

North Hebgen Project

Project Overview

Hebgen Duck Landscape Assessment



Prepared by Hebgen Lake Ranger District, Gallatin National Forest

April 2012



Skyline Ridge

Cabin Creek

Boat Mountain

Kirkwood Ridge

Red Canyon

Johnson Lake

Tepee Creek

Whits Lakes

Grayling Creek

Horse Butte

The Flats

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Image USDA Farm Service Agency

Image © 2013 DigitalGlobe

Goog

Imagery Date: 6/8/2013 44°48'59.25" N 111°12'08.75" W elev 7059 ft

Resources Analyzed

- Vegetation
- Fire/Fuels
- Wildlife
- Fisheries
- Amphibians
- Watershed
- Recreation

Existing Condition



How to get there

Desired Condition

North Hebgen Project

Forest Vegetation Conditions

Keith Konen – Silviculturist, Gallatin National Forest

- **Silviculture** = “the art and science of controlling the establishment, growth, composition, health, and quality of forests to meet the diverse needs and values of landowners and society on a sustainable basis” (Helms, 1998).
- **Project Role** = Member of an interdisciplinary team helping to identify forest vegetation management treatments that meet project objectives

Objectives

- Desired Conditions identified in the Hebgen Duck Landscape Assessment
 - Increase forest resiliency to insects, diseases, and fire
- Project Objectives
 - Fuel reduction, wildlife habitat enhancement, and forest resiliency

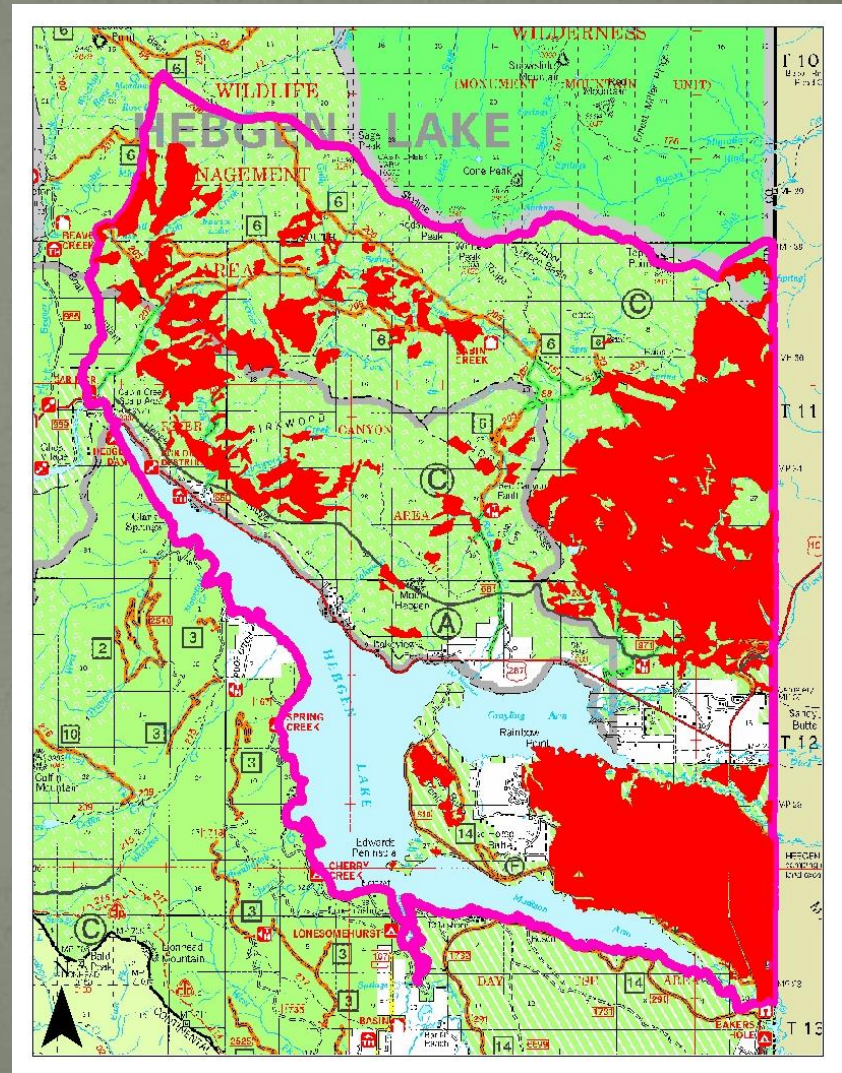
Current Conditions

- 1) Tree Species Distribution
- 2) Insect and Disease Conditions

Tree Species Distribution

Lodgepole pine

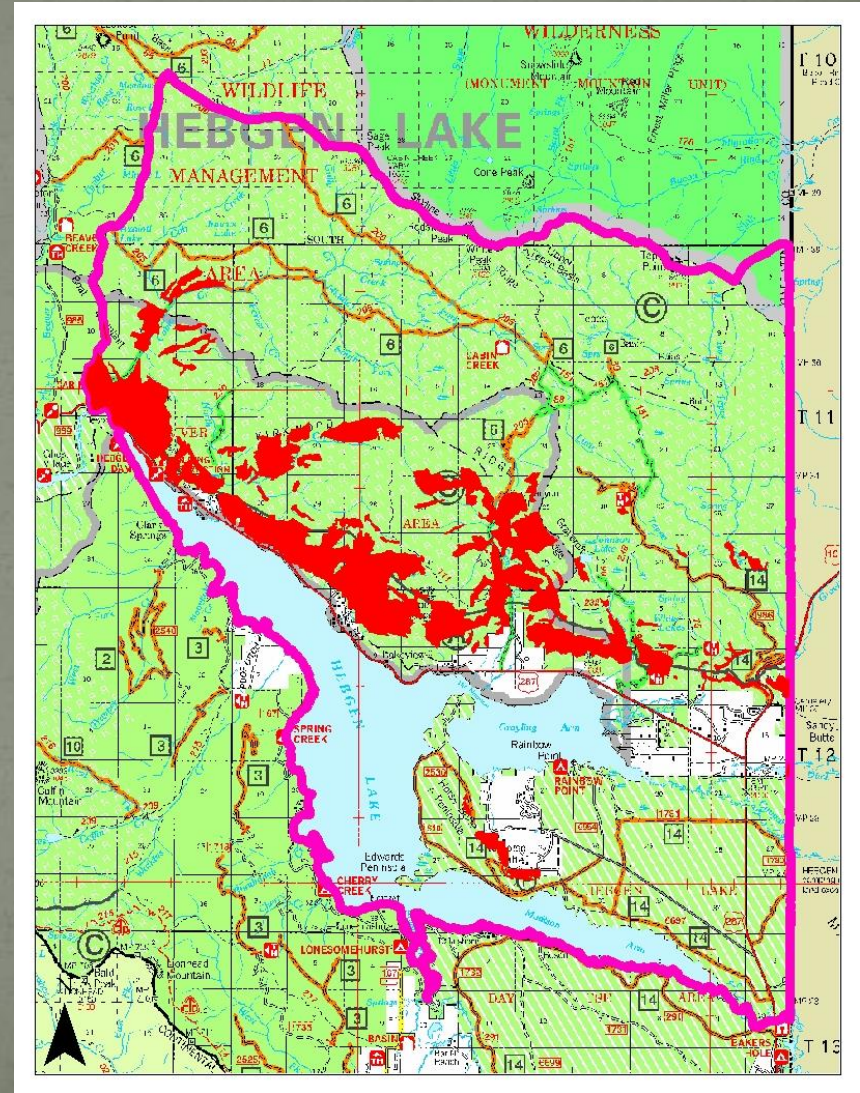
- Mixed and pure stands at all elevations
- Most significant and unique is area between Duck Creek and Madison Arm. Obsidian sands with rare habitat type (LPP/bitterbrush), where LPP is a pioneer and climax species



