Jonah Interagency Office

Pinedale Anticline Project Office

Sublette Mule Deer Mitigation

Background – How did we get here

- The Pinedale Anticline ROD Matrix specifies under mule deer that a "15% decline in any year, or cumulatively over all years, compared to reference area" will trigger a "mitigation response."
- Mitigation Response for mule deer states: "Select mitigation response sequentially as listed below, implement most useful and feasible and monitor results over sufficiently adequate time for the level of impact described by current monitoring."
- Initial mitigation will utilize Mitigation Responses 1, 2, and 3.
- Priority for mitigation will be given to those habitats designated as most crucial or important.

Mitigation Responses

On-site

- 1. Protection of flank areas from disturbance to assure continued habitat function of flank areas, and to provide areas for enhancement of habitat function.
- 2. Habitat enhancements of SEIS area (both core/crest and flanks) at an appropriate (initially 3:1) enhancement-to-disturbance acreage ratio.

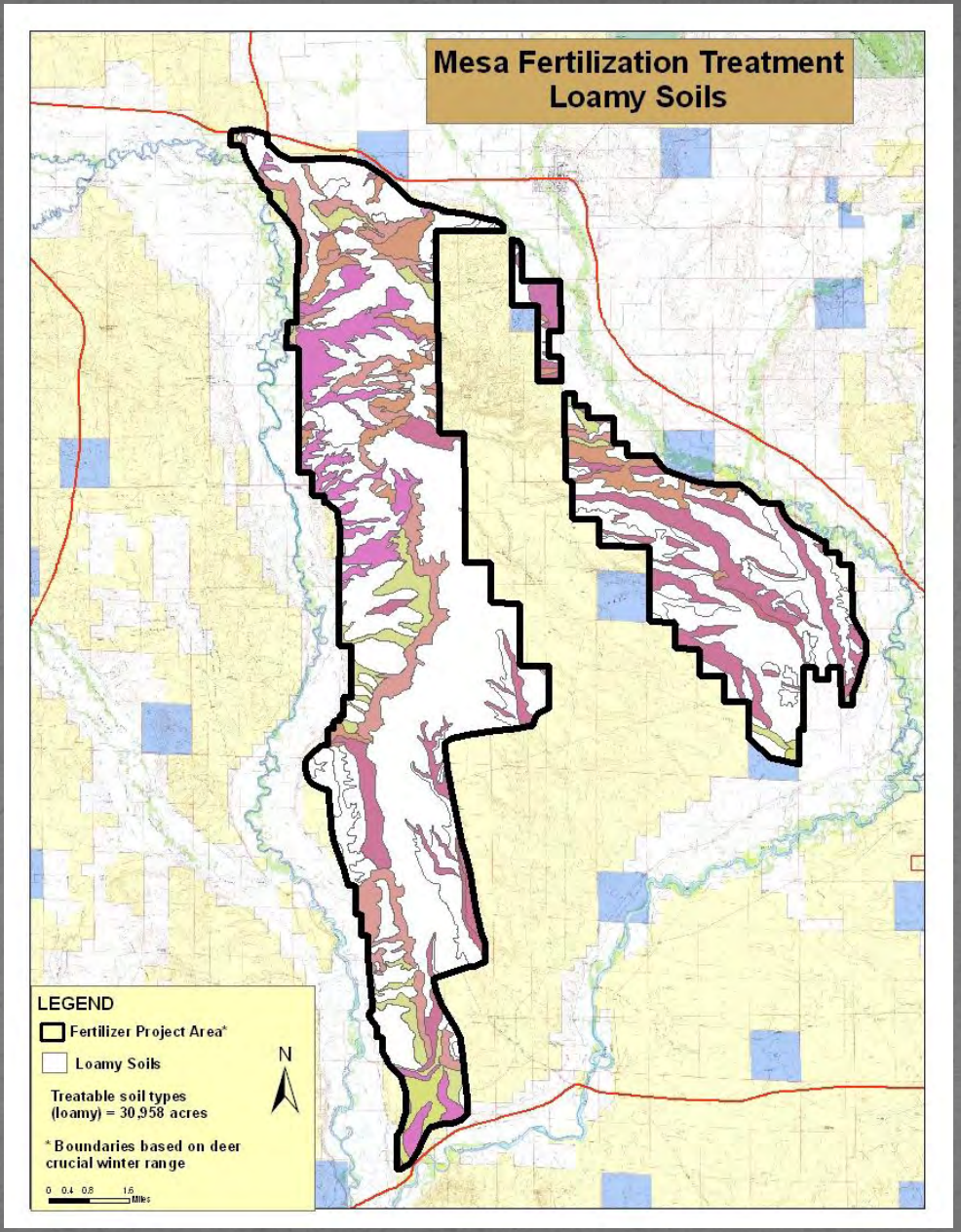
Off-site

- 3. Conservation Easements or property rights acquisitions to assure their continued habitat function

Short-term On-site Mitigation

Fertilization

Identify most productive soils



Other On-Site Mitigation Opportunities Short-term

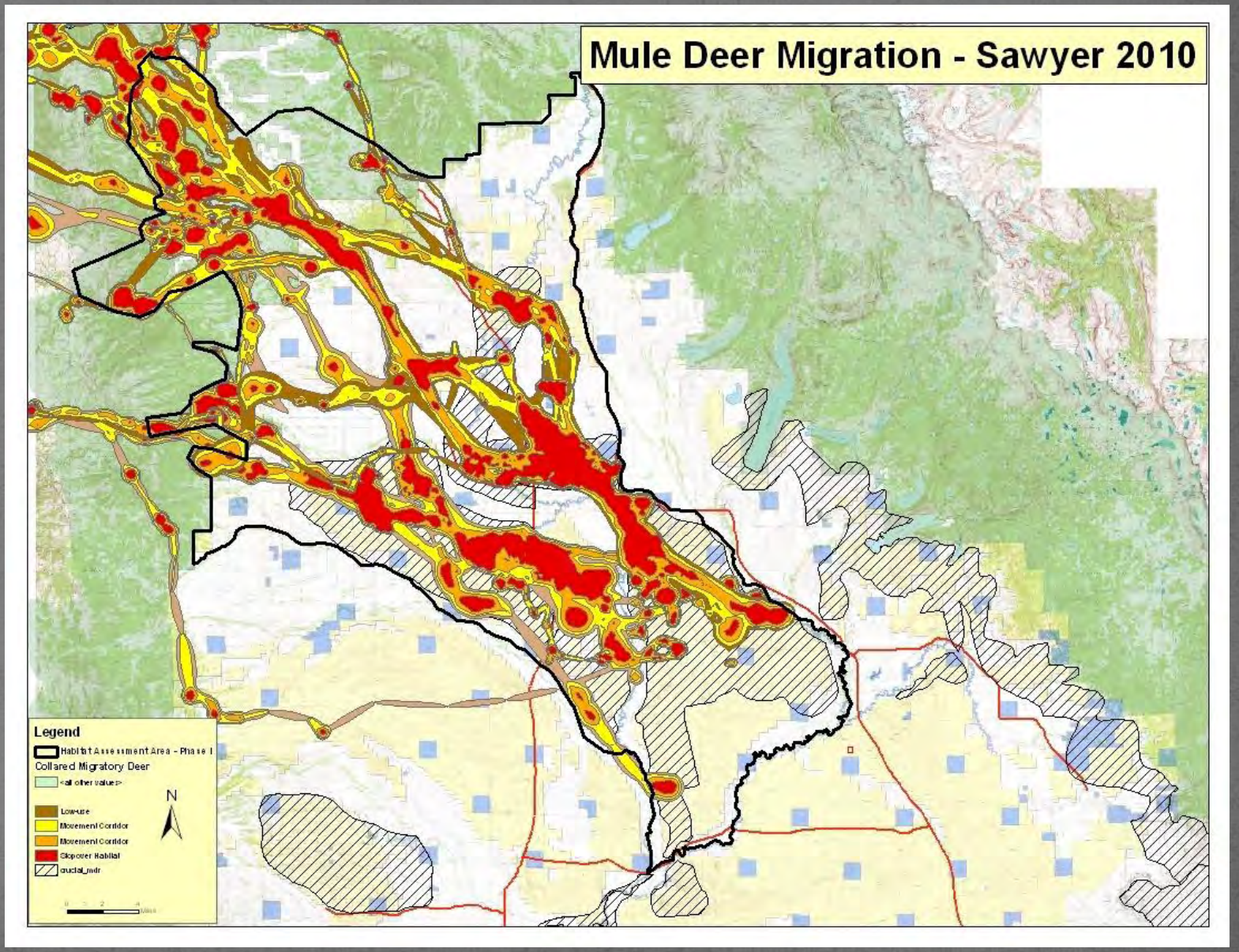
- Enhanced reclamation, including potential for shrub seedling plantings
- Small vegetation treatments that fit in with stipulations placed on sage-grouse core areas
- Inventory and modification of fences to ensure their compatibility with wildlife needs

