

Lory State Park- Upper Lory Fuels Reduction Project- 164.7 acres

LORY STATE PARK TRAILS

(all trail distances are one way)

1 ARTHUR'S ROCK TRAIL

Foot only
Moderate to Difficult

This 1.7 mile hiking trail winds through forested mountainsides and open meadows to the summit of Arthur's Rock. Along the trail, hikers can experience many different types of plants and wildlife because of the change in elevation. Upon reaching the summit of Arthur's Rock, one is offered a breathtaking view of Horsetooth Reservoir and the Front Range from an elevation of 6,780 feet.

2 OVERLOOK TRAIL

Foot only
Easy to Difficult

Mule deer, wildflowers, Abert's squirrels and spectacular views of the eastern plains can be seen along this 1.2 mile trail connecting Arthur's Rock Trail to the Well Gulch Nature Trail. Starting from Well Gulch, the trail maintains a relatively flat stroll along the ridge below Arthur's Rock, until meeting with the Arthur's Rock trail.

3 TIMBER TRAIL

Foot only
Moderate to Difficult

This 3.7 mile trail ascends from the Group Picnic Area to the ridge behind Arthur's Rock. The trail climbs steeply through grass and shrub lands, leveling off in the pine forest, where the park's six primitive back-country sites can be found. This trail has some steep switchbacks and rocky scrambles to cross in getting to the top of the Well Gulch drainage.

4 WELL GULCH NATURE TRAIL

Foot only
Easy to Moderate

Wildflowers and wetland vegetation line this lush 1.2 mile trail. A self-guided nature tour takes you through the grasslands, mountain shrub, and timber life zones, with stations along the way illustrating botany, geology and animal life in Lory State Park. For those looking for a longer hike, the trail branches in the Timber and Overlook trails.

5 WESTRIDGE TRAIL

Foot only
Moderate

Following old jeep and fire roads, this 1.5 mile trail takes you along the west boarder of Lory. Tucked down in the pine forest broken by open meadows filled with wildflowers, its easy to forget about how close you are to civilization.

6 SHORELINE TRAIL

Foot, Horse, Mountain Bike
Easy

This comfortable one mile hike leads down to the edge of Horsetooth Reservoir. The red sandstone hogbacks offer a striking background to the grassy meadows, where deer can be found grazing.

7 WATERFALL TRAIL

Foot only
Easy

This 0.1 mile trail leads back to a series of waterfalls during the spring and early summer. Wetland vegetation can be found along the trail throughout the summer.

8 EAST & WEST VALLEY TRAILS

Foot, Horse, Mountain Bike
Easy

These trails run parallel to the main road, branching to coves at Horsetooth Reservoir or meeting with the mountain trails. East Valley 2.2 mile, West Valley 2.3 mile.

9 MILL CREEK LINK

Foot, Horse, Mountain Bike
Difficult

From the south valley trail, this 0.9 mile link offers passage to the upper elevations of Horsetooth Mountain Park by way of the Mill Creek Trail.

10 SOUTH VALLEY TRAIL LOOP

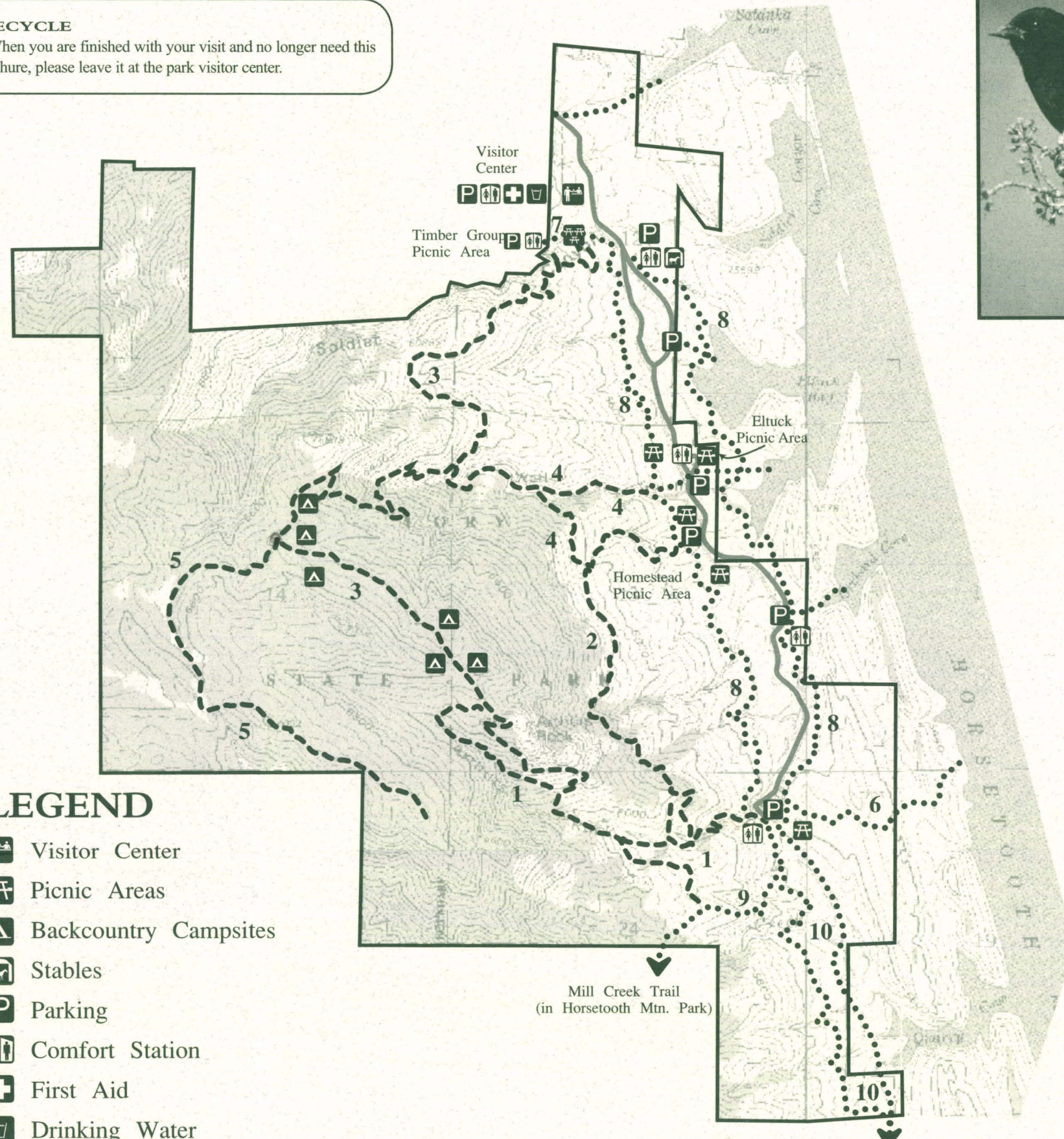
Foot, Horse, Mountain Bike
Easy

This easy 2.7 mile loop trail takes you to the south border of Lory State Park. This link offers an easy transition into Horsetooth Mountain Park.



RECYCLE

When you are finished with your visit and no longer need this brochure, please leave it at the park visitor center.



LEGEND

- Visitor Center
- Picnic Areas
- Backcountry Campsites
- Stables
- Parking
- Comfort Station
- First Aid
- Drinking Water
- Foot Only
- Foot, Horse, and Bike
- Road



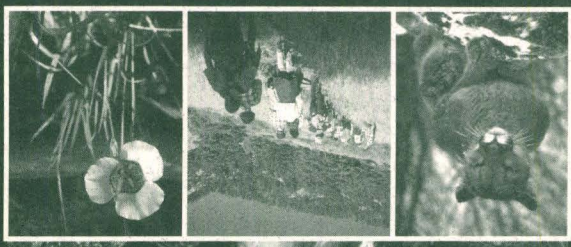
Photo by Mike Hopper



Lory State Park
708 Lodgepole Drive
Bellvue, CO 80512
(970) 493-1623



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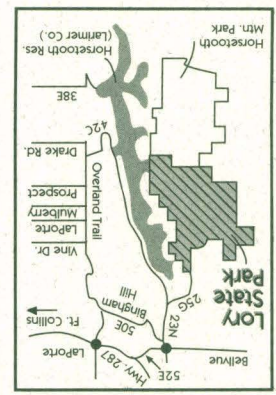
Colorado State Parks
LORY

DPOR-LORY-10M-7/04

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Colorado State Parks
Lory State Park
708 Lodgepole Drive
Bellvue, CO 80512
(970) 493-1623
Fax: (970) 493-4104
E-mail: lory.park@state.co.us
Visit us on the Web at www.parks.state.co.us



LOCATION MAP

HELP PROTECT OUR NATURAL RESOURCES
Lory State Park is for your enjoyment. In the interest of safety and the preservation of your park, please observe the following regulations.

1. Place your trash in the receptacles provided. Litter can be dangerous to people and wildlife.
2. Keep ALL vehicles on designated roads or parking areas. Off-road driving can damage the resources and wildlife habitat as well as scar the terrain for several years.
3. Keep your pets under control and on a maximum six-foot leash to avoid accidents with vehicles, wildlife and other visitors.
4. The speed limit in the park is 25 m.p.h. Please be alert for horses, mountain bikers, people and wildlife on the roadway.
5. Fires within the park should always be placed in a grill or approved metal fire ring. This prevents the outbreak of wildfires during the dry season. Backpackers are required to use camp stoves. **NO OPEN FIRES ARE ALLOWED IN THE BACKCOUNTRY!**



Colorado residents 64 years of age or older qualify for a special ASPEN LEAF ANNUAL PASS, available at a discounted rate. This pass allows admission to all state parks every day. Colorado Disabled Veterans who display Colorado Disabled Veteran (DV) license plates are admitted free to all state parks without a pass.

IN THE WILD
Lory is an island for wildlife in an area that is rapidly developing. As visitors, we should respect their homes. Most animals such as mountain lions, black bears, golden eagles and rattlesnakes are reclusive and would prefer not to come into contact with people. For more information about chance encounters with wildlife, ask for brochures and suggestions at the visitor center.

