

FOREST STEWARDSHIP PLAN

For:

BIG OWL TREE FARM

Kent Dannen
1997 Big Owl Road
Allenspark, CO 80510

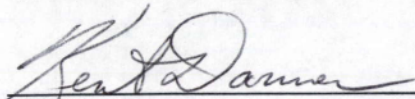
That part of the
NE1/4 SE1/4, Sec 2, T3N, R73W, S.P.M.
south of Big Owl Road.

Prepared By:

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February 22, 1993

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.



Kent Dannen



Date

TABLE OF CONTENTS

Subject	Page
FOREST STEWARDSHIP and FOREST AGRICULTURE MANAGEMENT PLAN	1
TABLE OF CONTENTS	2
OBJECTIVES	3
AREA	3
PROPERTY LOCATION	3
BOUNDARY MONUMENTS	3
ACCESS	4
TOPOGRAPHY	4
GEOLOGY	4
SOILS	5
HISTORICAL LAND USE	5
DESIRED CONDITION	6
IMPACT ON NEIGHBORS AND NEARBY COMMUNITIES	6
LOCAL MARKETS	6
WETLAND AREAS	7
WILDLIFE	
Threatened and Endangered Species	7
Wildlife Habitat Opportunities	7
INVENTORY	8
SILVICULTURAL OBJECTIVES	9
AESTHETIC CONCERNS	9
IMPLEMENTATION SCHEDULE	12
SUMMARY OF OBJECTIVES	14
MAP	15

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 multiple use management, giving particular attention to production of forest products and enhancement of wildlife habitat.
3. Preserve aesthetic qualities.
4. Protect soil and water resources.

AREA: The property contains 25.8 acres, 24.8 acres of it forested. This is divided into two stands:

Stand A	24.6 acres	Upland Lodgepole Pine
Stand B	<u>0.2</u> acres	Riparian Lodgepole Pine
	24.8 acres	FORESTED ACRES
House	<u>1.0</u> acre	
	25.8 acres	STEWARDSHIP ACRES

PROPERTY LOCATION: Big Owl Tree Farm is located between Big Owl Road and Roaring Fork, about 0.8 miles east of CO-7.

BOUNDARY MONUMENTS: Two corners are known and marked. They are:

1. The center sixteenth corner in the southeast quarter of Section 2 is marked by an iron pipe surrounded by a ring of rocks. It is located on the south side of Big Owl Creek, about 100 feet from the creek. It marks the southwest corner of the property.
2. The south sixteenth corner in the east line of Section 2 is marked by an aluminum cap inscribed "P.L.S. 6499 May, 1972 S. 1/16." It is on a northeast-facing slope, about 100 feet southwest of Roaring Fork.

All other corners adjoin the Big Owl Road right-of-way and are unmarked.

ACCESS: Access is by way of Big Owl Road. The property is unfenced, so the north side can be accessed directly from the road right-of-way. The southwest corner can be accessed only across Roaring Fork Tree Farm, owned by Cecil Armstrong.

TOPOGRAPHY: The property straddles a low ridge between Roaring Fork and Big Owl Creek. Elevation ranges from about 8520 feet above sea level where Roaring Fork leaves the property to about 8600 feet above sea level at the northwest corner. Aspects are mostly southwest or flat. Slopes are about 50% on the valley escarpments and flat elsewhere.

GEOLOGY: Precambrian rocks now about 1.8 billion years old, the Silver Plume Quartz Monzonite (granite) Formation are the bedrock throughout the property.

North-northwest trending faults of Precambrian Age pass east of the property, but do not cross it. These faults 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 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 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.

This property was glaciated, completely buried under hundreds of feet of ice. I am not sufficiently familiar with the glacial history of the area to know which ice advance it was; there were probably several.

During glacial times, when the area wasn't buried under ice, it supported an alpine tundra plant community. As the ice retreated, a spruce-fir forest took over, followed by the current ponderosa pine/Douglas-fir ecotype.

Roaring Fork eroded its valley during the late Wisconsin Ice Age, sometime after the Glacial Maximum (25,000 years ago). This probably occurred during the rapid melting that occurred between 15,000 and 11,000 years ago, which would have triggered periodic surges that are capable of moving a lot of rock and gravel.

SOILS: Soil maps for the western part of Boulder County have not been published; Soil Conservation Service agronomists are in the process of doing this at this time. The following is my attempt at soil identification and may not be completely accurate.