Longer-term On-site Mitigation

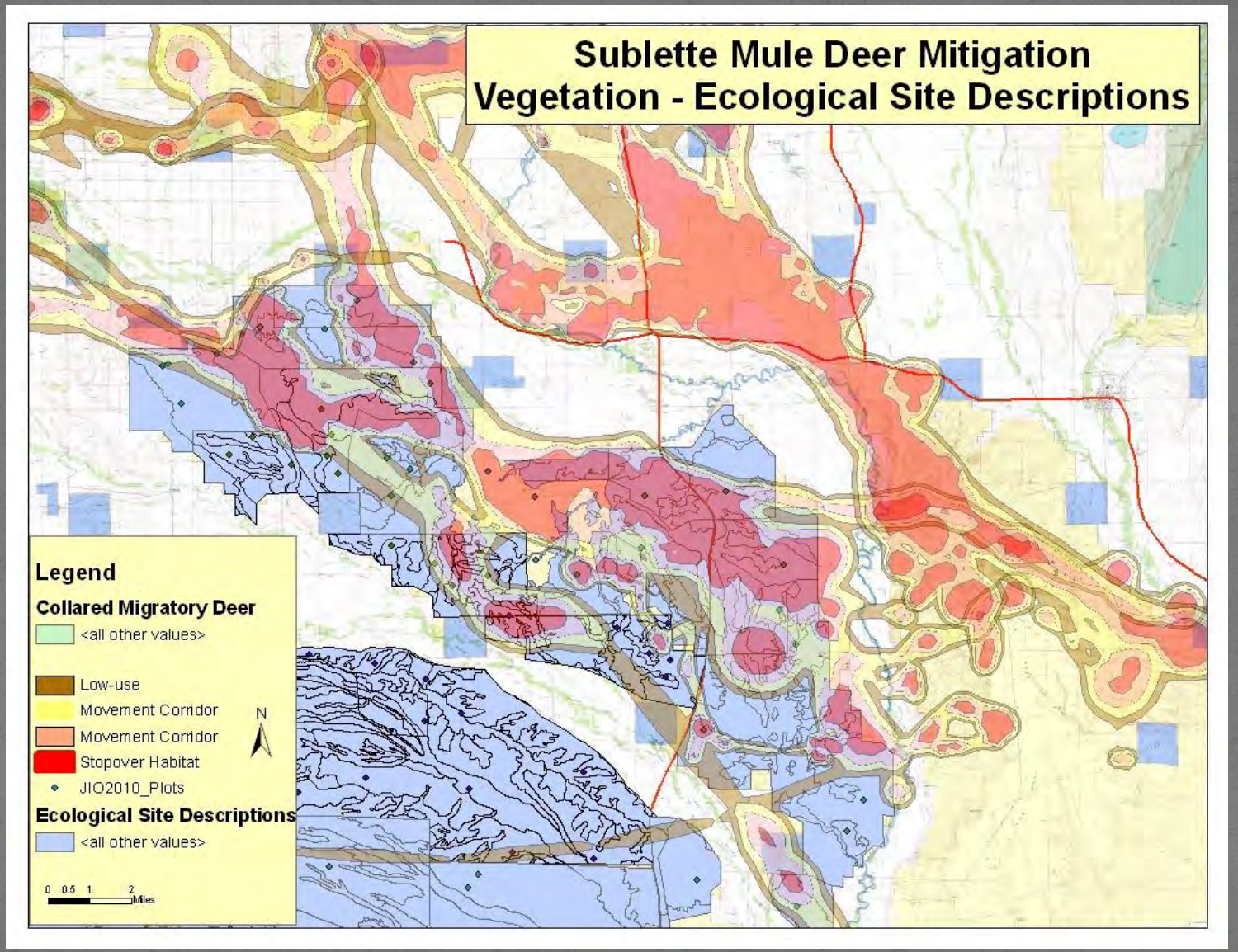
- Habitat assessment specific to mule deer
- Follow assessment with habitat plan to address findings
- Reclamation trials and seedings with species that are specific to the wildlife utilizing the area