Tree Species Distribution

Douglas-fir

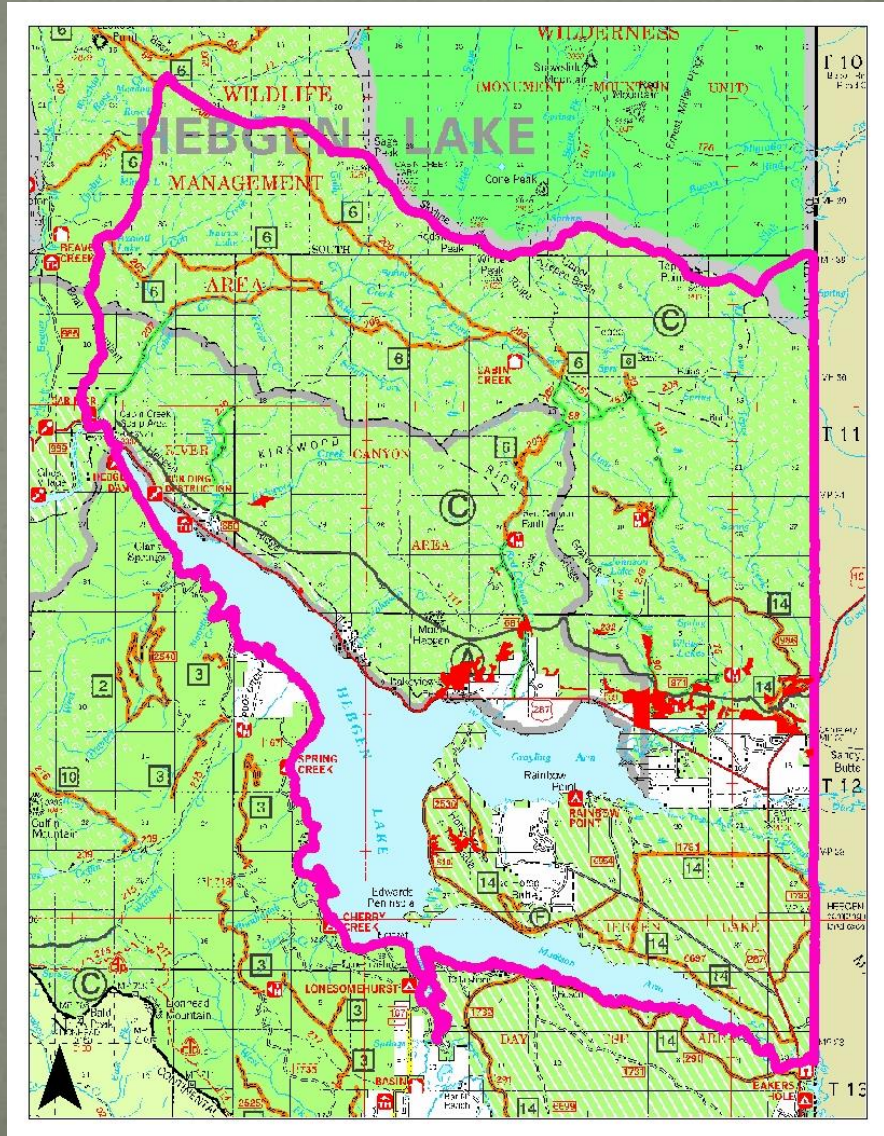
- Mixed and pure stands at mid-low elevations
- Significant concentrations at Horse Butte and Kirkwood Face



Tree Species Distribution

Aspen

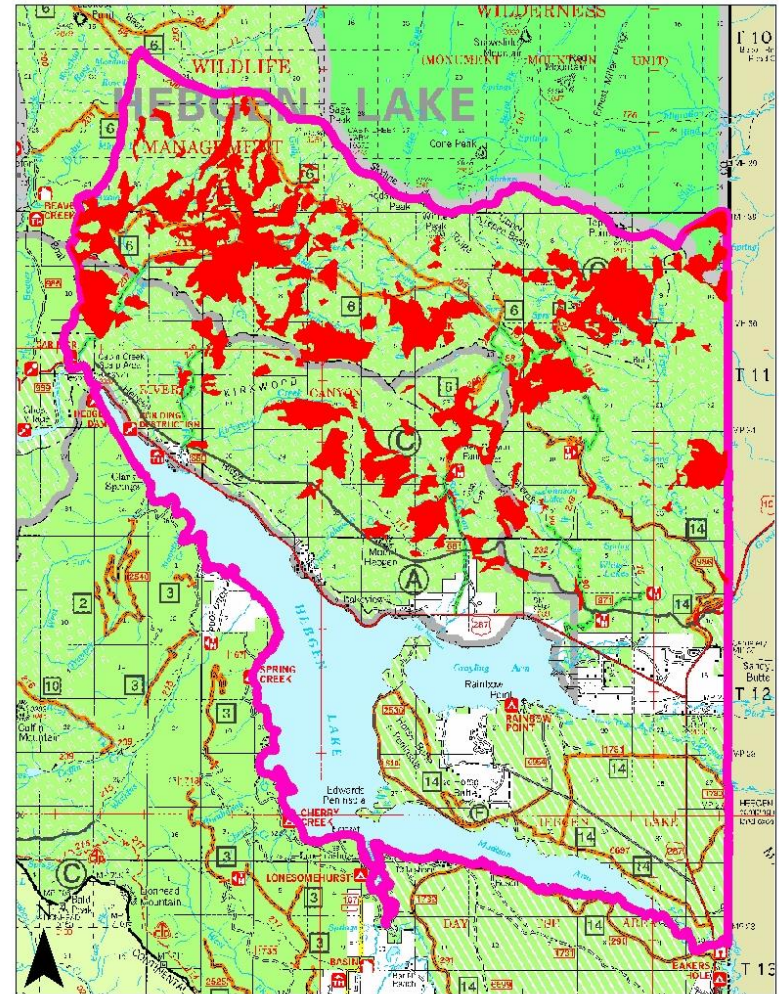
- Primarily at the conifer/meadow interfaces at low to mid elevations
- Notable concentrations at Horse Butte and Northeast shore of Hebgen Lake