I am not well-enough versed in glacial soil types to identify the soils on your property, but they appear to be typical till soils - porous, with rapid internal drainage. They are gravelly with many large rocks included. Fertility is low due to rapid leaching of soil nutrients. These soils are extremely strong, able to support heavy loads, even when saturated.

HISTORICAL LAND USE: This site has been occupied by mixed-conifer forests of the ponderosa pine/Douglas-fir ecotype since the glaciers withdrew.

Dwarf-mistletoe has been part of this forest ecology since the Ice Age. The large patch on Armstrong's property, originated about 1800, probably from seeds brought in by birds. When the forest was destroyed by fire about 1880, enough infected trees survived to restock the area with both trees and dwarf-mistletoe.

That patch generated others, including the two along your west line, which originated about 1940.

The existing forest originated about 1770, apparently following a major fire. A number of residual trees survive from this time. Fire scars indicate a fire about 1880. The nearly-pure lodgepole stands were established after this fire. The area has not been cut or burned since.

The property has been used historically as part of a cattle ranching operation based on Cabin Creek. It was standard practice in the late nineteenth century to homestead meadows and water sources so that nobody else could use the land, then graze cattle on U. S. Forest Service land for free. This property had very poor grass, so grazing use was never heavy.

The property was homesteaded by John Grant in 1913. He sold the land to Edward Steiner in 1917 for \$600. Steiner was a professor at Grinnell College and came to Allenspark during the summer to escape the heat in Iowa. He brought many friends with him and they created a small colony of writers, pacifists and free thinkers. The colony remained intact until the late 1930s when two of its more-prominent members died. Steiner died in 1956 and the property passed into other hands.

DESIRED CONDITION: Healthy, vigorous, fully-stocked stands of trees are desired. This condition need not be achieved immediately, but progress must be made in this direction. Also, harvest must be carried out at maturity, and the stand regenerated.

IMPACT ON NEIGHBORS & NEARBY COMMUNITIES: On the west and north sides, dwarf-mistletoe cuts will approach the property line, possibly even joining cuts on the Armstrong property (The small patch in the southwest corner of the property can be completed simultaneously with a cut planned for 1994.). On the north side, the planned cutting area adjoins the county road and is eligible for Stewardship funds for slash cleanup. A ponderosa pine screen along the road could be cost-shared and the rest of the patch allowed to restock through natural seeding. Also, slash could be used as shelter piles for animals ("Bunny huts;" see below.) or piled to form a visual barrier along the ponderosa planting; this, too, can be cost-shared.

A limited amount of firewood will be generated by this program. It will not be sufficient to heat one house during most years. There are no sawlogs in any of the cutting areas.

LOCAL MARKETS: Sawtimber markets in Boulder and vicinity are severely limited. Firewood markets are weaker than they were ten

years ago, but are still capable of handling 1200 to 1500 cords per year, possibly as much as 2000 cords. As long as firewood markets remain up to the task, all cutting projects can be handled through commercial firewood sales. If a proposed project cannot be sold commercially, it may be necessary to consider home-use firewood. With the stand only twenty years from maturity, it is not worth the expense to remove dwarf-mistletoe non-commercially at this time.

WETLAND AREAS: There are no wetlands on the property. The riparian area along the creek has species, like Engelman spruce, that prefer wetter-than-average sites, but still can't be called "wetland."

WILDLIFE: Deer make use of the area and are quite common. They will probably become more common as new patch cuts open new meadows and travel lanes for them (As adjacent trees restock the patches, deer use will gradually decline to a low-point occurring about 2010.). Numerous red squirrel caches were also observed. You (Kent Dannen) have observed Swainson's thrushes feeding on insects among the slash of the clearcut adjacent clearcuts.

Threatened or Endangered Species: The property is located in Block B11 (Fort Collins). Protected species in this block are:

1. the American peregrine falcon
2. the bald eagle
3. the interior least tern and
4. the greenback cutthroat trout.

For the most part, these species do not make use of the area. The tern is a shore bird and prefers large lakes; Roaring Fork is not large enough for trout and its banks are entirely shaded. Eagles visit Boulder in winter, staying in the piedmont area with its milder weather and migrating north when weather improves. Boulder is on the extreme southern end of the eagle's summer (nesting) range. Occasionally a pair will nest in the area, but it is unusual.

