

Moose Creek Estates

Environmental Enhancement Plan

(Land Conservation / Vegetation Enhancement / Weed and Erosion
Control / Forestry Management)

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Moose Creek Estates Overview:

Moose Creek Estates sits between Pierce Creek and Moose Creek, east of Highway 93 North, approximately 4 miles south of the Montana/Idaho border known as Lost Trail Pass. The land within the 212-acre parcel is as aesthetic as it is diversified. Although previously and recently logged, what were left standing are mostly lodge pole pine, spruce, and quaking aspen. The property is home to several different species of wildlife including moose, elk and deer and the North Fork of the Salmon River runs through the entire property.

The “saw log” timber was logged in 1992 with little thought given to environmental effects. In the late 1800’s and again in the 1930’s and 40’s there was a placer mining operation on the land. In the early 1900’s a small portion of the property cultivated to raise hay. No other historical uses are evident. Our objective with this plan is to return the land to a supreme condition that is weed free, abounding with grasses, forage, trees, fish and wildlife.

River Corridor Conservation:

The West Fork, North Fork of the Salmon River, and Moose Creek converge into the North Fork on Moose Creek Estates. The North Fork River runs the length of the two and one half miles of the property. The developer is committed to protecting this river corridor from harm and excessive development. Thus, a low-density housing plan was designed with only thirty home sites available in the 200 plus acres.

A scenic/conservation easement has been formed which at this time includes approximately 90 acres of the project (see plat map). This easement will be a scenic area for the homeowners to walk, fish and be close to nature. The land in the river corridor will be environmentally enhanced using scientifically based ecological restoration and conservation methods in cooperation with the United States Forest Services, Natural Resource Conservation Service and the Idaho Fish and Game Department.

The developer is a permanent member of the Architectural & Environmental Control Committee. He has constructed a home at Moose Creek Estates. Much of his time will be spent serving as forester and grounds keeper for the scenic easement.

Weed Elimination & Control:

The Moose Creek Estates' management recognizes that noxious weed control cannot be successfully achieved or maintained without joint cooperation between it and its neighbors. The lands immediately adjacent to Moose Creek Estates are the properties known as the Royal Elk Ranch (south), Trout Placer (to the southeast) and the remainder of the surrounding property is U.S.F.S. property. The owners and the North Fork Ranger District currently manage these lands respectively.

Within Lemhi County noxious weed infestations of Canadian Thistle, Dalmatian Toadflax, Henbane, Leafy Spurge, Musk Thistle, Rush Skeleton, Russian Knapweed, Spotted knapweed, White Top Yellow Toadflax and Dyers Wood can be found.

Infestations specific to the northern part of Lemhi County include Spotted Knapweed, Leafy Spurge, Musk Thistle, Black Henbane, Berteroa (hoary alyssum), and Dalmatian Toadflax. Sulfur Cinquefoil, Hound's-Tongue and St. John's Wort have also been identified in the area, however they are not listed as "noxious weeds".

The project has completed the ninth year of weed elimination. A trained work crew travels up and down the length of the valley spot spraying individual weeds as they sprout. Several years ago Lemhi County introduced a weevil that attacks the seed pods on thistles and prevents the seed from maturing. Now, the majority of new thistles are being controlled by the weevil. The thistles not attacked by weevil are sprayed for elimination. Very few noxious weeds can now be found at Moose Creek Estates.

Planting the cuts and fills from the road and bridge construction with a certified weed-free seed mix will take place upon completion of each phase of the work and occur at during the time of year most likely to ensure proper seed germination and growth.

Silt screening was installed will be required by all contractors performing dirt and/or bridgework to insure minimal erosion and flooding to the environment. The AECC monitors silt screens as work is being done to ensure they are functioning as intended. Required maintenance or corrective changes will be made when required. Special attention is placed on all of the riparian areas to insure a healthy biological community that will provide scenic beauty and recreation for the homeowners, as well as forage for the native wildlife.