Tree Species Distribution

Subalpine fir/Engelmann spruce

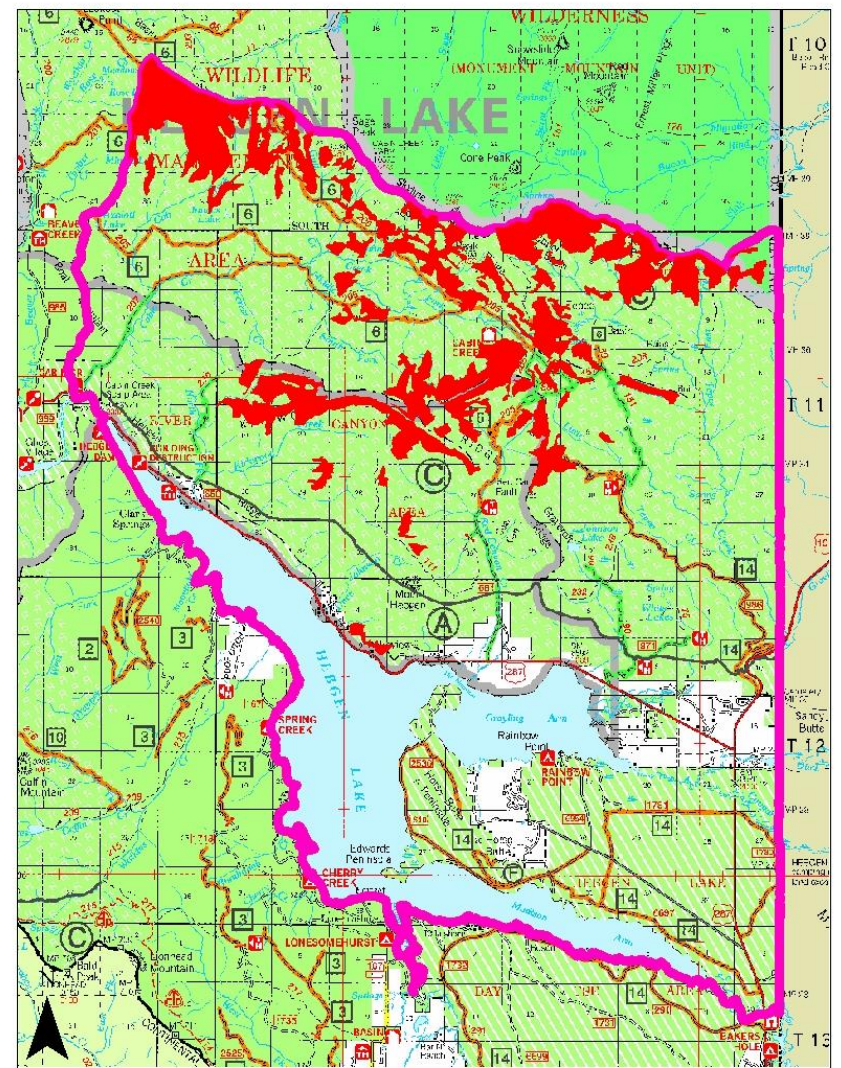
- Primarily found at mid-upper elevations in mixed species stands



Tree Species Distribution

Whitebark pine

- Upper elevations and often found mixed with subalpine fir, Engelmann spruce, and/or lodgepole pine, but does occur in pure stands
- Only road access in upper Tepee Creek



Insect and Disease Conditions

- Forest Health and Protection staff entomologist and pathologist visited various portions of the project area and produced a report of their observations and management advice
- Focus on the three most prevalent agents
 - Lodgepole Pine Dwarf Mistletoe
 - Western Spruce Budworm
 - Mountain Pine Beetle

Insect and Disease Conditions

LODGEPOLE PINE DWARF MISTLETOE

- Obligate parasitic plant, project hosts LPP and rarely WBP/LMP
- Witches brooms, top kill, reduced height and diameter growth, and occasionally mortality
- Observed in nearly all LPP areas
- Impressive infections on obsidian flats
- Avoid intermediate harvest, promote single storied stands, brooms create fuels issues



Insect and Disease Conditions

WESTERN SPRUCE BUDWORM

- Defoliating insect which eats the needles of Douglas-fir and true fir trees, though other species may be defoliated during epidemics.
- Reduction in growth, top kill, tree mortality, and mortality of regenerating trees.
- Significant defoliation on Horse Butte and Kirkwood Face
- Thin to increase vigor, promote single story, and select for resistance



Insect and Disease Conditions

MOUNTAIN PINE BEETLE

- Aggressive bark beetle feeds in the inner bark, often girdling and killing the tree.
- Project hosts LPP, WBP, LMP
- Evidence of recent mortality and endemic populations throughout
- Many mod/high hazard stands, consider future outbreaks
- Thin to reduce hazard and create age class/structural mosaic



Wildlife Resource Conditions



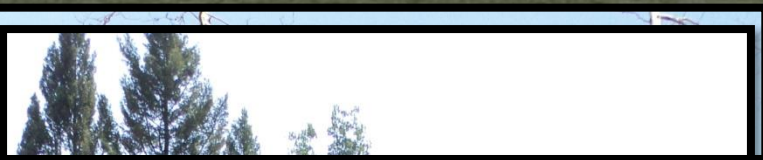
Unique Habitat Types

- Lodgepole/Bitterbrush
- Sagebrush Shrublands
- Aspen
- Wetland and Riparian Areas
- Parks and Meadows
- Whitebark Pine