The ranch is within the foraging area of a known peregrine falcon nest, but there are no nesting sites on the property.

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 a food source 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; 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, 3.0 per acre within 100 feet of the creek (maximum of 7.0 snags per acre).
2. Meadows created by patch-cutting dwarf-mistletoe can be used by western blue birds if there is adequate nesting cover nearby. This consists of 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.

3. Slash left over from dwarf-mistletoe work 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. They are designed more for animal cover than making the site look nice.
4. Dead trees around the perimeter of cut patches serve as perches for hawks and owls, who then patrol the adjacent patch for mice.

In order to meet Stewardship requirements, at least one practice must be implemented. There are many others available if none of these meet with your approval. These practices can be cost-shared.

INVENTORY: The entire ranch is in the ponderosa pine/Douglas-fir/Arizona fescue ecotype. Lodgepole pine represents a particular seral stage within this type.

Stand A consists of 24.6 acres of upland lodgepole pine. The dominant class consists of large-pole trees, with medium stocking (1800 board feet per acre). The stand is about 100 years old. It will mature at 120 years of age (about 2012). Current stocking is about 125 square feet of basal area, 340 stems, or 20 cords per acre. There is a dwarf-mistletoe patch in the northwest corner of the stand near the county road. It appears to be about 1.6 acres in area and increasing at about 0.03 acres per year. No other dwarf-mistletoe patches were observed; however, acre-sized patches can sometimes fall between cruise lines.

Terrain is relatively flat, except for the valley side-slopes along Roaring Fork. Access is by way of Big Owl Road and/or the driveway.

Stand B (0.2 acres) is really just a corner of Stand A. It lies along Roaring Fork, so receives more water than the rest of Stand A. It is mostly lodgepole pine, but contains species like Engelmann spruce. This stand appears to be younger than Stand A, the result of natural seeding into a riparian meadow. There is a small dwarf-mistletoe patch in the southwest corner that straddles the west property line.

Other dwarf-mistletoe observed on the south side of the creek during reconnaissance, turned out to be on neighboring property, and thus, beyond the scope of this plan.

SILVICULTURAL OBJECTIVES: The objective is to harvest dwarf-mistletoe-infected patches (About 2.5 to 3.0 acres.). These will regenerate, becoming islands of even-aged trees in a matrix of multiple-aged stands. The remaining trees will be retained to maturity (about 2007-2017), except for home-use harvesting of dead, suppressed or damaged trees. At that time, the first cut of a three-cut shelterwood program will be made. The second cut will come about 15 years after the first one, and the final cut will come about 15 years after that.

Patch cuts will be thinned at about Age 20. Re-entry for thinning will be at 15-year intervals until Age 80. A three-stage shelterwood harvest will begin at Age 105, with fifteen years between cuts. The third cut will occur at Age 135.

AESTHETIC CONCERNS: The northwest patch cut lies directly along the Big Owl Road right-of-way. Special efforts directed at preserving the beauty of the area are justified. There are several ways in which dwarf-mistletoe can be removed, the resulting opening restocked with trees and slash piled, chipped or otherwise

disposed of.

Option 1: Minimum impact dwarf-mistletoe reduction. The objective is to remove all dwarf-mistletoe while removing the fewest trees possible. This is mostly accomplished with pruning. First, each tree is rated for intensity of infection on a 0-6 point scale. Trees rated as fives or sixes are removed. Remaining trees are thinned to 110 basal area, selecting against dwarf-mistletoe (About 15% of the infected patch is removed this way.). All visible dwarf-mistletoe is then pruned from the remaining trees. Pruning is repeated each of the following four years to remove plants that were incipient at the time of previous prunings.

The practice is eligible for cost-sharing at 65% of actual cost up to \$200 per acre for the first cleaning, and 65% of actual cost up to \$47 per acre for each of the other three cleanings.

The major problem with this option is that lodgepole pine dwarf-mistletoe is very difficult to see and is easily missed. It is usually necessary to continue pruning efforts for many years before the patch can be completely freed of the parasite. Also, residual trees near the center of the patch are subject to windthrow once adjacent trees are removed. Blowdown is often a problem.