PARK PASSES
Visitors to Lory State Park are required to display a current Colorado State Parks Pass on their auto windshield or purchase an individual pass if hiking, biking or horseback riding in the park. A DAILY PASS is valid from the day purchased until noon the following day. An ANNUAL PASS is valid at any state park for the remainder of the calendar year. For annual pass holders who own additional vehicles, a multiple pass is available for an additional fee. A \$2.00/per day walk-in fee is required for hikers, bikers and horseback riders. Passes are sold at the visitor center.



A PLACE FOR EVERYONE
Lory has facilities to accommodate all types of visitors. The restrooms and some picnic areas are suitable for use by the physically challenged.

Please remember the wide variety of users during your visit and observe the "Rules of the Trail": bikers yield to hikers and horseback riders; hikers yield to horseback riders.



LORY STATE PARK

Hidden in the foothills twenty minutes west of Fort Collins, Lory State Park has it all! Its 2,400 acres provide for a variety of activities such as hiking, picnicking, mountain biking, horseback riding, backcountry camping and wildlife viewing. The park offers terrain suitable for any getaway, from an afternoon to a weekend. There are unique rock outcroppings, sandstone hogbacks, grassy open meadows, shrubby hillsides and ponderosa pine forests. Overlooking the Fort Collins area from a breathtaking elevation of 6,780 feet is Arthur's Rock, a jutting granite formation named for an early settler.



Formerly ranchland, Lory State Park was purchased in 1967. It was named and dedicated in honor of Dr. Charles A. Lory (1872-1969), president of Colorado State University from 1909 until 1940. Please call (970) 493-1623 for more information about the park.

VISITOR CENTER

Located just inside the park entrance. The visitor center serves as an entrance station for purchasing park passes as well as an environmental education center. Here, visitors can learn about the park's wildlife and other natural resources through interpretive displays that are provided. Also, be sure to browse through the many books, maps, postcards and other souvenirs available for purchase. A conference room is also available to small groups for business meetings, club meetings, etc. Call (970) 493-1623 for rates.

TRAILS

Varying from rolling valleys to mountainous hillsides, Lory's 20 miles of trails rarely exceed a 12 percent grade. The variety of trails makes the park suitable for short or long hikes, mountain bikes, horseback riders and joggers.

During the winter months, Lory's trails provide excellent opportunities for cross-country skiing and snowshoeing. Snowmobiling is not allowed.

Safe drinking water and restroom facilities are not available on the trails. An adequate water supply should be carried and may be obtained at the visitor center.

HORSEBACK RIDING

Lory is an excellent place to take a horseback ride. The Double Diamond Stables provides many activities for the Lory visitor including guided trail rides, surrey and hay rides. For more information, call the stables at (970) 224-4200. Riders are also welcome to bring their own horses to the park. In addition to the trail system, a cross-country jumping course is located at the south end of the park. Riders using the jumping course should wear helmets and jump with at least one "buddy."

WILDLIFE

Lory's diverse terrain is home to a variety of wildlife, such as mule deer, wild turkey, black bear, mountain lion, coyote, Abert's squirrel, cottontail rabbit, blue grouse, mourning dove, songbirds and many reptile species.

NATURE STUDY

Lory has unlimited possibilities for nature study with an abundance of wildflowers, animals and insects. Guided hikes are available to groups by reservation. Checklists of Lory plants and birds are available at the visitor center.

FIRST AID

First Aid is available at the visitor center or from any park ranger.

BACKCOUNTRY CAMPING

Lory State Park allows primitive backcountry camping by permit. No other camping is allowed in the park. The sites are approximately two miles from the trailhead and no open fires are allowed. The campsites offer the perfect weekend getaway to forget about the hustle and bustle of the city just over the hill.

WATER SPORTS

Horsetooth Reservoir borders Lory State Park to the east and is operated by the Larimer County Parks Department. From Lory, the reservoir is accessible by foot only. There are five coves that offer bass, trout, and walleye fishing. All Colorado fishing regulations apply.

The reservoir also offers boating, water-skiing and many other water activities. For more information about Horsetooth Reservoir, call the Larimer County Parks Department at (970) 679-4570.

HUNTING

Hunting in the park is controlled. Information regarding special closures, seasons and regulations is available at the visitor center. Target shooting is prohibited at all times. Hunting is prohibited at the Horsetooth Mountain Park, adjacent to Lory to the south, so be aware of boundary lines.

PICNICKING

Lory offers five picnic areas with a variety of settings. The Timber Group Picnic Area accommodates up to 100 people and has horseshoe pits, a volleyball court, covered tables, grills, a fire ring and restrooms. South Eltuck Picnic Area may also be reserved for special events by calling (970) 493-1623. Other sites are available on a first come, first serve basis.

NEARBY FACILITIES

Facilities such as gas, groceries, telephones and lodging are in LaPorte, five miles northeast of Lory. The nearest hospital is in Fort Collins.

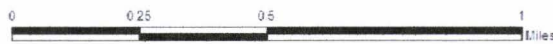




Lory State Park

Fuels Treatment Areas

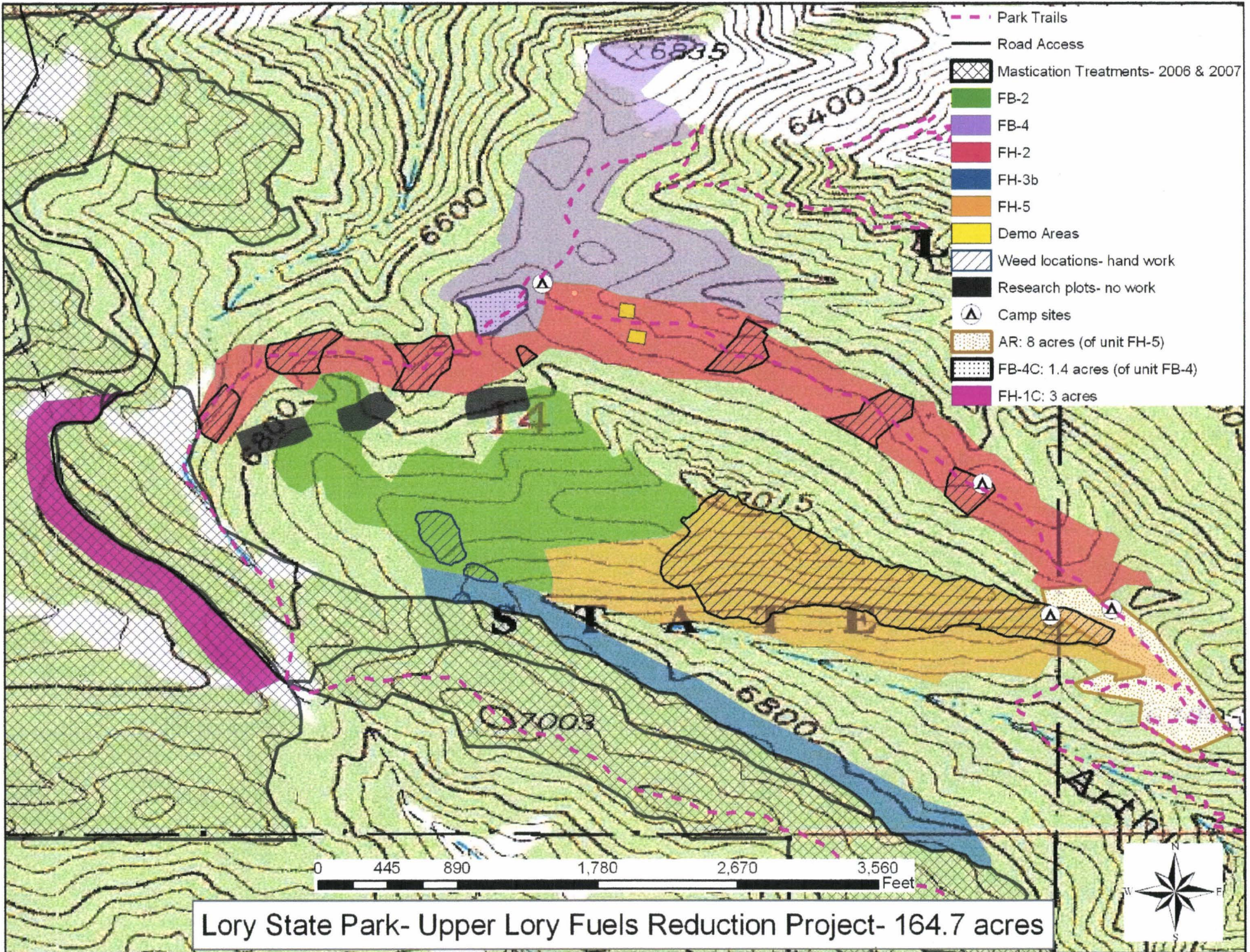
- Completed 2006 - 67 acres
- Contracting 2007 - 140 acres
- Layout 2007 - 206 acres
- Potential Rx Fire Area - 47 acres
- Fuel Breaks - 117 acres
- Park Boundary
- Roads
- Park Trails



Map Document:
 R:_fuel_public_mtg_20070215.mxd
 -rdsr_fdr
 R:_fuel_public_mtg_20070215.pdf
 Map prepared by:
 USC Staff:
 Colorado State Parks
 Resource Stewardship Team
 Date prepared:
 February 16, 2007
 Data Sources:
 Colorado State Parks; CDOT
 USGS, LSA
 Cartographic Information:
 Map Datum: NAD83
 Map Projection: UTM; Clarke 1859
 Units: Meters
 UTM Zone: 13 North

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Lory State Park- Upper Lory Fuels Reduction Project- 164.7 acres

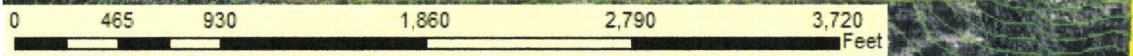
Lory State Park Fuels Layout 2007: All Units