Habitat Issues:

- Noxious weed infestation
- Insects & Disease
- Lack of fire/disturbance
 - Conifer encroachment
 - Landscape homogeneity







- Completed willow inventory last year
- Prioritized areas for treatment
- Completed 10 acres this year
- Beaver management plan in development





Boat Mountain

Cabin Creek

Skyline Ridge

Kirkwood Ridge

Red Canyon

Johnson Lake

Whits Lakes

Tepee Creek

Grayling Creek

Horse Butte

The Flats

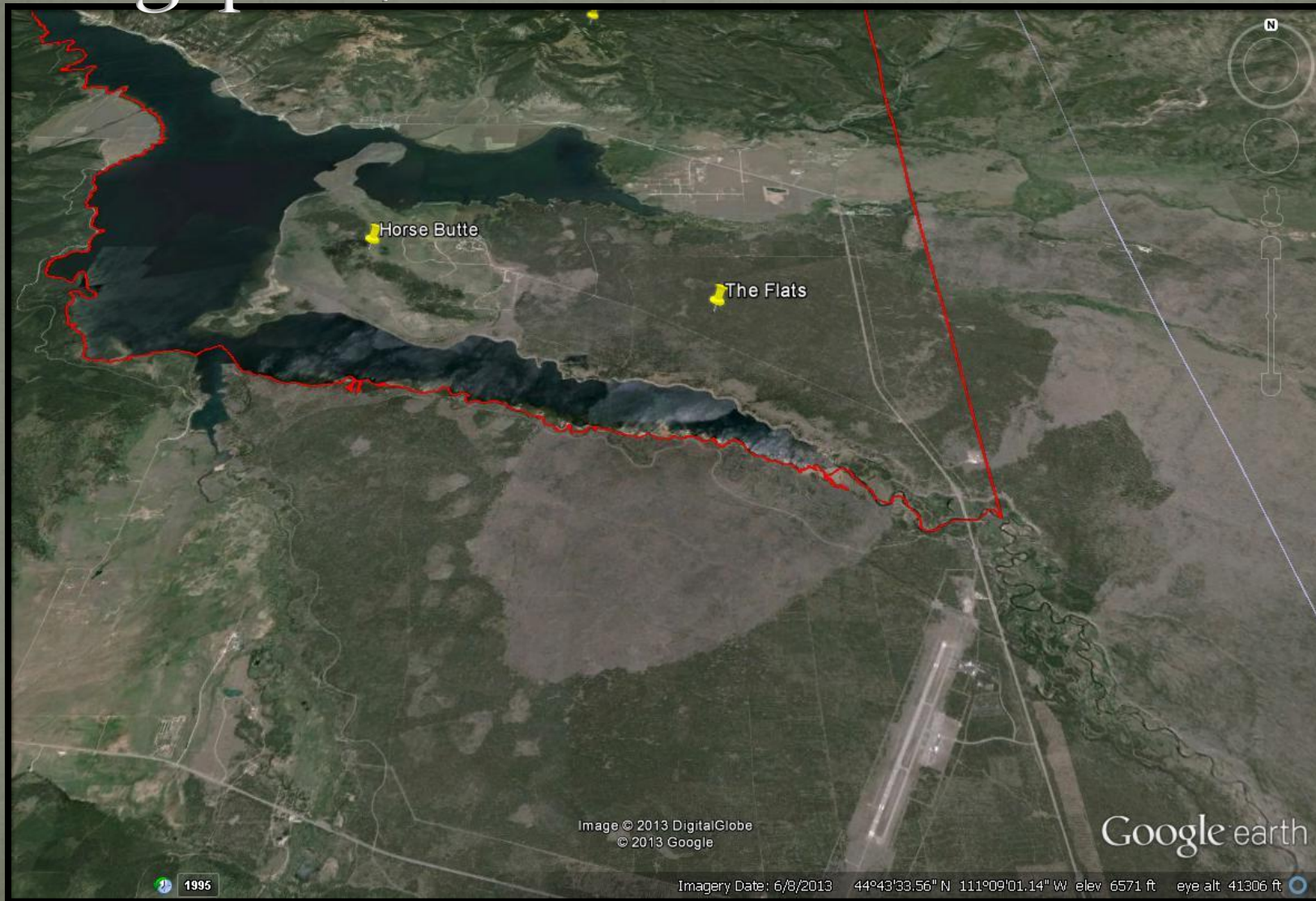
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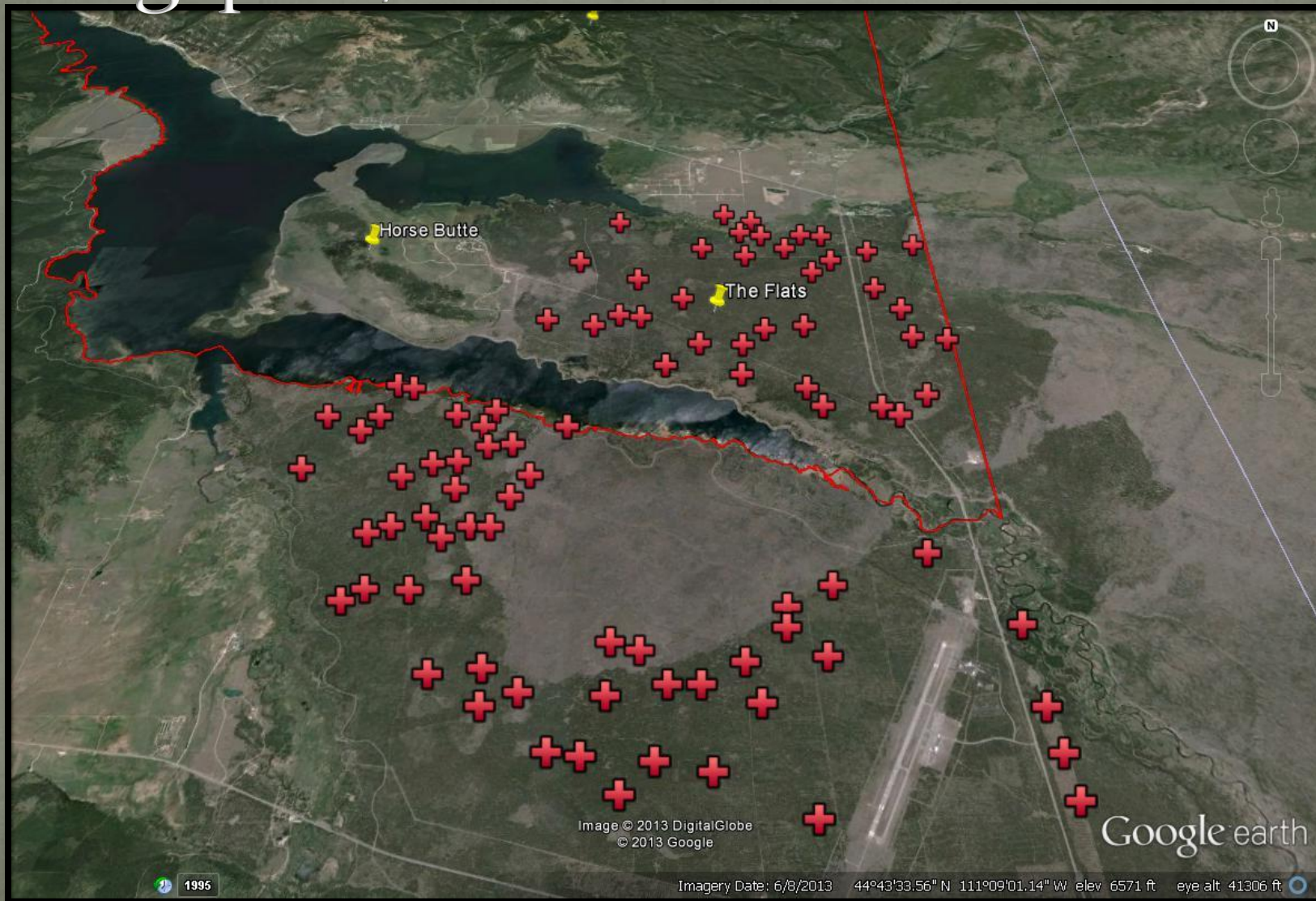
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Goog

