

This form, which is periodically updated to address new opportunities, is available in PDF and MS Word at the following addresses:
<http://www.cfc.umd.edu/extensionforestry> or www.mttreefarm.org

Owner's Name John and Jane Jones

Plan Author (if not owner) _____

Forest Stewardship Plan

Tree Farm Plan

This management plan outlines sustainable forestry guidelines for the conservation of natural resources within this forest and addresses immediate needs (next 5 years) as well as long term (50+ years) objectives and actions. It is endorsed as a certifiable sustainable forest management plan by the American Forest Foundation Family Forestry Program, U.S. Forest Service, U.S. Natural Resources and Conservation Service, Montana Department of Natural Resources and Conservation, Montana Association of Conservation Districts, and Montana State University Extension Forestry



EXTENSION
Forestry Program



Property Ownership

Landowner(s) John and Jane Jones
(and representative, if different)

Mailing Address Jones Meadow Ranch, PO Box 000, Greenough MT 59863

Phone 406-000-0000 E-Mail JJjones@ranch.net

Date of Original Plan Completion 9/15/1995 Revision dates _____

Property Description

Legal property description NW1/4; SW1/4; SE1/4 of Section 12 T13N,

R15W, Montana P.M.

Nearest city or town Potomac County Missoula

Total ownership acreage 480 Total forested acreage 480

Is there a home on the property? Yes No

Do you reside on the property? Yes No

Record of Verification

Reviewed by a Professional Forest Advisor

Advisor Name Cindy Bertek Phone 406-243-4706

Date of Property Visit 9/15/1995 MU's Verified 1, 2, 3, # of Acres Verified 410

Approved By Cindy Bertek
(Stewardship Advisor or Tree Farm Inspector Signature)

Forest Landowner(s) Signature(s) Jane Jones

John Jones

Property History

A brief description of ownership record, past management activities, and development of the ownership.
(Based on personal knowledge, property records, and local information sources. Also consider what evidence you see on the ground, stumps, skid trails, etc.)

History of periodic selective logging 1900 – 1940. Extensive fire on portions of the ownership in the early 1900's. Grazing rights for 25 head, 5-month season, leased to neighbor since 1948. Water impoundment constructed in 1955 for stock use. Ownership is open to public hunting and cross-country skiing and hiking. Constructed roads to ranch headquarters and in MU 1 and 3 where the cross-country ski trails are. Fencing is limited to boundary fences and headquarters area fence.

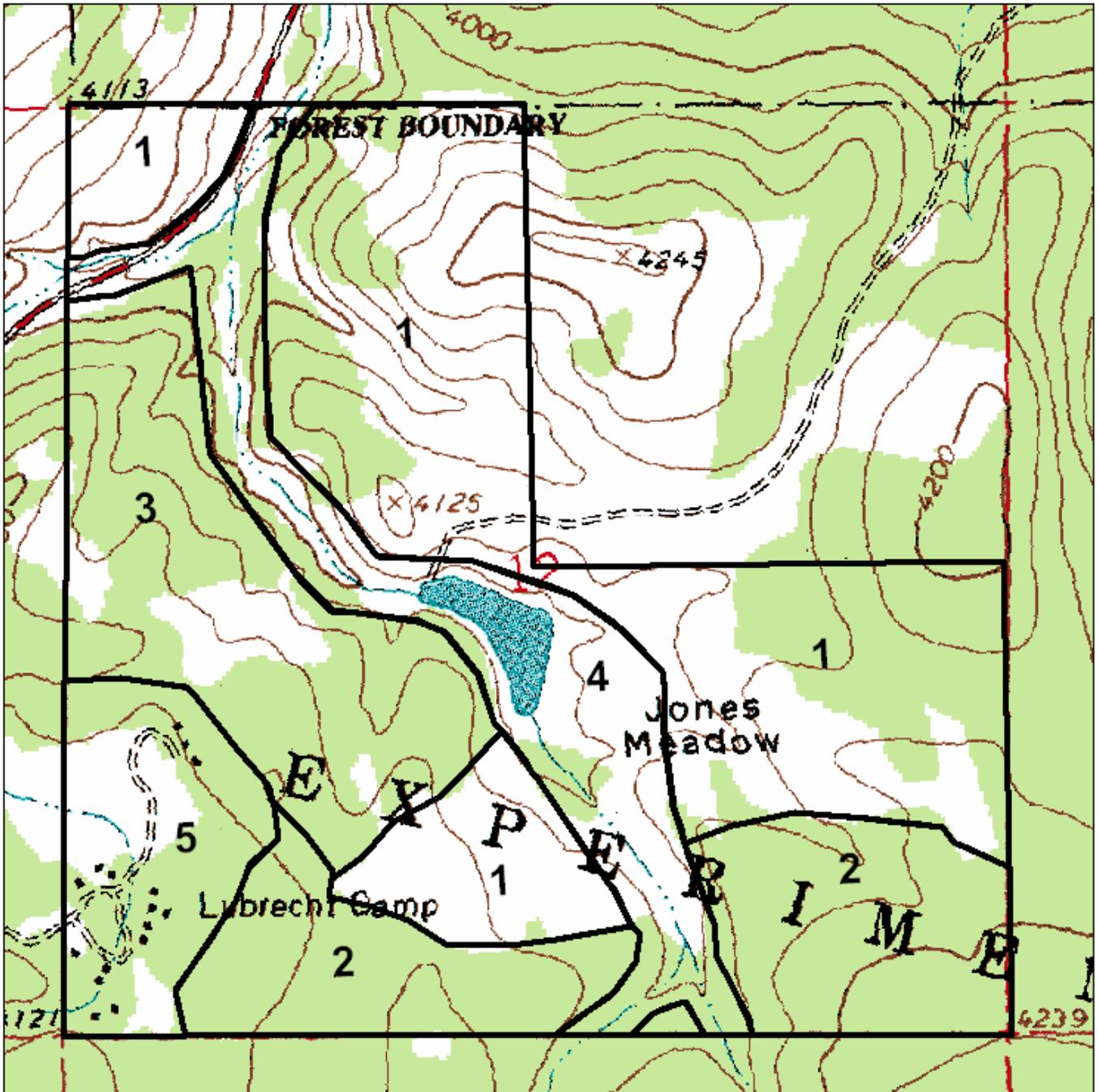
Forest Stewardship Goals

The principal management objectives for the ownership.
(Refer to worksheet Goals for my Forest Land.)