Legend

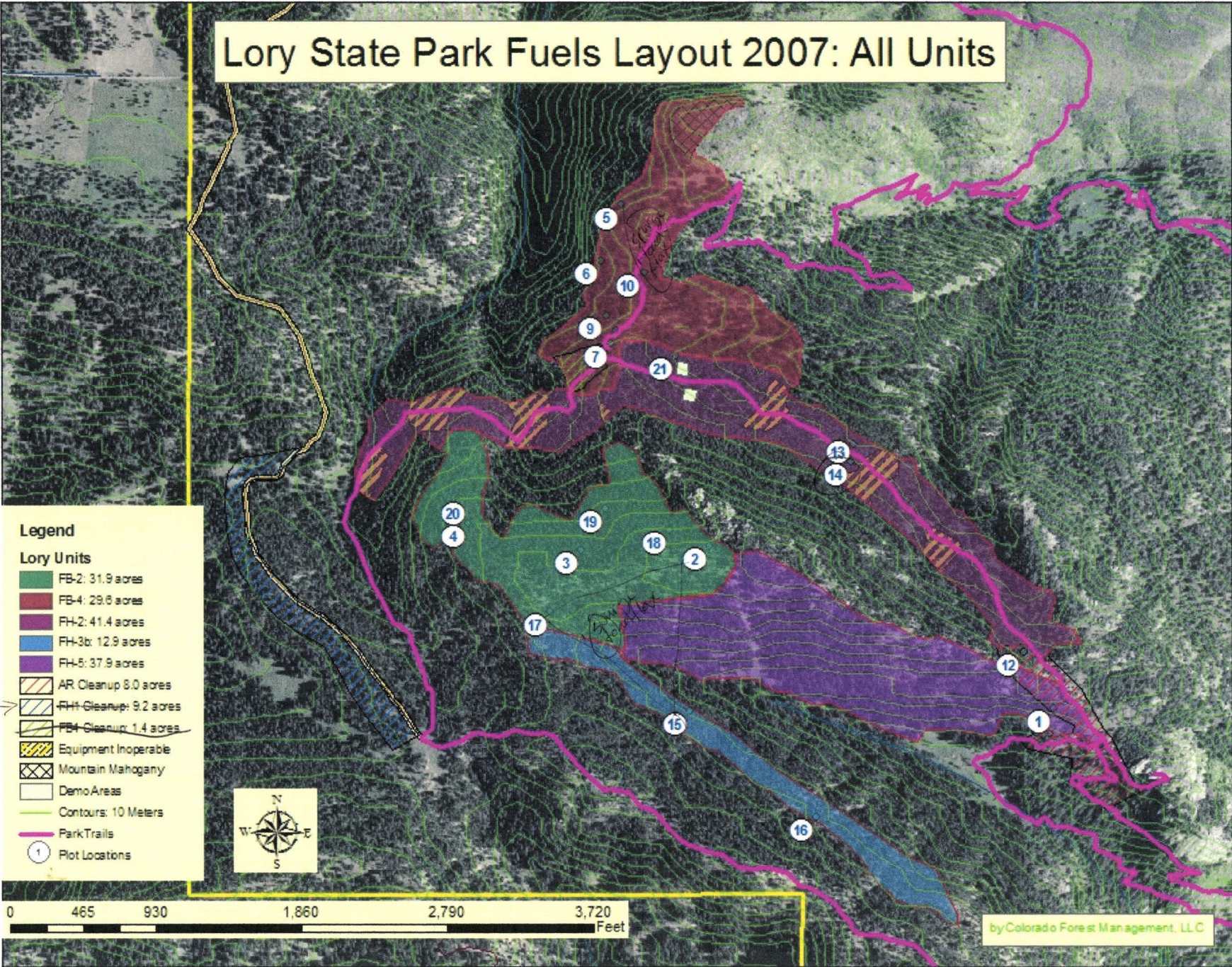
Lory Units

- FB-2: 31.9 acres
- FB-4: 29.6 acres
- FH-2: 41.4 acres
- FH-3b: 12.9 acres
- FH-5: 37.9 acres
- AR Cleanup: 8.0 acres
- FH Cleanup: 9.2 acres
- FB Cleanup: 1.4 acres
- Equipment Inoperable
- Mountain Mahogany
- Demo Areas
- Contours: 10 Meters
- Park Trails
- Plot Locations

EHIC →



by Colorado Forest Management, LLC



2570 6000 match - available for use?
Contractor for weeds before + after
delineate weed areas? 2-3 ac. total?

In SGLD - don't break up rocks
no drains + tracks

Campsites - 5 FH-2 + F-B-Y

and, tree removal around campsites

Rotary-head
seeding - put w/ weed spraying
- early Sept.

pre-treatment weed spraying / breeding
How strict are bird nesting / breeding
blackout dates
start work May 1, end Aug. 31
spraying June 1

Oct. 30, 2008 - Lory State Park meeting

Handwork

New road owner's assoc. president

⌘ For McClure's & ⌘ For Red Cedar Dr.

Need ⌘ not going to be funded through this FEMA project

All chains will be put on at yellow gate ~~to~~

Drag & masticate - IF

All trees w/in ___ # of Feet of trail will be dragged ___ # of Feet
masticated if possible or lopped & scattered
Minimizing lop & scatter & work

Operational Period

May 15th - Sept. 15th

Flagged areas - Please don't drive in, keep material out.

budget # 900/ac

Show-me

Work around campsites #1 & 2. Avoid driving through & throwing
chunks on obvious camp site locations

Aim for
Dec. 15th - Show-me

- * Scope & contract package (805, site insp sign-in, trip directions, contract, bid reply sheet) rest info page
- * Contact Road Assoc. & McClure's (license to enter)



check if FB 2 / FH-5 w boundary is painted on
E bound. FH-5 side

**Lory State Park
2007 Fuels Management Program
Project Review Sheet**

Project Name: Upper Lory Fuels Reductions

Date Prepared: June, 30, 2007

Prepared by: Colorado Forest Management, LLC

Type of Project:

<input checked="" type="checkbox"/>	Vegetation Treatment	<input type="checkbox"/>	Prescribed Fire
<input type="checkbox"/>	Tree/Shrub Planting	<input type="checkbox"/>	Defensible Space
<input type="checkbox"/>	Re-vegetation	<input type="checkbox"/>	Other (describe)

Good Neighbor Project: Yes No

Property or Parcel Name: Lory State Park (hereinafter referred to as park)

County: Larimer County

Total acreage: Unit FB-2 = 31.9 ac Unit FH-3b = 12.9 ac
Unit FB-4 = 29.2 ac Unit FH-5 = 37.9 ac
Unit FH-2 = 41.4 ac Clean Up Areas = 18.6 ac

Total 153.3 acres + 18.6 acres of Clean Up

Project Description:

Project Location:

Lory State Park is located in Larimer County. The Park lies along the Front Range of the Rocky Mountains and is approximately 7 miles west of Fort Collins, Colorado. Projects are located in portions of Sections 13, 14, & 23, Township 7 North, Range 70 West.

General Description of Work:

Work involves fuels reduction & restoration thinning via mechanical mastication and hand treatment. One unit will see fuels treatment in preparation for a future prescribed burn. A few areas will see general clean-up activities to improve the aesthetics of previous projects, as well as cleaning up significant insect and disease damage.

Purpose:

Treatment Goal: The primary goal is to decrease hazardous fuels and increase overall forest health within the project areas. Secondary goals will be to reduce levels of dwarf mistletoe, to

improve park aesthetics, to improve forest wildlife habitat, and to increase forest resistance to insects and disease.

Treatment Objectives: There are multiple objectives that will be implemented to reach the desired goals. These objectives are general and will be more detailed in the prescription below.

- Remove ladder fuels from the understory by thinning from below.
- Target Douglas-fir as the removal species due to its ladder fuel characteristics.
- Remove heavily infected dwarf mistletoe trees to minimize the spread.
- Choose dead, dying, diseased and poor form trees over healthy trees.
- Conduct fuels reduction and create fuelbreaks along a fire access road and a ridge top.
- Reduce fuel loading to decrease the chance of fire passing to or from private lands to the west and to the north.
- Reduce levels of dwarf mistletoe to improve park aesthetics and forest resistance to insects and disease. Create a buffer from non-infected stands or pockets of ponderosa pine.
- Reduce the number of Douglas-fir on the northern slopes.
- Maintain or enhance recreational settings and wildlife habitat.

Existing Conditions:

The project area consists of 5 treatment units making up 153.3 acres. These units vary due to their composition and topographic makeup. Another separate 18.6 acres will be considered Clean-Up acreage, and it is found in two main areas, with one small area found inside a treatment unit.

- Two Units (FB-2 and FB-4) are primarily on ridge tops and are intended to be part of a fuelbreak system. FH2 is found along an existing fire access road and will be treated to improve the safety of this access and improve forest health. FH-3b is on a north facing mid-slope, below units that are already scheduled for treatment. FH-5 is on a south-facing slope and extends from a drainage up to a ridge top. Unit FH-5 is located to the west of Arthur's Rock following a new trail corridor that leads to the drainage.
- All Units are forested while there are occasional open areas and more dense clumps of trees. Units FH-2 and FH-3b are fairly dense (Canopy Closure 70 to 80%) throughout with small pockets of openings. Units FB-2, FB-4, and FH-5 are a little more open (Canopy Closure 40 to 50%), but also have pockets of dense cover.
- All units have evidence of dwarf mistletoe; however the southern portion of FB-4, the eastern portion of FH-2, and the ridge and southern half of FB-2 have the highest levels. There is a portion in FB-2 that seems free of mistletoe. This mistletoe free area is located on the north portion of the ridge.
- Most of the units are operable, with slopes less than 35%. Unit FH-5 would be inoperable for equipment due to slope (some spots reach 50% slope) and rocky outcrops, but the unit can be treated by hand. Portions of FH-2 will also be limited to hand only work due to steep draws and rocky outcrops.
- Access to all mechanical treatment units is over a poorly maintained 4x4 wheel drive road. This road is also considered part of the Westridge and Timber Trails.
- Two main Clean-Up areas (not found in designated units) are found in the project area. One is found in 2006's FH-1 work area and the other is found near Arthur's Rock. These areas are approximately 9.2 and 8.0 acres respectively. A small 1.4 acre Clean-Up area is found within Unit FB-4.
- The Clean-Up area near Arthur's Rock is extremely steep and rocky and will have to be completed mostly by hand. Equipment used to treat FB-4 can be used in the Clean-Up area that

is found within Unit FB-4. The Clean-Up area that falls in the FH-1 area completed in 2006 can be done by equipment and/or hand.