The seed mix, trees and shrub selection are made in consultation with the Natural Resource Conservation Services, Idaho Fish and Game, U.S.F.S. and the Moose Creek Estates' management team, using technical resource materials including *Rocky Mountain Native Plants and Weeds of the West*.

Prevention of weed encroachment:

All mulches, seeds and planting materials must be accompanied by a "weed free certification" with respect to the species of concern. All materials must be in sealed containers and inspected by an authorized M.C.E. representative, prior to its use.

Weed Control Costs:

The initial replanting of cuts, fills and approaches was paid by the project as well as the first years of spraying and reseeding of scalped areas. Now, it is the responsibility of the AECC to administer the Environmental Enhancement Plan including monitoring.

Costs for this administration of the plan will be born by the lot owners and charged back as part of their annual assessment. Each year following the spring vegetative assessment field survey, a weed and seed map will be developed to indicate infestations and seed needed areas.

The Architectural AECC will coordinate and ensure enforcement of the Environmental Enhancement Plan for the Home Owner's Association. In September of each year, using data gathered from the fall vegetative assessment field survey, the AECC will provide an estimate to the H.O.A. on the cost of seeding that is necessary to be conducted that fall as well as spraying to be done in the spring.

They will also administer a contract that will be led to the contractor chosen to do seeding and spraying. All pesticide/herbicide applicators will carry a current license from the State of Idaho and be required to carry an error and omissions/professional pollution liability insurance policy.

Weed Eradication Progress:

The thistle population was mapped then eliminated by cutting and bagging all plants in the late summer of 2001. Six pickup loads of bagged, compressed thistles were removed from the property. The thistles

and various other weed infestations have nearly been eliminated. The project team is working with the U.S.F.S. to ensure that they take an aggressive approach to weed elimination in areas near Moose Creek Estates.

Enforcement of Environmental Enhancement Plan:

The Home Owner's Association will periodically select an independent entity with a credentials and background in biology and/or forestry to audit compliance to the Deed Restrictions and the Environmental Enhancement Plan.

Silviculture Plan for Moose Creek Estates

Prepared by: Jim Rineholt

Initial site visit: 10/27/05

Updated – 1/15/08

Background

The forested environment is a diverse mixed stand of lodgepole pine, Douglas-fir, subalpine fir, ponderosa pine and aspen. Englemann spruce and cottonwood are also found in the riparian areas and along the streams. The property is surrounded by Forest Service lands which have an active infestation of Douglas-fir bark beetles that is threatening Moose Creek Estates (photo 1). These beetles could very well move onto private lands within the project area that could cause extensive tree mortality. Other bark beetles observed within the property were mountain pine beetles, western pine beetle, and the red turpentine beetle. Also observed was western spruce budworm activity on the Douglas-fir and subalpine fir trees. A few large Englemann spruce trees in the riparian area were dead possibly due to the spruce beetle.

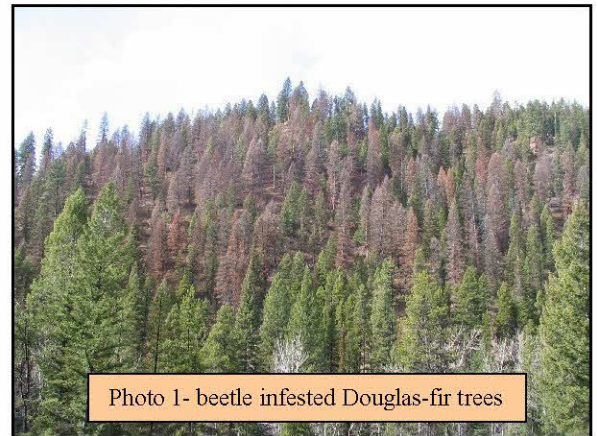


Photo 1- beetle infested Douglas-fir trees

Before the current owner purchased the property the area had been logged and it appears that most of the largest Douglas-fir and ponderosa pine trees were cut and removed without regard to long-term sustainability. The owners have chipped and burned the remaining slash from the previous logging entry at great expense. They have also

cut and removed most of the dead and green infested lodgepole pine that were attacked by mountain pine beetles. The remaining lodgepole overstory are very tall, small in diameter, and are very susceptible to wind throw and snow damage. There is a lot of lodgepole pine regeneration that has seeded in naturally in the openings (photo 2).