Lodgepole/Bitterbrush



Lodgepole/Bitterbrush



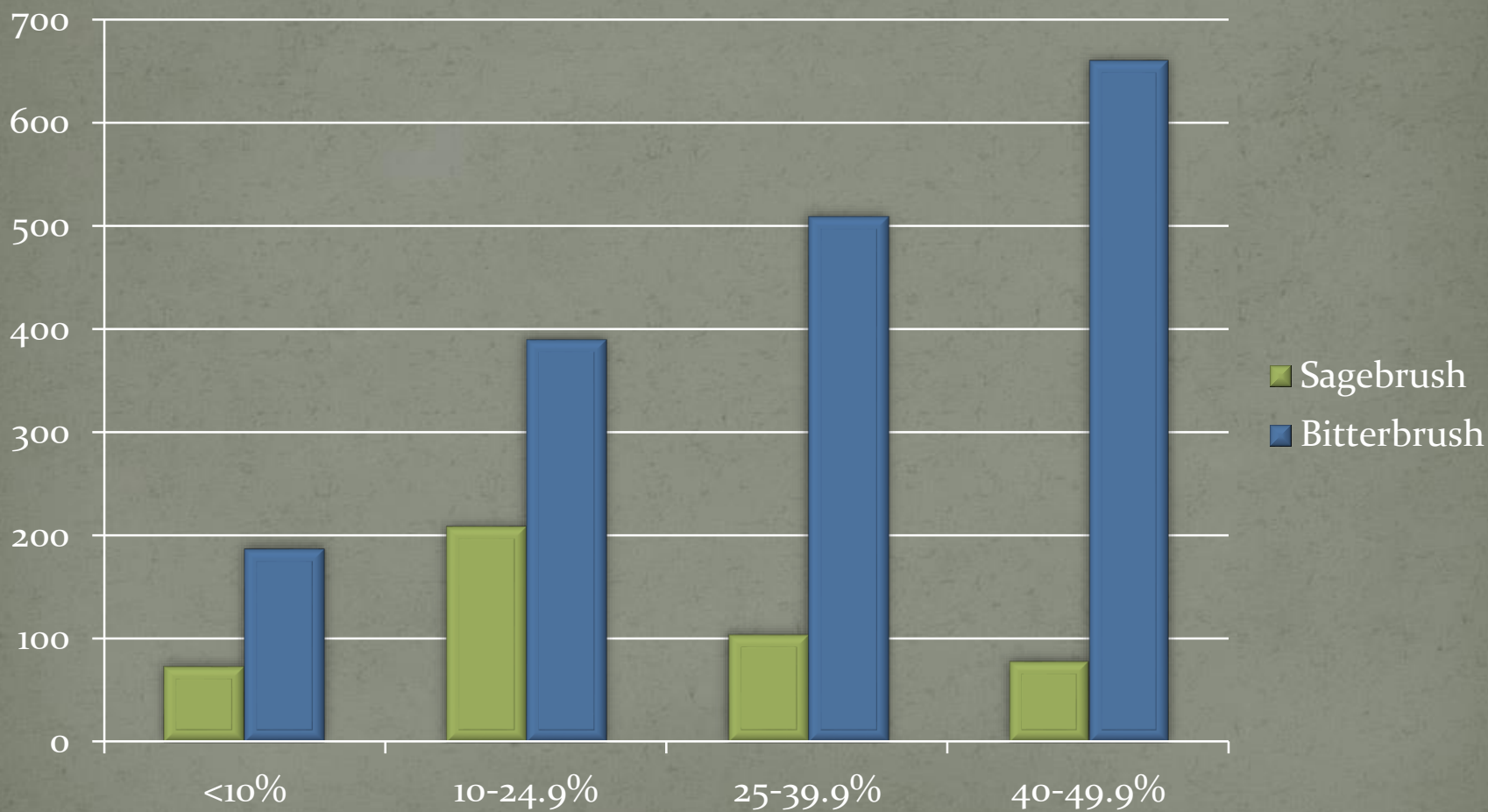
Lodgepole/Bitterbrush



Survey Methods

- 300' transect
- # Bitterbrush shrubs
- # Sagebrush shrubs
- Vigor of each shrub
- Estimate of canopy cover
- Evidence of recruitment