Unit Descriptions:

FB 2 is approximately 31.9 acres. The slope ranges from 0-35% with an average of 25%. Approximately half of the unit lies on a bench ridge top, while the remaining acreage is found on northern facing slopes. The stand is made up of ponderosa pine and Douglas-fir. Douglas-fir of all size classes is more prevalent on the north facing slopes on the north side of the ridge. This Unit has a basal area of approximately 185 ft² per acre. There are approximately 403 stems per acre greater than 5" dbh. Regeneration sized classes (5" or less) have about 486 stems per acre. The average stand diameter is 9.0" dbh for trees greater than 5", but if you add in the regeneration, average dbh drops to 6.2" inches. The presence of dwarf mistletoe is mild in most areas, with most of it existing in a patch along the southern portion of the unit where the ridge begins to drop to the south. There are a few rock outcrops that limit operability within the unit. Access to this unit will be from the slope near the Westridge Trail, while clearing a small hidden path along the way.

FB 4 is approximately 1/2 mile long and includes approximately 29.6 acres. Slopes range from 0-35%, with an average of 20%. This is mostly a ponderosa pine unit with a significant presence of Douglas-fir in the understory. The western portion of the Unit has a heavy amount of Douglas-fir fuel ladders. Most of this unit lies along a benched ridge top with some portions heading off the northwest facing slopes. These portions on the western boundary begin to get steep and approximately 5 acres may need to be treated by hand. This Unit has a basal area of approximately 136 ft² per acre. There are approximately 228 stems per acre greater than 5" Dbh. Regeneration sized classes (5" or less) have about 871 stems per acre. The average stand diameter is 10.2" Dbh for trees greater than 5", but if you add in the regeneration, average dbh drops to 4.8" inches. This exemplifies the amount of small material in the unit. Dwarf mistletoe is found throughout the Unit but is most heavily found in the southwestern portion, near the junction of the Timber and Westridge trails. Because of this infection, there are a lot of dead and downed trees in this area. There is also a 2 acre mountain mahogany patch near the north corner. The access to the unit is gained from the Westridge trail which is actually a fire access road.

FH 2 is located along the Westridge trail as it heads from the project access road to Arthur's Rock and is about 41.4 acres in size. Slope ranges from 0-35%, but is mild for the most part averaging 25%. This is a very dense ponderosa pine unit with some Douglas-fir beginning to get established in the understory. There are a few portions of the unit where drainage and rocky outcrops will make operability difficult for equipment. This Unit has a basal area of approximately 191 ft² per acre. There are approximately 443 stems per acre greater than 5" dbh. Regeneration sized classes (5" or less) have about 1563 stems per acre. The average stand diameter is 8.4" dbh for trees greater than 5", but if you add in the regeneration, average dbh drops to 4.2" inches. The southeast portion of this Unit near Arthur's Rock more closely resembles the numbers found in the FB4 unit. This small area is about 5 acres in size.

FH 3b is located along the northeast side of FH 3a which was laid out as a 2006 project. It is approximately 12.9 acres in size. Slopes range from 0-35% with an average of 30%. This is a ponderosa pine/Douglas-fir unit with a northeast facing slope. This Unit has a basal area of approximately 209 ft² per acre. There are approximately 553 stems per acre greater than 5" dbh.

Regeneration sized classes (5" or less) have about 2200 stems per acre. The average stand diameter is 8.0" dbh for trees greater than 5", but if you add in the regeneration, average dbh drops to 3.7" inches. Dwarf mistletoe was seen in the unit, but is at far lower levels than the Fh-3a area.

FH 5 is approximately 37.9 acres. Slopes range from 0-40%. This is a more open ponderosa pine forest on a southwest facing slope. This Unit has a basal area estimated around 120 ft² per acre. There are approximately 222 stems per acre greater than 5" dbh. Regeneration sized classes (5" or less) have about 925 stems per acre. The average stand diameter is 8.9" dbh for trees greater than 5", but if you add in the regeneration, average dbh drops to 4.4" inches. There are a lot of rock outcrops and steep pitches which make this unit inoperable for the most part to treat with mechanized equipment. There is an abundance of ladder fuels within the unit and the presence of dwarf mistletoe is moderate to heavy. The heavy pockets of mistletoe are found near Arthur's rock. There are a few openings within the unit near the ridge top and rocky areas.

Table 1: Existing Conditions of Units and Blocks

UNIT -BLOCK	BASAL AREA (SQ FT/ACRE)	STEMS (#/ACRE) ALL/>5"	AVG DBH (IN) ALL/>5"	AVG HEIGHT (FT)	STAND VARIABILITY
FB-2	185	889/403	6.2/9.0	41.3	Medium
FB-4	136	1099/228	4.8/10.2	40.2	High
FH-2	191	2006/443	4.2/8.4	41.3	High
FH-3b	209	2753/553	3.7/8.0	41.1	Medium
FH-5	119	1147/222	4.4/8.9	35.9	Medium

Clean-Up Areas are located near Unit FH-1 which was completed in 2006 and near Arthur's Rock. These areas have significant slash from mistletoe trees, dead trees, blowdown or previous treatment. **Figures 1 & 4** demonstrate how these areas presently look. The aesthetics in these areas can be improved.

Unit Prescriptions:

- Units FB4 and FH2 will be treated using a Fecon Bullhog (or similar piece of equipment) on a small skidsteer sized carrier. Portions of these units will need to be treated by hand due to equipment inoperability.
- Units FB2 and FH-3b will be treated using the larger Hydro-ax or similar machine.
- Unit FH-5 will need to be treated by hand.
- The Clean-Up areas should be treated by the Fecon Bullhog where feasible, but may need hand work to be completed successfully.

Remove boundary trees
For Mastication Units:

- All trees to be removed that are less than 12" dbh for Hydro-ax treated blocks and 8" dbh for Fecon Bullhog treated Blocks shall be mechanically masticated and no mulched material shall be larger than four feet long and eight inches in diameter. Also, chunk depth will not exceed 10" for Hydro-ax treated areas or 6" for Fecon Bullhog- treated areas over an area greater than five square feet.
- Wherever practicable, contractor will grind/masticate stumps to ground level. Where slope, rocks, or other features prohibit grinding to ground level, then a maximum of 4" on the uphill side will be acceptable.

~~FB4, FH1b, FH2, FH5~~

- Masticate woody ground fuels less than 12" dbh for the Hydro-ax areas and 8" dbh for the Fecon Bullhog areas, unless they are rotten logs. No more than 200 linear feet of downed woody debris should be left per acre. Rotten logs can be left and do not count towards the 200 linear feet.
- Live aspen will not be removed unless they are too close to a significant concentration of coniferous fuel to avoid. In general live, healthy aspen (especially large, healthy aspen) will not be masticated. Damage to aspens will be avoided. Aspen was only found in small pockets.
- Leave all healthy ponderosa pine trees >12" dbh regardless of their proximity to other trees.
- Work around and above rock outcrops to the best of the equipments ability.
- If two stems come from one base, take both trees or leave both do not take one.
- Take every opportunity to masticate common juniper and other shrubs in random swaths and patches without slowing down progress on completing the treatment. This will result in approximately 40 to 60% removal of shrubs.
- Units will be thinned so that small or medium-sized trees with branches growing near the ground are not left underneath the crowns of larger desired retention trees.

For Hand Units:

- Wherever practicable, contractor will cut stumps to ground level. Where slope, rocks, or other features prohibit, then a maximum of 4" on the uphill side will be acceptable.
- Lop and scatter depth shall not exceed 10", and material should not be placed underneath or at the base of retention trees.
- Material should not be dragged in Unit FH 5 to create jackpots of fuel. The material should be spread out in the unit.

FB-2: This Unit will be treated to create a Shaded Fuelbreak. This fuelbreak will not be a true shaded fuelbreak since more trees will be retained to maintain an aesthetic forested appearance. This unit will be thinned from below to remove the dangerous ladder fuels that exist in the understory, while increasing the spacing between remaining trees. The basal area needs to be dropped from 185 ft² to between 100 and 110ft². This target can be reached by treating 90% of the Douglas-fir in the 12" diameter class or less and 90% of the ponderosa pine in the 8" diameter class or less. All Juniper trees found within the unit will be treated unless they are found alone in the open. Poor formed, dead, dying, and mistletoe infected trees in these size classes will be targeted for removal before healthy trees are cut.

Any ponderosa with a Hawksworth rating of 4 or greater will be felled and masticated. If remnants are too big to be masticated they will be left on site, but not within sight of a trail or road. There is a section near the top of this Unit that appears free of mistletoe. This area should be identified and buffered from the infected areas. To do this buffer; the whole ridge top should be treated to separate the healthy and infected trees. All mistletoe trees 12" dbh or less regardless of rating should be treated along this ridge top buffer. This buffer will also improve this ridge top's function as a fuelbreak. Douglas-fir if found will be retained in this buffer to maintain a forested appearance as long as it is not in a ladder fuel situation.

Refer to the Snag description area below for snag retention guidelines. At least 5 snags should be left per acre.

Common juniper

All material cut should be masticated on site. This unit could be treated with a hydro-ax or similar machine.

Table 2a has some guidelines with approximate numbers of trees to be removed for Unit FB-2. This information is an estimate and the descriptive prescription should prevail over any discrepancies.

Along the west boundary there will be an orange flagged proposed engine trail to the FH-5 Block. This trail will be completely masticated allowing future engine access.