Desired Vegetation Objectives

The objectives are found in the Landowner Forest Stewardship Plan (LFSP) prepared by the Idaho Department of Lands and are summarized below:

Reduce tree mortality from insects and diseases (particularly bark beetles and western spruce budworm).
Implement defensible space projects by constructing fuel breaks to reduce hazardous fuels
Maintain and enhance fish and wildlife habitat
Eliminate noxious weeds
Implement pro-active forest management activities to restore, sustain, and maintain long-term forest health.



Pro-active Guidelines for Long-term Forest Health

1. Bark Beetles - Prevention and Suppression Tactics:

Douglas-fir bark beetle: To protect healthy Douglas-fir trees that are at least 12 inches in diameter, staple MCH pouches to protect against the Douglas-fir bark beetle. Dense stands of Douglas-fir need to have 30 pouches per acre deployed for adequate protection. MCH should be applied by the first of May. Individual, scattered, or isolated stands may need to have 2-4 pouches per tree depending on size. Research suggests that placing 2 pouches/tree up to 30 inches in diameter and 4 per tree over 30 inches will give adequate protection. See "Using MCH to Protect Trees and Stands from Douglas-fir Beetle Infestation". MCH needs to be deployed annually as long as the outbreak exists.

Mountain Pine Beetle: Any lodgepole pine or Ponderosa pine that is at least 8 inches in diameter and bigger that landowners wish to protect from mountain pine beetles should be treated with a preventive spray (Carbaryl). It is recommended that the larger healthier full crowned trees be treated. The spray application should occur before beetle flight which is July 1. Green infested trees should also be removed prior to beetle flight and before July

Western Pine Beetle: Western pine beetle mortality was also observed on some ponderosa pine trees. Preventative sprays such as Carbaryl can also be applied. Beetles initially attack a standing tree about midway up the bole with subsequent attacks above and below so the spray coverage needs to cover as much as the trunk as possible. Beetle emergence begins in June and when temperatures reach at least 60+ degrees and continues through September.

Red Turpentine Beetle: This beetle does not usually attack in sufficient numbers to kill trees. Typically, the largest and weakest trees are attacked and trees that have been injured by fire, logging or other operations. Seldom are healthy trees killed. This beetle attacks the tree at ground level and up to 6-8 feet of the tree.

Preventative sprays such as Carbaryl that are being used for other primary bark beetles will work for this bark beetle as well.

2. Foliage and Stem Diseases – Prevention and Suppression Tactics

Western Spruce Budworm: There appears to be a very active budworm outbreak that is causing extensive defoliation and damage on the smaller subalpine fir and Douglas-fir trees that are under the main canopy. Defoliation is also occurring on the larger trees. In most cases the larger trees survive the outbreaks; however, the tops and some branch dieback can occur or even cause some mortality in the large trees. Weakened trees can also be more vulnerable to bark beetle attacks.

A microbial insecticide called *Bacillus thuringiensis* (BT) is registered for use against the western spruce budworm and is very effective. Continue to spray the higher value trees that can be reached with a hydraulic sprayer. Carbaryl is also effective but more harmful to other non target organisms.

Reducing multiple canopy layers through intermediate thinning treatments can also reduce severe defoliation of the younger trees. Favor Douglas- fir over subalpine fir. Since spruce budworm outbreaks can occur for many years, inter-planting with non-host species such as ponderosa pine is a good long - term strategy. Continue with pro-active forest health treatments to maintain and increase the vigor of the remaining trees by thinning, salvaging and sanitizing the stand.