1. Avoid or reduce losses of trees to insects and disease.
2. Improve tree growth rates.
3. Produce periodic income from the sale of timber.
4. Maintain visual quality for all lands.
5. Maintain current level of grazing.
6. Improve grazing distribution across ownership.
7. Maintain or improve white tail deer and elk habitat and use.
8. Maintain a wide variety of resident wildlife.
9. Protect soil and water resources on the ownership.
10. _____

CONTOUR MAP

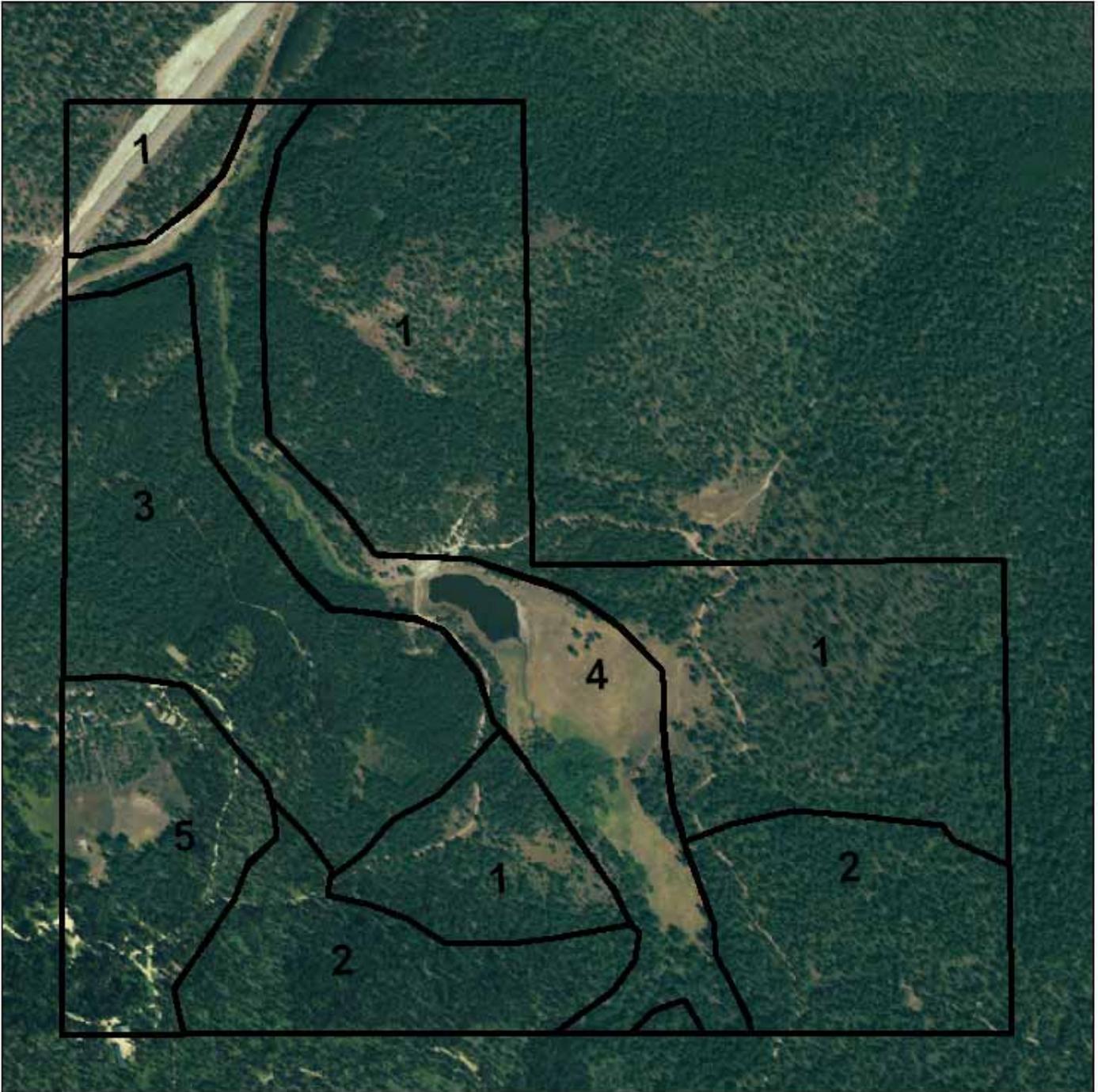
Jones T13N R15W S12 GREENOUGH



1 inch equals 800 feet



Jones T13N R15W S12 GREENOUGH



1 inch equals 800 feet



Basic Property Description

Average aspect (circle): N S E W Average elevation 4100

Basic topography (estimate percent of total acreage that is)

Complex topography (many steep ravines and aspects) _____

Simple topography (few ravines and changes of aspect) 100%

Percent of land that is Flat (<5% grade) 20% Gentle Slope (< 20% grade) 60%

Steep Slope (> 20% grade) 20%

Forest Access to vehicles (circle): Excellent (80% accessible) Good (at least 50%)

Fair (at least 25%)

Poor (less than 10%)

Estimated improved road length (bulldozed with graveled surface) ½ Mile

Estimated unimproved road length (bulldozed with but original parent material) none

Estimated total permanent skid trail length (drivable but no earthwork) none

Estimated cumulative stream length class I 1 mile class II _____ class III _____

Are any streams on Montana's Impaired Stream List? Yes No Unknown

Check website: <http://www.deq.mt.gov>

Number of unique stands of trees, or management units 5

For each stand or management unit, write what your management objectives are and a brief description of the forest management unit and its condition. Use the Management Unit Analysis Form or plot form summary to help with this section.