Table 2a: Approximate Tree Removal Guidelines for Unit FB-2

*Size Class (DBH)	# Trees (per ac)	BA ft ² (per ac)
2"	321	1.6
4"	141	10.5
6"	95	18
8"	105	36
10"	5	3
12"	5	3
Totals	672	72.1

* 4" size class is defined as trees that are greater than 3" but less than 5". The 2" class is the only one that deviates from this logic since it includes all trees greater than 0, but less than 3".

FB-4: This Unit will also be treated to create a Shaded Fuelbreak. This fuelbreak will not be a true shaded fuelbreak since more trees will be retained to maintain an aesthetic forested appearance. This unit will be thinned from below to remove the dangerous ladder fuels that exist in the understory, while increasing the spacing between remaining trees. The basal area needs to be dropped from 136ft² to at around 90 to 100ft². This target can be reached by treating 90% of the conifer species 8" and below. Poor formed, dead, dying, and mistletoe infected trees in these size classes will be targeted for removal before healthy trees are cut.

If large ponderosa (>10") have a Hawksworth rating of 4 or greater they should be felled and treated to prescription. Any portion that cannot be masticated can be left on the ground, as long as the cut ends are not facing trails or roads.

Dead standing trees 8" or less will be treated to prescription. At least 5 snags should be left per acre. Refer to the snag description area below for snag retention guidelines.

All material cut should be masticated on site. There is also a two acre area of mountain mahogany, which should be masticated or mowed removing at least 75% of the shrubs leaving a mosaic structure. A small piece of equipment utilizing a Fecon Bullhog or similar type of machine could be used in the mostly gentle slopes of this unit.

There is approximately a 5 acre section near the western boundary where steep slopes and rock outcrops will make equipment work inoperable. These areas will be treated by hand and the

Common Juniper

material lopped and scattered. The prescription can be dropped to conifers 5" or less in size in these hand work areas.

In the southern portion of this unit near the junction of Timber trail and Westridge trail there is a lot of large downed woody debris. This 1.4 acre area is considered a Clean-Up area which will be treated to improve the aesthetics (**Figure 1**). The downed woody debris should be cut to remove the branches and put the tree boles closer to the ground facilitating decomposition, the branches should be moved from sight of the trail and lopped and scattered. The material can also be masticated out of site of the trails. The remaining boles can be left where they are, however no boles (4" or greater) should be left within 25 feet of the trails. The boles should be placed so the cut end does not face the trail. Dead standing trees within falling distance (1.5 times tree height) of either trail will be felled and the branches cut and lopped and scattered or masticated. Douglas-fir regeneration in this area should be masticated to the Unit prescription. However, a few Douglas-firs can be left in order to ultimately replace the dwarf mistletoe overstory of trees as long as this Douglas-fir is not in a ladder fuel situation.

Table 2b has some approximate numbers for tree removal in Unit FB-4. This information is an estimate and the descriptive prescription should prevail over any discrepancies.

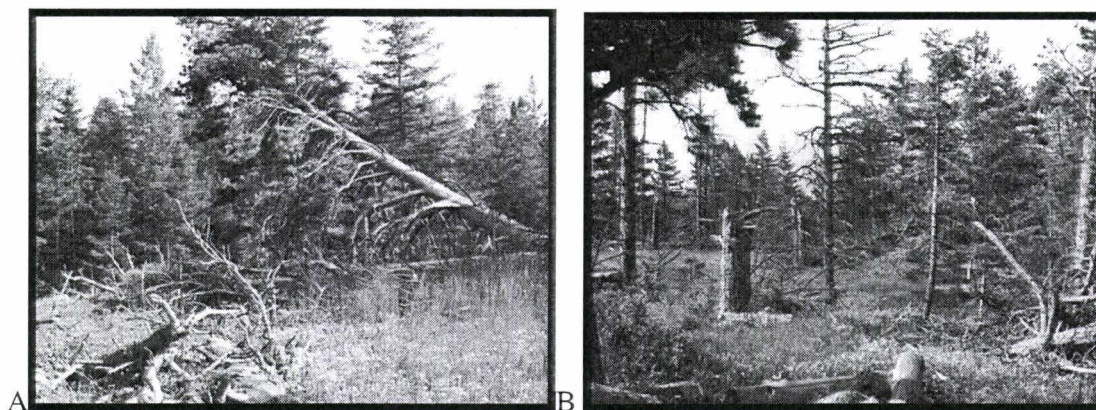


Figure 1: (A, B) The Clean-Up area found in Unit FB-4. The material should be limbed and the branches lopped and scattered away from view of the trails. Dead standing trees within 1.5 times the height of the road are considered hazards and should be cut.

Table 2b: Approximate Tree Removal Guidelines for Unit FB-4

Size Class (DBH)	# Trees (per ac)	BA ft² (per ac)
2"	700	2.4
4"	77	4.3
6"	50	10.2
8"	53	18.1
10"+ Mistletoe trees and dead standing	5	4
Totals	943	39.0

FH-2: This unit will be treated to improve the fire access road also known as the Westridge and Timber trails. Using the road as an anchor point, approximately 150 to 300 feet on either side will be treated. The area will be thinned from below to decrease the basal area from 191 ft² to between 90 and 100 ft². To do this, 90% of all conifers in the 8" diameter class or less will be cut. The cut from these classes should focus on poor form, dead, diseased, or dying trees before cutting healthy trees. Ponderosa is the preferred removal species, although Douglas-fir will be removed as well, especially if found in ladder fuel situations.

Ponderosa pine in the 8" class or larger having a Hawksworth mistletoe rating of 4 or greater will be cut. The untreatable bole can be left on the forest floor as long as its cut end is not in sight of the trail or road.

This area varies greatly in its size classes. There will be areas with large trees where removing the 8" or less trees will leave a nice forested appearance. Other areas like that pictured in **Figure 2A** below will have only 8" or less trees. These areas should retain enough 8" trees to leave an average spacing of at least 17 feet between boles. This spacing should be done to avoid a uniform tree farm look. This can be achieved by leaving some patches/groupings of trees which are spaced as if they are individual trees. This may require not reaching the 90% guideline in some locations.

Refer to the Snag description area below for snag retention guidelines. At least 5 snags should be left per acre.

All material cut should be masticated on site if possible. However, this unit will need to use a combination approach of a small piece of equipment like a Fecon Bullhog on a skid steer carrier, along with hand thinning. The rocky areas with drainages will need to be treated by hand. Material can be lopped and scattered or dragged to the flatter areas for mastication. The prescription in these areas can be dropped to conifers 5" or less, although large ponderosa with the mistletoe rating of 4 or greater will still be cut. There is at least 9 acres that have been identified for this handwork due to topography. This is an estimate and may vary by (+ or -) 5 acres.

The tree removal guideline is below in **Table 2c**. This information is an estimate and the descriptive prescription should prevail over any discrepancies.

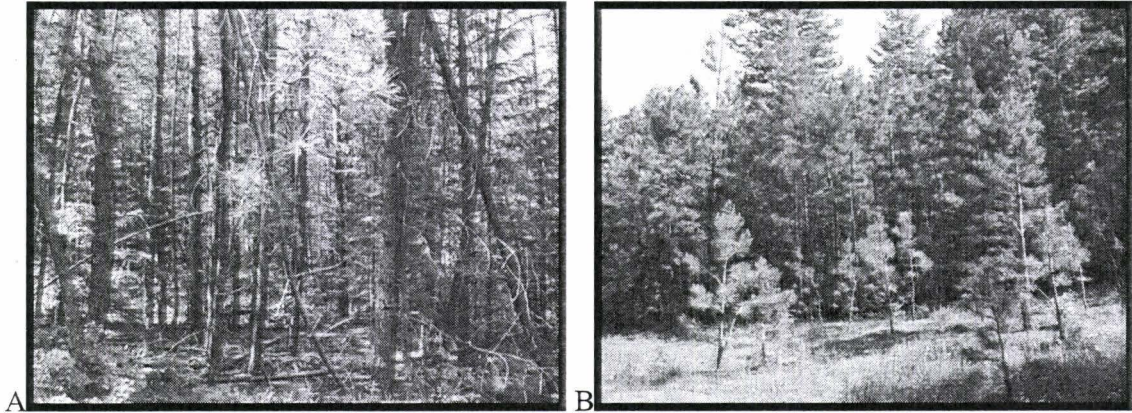


Figure 2: (A) This Unit has areas where most of the trees are less than 8” in diameter and removing all of the trees would leave a large hole. These areas should be treated lighter to retain the forested appearance. (B) There are also areas with pockets of regeneration (all stems less than 4” dbh). These areas typically have large trees in the overstory and can be completely masticated.

Table 2c: Tree Removal Guidelines for Unit FH-2

Size Class (DBH)	# Trees (per ac)	BA ft ² (per ac)
2”	1203	2.0
4”	202	16.0
6”	151	28.0
8”	136	45.0
Totals	1692	91.0

FH-3b: This area will be thinned from below removing 90% of the lower diameter classes 8” or less and 50% of the 10” diameter class. It should be cut similar to FH-3a as laid out in 2006, but there are more patches of dense regeneration which inflate the basal area. Presently the basal area is 208 ft² and it should be dropped to between 80 and 90 ft². Unit FH-3b should be feathered into Unit FH3a since a higher Basal area will be retained. As always treatment should focus on dead, diseased, or dying conifers.

Dead standing trees 12” or less should be masticated leaving at least 5 snags per acre as outlined in the snag section below.

Douglas-fir will be targeted for removal over ponderosa pine. This means that when deciding what 10% of trees remains it should be mostly ponderosa.

Mistletoe Hawksworth rating of 4 or more on ponderosa should be removed regardless of tree diameter. The untreatable bole can be left on the forest floor as long as its cut end is not in sight of the trail or road.

This unit can be treated with the Hydro-ax or similar piece of equipment. The desire is to have the material masticated on site.