Western Gall Rust: Western gall rust is an obligate parasite that require living hosts for survival and affects both lodgepole and ponderosa pine and it has been observed in the younger lodgepole pine stands in the project area. The rust infests pines of all ages but causes the most severe damage to seedlings and saplings. Spores from infected trees become windborne in the spring and infect emerging shoots and/or cone-flowers on pines. Infection usually occurs in the lower third of the crown likely due to better moisture retention close to the ground. The fungus grows within the cambial tissue and galls are formed 1-2 years later on stems, branches and twigs. Over time these points of infection girdle the trees and cause dead branches and even tree mortality – especially in young trees. Galls on main stems can last for decades and form “hip” cankers that may eventually kill the tree or in most cases stem failure usually occurs from high winds. Prevention: Thinning infected stands is the only practical way to reduce damage. Trees with cankers on the stems or those with branches that are more than 25% infected need to be removed. Trees with only a few branch galls can be pruned or even retained if not practical to cut out. Branch galls in infected stands tend to become inactive within ten

years after thinning likely due to increased vigor and growth and the consequential shading out of the lower branches.

3. Thinning Guidelines to Improve Tree Vigor and Growth for long- term Sustainability

Discussion: Forests naturally go through stages of crowding and thinning. Individual trees constantly die and others grow in their place.

Selection harvesting can emulate this natural process by favoring desirable healthy trees and create more of an uneven-aged stand of trees that would meet the goals and objectives of the project area.

- 1) Thin or selectively harvest intermediate and suppressed trees whose growth is inhibited by shade from other trees to make room for desirable trees. Tree crowns should be separated to promote healthier growing conditions. Remove trees in the following categories: crooked, dead or dying, diseased, and injured. Leave healthy, full crowned and well formed trees. Thin to a basal area of 100 sq.ft.²/ac for Douglas-fir, and 80-100 ft²/ac for lodgepole pine (photo 3).

- 2) Thin the younger lodgepole pine stands to an 8-10 foot spacing and favor the healthier dominate trees. Some of these might be Douglas-fir or ponderosa pine and might be more desirable than lodgepole pine and would increase stand diversity. If needed, wait until the younger trees grow a little taller (5-6 feet) to see which ones will establish dominance. Be sure to cut those that are infected with western gall rust. One method of



Photo 3 – thinned Douglas-fir stand

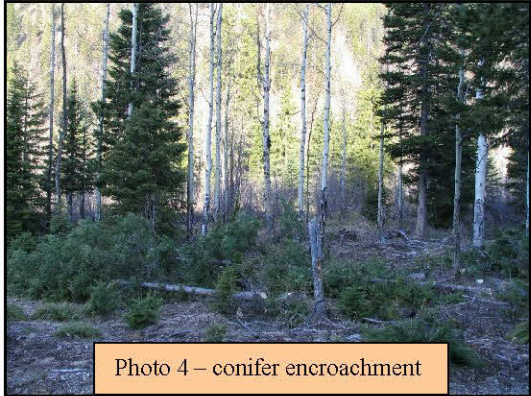
- determining spacing in young stands is to use the “D” factor. D is the diameter in inches changed to feet plus the factor. For example, diameter is 2”. 2’ plus 6’ = 8 feet. For pure stands of lodgepole pine use D+6. For mixed stands use D+5.
- 3) Reduce the immediate threat of bark beetles by cutting and removing bark beetle infested trees to reduce the spread of the beetles. If not practical to remove off site buck up the logs into shorter pieces (no more than 4 feet, or peel the bark to expose the

larvae to the elements) and cover with plastic. Burning the infested trees is also an effective tactic.

4) Any green slash created from harvesting activities will need to be burned or chipped to prevent IPS and/or Douglas-fir beetle build-ups – especially if the cutting occurs in the spring.

5) Enhance aspen trees that are being crowded out by the shade tolerant fir trees (Photo 4 and 5). Cut out all competing conifers within the stand as well as cutting adjacent to the stand approximately one tree length (100-150 feet).

Disturbing the root systems with skidding activities will also stimulate root suckering along with cutting some aspen trees.