Shrubs By Canopy Cover Class

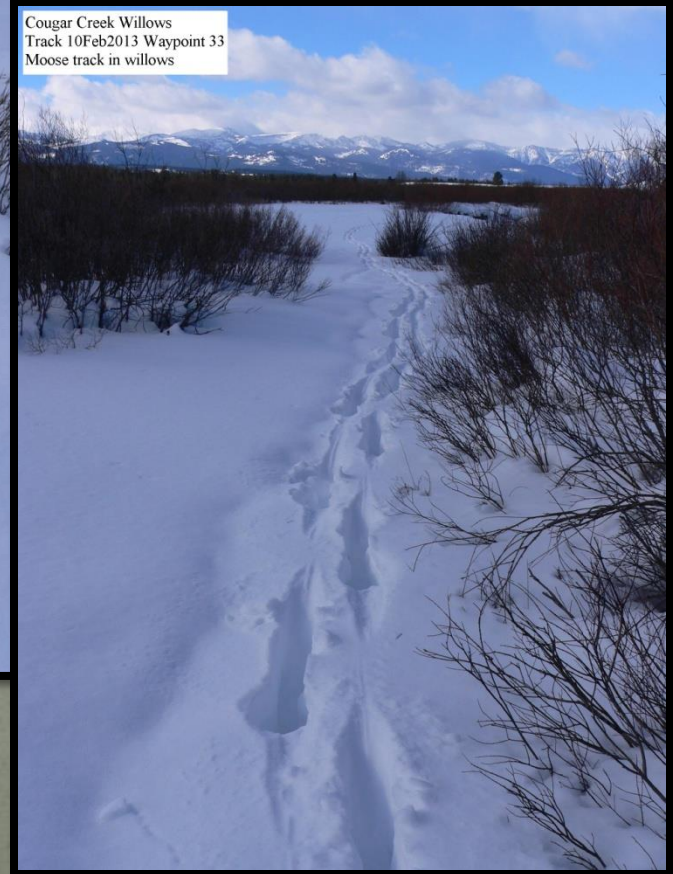


Moose Dietary Analysis

Cougar Creek Willows
Track 10Feb2013 Waypoint 38
Moose browse on small (probably Wolf) willow



Cougar Creek Willows
Track 10Feb2013 Waypoint 33
Moose track in willows



Sagebrush/Grassland Monitoring

- Baseline Rangeland Health Monitoring
- Paired samples with similar ecological site descriptions in/out bison tolerance areas
- Continued monitoring as bison management continues to evolve

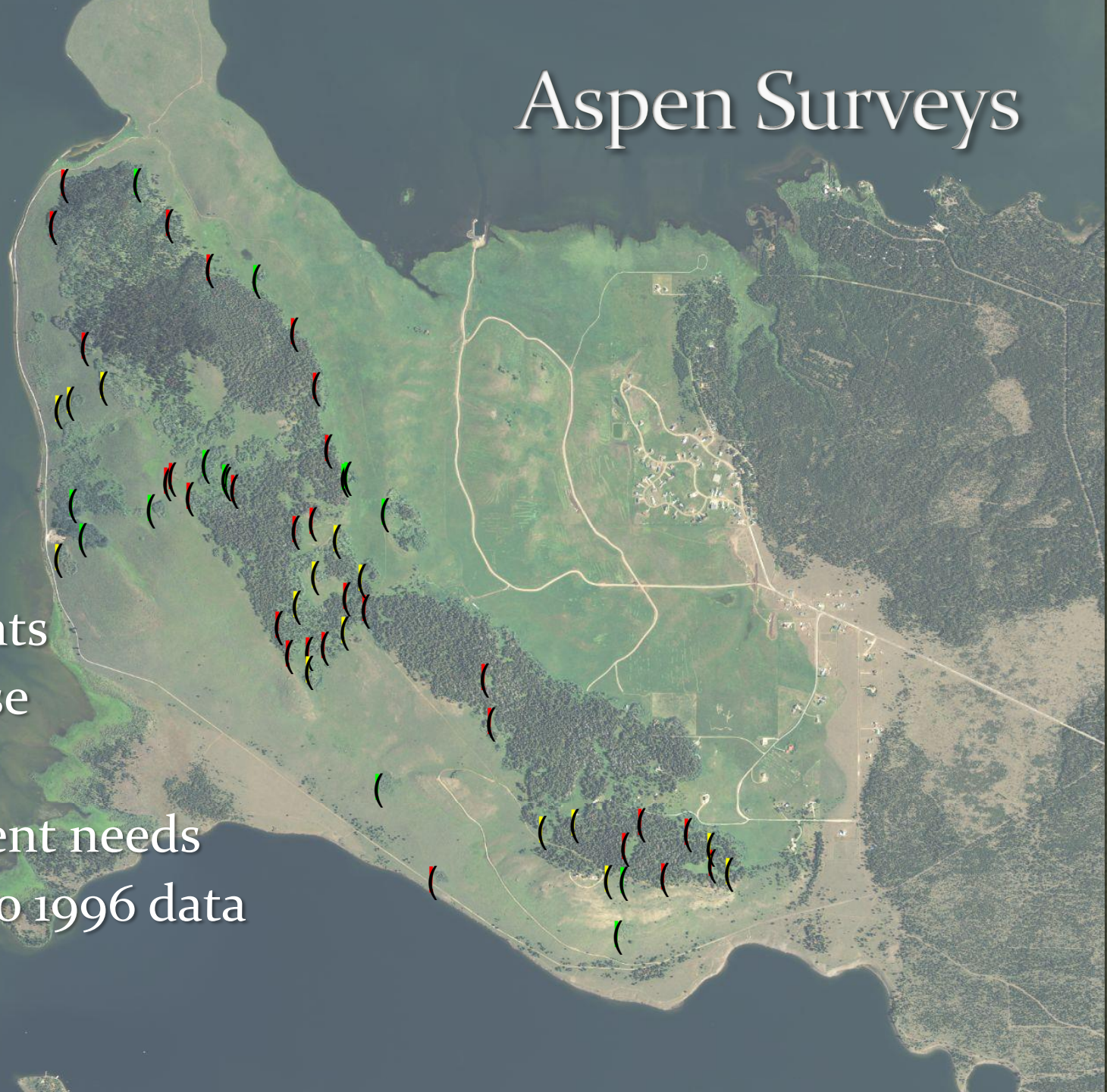
Interpreting Indicators of Rangeland Health