There is one area within this unit that looks fairly open. Most of the ponderosa is infected with dwarf mistletoe in this area. It is approximately ½ acre in size and has an overlook of Arthur's Rock. This area has a very healthy grass understory and should be treated as a pseudo patch cut removing all trees 12" or less in size (**Figure 3**). It will not be a true patch cut since the equipment has diameter limitations.

The tree removal guideline is below in **Table 2d**. This information is an estimate and the descriptive prescription should prevail over any discrepancies.



Figure 3: (A, B) These photos show the density found in this stand. This density is found in pockets. (C)The third photo demonstrates an open area with a lot of mistletoe and poor form trees. This area can receive a patch cut, since there are a lot of healthy grasses in the understory.

Table 2d: Tree Removal Guidelines for Unit FH-3b

Size Class (DBH)	# Trees (per ac)	BA ft ² (per ac)
2"	1845	1.6
4"	135	10.9
6"	200	36.0
8"	183	58.5
10"	35	18.0
Totals	2398	125.5

FH-5: This Unit differs from the other units because a true thinning will not be completed, instead the unit will be prepared for a prescribed burn. The outer boundaries of the unit will be considered as control lines for the prescribed fire. The fuel near these lines will be treated to ensure that a control line can be safely held. Work will be completed 2 chains (132 ft) from the boundary to the interior of the unit, and ½ chains (33 ft) outside the boundary of the unit. The two interior chains will be treated to prune all ladder fuels up to 6ft and cut all regeneration sized trees (less than 4" Dbh). Cut material can be lopped and scattered but should not be left underneath the pruned/retained trees. All cut fuels should also not be within ½ chain of the control line. All heavy fuels (greater than 4" Dbh) will be dragged out of this 2 chain area. The material dragged to the unit interior should not be jackpotted, but spread out. If it is more preferable to pull the material from the interior to the exterior that is okay, but significant jackpot piles will not be made. The ½ chain exterior of the unit boundary will be treated very similarly with all ladder fuels pruned up to 6ft and all regeneration sized trees cut, but heavy fuels only need to be moved 15 feet outside the boundary. Lop and scattered material in this exterior one chain should also be no closer than 15 feet to the line. Any dead standing snag within two tree heights of the control line should be hand felled and treated to prescription (i.e. heavy fuel).

The lower portion of this Unit is made up of a Trail and an ephemeral drainage. Lop and scattered slash and heavy fuels treated should not be left within easy sight of the trail, and material should not be piled up in the active drainage. This may require dragging material to the opposite side of the drainage and up the hill a bit.

Within the interior (further than two chains in) of the unit, areas of significant fuel should be thinned from below to remove ladder fuels from underneath the overstory trees. For example a juniper or Douglas fir tree that is growing under a large ponderosa should be removed to decrease the chance of torching of individual trees.

The upper portion of this unit utilizes the rock outcrop as the boundary. Downed woody debris (Heavy) in this area should be moved at least to be on the north side of the rock, but not piled.

The tree removal guideline is below in **Table 2e**. This information is an estimate and the descriptive prescription should prevail over any discrepancies.

Table 2e: Tree Removal Guidelines for Unit FH-5

Size Class (DBH)	# Trees (per ac)	BA ft ² (per ac)
2"	562	1.9
4"	270	19.2
Totals	832	21.1

Clean-Up:

As mentioned earlier there are 2 main areas where Clean-up will be necessary. These areas are being treated to improve the aesthetics of previous treatments, and improve the aesthetics of locations where major mistletoe damage has occurred. These areas are in high visibility corridors.

- FH-1 Area:** The first Clean-up area is located near the fire access road as it goes through the 2006 completed FH-1 project. It is a 9.2 acre area. This area has a lot of large downed logs which were not able to be treated by the Hydro-ax due to their size. These logs should be removed out of view of the fire access road. There is a slope drop off about 100 to 300 feet from the road where these logs can be dragged out of sight but not piled. The butt or cut ends should also be placed as not to face the road.

Move 50% of logs w/in 50' of rd to greater than 150' from rd.

There are approximately 10 to 12 girdled trees which are very close (within 75 feet) to the road. These trees should be felled and dragged into the unit and away from the road where they will be lopped and scattered or mulched out of sight. If it is impossible to drag a log out of sight, it should be placed so that cut butt ends do not face the road. ~~The remaining girdled trees that are not within the first 75 feet (i.e. not too close to the road) should be painted with brown paint to hide the girdle scars.~~ Even though this block is 9.2 acres, there is probably only about 2 to 3 full acres of work at most.

Remove girdled trees w/in 75' of rd

Any noticeable, tall (2 to 3 feet off ground) slash (not chunk debris) within 25 feet of the road should be moved to the interior of the unit and lopped and scattered.

Downed woody debris greater than 4" should be at least 50 feet from the road. Lop and scatter depth should average 12" and not exceed 18". No dead standing trees should be within 1.5 times height of the road. Material being treated in this area can be dragged by hand or equipment.

- Arthur's Rock:** The second Clean-up area (8 acres) is located near Arthur's Rock, where Arthur's Rock Trail and the Timber Trail connect. There are a few spots where a piece of equipment can operate, but for the most part this will be a hand unit. This clean-up area overlaps with Unit FH-5.

The downed woody debris (**Figure 4**) in this area should be cut to remove the branches and put the tree boles closer to the ground facilitating decomposition, the branches should be moved from sight of the trails and lopped and scattered. The material can also be masticated out of site of the trails if possible. The remaining boles can be left where they are, however no boles (4" or

greater) should be left within 15 feet of the trails. If boles have a cut end it should be placed in such a way that it cannot be seen from the trail.

Dead standing trees within falling distance (1.5 times tree height) of either trail will be felled and the branches cut and lopped and scattered or masticated. The boles should be placed so the cut end does not face the trail.

A small section of this area is north of the Arthur's Rock Trail and west of the Timber Trail. This section will most likely be apart of the planned prescribed burn in Unit FH-5. The guidelines laid out above for FH-5 should be implemented in this area.

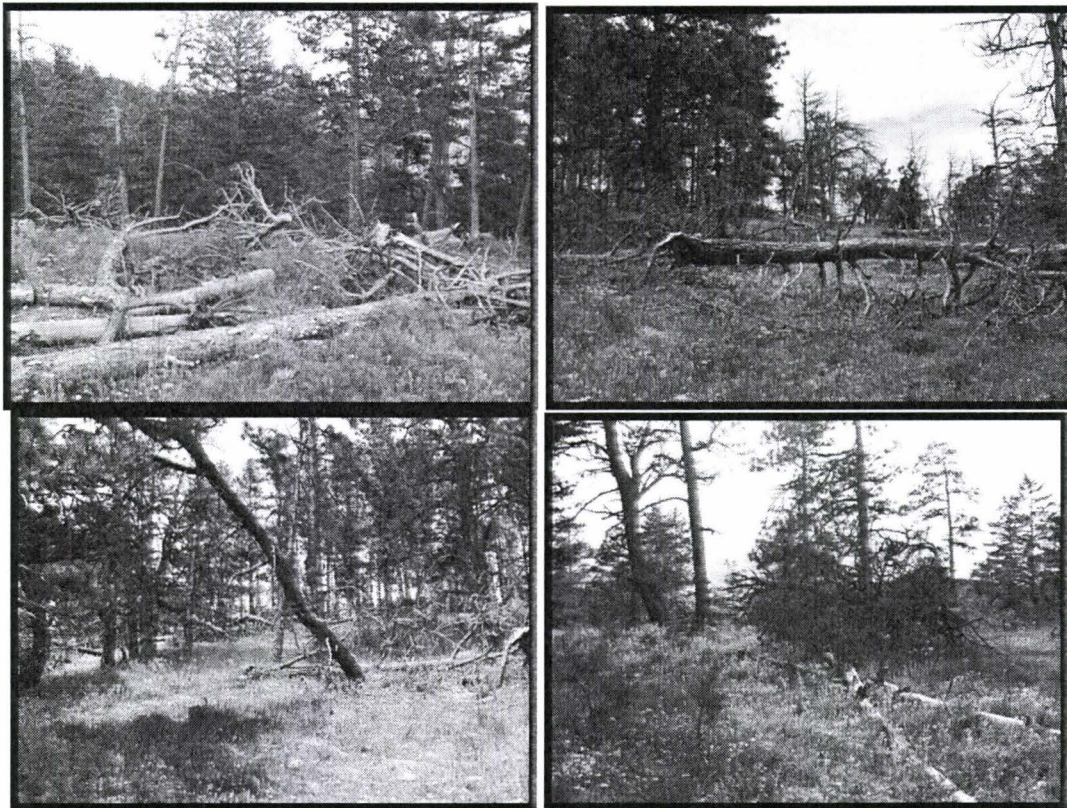


Figure 4: Slash from Dwarf Mistletoe trees found in FB-4 and near Arthur's Rock.

Snags:

Presently there are between 30 to 100 trees per acre of standing dead trees with an average of 35. Most of these trees are small diameter (less than 5" dbh), but there are a significant amount of larger snags as well. Maintenance of wildlife snags for roosting provides habitat for raptors and other tree bound animals. Live trees with broken tops, dead tops, or mechanical damage are likely candidates to become wildlife trees. Criteria for selecting wildlife snags are as follows:

- Trees already with signs of woodpecker, or other raptors (nests, holes, cavities, etc)
- Trees with dead or broken tops which are likely to develop heartrot.
- All wildlife snags should be at least 8" dbh and have their bark intact.

- Snags can range anywhere from 5 -10 per acre, but the size is more important in deciding if a tree should stay or go.
- One large snag per acre greater than 20” dbh for use by large woodpeckers and owls.
- Three medium sized snags between 10 and 20” dbh for use by smaller raptors, kestrels and also squirrels.
- One smaller snags per acre between 6 and 10” dbh for smaller birds such as chickadees and nuthatches.

Any snag within 1.5 tree length of the trails should be felled for visitor safety purposes. At least 5 snags should be left per acre with no more than 10 being retained. No new snags shall be created.

Marking:

The contractor will determine which trees to remove based on the management prescription, unless otherwise specified by the contract administrator. Demo areas are used as a guideline or gauge for the contractors to see the desired retention and shall be completed and approved by the Contract Administrator before work may begin on any unit.