The younger shoots may need to be protected with fencing from elk and deer until they grow to heights above browsing. Planting new aspen may also be an option in other areas to increase diversity and wildlife habitat.

6) Plant more several tree species such as ponderosa pine to increase species diversity. This is especially important to help reduce the damage that is currently being caused by the western spruce budworm. Ponderosa pine will also outlive lodgepole pine and is more fire resistant to ground fires should one occur.

7) Construct fuel breaks to reduce the fire hazard through Lemhi County’s hazardous fuels treatment program.

Summary of Accomplishments with the Forest Health Protection and Hazardous Fuels Grants Program

Year	Infested Tree removal	Trees sprayed	MCH	Acres Thinned	Fuels treatment acres
2006	910	210	3708	88	?
2007	198	596	9000		?

Future Actions

Year	Infested Tree removal	Trees sprayed	MCH	Thin and sanitize young LP stands	Construct fuel breaks
2008	as needed	spray 06 trees*	X	Complete in 08	Complete in 08
2009	as needed	spray 07 trees	X		

2010 and beyond:

- begin planting ponderosa pine after tree cutting activities are completed
- continue to monitor overall health and conditions of stands

* 2 year treatment

Jim Rineholt
Forester, Sawtooth NRA

Appendix A - Scenic Easement - Prohibited Uses and Practices

The following uses and practices are deemed to be inconsistent with the purpose of this easement and are expressly prohibited:

- 1) Division, subdivision or de facto subdivision on the approximately 100-acre property.
- 2) Commercial or industrial uses of or activities on the property other than those related to other uses expressly stated in Appendix B.
- 3) Construction of permanent structures or improvements of any kind, including homes, barns and other agricultural structures, unless specifically set forth in Appendix B – Permitted Uses. Also not allowed are commercial camping accommodations, tennis courts, swimming pools, mobile homes, nor any similar structures.
- 4) The construction of visual impairments on the property including but not limited to antennas, windmills, water towers, utility poles or towers, and billboards.
- 5) New road construction in the easement.
- 6) Dumping of commercial or industrial waste, garbage or any toxic waste, in, on, or under the property.
- 7) Alteration of the surface of the land including, without limitation, the excavation or removal of sand, gravel, rock, peat, or sod. However, the removal of individual rocks or boulders for landscaping purposes is allowed.
- 8) Mining, drilling or exploration for the extraction of minerals of any kind, oil, coal, or other hydrocarbons, or fuel or other materials on the surface. Any subsurface or shaft mining or drilling (for the purpose of mining any of the above materials) is also prohibited.
- 9) Motorized recreational use.
- 10) The construction of fences.
- 11) Manipulation or alteration of natural watercourses and/or ponds on the property, or the creation of new water impoundments or watercourses, for any purpose other than permitted uses

defined in Appendix B. Nor shall there be any activities that would be detrimental to water quality or would alter the natural level or flow. However, measures to arrest erosion in and around or enhance the natural watercourses and/or ponds are allowed by this easement.

Appendix B - Scenic Easement - Permitted Uses and Practices

The following uses and practices are hereby deemed to be consistent with the purpose of this easement, and are expressly permitted:

- 1) To sell, give, mortgage or otherwise convey the property subject to the terms of this easement.
- 2) To enhance and/or restore areas on the property for wildlife and conservation values, including but not limited to the creation of wetlands and ponds, enhancement of springs, and planting of vegetation (trees, shrubs, forbs, etc.).
- 3) To repair erosion to river banks or control flooding.
- 4) To burn and use controlled burning as a vegetative management tool.
- 5) To build trails for walking on the property. Motorized vehicles are forbidden on the easement except for management and conservation purposes.
- 6) To convey trail easements to other parties such as the U.S. Forest Service or local homeowner's association.
- 7) To selectively harvest timber for forest density management and fire prevention.
- 8) To place several small signs at the borders of the easement indicating that there is a conservation easement on the property held by Kokopelli Endeavors.