Technical Reference 1734-6



Aspen Surveys




- Stem Counts
- Wildlife use
- Disease
- Management needs
- Compare to 1996 data



Future Aspen Monitoring

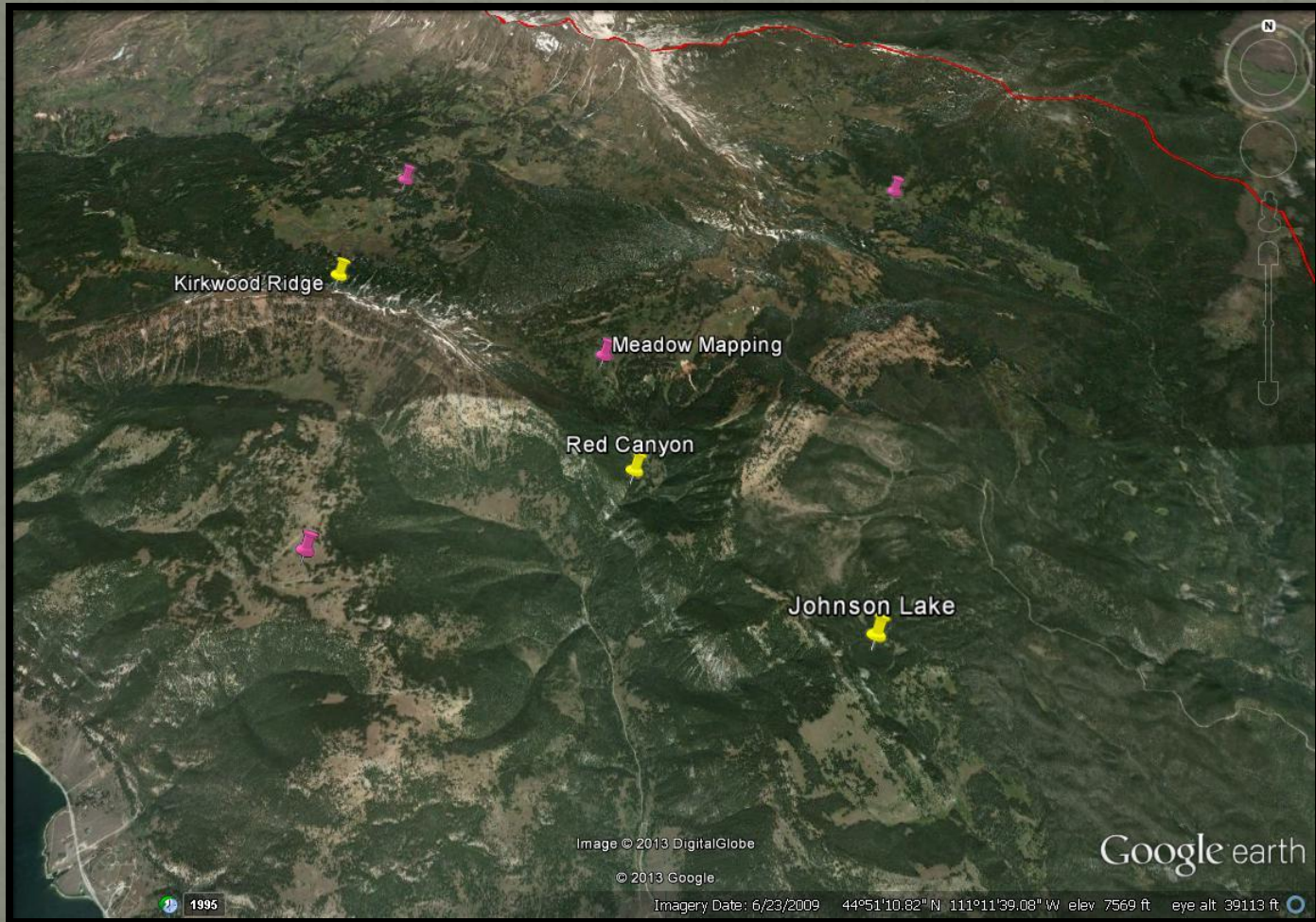
- Tree Data
 - Seedling/sapling counts



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|---|---|---|---|------------------------------|
| <p><i>Region One</i> <i>Vegetation Classification, Mapping, Inventory and Analysis Report</i></p> |  |  |  | $\bar{x} = \frac{\sum x}{n}$ |
| <p>Report 13-</p> | | <p>September 12, 2013</p> | | |
| <p>ASPEN INVENTORY AND MONITORING PROTOCOLS</p> | | | | |
| <p>Renate Bush</p> | | | | |
| <p>USDA Forest Service, Region 1, Renewable Resource Management Staff, 200 E Broadway, Missoula, MT 59807</p> | | | | |