Unit 1 PP/DF southwest aspect/ski trails

Acres 200

Objectives: Improve grazing distribution away from riparian areas. Maintain an uneven aged stand structure. Maintain grass forage for wildlife (elk) winter range. Avoid disturbance of nesting eagles. Maintain stand health & current stocking in sapling & larger six classes; thin seedlings & saplings. Manage all resources to avoid excessive use & damage of adjacent riparian area. Maintain and increase elk use in fall and winter for hunting and habitat. Continue allowing public recreational use of the cross-country ski trails.

Description: This unit has a mostly south and west aspect and is relatively dry. It is a mostly seedling & sapling stand. There are many poor quality seedlings and saplings. Some of these areas provide hiding cover for elk adjacent to the winter range area. The scattered overstory is about 80 years old in the 5-15 dbh size class with 60% PP & 30% DF and 10% LP. The unit borders the riparian area for more than 1

mile. The area is heavily used by elk as winter range. Stand structure is 80% one story with some 2 and 3 story areas. There is fair road access to this unit and the roads are in good shape. The roads are also used as ski trails.

Unit 2 PP/north aspect Acres 65

Objectives: Increase grazing by reducing timber stocking. This will improve growth and use of available forage. Increase shrub growth by timber harvesting. Maintain forest structures now present; maintain snags and down dead woody material in present quantities. Improve stand health and growth rates; reduce mortality. Generate income through sale of timber. Rare Plant: maintain conditions required to ensure continued survival of the species.

Description: This unit has moderate slopes and a north aspect. There are no roads. Predominantly an uneven-aged saw-timber stand. More than 1/2 mile interface with riparian areas. The tree canopy is mostly closed although there are clumpy areas that are open or lightly stocked. There is some healthy PP regeneration and quite a bit of poor quality DF in the understory. 70% of the plots are 3-story structure #16. The large trees are about 80% PP and 20% DF. This is overall a dense stand. There is opportunity for income from timber harvesting.

Unit 3 LP northeast aspect Acres 95

Objectives: Improve forage production and quality by reducing tree stocking and crown cover. Increase shrub growth by thinning trees. Develop greater tree-shrub-forb-grass diversity. Improve forage production. Improve stand health and growth rates; reduce insect activity. Generate income through the sale of timber products (LP post and pole or pulpwood). There are outbreaks of mountain pine beetle in the area. Plan to monitor activity and remove infested trees or groups to reduce spread. Visual/Riparian: 1(Retain sufficient tree stocking to meet visual quality and screening. 2) Avoid excessive use and damage of adjacent riparian area.

Description: This area has moderate slopes and a northeast aspect. It is a single story, closed canopy stand, and predominantly a 60 year old LP stand 75% at 5-9 dbh, with some intermixed DF 15%, and 10% PP and WL. There is not much diversity or vegetation in the understory. More than ½ mile borders the riparian area.

Unit 4 Riparian area Acres 80

Objectives: Protect and maintain the health of the riparian area and water quality. Reduce use by cattle use and damage by making water available away from the creek.

Description: This area is over a mile long. The stream flows from the southeast corner of the property diagonally to the northwest corner. There are generally no adjacent wetlands although there is quite a bit of

water loving vegetation and brush in the riparian areas along the stream. The pond is man-made and used by ducks in the spring through fall. There is some wetland and meadow area on the inlet side of the pond.

Unit 5 Headquarters area Acres 55

Objectives: Maintain a firesafe environment for the homesite and a fire resilient forest; improve the aesthetic attributes; maintain privacy and sound buffer from the highway; maintain the abundant wildlife habitat. Reduce knapweed and thin and prune the PP saplings in the meadow.

Description: This area is relatively flat. The area below the homesite contains a large meadow which is being encroached by PP which are now saplings. Knapweed is also prevalent in the meadow. There is a small aspen stand at the west end of the meadow. Behind the home and bunkhouse is a thinned stand of 8-30 dbh timber: about 75% PP and 25% DF and WL. The understory is burned every 2-3 years to keep minimize the small fuels and eliminate any regeneration beneath the big trees.

Add more pages as needed (additional pages at end)

Forest Natural Resources Enhancement and Protection

All of the following treatments may qualify for Natural Resources and Conservation cost-share programs. For this section, work with Stewardship Plan Implementation Schedule and a map. Complete the Implementation Schedule and draw and label the areas of management on your map if you wish to use this plan as part of your cost-share application.

Consider: *What treatments/monitoring/protection do you plan on completing?*
When will you implement treatments (season, year), follow-up activities, etc?
Where will the management take place; entire unit(s), part of a unit, acres?
Do you have applicable permits, professional help, and applications for cost share?