Option 2: Moderate impact reduction/eradication. The objective is to remove all visible infections in a single operation by harvesting infected trees. The outer perimeter of the infected patch is first located. Then, all trees within the perimeter are removed. Infected trees outside the perimeter are also removed. Each year for at least four years, a fifty-foot wide strip around the cut area is examined for infections and infected trees are removed. Usually, this completes the treatment, but occasionally an infected tree will show up later.

This is the cheapest way of eradicating a dwarf-mistletoe patch while minimizing impact in the surrounding forest. Blowdown is a problem, usually along the east and southeast sides of the cut. Because cut trees have an economic value that will pay for the work, no cost-sharing is involved.

Option 3: Single-step eradication. The objective is to eradicate the patch in a single operation. First the outer perimeter of the patch is located. Then a fifty-foot wide buffer strip is laid out around the outside

edge of the perimeter. All trees within both patch and buffer strip are removed. Usually, the patch is removed in one stroke, but rarely, an isolated infection shows up later.

This method has the greatest effect over the greatest area. This is the most economical way to achieve control, but because the cut area is large, blowdowns tend to be worse than with other methods. Also, 90% of trees in the buffer strip are not infected and would not have to be cut if we could tell which ones they were. No cost-sharing support is available for this practice. Personally, I would not choose this method so close to the house and road. Option 2 seems to be the best choice, given the desire to minimize impact and at the same time contend with a difficult-to-see disease.

Regardless of which option is chosen for dwarf-mistletoe control, there are several practices that can make the area look better. Several rows of trees, preferably subalpine fir, can be planted parallel to the road to develop into visual barriers. Subalpine fir is recommended for its dense foliage and ability to withstand severe shading as the surrounding area grows up with lodgepole pines. This can be cost-shared as a windbreak (The house is not far away and is on the downwind side.). Cost-sharing usually covers from 40% to 65% of actual cost of this type of planting. Trails could easily be placed between the rows; it will take ten-to-fifteen years for the growing trees to provide 90% cover at a distance of 200 feet.

There are two ways to clean up slash, using cost-sharing. The first is to construct shelter piles for wildlife, particularly rabbits and squirrels. In this, six to ten poles about four to eight inches in diameter are laid parallel on the ground, about eighteen inches apart. Second and third courses are laid on top of these. Slash is then laid like thatch over the poles. The poles keep snow from crushing the piles and allow animals to hide between them. All slash from the site can be thrown on, entirely eliminating the visual effect. Cost-sharing is available at 65% of actual cost up to \$410 per acre.

Another possibility is to chip slash, blowing chips on the ground. It doesn't take long for chips to turn gray so that they are not noticed, even from a short distance. This is a qualified aesthetic practice, eligible for 65% of cost up to \$100 per acre.

IMPLEMENTATION SCHEDULE:

1993: No activities planned.

1994: Patch cut dwarf-mistletoe in the southwest corner of the property (Stand B). I recommend Option 2 (See AESTHETIC CONCERNS, above.). Cecil Armstrong will be cutting that portion of the patch on his side of the line at the same time. I recommend a cooperative effort (Control on one side of a property line eliminates an infection source for the other side; both parties benefit.).

1995:

1. Patch cut dwarf-mistletoe in the northwest corner of the property (Stand A). I recommend Option 1 (See AESTHETIC CONCERNS, above.). There is no great need to cut this entire patch at once, but if the subalpine fir planting is to be done, then enough space needs to be made to accommodate it. Also, cost-sharing for dwarf-mistletoe cleaning will not be paid for areas smaller than 0.1 acres, or closer to an infected tree than 50 feet. In order to obtain funding, it will probably be necessary to treat about half the patch.
2. Remove infected trees from buffer strip of 1994 dwarf-mistletoe cut.

1996:

1. Plant subalpine fir visual barrier(s) along road. Length (and, therefore, cost) will depend on the amount of road frontage involved by dwarf-mistletoe. A three-row planting will cost about \$3.44 per linear foot; cost-sharing will repay a little over \$1.41 per linear foot (Buffer strips do not cost anything to plant, but affect planting area; their shape affects the acreage, affecting cost-sharing. \$1.41 per linear foot is quite conservative. Prices include labor which you can save by doing the work yourself; cost-sharing can be paid based on your labor.).
2. Construct slash piles from 1995 slash as animal shelter piles (This is both a wildlife practice and an aesthetic practice; as wildlife pays better, I recommend going that way.).
3. Clean dwarf-mistletoe from area cut in 1995. Practice is eligible for 65% of cost up to \$200 per acre.

