update on your forest's health and condition, have a new plan prepared.).

SUMMARY:

With the help of cost-sharing programs, and tax benefits, this property can produce forest products profitably.

For many years to come, you can enjoy your forest. With people like you taking care of our forests, their well-being is assured.

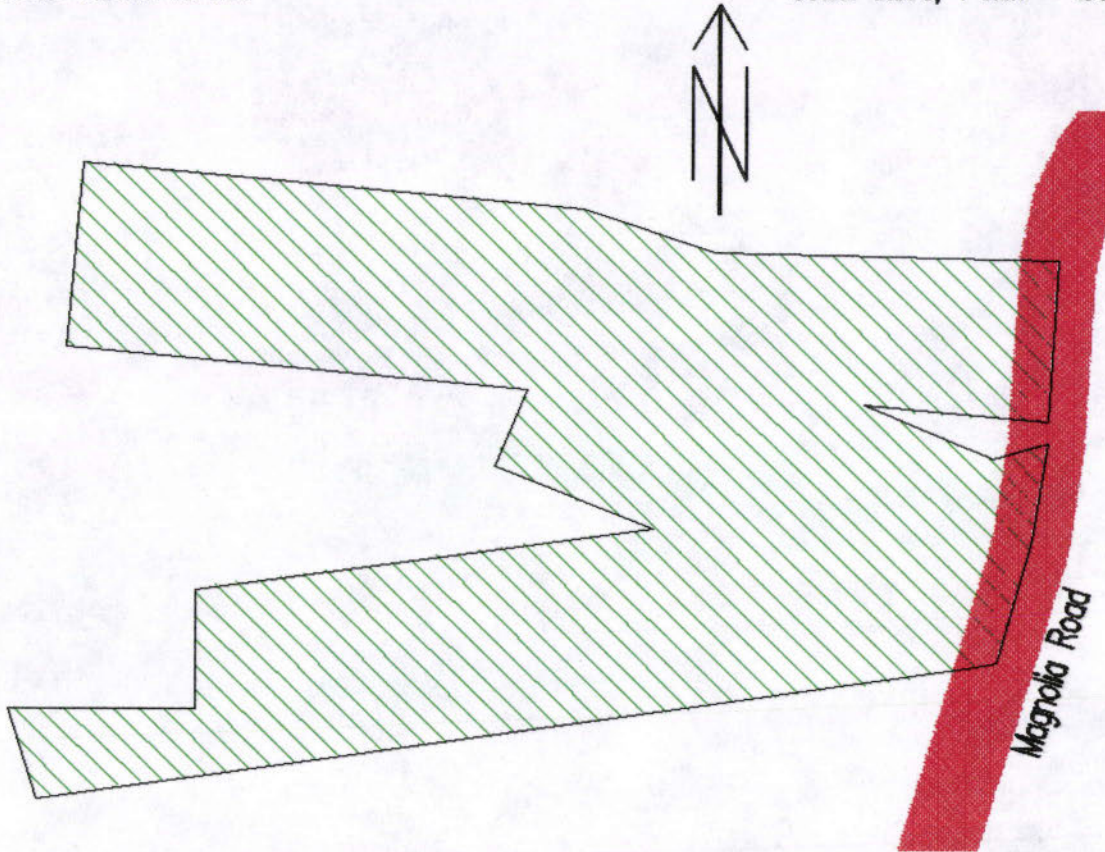
Thank you.

Respectfully submitted by,

Douglas J. Stevenson
Assistant District Forester

Colorado State Forest Service

Scale: 1:1839; 1 Inch = 153 Feet



Erwin & Janet Goldman

SE1/4 NW1/4, Sec 5, T1S, R7W, S.P.M.

- Property Line
- Road
- Permanent Stream
- ▨ Ponderosa Pine

Drawn By: Douglas J. Stevenson

March 5, 1999