SOCIAL & RECREATION CONSIDERATIONS

Draw impacted areas on your map

Adjacent stand or ownership concerns (how does surrounding management affect your forest and how do your actions impact your neighbors? Consider aesthetic quality, wildfire concerns, privacy, wildlife movement and habitat, noxious weeds)

1. The neighbors of the NE quarter of the section recently commercially thinned their overstory. They left a mixed species stand of mostly PP and WL with some DF. Our thinning will converge with theirs and look similar. The other adjacent property is the UM Lubrecht Forest. They have been doing some overstory thinning and burning. Our plans should also be similar to their management. We do intend to leave some clumps of smaller trees for wildlife cover and small bird use.

2. Our management should not affect our neighbors views. In a few years the shrubs and grasses will increase and the trees will grow in size. The overall view and the fire resistance improved. Our management might also slow the spread of mountain pine beetle and spruce bud worm that is now coming into the area.

3. Unit 1: We would like to improve late season hunting by reducing summer grazing. Increase forage for elk and deer in the winter to increase hunting opportunities. This could improve hunting opportunities to the neighbors as deer and elk pass through and use the area.

4. Unit 3 We plan to maintain some denser areas to screen the visibility and sound of the highway near headquarter buildings by excluding approx. 15 acres from thinning project.

Access (Does your property restrict access to public lands, will you allow access across or to your lands, are the boundaries posted with appropriate contact information, have you considered Block Management with Montana Fish Wildlife and Parks)

We have historically allowed public use of a cross-country ski trail in MU 1. We plan to continue to allow for this use. The treatments we plan should not adversely affect the users experience or the visual quality of

their recreation. The views from the trail will be of a more open stand. Removing some of the dense DF understory will increase sight distance.

Archeological, cultural and historic sites (are there historical sites on your property that you wish to delineate, protect or contact anyone - universities etc. about)

We have found no sites on our property. If we do, we will consider protecting them. Survey monuments and bearing trees will be clearly marked to avoid disturbance.

ROADS, SOIL AND WATER RESOURCES

What goals do you have, or steps will you take to conserve and enhance your forest's roads, soil and water resources?

Soil protection (steep slopes, woody debris retention, nutrient cycling, vehicle travel, soil compaction, flood runoff, livestock issues)

Unit 1, 2, & 3: Harvesting will stop in when conditions are wet. Scatter some slash on temporary skid trails immediately following skidding activities. Areas where ground vegetation roots are disturbed and main skid trails will be seeded immediately after they are done being used. Leave some large woody debris throughout all units. Pile and burn precommercial thinned areas to retain nutrients.

Access (general maintenance, erosion potential, Best Management Practices, road surface condition, road runoff, drain-dips, culverts, stream crossings, weed control, time-of-year use)

Roads: New roads will be built using the BMP guidelines. Existing roads will be improved to the standards of the BMP's as much as possible. Most of the roads are in good condition. Culverts and drain dips will be checked to see if they are functional and clean.

Seeding: Any new roads will have the cut, fill, and roadbed seeded within 48 hours of completion. Road maintenance will be required before, during, and after use from harvesting activities as needed. After final road maintenance is complete, the roads surfaces will be seeded within 48 hours.

Weeds: All equipment will be washed to remove seeds prior to entering the property to reduce the incidence of introduction of weeds. We will monitor roads and landing after the harvest and do some spot spraying for weeds as needed.

Streams, wetlands, ponds, lakeshore (Streamside Management Zone, 310 permits, riparian habitat, wildlife, road crossings, general access)

Roads: Care will be taken to reduce impact to the riparian areas. We will follow Streamside Management Zones Laws and Best Management Practices when harvesting or road building. If there are any questions or uncertainties about SMZ's we will contact the DNRC Service Forester.

Cows: There is some excessive use by cattle that needs to be considered to reduce the impact to banks and water. Cattle tend to congregate in riparian area, monitor and reduce/limit use. Develop a few watering areas away from the riparian area. For the most part there will be no management activities in MU 4, the riparian area.

WILDLIFE HABITAT AND THREATENED & ENDANGERED SPECIES

Draw impacted areas on your map

Fish & Wildlife (species lists, habitat improvement or creation, animal control, den sites, nest boxes, snag retention, access, hunting)

Unit 1, 2 & 3: Plan for future snags and to maintain the existing snags along with some down dead material. Take care to leave some snags while harvesting as long as they are safe to leave.

Threatened, endangered, or sensitive species - plants or animals (to request site specific information <http://mtnhp.org/requests/index.asp>)

Unit 1: Review bald eagle rules and minimize disturbance to nest site. Harvest near the site may be excluded or restricted in vicinity of the nest.

Unit 2: There is a rare plant. Sparrow's egg lady slipper orchid, in the riparian area we would like to protect by maintaining its needed conditions. We need to investigate to find more information on this plant.

Grizzlies: Grizzly bears are known to pass through and use this area although we haven't seen any den sites. If there are sightings in the area we will post signs so people know, especially hunters since bears often will challenge them for their kill.

RANGE RESOURCE

Draw impacted areas on your map

Range management (grasses, forbs, brush, exotics, animal types and sustainable grazing guidelines, # pastures and animal rotation, water sources, salt block placement)

Unit 1, 2, & 3: Improve available forage for elk winter range by commercially thinning and in Check fencing, locate salt blocks, walk and monitor riparian area for overuse and damage to banks during grazing. Develop watering places away from the stream.

Unit 1: Precommercial thin. Graze late spring and early summer. Keep stock dispersed. Monitor big game use in winter. Continue with neighbor's grazing lease. Reduce grazing over 1-year period as other areas are developed. Note: Some steeper areas are not used by cattle. Animals tend to congregate in riparian area.