Meadow Inventory



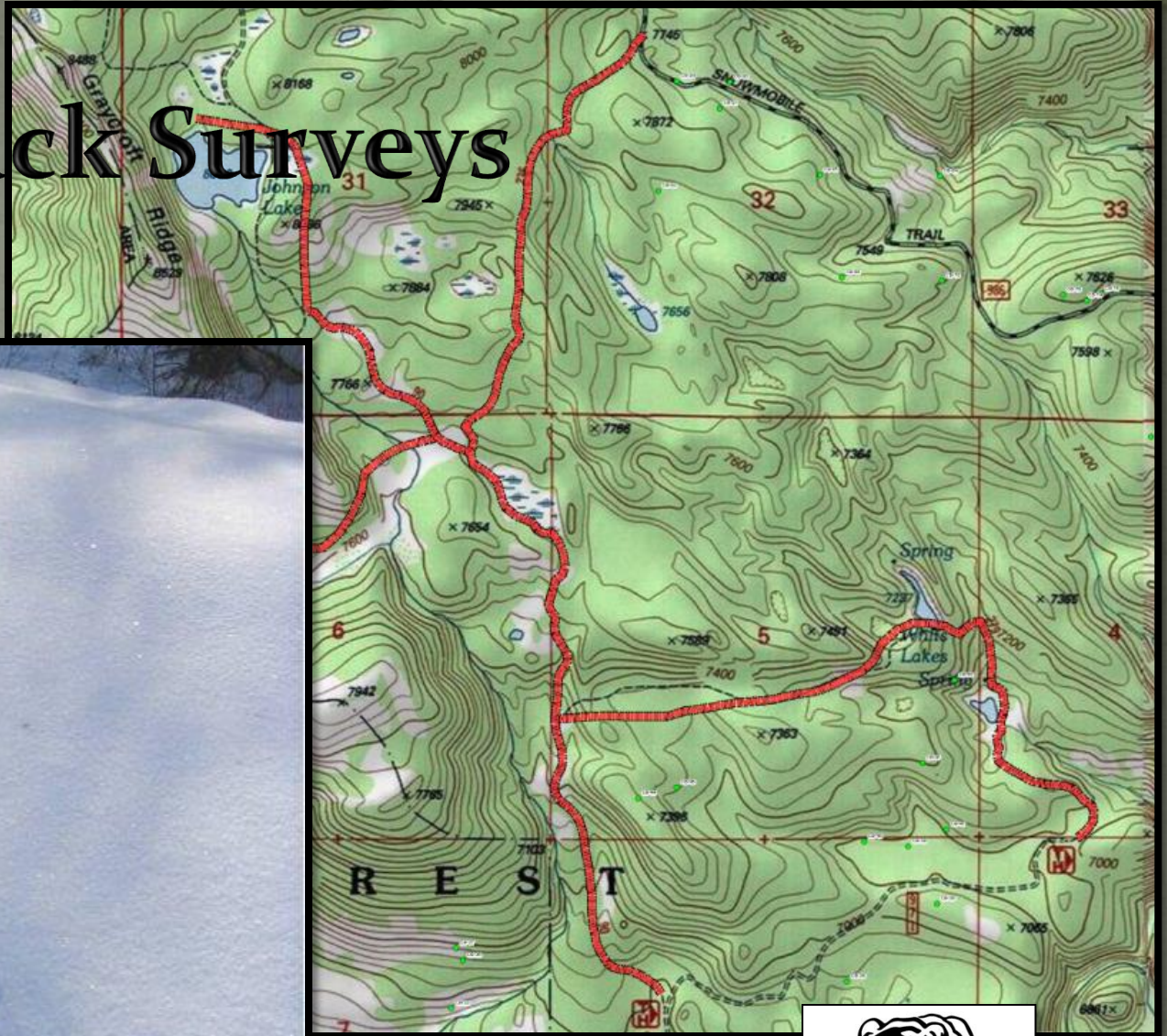


Vehicle Collisions

Other Field Work Planned for the Project Area



Snow Track Surveys



Snowshoe Hare & Big Game Pellet Transects



Coverboard Measurements



Goshawk Surveys





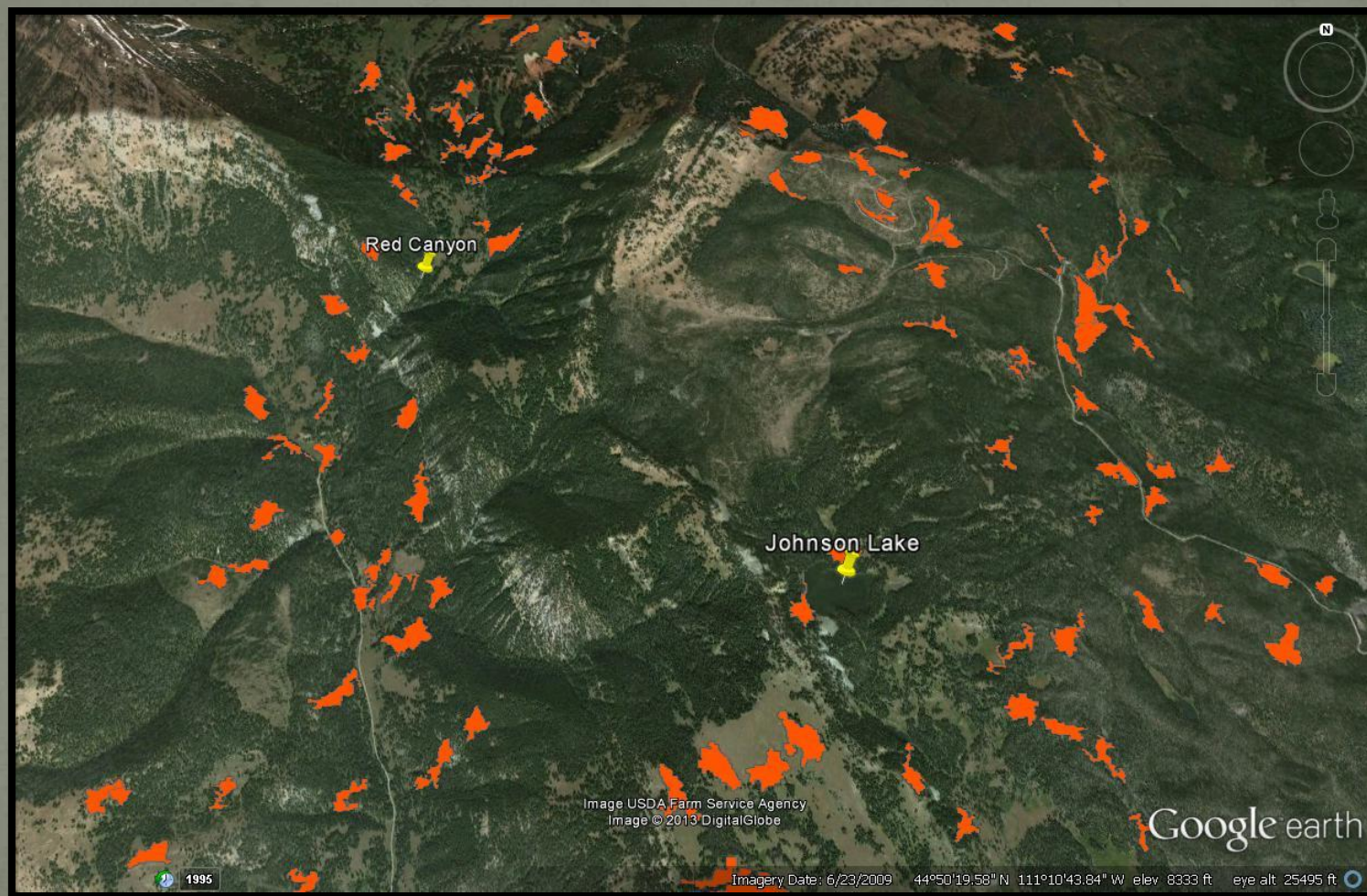
Small Mammal Trapping



Pika Surveys



vMap Validation



Camera Scent Stations



Adventurers & Scientists for
Conservation

Hebgen Lake Camera Trap Wildlife Monitoring Study
March-July 2013
Project Summary Report
September 2013



Prepared by:
Adventurers and Scientists for Conservation



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