- BOUNDARY – (Blue flagging & Blue Paint) the unit boundaries will be delineated with blue flags and blue paint. Flagging and paint slashes will be found on take trees. A vertical paint slash will be placed facing the interior of the unit. Boundaries between two units will receive double flagging and two slashes facing the different interiors. Unit FH-3b will not have paint. It will be marked only on the northwest boundary with double blue flagging. This unit has already been marked on the remaining sorders by a 2006 layout. Unit FH-5 will only be flagged except for the portion that borders Unit FB-2 which will have paint. Arthur’s Rock and the FH1 Clean-up areas will only have flagging to mark the furthest extents. This will be found as three flags on a downed log. The small Clean-up section in FB-4 will not be marked.
- DEMO AREAS – (Yellow flagging) Double flagging will be found on demonstration area corners. Yellow flagging will be on all retention trees. No paint will be used in the Demonstration areas. Demonstration Areas should be treated first.
- ACCESS- (Orange flagging) The access to Unit FB2 from the fire access road will be flagged with orange flagging and the contractor will have to masticate their way in.

PROJECT IMPLEMENTATION:

Contract period & Operational Period:

- Operational period will run from July 15 through March 31, to avoid the bird nesting and breeding season.
- Preferred Operational Periods by unit are described in the table below based on avoiding the heavy use times of hikers and other recreational use.

Unit	Preferred Operational Period 1	Preferred Operational Period 2
FB-2	November 1 – March 31	July 15 – September 15
FB-4	November 1 – March 31	July 15 – September 15
FH-2	November 1 – March 31	July 15 – September 15
FH-3b	November 1 – March 31	July 15 – September 15
FH-5	No restrictions	

- Daily Operational Period: Limited to 7:00 a.m. to 7:00 p.m. Five days a week for FB-4, FH-2, and the Arthur's Rock clean-up area, and 7 days a week for the rest of the treatment areas.
- No work will be completed on weekends in FB4, FH2 and the Arthur's Rock clean-up areas.
- No equipment warm up before 7:00 a.m.
- No contract extensions will be allowed for this project.

Operation Restrictions:

The Contract Administrator may suspend or limit operations in the case of extreme fire danger, excessive damage due to mud or snow, excessive residual tree damage, or failure to meet contract specifications.

Treatment Methods and Equipment:

- Treatment method varies for all units.
- Unit FB-4 and FH-2 will be treated using a combination of hand operations and small-scale masticating equipment such as the Fecon Bullhog on a tracked skidsteer.
- Unit FB-2 and FH-3b will be treated using the Hydro-ax or similar large masticating equipment.
- Unit FH-5 will be treated by a hand crew.
- The Clean-Up areas can be treated by a combination of hand crew and equipment, although most of the area will need hand crews.

Access:

- Access to the project area will be from North County Road 25G, a paved road north of the entrance to Lory State Park. From 25G, travel west on Red Cedar Drive, which winds through a subdivision for approximately 1.4 miles. Red Cedar turns into a private road accessed through a locked gate. This 1 mile section of private road is narrow, has steep inclines, contains sharp turns, and may require a 4-wheel drive vehicle. A second locked gate is located at the point where the private road accesses Lory State Park. The Contractor shall provide locks for both gates. Gates shall be locked at all times and locks must be placed in a manner that accommodates other locks in the chain. A fire access road continues from this gate and travels all the way to Arthur Rock.
- This fire access road becomes both the Westridge and Timber Trail at different points and gives access to Unit FB-4, FH-2, FH-5, and the Unit FH-1 Clean-Up areas. It also provides trail access to the Arthur's Rock Clean-Up area.
- Unit FH-3b will be accessed from FH-3a which is scheduled for completion in 2007.
- Unit FB-2 can be accessed by masticating a flagged path from the fire access road to the western boundary of the Unit. This path should be created as to hide its access point and discourage park visitors from using it.
- Equipment must be "walked" approximately 3.6 miles from the Park shop area at Red Cedar Drive to the project area due to road width/condition. A secured tractor/trailer parking area is available at the shop for the duration of the project. 4-wheel drive service vehicles will have direct road access to the project site, although trips on the private road should be minimized.
- No equipment shall be parked on the private roads at any time.
- When on private roads: all vehicle tires must remain on the road surface at all times, corners will not be cut, the cut slope will not be driven on, and private property shall not be entered.

- All access roads and trails will be kept passable at all times. Any significant accumulations of mulch or material on the access roads and trails will be removed by the Contractor at the end of each day. No skid trails will be created on this project.
- Roads and other improvements will be repaired to the same condition as found prior to the start of work. This repair may include repairing or replacing drainage control features. Significant damage to existing roads or other improvements caused by the Contractor must be repaired by the Contractor as soon as possible. The Contract Administrator will determine if road repair is necessary.

Additional Performance Standards:

- Soil disturbance will be as minimal as possible. Ruts and/or depressions in the soil caused by contractor equipment will be less than eight inches deep. In areas where machines have used a path repeatedly, water-bars will be installed by the Contractor if the Contract Administrator deems necessary. Machinery should not be operated on soils that are at or beyond plastic limits of moisture (see attached field guide).
- Ephemeral drainage areas will not be used as primary travel routes.
- Fuel, hydraulic fluid or other chemical spills will be reported to State Parks immediately. Soil contaminated by loss of fuel, oil, grease, hydraulic fluid, coolant, or other fluids shall either be removed and placed in covered drums or other acceptable containers for proper disposal by the Contractor or left in place and mixed with an encapsulating product such as RamSorb I, depending on the amount of contamination.
- The Contract Administrator may require the Contractor to mulch leave trees that have been significantly damaged (broken top, multiple equipment scars, equipment scarring in excess of 12" x 6" on the trunk, or an area encompassing more than two-thirds of the trunk circumference) by the Contractor. The Contractor must minimize damage to residual trees. The Contractor will be charged \$50 for each significantly damaged tree that is 4 inches dbh or greater.
- Damaged gates, fences, or signs will be repaired or replaced by the Contractor, at the discretion of the Contract Administrator or State Parks staff.
- Smoking will only be allowed in vehicles. Each vehicle must have a properly serviced Class A, 2.5 pound fire extinguisher and a minimum of one fire tool per cutting crew member. All vehicles and motorized equipment must utilize effective manufacturer-certified spark arresters and muffler systems.
- Neither trash nor litter, including biodegradable material, will be left by the Contractor anywhere on the Park, access route, or vicinity. Daily hauling of any trash generated by the Contractor is the Contractor's responsibility.
- It is the responsibility of the Contractor to follow all rules and regulations established for Lory State Park. Kathy Seiple of Colorado State Parks is the manager for Lory State Park and can be contacted at (970) 493-1623. No dogs are allowed at the project site. No camping will be allowed unless approved by both the Contract Administrator and the Park Manager. Will be allowed on the site.
- All issues and concerns of adjacent property owners and others shall be referred to the Contract Administrator.
- Site should be left in a safe manner at the end of every work day.
- Exposed rootballs should not be created during the project, but if any are created they will be tipped back into an upright position or treated by the Contractor.
- There will be no salvage rights granted to the Contractor for this project.

Performance Bond and Damage Deposit:

- A Damage Deposit in the amount of \$1000.00 will be required upon contract award. The deposit shall be in the form of cashier's check, certified check, money order, or irrevocable letter of credit payable to the CSFS. One deposit per Contractor is required. The deposit shall be used in part or in full, to correct deficiency in any work not completed to agreement specifications. The deposit will be retained in full should the Contractor fail to complete the contracted work in the time frame specified in the Independent Services Contract. The deposit or its balance will be released to Contractor promptly upon satisfactory completion of the contract.
- The Contractor will be required to furnish a Performance Bond executed by a corporate Surety authorized to do business in the State of Colorado and in the full amount of the Contract sum. The expense of this bond shall be borne by the Contractor and bond shall be filed with Colorado State University. **A sample Bid Bond, State Form SC-6.22, is attached to this Invitation for Bid.** If, at any time, the Surety on such a bond is found to be, or ceases to be in strict compliance with any qualification requirements of the Contract of the bid documents, or loses its right to do business in the State of Colorado, another Surety will be required, which the Contractor will furnish to Colorado State University within ten (10) days after receipt of notice from Colorado State University or after the Contractor otherwise becomes aware of such conditions.

Subcontracting:

- All subcontractors must be approved by CSFS in writing prior to contract signing and bid approval.

Administration:

- All treatment units together have a gross acreage of approximately 171.9 acres. All operable areas will be treated. However, Colorado State Forest Service (CSFS) recognizes that portions of some blocks may not be treatable due to operability restrictions from slope, rock and topography. If 90% (154.7 acres) or more of the project is completed, the Contractor will be paid for 100% of the contract. If the Contractor completes less than 90% of the project the Contractor will be paid for the acreage completed. If the Contractor does not complete acres within each unit due to inability, the Contractor will submit a detailed invoice to Contract Administrator, displaying complete and incomplete acres. Contract Administrator will GPS completed acres to determine final completed acreage and appropriate payment.
- Work shall not be started on more than two units at a time without the Contract Administrator's approval. The Contract Administrator will approve each unit as it is completed.
- Demonstration areas will be completed and approved by the Contract Administrator first before work may begin on any unit.
- At the time of signing a written Operational Plan shall be agreed to between the Contractor and the Contract Administrator. Among other things, the plan shall describe projected start and end dates for the project, the order of work among the various blocks, projected times to complete each block, etc.
- Work must be started within 21 working days of the date agreed upon in the Operational Plan, except as may be approved by the Contract Administrator. For each day past this 21-day window, the Contractor may be assessed a \$250 fine.
- Contractor shall notify the Contract Administrator prior to moving any equipment into the project area and also prior to the start of work. Access will not be granted and no work will begin without the presence of the Contract Administrator.