Unit 2: Graze late spring. Reduce the use of riparian areas by cattle. Increase forage production by both precommercial and commercial harvesting of trees. Keep stock dispersed, monitor riparian areas and weeds. Graze in late spring. Continue grazing lease to neighbor at 25-39 AUMs available in this area. AUMs should increase over 10 year period following harvesting. Dead down material may limit movement of livestock, but access will be developed as road construction is completed.

Unit 3: Graze during summer, keep herd dispersed. No grazing year 1 (thinning in progress), as forage responds to thinning more AUMs will become available (32 AUMs by year 5). Rider will disperse stock. Impacts on riparian area will be monitored, grazing may be excluded near rare plant if necessary. Wildlife may compete for forage.

Weed management (inventory, control, monitoring, prevention guidelines)

Unit 1, 2 &3: Monitor for weeds and spread of weeds prior to and following harvest. Monitor in spring and late summer for weeds as cows and wildlife often spread seeds. Look for knapweed in meadows and large openings and hounds tongue in riparian and wetter areas. Spray small patches of weeds in the spring before they produce flowers.

Unit 5: There is knapweed spread throughout the meadow below the ranch headquarters. For long term control we will release flower weevils (*Larinus minutes*) and root weevils (*Cyphocleonus achates*) in the meadow and spray the perimeter and along the roads to keep the weeds from spreading. **Note:** we need to check with the Blackfoot Challenge group to see if they can offer any assistance or information on weed control in the local area.

MANAGEMENT OF TREE RESOURCE

Draw impacted areas on your map

Protection from Insects & Diseases

There are some mountain pine beetle and spruce budworm. These will be monitored and if spread is noticed, LP and PP with beetles will be removed as soon as possible and before the beetles fly in the spring. In MU 3 we will reduce the density of the LP by removing suppressed post and pole size trees. If spruce budworm increases and spreads, we might consider coordinating with neighbors to spray with BT. We will be reducing the continuous crown cover in some of the more dense stands which might help reduce the populations.

MU5: If we feel our big PP near the headquarters are at risk from mtn. pine beetle, we plan to purchase some verbenone caps to place on some of the big pine in the headquarters area or if it is more cost effective we might spray individual trees with seven.

Tree non-commercial thinning treatments

Unit 1: Precommercial thin in 75 acres in NE part of unit to 100 seedlings per acre about a 20 x20 spacing. Favor leaving well formed PP and WL when there are any. Cut trees as low as possible removing all live branches with hand tools or chainsaw. Scattered trees may be left on the ground. Where there are more trees cut they will be hand piled and burned in the fall after there is a skiff of snow on the ground. Use contract labor. Steep ground and poor access may slow production, some walk-in will be required. We'll need to get a burning permit and find out about regulations and burning times.

Spring: Layout thinning area boundaries, do extra stocking plots, and apply for cost-share in the spring.

Summer: Obtain cost-share approval.

Fall: Finish thinning, Slash burning.

Reforestation (natural seedling recruitment, planting, site preparation)

Unit 1, 2 & 3: Stocking is and should remain sufficient. No reforestation planned at this time as there is plenty of natural regeneration of the species we want to maintain.

Wildfire Hazard Reduction and Fire Resilience (away from home site)

The harvesting and thinning plans we have should increase these concerns.

Home Firewise Safety (defensible space, near home site)

Remove all flammable vegetation within 15 of structures. Keep grasses well watered and mowed to at most 3 inches. Check roof occasionally for pine needle buildup and clean off as needed. Enclose the stairs so debris and embers can't get under them. Thin trees and shrubs so there is at least 10 feet between crowns out to about 150 feet. Prune the sapling and large trees in this area up 10 feet or no more than 1/3 of the live crown.

Harvested and thinned areas within 200 feet of the headquarters will have most of the slash removed to other areas for burning/disposal. Continue burning the stand behind the headquarters on about a 3 year cycle.

Precommercial thin the encroaching PP saplings in the west side of the meadow remove the ones in the middle that are beginning or will restrict our view.

Management Plan Implementation Constraints

Timing may be a factor with burning of slash. Markets for timber are low and might make it hard to get our work completed as many of the intermediate treatments would be paid for by the commercial harvests. We plan to check with the NRCS to see if there are any EQIP grants that might help fund some projects if we can't sell timber.

Carbon sequestration (current estimated tons of standing carbon per acre plus growth rate–sequestration per year). Estimated tons sequestered carbon = 50% dry tons of wood

Harvesting our trees and having them manufactured into products that will be used as building materials will retain carbon for years to come. We expect increased growth in volume of our trees that we are retaining. This in turn will increase overall carbon sequestration.

Other We would like to maintain our forest in the future and are considering a conservations easement.

That status might also reduce the tax assessment of our forest. We are not sure yet, though that we want to limit our future options.

Desired Future Condition - Timber

MU 1

Desired mature tree species (% of forested area) and expected longevity (maximum age you expect trees to reach before they die of natural causes or are harvested)

Species	% of Forested Area	Age
1. <u>PP</u>	<u>70%</u>	<u>300</u>
2. <u>DF</u>	<u>20%</u>	<u>150</u>
3. <u>LP</u>	<u>10%</u>	<u>100</u>
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