4. Remove infected trees from buffer strip of 1994 dwarf-mistletoe cut.

1997:

1. Maintain fir planting (Replace failed seedlings.). This usually runs about 12% of the first year's cost. This can be cost-shared and generally pays the entire 65%.
2. Clean dwarf-mistletoe from area cut in 1995. Practice is eligible for 65% of cost up to \$47 per acre.
3. Remove infected trees from buffer strip of 1994 dwarf-mistletoe cut.
4. Plant remaining visual barrier of subalpine firs (if any).

1998:

1. Maintain both fir plantings.
2. Clean dwarf-mistletoe from area cut in 1995. Practice is eligible for 65% of cost up to \$47 per acre.

1999:

1. Maintain both fir plantings.
2. Clean dwarf-mistletoe from area cut in 1995. Practice is eligible for 65% of cost up to \$47 per acre.

2000: Maintain 1997 planting.

2001: No activities.

2002: No activities.

2003: Revise and update this plan.

Recreational practices such as trail construction can be done at any time, with little effect on the forest. This has not been included in the IMPLEMENTATION SCHEDULE so that you can do it when it is convenient for you. Theoretically, trail construction can be cost-shared as a recreational practice, but unless the Stewardship Incentives Program receives substantial increases in funding, the low-priority of recreational practices will probably preclude funds for it.

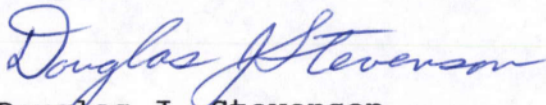
SUMMARY OF OBJECTIVES:

1. Eradicate dwarf-mistletoe. Reforest patches with healthy seedling stands.
2. Plant visual barrier strips along Big Owl Road, northwest of house. These will mostly be in the old dwarf-mistletoe patch, but may extend into existing healthy forest.
3. Construct a trail system for use in training sled dogs.

For many years to come, you can enjoy your property and at the same time, obtain a modest return on it. With people like you taking care of our forests, their well-being is assured.

Thank you.

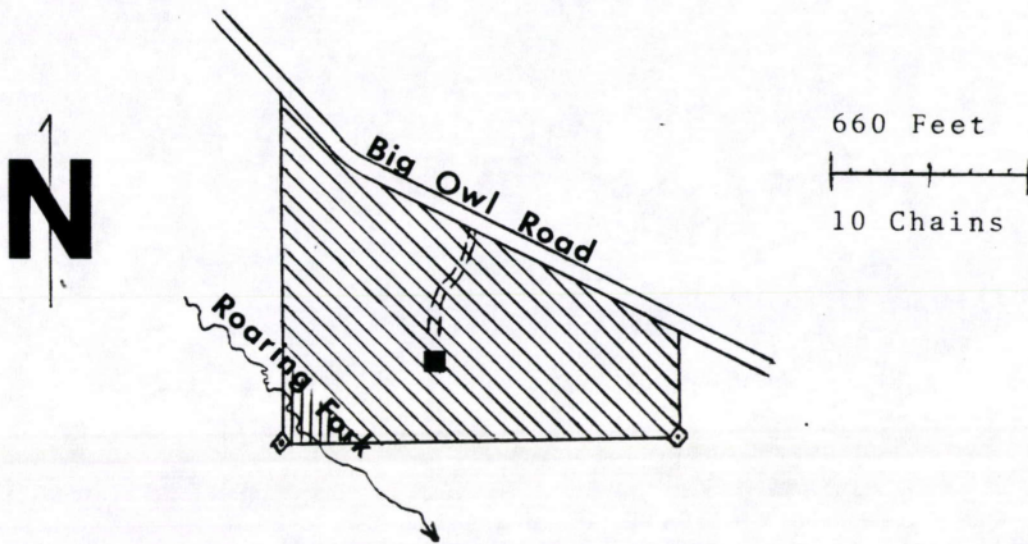
Respectfully submitted by,



Douglas J. Stevenson
Assistant District Forester

Kent Dannen

Big Owl Tree Farm



- ◊ Known GLO Corner
- Property Line
- == Roads
- House
- ~> Creek
- ▨ Upland Lodgepole Pine
- ▤ Riparian Lodgepole Pine

Drawn By: *Douglas J. Stevenson*

February 22, 1993