- This paragraph will be completed by CSFS: *Due to funding constraints, meeting time requirements in all phases of this project is critical.* Upon project completion, the Contractor must request a final inspection by the Contract Administrator. This final inspection will be no later than December 3, 2008. Any additional work to correct deficiencies identified in this final inspection must be completed by December 12, 2008. Final invoicing for the work must be submitted to the Contract Administrator by December 19, 2008. Final payment will be processed upon successful completion of the project and after final inspection is complete.

ENVIRONMENTAL & OTHER ISSUES:

Weed prevention / Rehabilitation / Reclamation:

- The undercarriage and tires of all trucks and equipment must be washed offsite before entering the project area to reduce the spread of noxious weeds from other projects. Contract administrator will inspect vehicles on first day of project. Machine operations during project should avoid driving through heavily weeded areas at the project site. These areas should be pointed out to the contract administrator.
- No major reseeding effort is expected to be necessary for this project; however reseeding may be required of the Contractor in areas where work has exposed bare soil and in areas as may be deemed necessary by the Contract Administrator. Any and all reseeding will be done with seed mix specifications provided by the State Parks Resource Stewardship Coordinator.

Sensitive Areas to Avoid:

- Use caution to not damage areas near trails and especially the area near Arthur's Rock.
- Use caution to not drive equipment through drainages more than two or three times.

Endangered and Sensitive Species:

- Based on the above Biological Assessment (BA) the US Fish and Wildlife Service in a letter of March 25, 2005, determined the proposed hazardous fuels reduction projects "will not result in the taking of the bald eagle, Preble's meadow jumping mouse, or any federally listed threatened or endangered species. This letter notwithstanding, the Contractor is required to comply with all Endangered Species Act (ESA) regulations.

Archaeological/Cultural Resources to Avoid:

- If unidentified cultural resources are discovered during project activities, work must be halted by the Contractor until the resources have been evaluated in terms of Federal Register criteria, 36 CFR 60.4, in consultation with the Colorado Historical Society.

For State Parks management purposes – not part of contract scope

Rationale for recommended management treatments:

- Fire exclusion in the area has allowed Douglas-fir to become more dominant within these units, along with an increase of ponderosa pine in the lower diameter classes. This has increased ladder fuels, fuel continuity, and fuel loading. The proposed thinning projects will simulate natural fire disturbances that should have maintained the area as an open ponderosa pine forest with a smaller representative component of Douglas fir.
- Removal of conifers in the understory will decrease ladder fuels, and alter fuel continuity and fuel loading. This will decrease the risk of severe fire behavior within the stand. Removal of middle diameter classes will serve to increase the spacing between remaining tree crowns avoiding potentially hazardous crown fires.
- Mistletoe has become a prevalent pathogen on the landscape. It has caused a lot of ponderosa to become weakened and exposed to other pathogens. This has left some areas with a lot of dead standing and downed trees which pose a fire hazard and have cluttered aesthetics. Many of these areas will be treated to improve aesthetics, while heavily infected mistletoe trees will be removed from the project site on a landscape scale. A buffer will also be created to try and prevent/slow the spread of mistletoe in an area where mistletoe is yet to be established

Long-term benefits:

- **Fire Hazard Reduction:** The work completed in these units will decrease hazardous ladder fuels and alter the vertical fuel structure. An initial increase in ground fuels will be apparent for the first two to three years; however these fuels will no longer act as ladder fuels. If a prescribed burn is completed in Unit FH-5, some of these fuels will be consumed.
- **Wildlife Habitat:** Opening up the forest stands will increase forage for ungulates. The open areas will allow more grasses and shrubs to grow, by increasing sunlight, and decreasing competition for resources.
- **Forest Succession:** The suppression of wildfires has altered the natural succession process in much of the area being treated. Wildfires were a natural part of the ecosystem and they kept meadows open while also allowing ponderosa pine forests to stay open and withstand low intensity fires. Douglas-fir has begun to invade Ponderosa pine forests, increasing ladder fuels and densities. The proposed treatment will help maintain the meadows and keep the Ponderosa pine forests open where work is completed. Due to fire suppression, conifers have begun to invade meadows, decreasing the amount of natural landscape variability, and increasing the dangerous (wildfire prone) homogeneous landscape structure.
- **Forest Condition:** Forest Health presently is poor within most of this project area. Treatment will help decrease the amount of ladder fuels and mistletoe trees found in the units. The thinning will also allow the remaining stems to increase in size and vigor, resulting in a more fire resistant and healthy stand.
- **Insect and Disease:** Dwarf mistletoe is found in epidemic proportions within the project area. With large areas of stressed/weakened (density related) trees, the possibility of continues epidemic outbreaks is real. The treatments proposed will allow some the remaining trees to increase in vigor and health, allowing insect and diseases to return at endemic levels. Dead, diseased, or dying trees will be preferred for removal allowing the additional resources to be utilized by residual trees. A buffer from mistletoe infected trees will allow the mistletoe outbreak to remain isolated from its most common form of spread.

Future treatment maintenance:

- The first few years post mechanical treatment will need to see noxious weeds treated. Newly disturbed areas are always at risk for noxious weeds to take hold. This will be most important along the fire access road and trails, where noxious weeds usually get started.
- If possible Unit FH-5 should be followed up with a prescribed burn to improve forage and decrease ladder and ground fuels.
- After about fifteen years (post cutting) the area will begin to see some increased Douglas-fir and ponderosa pine regeneration. Repeated mechanical treatments every 20 to 25 years will mimic the natural fire regime of 20 to 40 years keeping this regeneration from becoming fully established. This will keep the stand healthy and better able to withstand wildfire.

Impacts to Recreation:

- Two of the treatment units are all located in low use areas so impacts will probably be negligible.
- Three of the units are located along trails and the fire access road. These units will initially interfere with use of the trails during the project, but will increase overall aesthetics for future enjoyment by visitors.
- The timing of operations is designed to avoid high use times (i.e. weekends, busy summer months)
- The work being completed can serve as an educational piece for park visitors.
- Work completed around the Westridge, Timber, and the Arthur's Rock trails will improve aesthetics and tree health and promote recreational enjoyment. Initially there may be some questions regarding what was done, but after 2 to 3 years this will not be evident.

Other:

- None

Permits Needed:

- None

Attachments:

1. USFWS Approval Letter of March 25, 2005
2. CHS/SHIPO letter of February 23, 2006
3. Map
4. Forest Plot Table
5. CSFS Cost Worksheet } to be added by
6. Parks Budget Match } CSFS and CSP

* * *

Proposal Submitted by:	_____, CSFS Forester
Reviewed by:	_____, Kathy Seiple, Park Manager
	_____, Rob Billerbeck, Resource Stewardship Manager
	_____, Dave Giger, Region Manager
	_____, Larry Kramer, Deputy Director

Action Items:

_____ Project is consistent with the management objectives of this State Park and no additional review is required.

_____ Colorado State Parks and CSFS will meet to review the project. Modification to the project design and plan may be needed before the project can proceed.

Lory State Park

"Hard" Unit → steep & rocky - Contractor makes decision on amount of handwork & how much machines can do. Keep unit in as is. - mix of hand work where slopes & rocky outcrops prevent machines from working. where possible pull material to a location to be masticated. → Only in areas visible by trails/roads. Other locations → Drop & limb trees. Scatter slash. Logs can be left lying.

need to reflag w/ blue flagging in mtn mahogany/fuelbreak unit. - Use GPS to assist w/ flagging locations.

Camp sites → buffer around. No driving or masticating in "buffer zone". Paint/mark trees for removal. Material must be pulled outside camp buffer zone & masticated or lopped & scattered. Yellow ~~flagging~~ → Demo areas? yes. Yellow = leave trees

Red Flagging → avoid interiors of red flagged rectangle transects. IF possible, avoid throwing chunks & debris into transects. Don't drive through "buffer areas"

Campgrounds → buffered by pink flagging. Individual "take trees" shall be marked w/ blue paint. (see notes above) Don't drive through "buffer areas"

⌘ For weed spraying (pre & post)? Re-seeding w/ native mix
post treatment in weed areas.
Flag "buffer" areas w/ pink where weeds exist.
Avoid driving through & treating in these locations.

Specify no chains or tracks? ^{"icechains" or "cleats"?}

Time period for work may conflict w/ this / slope

Specify rotary head (no Fecon heads)

reduce contractor base

we know Roe Logging, ELM, Brushwalkers have rotary ax head
+ Brushwalker may be lowest bidder.

JPEG memory file error
insufficient memory
(Cartopac # Shut down - GPS unit stayed on).

Scott

GOCO (25% Match) is that there?

(rescinded prior to July 2008)

Can we spray weeds as "prep" & "post"

Delineate areas w/ weeds for hand treatments - Flag & be on-site
(separate out those areas) Don't treat
Treat by hand?

Weed locations - FB2, FH3B

btwn 2, 12 & 15
in center of triangle

* Get Scott down here for a meeting.

Very high concerns Trail systems, visual impacts/aesthetics, soil disturbance
July & August - would be more ideal for Park

* Specify no chains or tracks
to protect road & rock formations)

* Specify hydro ax
(rotary head -
no feccon head)

(5 or 6) campsites - need locations / Add individual tree marking
& identify in scope of work
↳ FH2 & FB4

mat S. → updated shapefiles & mxd
remove plot locations

* want re-seeding (native mix) → w/ post weed work
(Sep. would be best) timing

Contract - 3 parts 1) mastication 2) weed spraying 3) Seeding

Prespray - end of May

Contract Period → May 15th - Sep 15th mastication } may have to specify where contractor
spraying/seeding → May 1st - Sep 30th } starts work CSFS & State Parks

Mueller - Woodland Park language for hand treatment areas
(talk to Matt).

Any handwork areas

Cut end facing away from trails/roads, limbing must occur

on material: not more than ___? linear feet of woody material.

Away from trails → OK to leave a few tree boles that are limbed.

* AR Cleanup-Zone → very important

week of Nov. 16th or 17th

(not Wed. 19th)



For a meeting at Lory State Park
to discuss

Have a "Completed" scope of work prior to
meeting At least 1 week