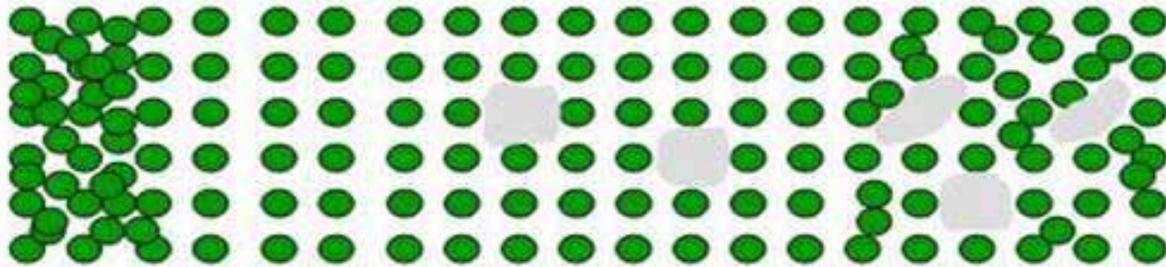
- PP Ponderosa pine
- DF Douglas-fir
- LP Lodgepole pine
- WL Larch
- GF Grand fir
- ES Engelmann spruce
- WRC W. Red cedar
- WH Western hemlock
- WP White pine
- SAF Sub-alpine fir
- LimP Limber pine
- RMJ rocky mtn. juniper
- QA Aspen
- CW Cottonwood Green ash

Desired species to naturally regenerate PP and DF seedlings are fully stocked

Desired species to plant none

Bird's-eye view of forest (check one)

- Wild stand
 Evenly spaced
 Evenly spaced with openings
 Variable density spaced with openings



- Some wildlife
 Maximizes growth
 Growth + regeneration
 Some growth + regeneration + wildlife

Desired spacing (in feet) Large (>9"DBH) 40 (ft)

Pole (5-8"DBH) 40 (ft) Seedling (<5"DBH) 24 (ft)

Size and shape of openings n/a

Desired structure:



- One canopy layer
 Two canopy layer
 Three canopy

Spacing (feet)	Trees/acre
3x3	4,840
5x5	1,742
7x7	889
10x10	436
12x12	302
14x14	222
16x16	170
18x18	134
20x20	87
25x25	70
30x30	48
40x40	27

Desired Future Condition - Timber

MU 2

Desired mature tree species (% of forested area) and expected longevity (maximum age you expect trees to reach before they die of natural causes or are harvested)

Species	% of Forested Area	Age
1. <u>PP</u>	<u>70%</u>	<u>300</u>
2. <u>DF</u>	<u>30%</u>	<u>100</u>
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

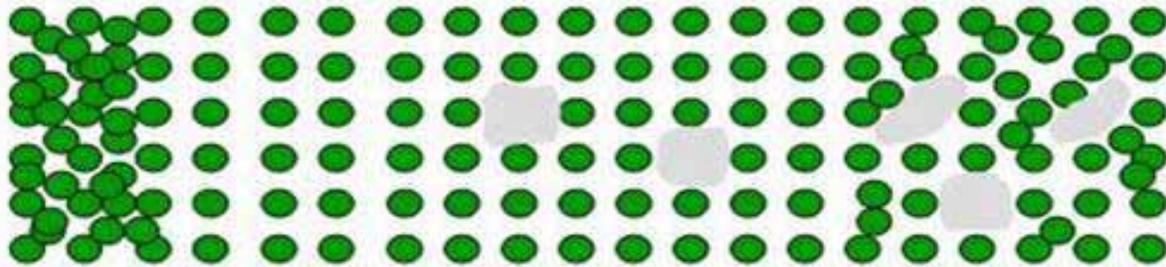
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- SAF Sub-alpine fir
- LimP Limber pine
- RMJ rocky mtn. juniper
- QA Aspen
- CW Cottonwood Green ash

Desired species to naturally regenerate PP & DF

Desired species to plant none

Bird's-eye view of forest (check one)

- Wild stand
 Evenly spaced
 Evenly spaced with openings
 Variable density spaced with openings



- Some wildlife
 Maximizes growth
 Growth + regeneration
 Some growth + regeneration + wildlife

Desired spacing (in feet) Large (>9"DBH) 75 (ft)

Pole (5-8"DBH) 30 (ft) Seedling (<5"DBH) 30 (ft)

Size and shape of openings Irregular 1/2 acre openings

Spacing (feet)	Trees/acre
3x3	4,840
5x5	1,742
7x7	889
10x10	436
12x12	302
14x14	222
16x16	170
18x18	134
20x20	87
25x25	70
30x30	48
40x40	27

Desired structure:



- One canopy layer
 Two canopy layer
 Three canopy

Desired Future Condition - Timber

MU 3

Desired mature tree species (% of forested area) and expected longevity (maximum age you expect trees to reach before they die of natural causes or are harvested)

Species	% of Forested Area	Age
1. <u>DF</u>	<u>30%</u>	<u>100-300</u>
2. <u>LP</u>	<u>50%</u>	<u>80</u>
3. <u>WL</u>	<u>20%</u>	<u>100-300</u>
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

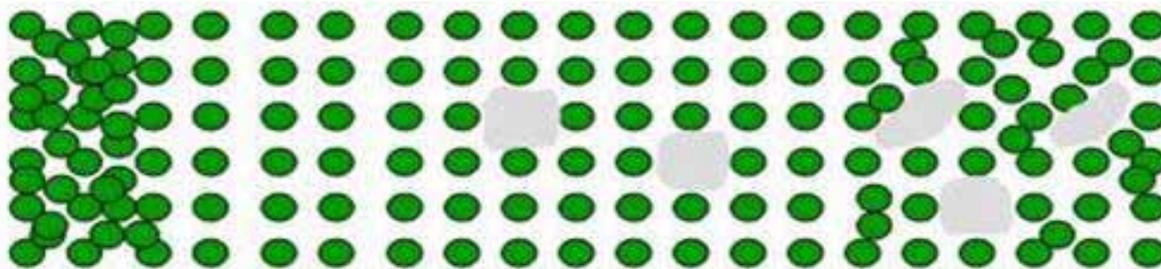
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- WH Western hemlock
- WP White pine
- SAF Sub-alpine fir
- LimP Limber pine
- RMJ rocky mtn. juniper
- QA Aspen
- CW Cottonwood Green ash

Desired species to naturally regenerate DF & LP

Desired species to plant WL

Bird's-eye view of forest (check one)

- Wild stand
 Evenly spaced
 Evenly spaced with openings
 Variable density spaced with openings



- Some wildlife
 Maximizes growth
 Growth + regeneration
 Some growth + regeneration + wildlife

Desired spacing (in feet) Large (>9"DBH) 70 (ft)

Pole (5-8"DBH) 20 (ft) Seedling (<5"DBH) 20 (ft)

Size and shape of openings 50 foot openings

Desired structure:



- One canopy layer
 Two canopy layer
 Three canopy

Spacing (feet)	Trees/acre
3x3	4,840
5x5	1,742
7x7	889
10x10	436
12x12	302
14x14	222
16x16	170
18x18	134
20x20	87
25x25	70
30x30	48
40x40	27

Forest Harvesting Activities

Identify for which MU's you are describing your activities.

Draw impacted areas on your map

Harvesting: Describe type of treatment: Even-aged: clearcut, thinning; Uneven-aged: group select, single tree select, overstory removal, understory removal, etc. Treatment methods: ground based or skyline, time of year, type of harvest; seed tree, multiage, sanitation, etc.

Unit 1, 2, &3: In all cases: Retain best growing and well formed trees with over 1/3 of live crown.

Forestry consultant will prepare timber sale, layout road locations, write contract, and develop harvest specs. Slopes are gentle, use ground based harvesting equipment.

Unit 1: Approx. 1 MBF per acre will be selectively harvested in the summer. Prefer retaining large PP and WL if there are any.

Unit 2: 20-25 acre units will be selectively harvested at 2-5 year intervals, until entire area is treated. Prefer retaining PP with a mix of WL and DF to retain current species mix. Remove across all size classes to retain uneven-age structure. We will consider harvesting more of the area in one year if the prices increase to reduce equipment move-in costs. Harvest in the fall. Harvesting may occur in sensitive areas when frozen.

Unit 3: Commercially thin in year 2. Favor leaving the healthy well formed LP and WL harvest smallest and poor quality trees. Harvest in the summer or fall. This unit may be mostly post and pole or pulp wood. If the beetles get into it we might consider more intense harvesting of the stand looking toward even aged management for a new LP stand.

Slash management (leave slash at the stump, jackpot pile, whole tree skid, chipping, pulp, post & pole, large woody debris, nutrient cycling)

Unit 1: This is a light thinning so leave slash at the stump and lop if needed.

Unit 2: Jack pot pile and burn leaving some large woody debris on the ground. Grass seed where needed to promote grazing potential.

Unit 3: Since this unit is predominantly LP, sell as much non-merchantable harvested timber as post and poles or pulp. Leave the remainder scattered around the unit. Where there is excessive slash, pile and burn in small piles around the unit.

Post harvest activities (burning landings, piles, or broadcast, seeding roads and landings, weed spray roadsides)

Unit 1, 2, &3: See Access and Soil Protection sections of plan - Grass seed roads, landings and any skid trails that vegetation and roots were removed to mineral soil immediately after each project is completed. Monitor roads for weed spread.

Permits (slash hazard reduction agreement, 310 permit for stream crossings)

Burning permit needed in the fall for any slash burning activities. A Forestry consultant will obtain slash hazard reduction agreement needed from DNRC prior to commercial harvests.

Streamside Management Zone (is there a wetland or stream within your harvest area, is it properly marked and are the appropriate laws being followed?)

We do not plan to harvest or have any activity in unit 4, the riparian area. The boundaries of this unit will be marked by the contractor, and approved by us, before any harvesting is done to prevent equipment from entering this unit and the riparian area.

Monitoring (how often do you plan on evaluating harvest units to ensure your overall forest management goals are being met?)

We will check the work after the first few hours of work in each unit then, if things look good, we'll check every few days as needed. When a unit is completed we will walk the unit to see that our expectation for slash reduction and trail/road maintenance has been met. We will also check the logs decked for sorting logs for pulp, post and poles, and sawlogs.

Stewardship Plan Implementation Schedule

(MU or all MU's combined) *All MU's*

(Copy additional pages if needed)

*NRCs Practice Code needed if practice will be submitted for cost share, otherwise leave blank.

	Treatment Date (Season/Year)	Treatment Activity Short Description	NRCs Practice Code*	MU#	Treatment (Acres, Feet)	Net Cash Flow	
						Cost	Income
Years 1-2	95-96spring/smr	cattle grazing		1,2			1,250
	95-smr/fall	road construction	560	2,3	1 mile	10,000	
	95	Precommercial thin (headqtrs)	409	3	40 acres	8,000	
	96 - spring	timber sale preparation		2,3	110 acres	9,900	
	96 - smr/fall	timber harvest	666A	2	25 acres (1mbf/acre)	4,750	8,125
	96 - smr/fall	thinning	666A	3	85 acres (2mbf/acre)	24,650	53,250
	96 - fall	site prep./seeding		3	40 acres	1,290	
					subtotal	\$58,590	\$62,625
Years 3-4	97-98 spring/smr	cattle grazing		1,2,3			940
	98 -summer	precommercial thinning	409	1	75 acres	15,000	
	98 - fall	timber sale preparation		2	25 acres	2,250	
					subtotal	\$17,250	\$940
Years 5-6	99-00 spring/smr	cattle grazing		1,2,3			1,195
	99 - fall	timber harvest	666A	2	25 acres (1mbf/acre)	4,750	8,125
	99 - smr	timber sale preparation	666A	2	25 acres	2,250	
					subtotal	\$7,000	\$9,320
Years 7-8	00-01 spring/smr	cattle grazing		1,2,3			1,175
	00 - fall	timber harvest	666A	2	25 acres (1mbf/acre)	4,750	8,125
		timber sale preparation	666A	1, 2	125 acres	11,250	
					subtotal	\$16,000	\$9,300
Years 9-10	02-03 spring/smr	cattle grazing		1,2,3			1,210
	03 - summer	timber harvest	666A	1	100 acres 1.5 mbf/ac	28,500	48,750
	03 - fall	timber harvest	666A	2	25 acres (1mbf/acre)	4,750	8,125
					subtotal	\$33,250	\$58,085
Costs/Revenues used are an estimate and are not accurate. Seek quotes from contractors as prices and costs fluctuate with the market and variability of location and stands.					TOTAL	\$132,090	\$140,270

Log prices \$325/mbf <http://www.bber.umt.edu/content/?x=1869>

Harvest cost \$145/mbf + load/trucking (\$200/4.5mbf = 44/mbf) = \$145+\$44=\$190/mbf total cost/mbf

Sale layout \$90/ac

Road building \$10,000/mile

Precommercial thin \$200/ac

Grazing – no reference

Seeding \$2.25/ac seed + \$30/ac application = \$32.25/ac total seeding

Timber Sale Contract Checklist for Private Landowners and Loggers

Unless a private landowner has the ability to personally harvest trees and transport them to a sawmill or other wood processing facility, the act of logging and transporting trees will be conducted by a contracted professional. The following is a checklist of issues a private landowner and logging contractor may wish to consider on a logging contract. Each of the items should be addressed in a contract to allow for a minimum probability of a dispute. Issues can be as detailed as both parties find acceptable and economically feasible.

- ___ Property location and legal description are clearly defined
- ___ Property boundaries and harvest units are clearly and accurately marked
(logging trespass results in a minimum cost of 3x value of trees)
- ___ Property ownership is documented and type of ownership is specified *(Individual, partnerships, corporations, etc.)*
- ___ Insurance is documented *(Any contractor working for a landowner must have Commercial General Liability \$1 –million, Loggers Broad Form Property Damage Liability \$1-million, Workers' Compensation \$100,000 or an Independent Contractor Exemption, and Automobile Liability \$1-million. If they do not have these, the landowner will be held liable for any damage or personnel injury that may occur. Logging is a hazardous activity!)*
- ___ Access to the property/harvest unit are specified and documented *(To avoid trespass or the disturbance of sensitive areas access routes should be clearly delineated. If access across other ownerships is required, written and notarized documentation of access permission should be obtained) Insurance can be written to include owner and consulting forester.*
- ___ Type of harvest is clearly specified for each harvest unit *(Typically trees are marked both at eye level and on the stump, or harvest tree characteristics are defined by species, diameter, crown characteristic, or residual tree spacing)*
- ___ Timing of harvest is specified *(Dates when harvesting and/or other treatments need to be conducted or completed by)*
- ___ Residual property specifications should be defined *(This is as detailed as the landowner and contractor can agree upon. Issues can be the completeness of residual logging debris disposal, burn pile rehabilitation, grass seeding, skid trail rehab, noxious weed control, tree planting, noncommercial thinning)*
- ___ Hazard Reduction Permit has been acquired and responsible party designated *(Under state law a hazard reduction permit must be obtained from the DNRC and a bond posted that covers the expense for meeting the HRA specifications. Either the landowner or contractor is responsible for this)*
- ___ Best Management Practices (BMP's) and Streamside Management Zone (SMZ) responsibilities are designated *(Compliance to Montana BMP's is ultimately the landowners responsibility but should be specified in the contract. Similarly, compliance with SMZ's are state law and their implementation should be specified)*
- ___ Performance bond or contract penalty clauses *some provision for compensation to the landowner for harvesting activities that deviate from specifications. Having the contractor post a bond is the best protection for the landowner but imposes a risk on the contractor. Contractors already post a performance bond with the state to comply with the Hazard Reduction Agreement)*
- ___ Method of payment is clearly defined *(Lump sum is one payment for the entire estimated log volume, this method may over or underestimate actual value but is simple and can be demanded in advance of the actual harvesting. Payment by unit is where payment for logs occurs based upon the actual scaled logs at the mill. Either the contractor pays an agreed upon percentage to the landowner or the mill pays agreed upon percentages separately to the contractor and landowner. Downfall is that in cases of salvaging dead and dying trees a delayed harvesting job can result in losses of standing tree value)*
- ___ Method of scaling is defined *(Either direct scaling or weight scaling are used. Direct scaling tends to be more accurate though each mill may use different defect deductions. Weight scaling works for large volume sales that have trees of similar species and diameter. In general logs should be trucked to the mill quickly following harvest or they lose significant water weight or for most accurate conversions a continuous representative sample of logs should be check scaled and weighed)*

___ **Notification** *(It is defined if and when the contractor or landowner needs to notify the other party about when activities are to start or end and the type of format – written, e-mail, telephone. This is to avoid issues with blocked access, noise, etc.)*

___ **Expiration date** *(Any contract should have a defined end date after which the contract is no longer valid)*

___ **Notarization** *(Any legally binding document should have signatures notarized)*

*** This is simply a recommended check list compiled from a variety of sources including The Montana Logging Association for a harvesting contract. Any contract can be challenged. It is always advised that a contract be reviewed by an attorney. You may also want an attorney's fees recovery statement in the document that will allow for recovery of legal fees should a dispute require legal action. ***