Off-Site Mitigation

Mule Deer that Utilize the Mesa



Where do we start?

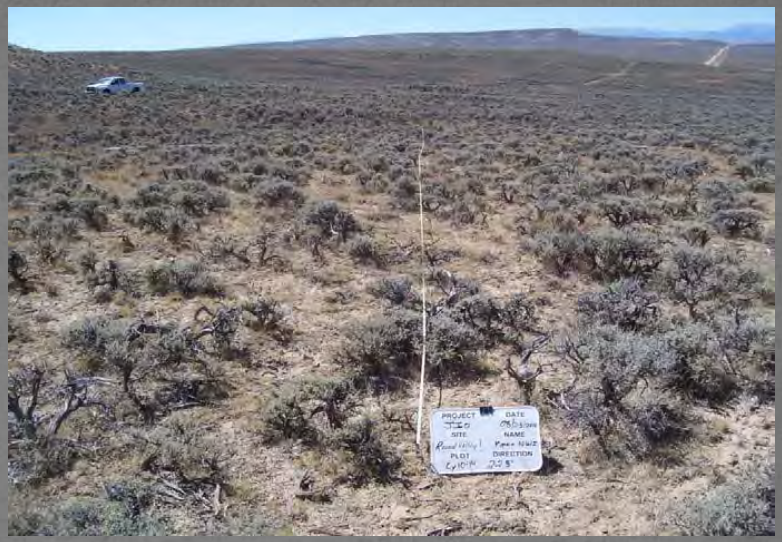


Inventory Information Available

- Ecological Site Descriptions – What are they?

- Useful data includes:
  - Condition
  - % Shrub Canopy Cover
  - Relative Diversity of site, including all plant species encountered
  - Soils
  - Shrub condition – as determined by recruitment (e.g. seedling, young, mature, decadent, dead)
  - Photos of site

2-5 Year Mitigation Plan



2-5 Year Mitigation Plan

To access ESIS (Ecological Site Descriptions) use: http://esis.sc.egov.usda.gov/

United States Department of Agriculture
Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Clayey (Cy), 10-14" P.Z., Foothills and Basins West

Site ID: R034AY204WY

Major Land Resource Area: 34A-Cool Central Desertic Basins and Plateaus

Physiographic Features

This site occurs in valley bottoms and on gently sloping to steep mountain slopes. It is found on all exposures with a tendency toward north and east slopes at lower elevations (mostly above 7000 feet). Slopes are mostly from 5 to 40%.

Landform: Hill sides, alluvial fans & stream terraces **Aspect:** N/A

	Minimum	Maximum
Elevation (feet):	6500	7500
Slope (percent):	0	60
Water Table Depth (inches):	none within 60 inches	
Flooding:		
Frequency:	none	none
Duration:	none	none
Ponding:		
Depth (inches):	0	0
Frequency:	none	none
Duration:	none	none
Runoff Class:	low	very high

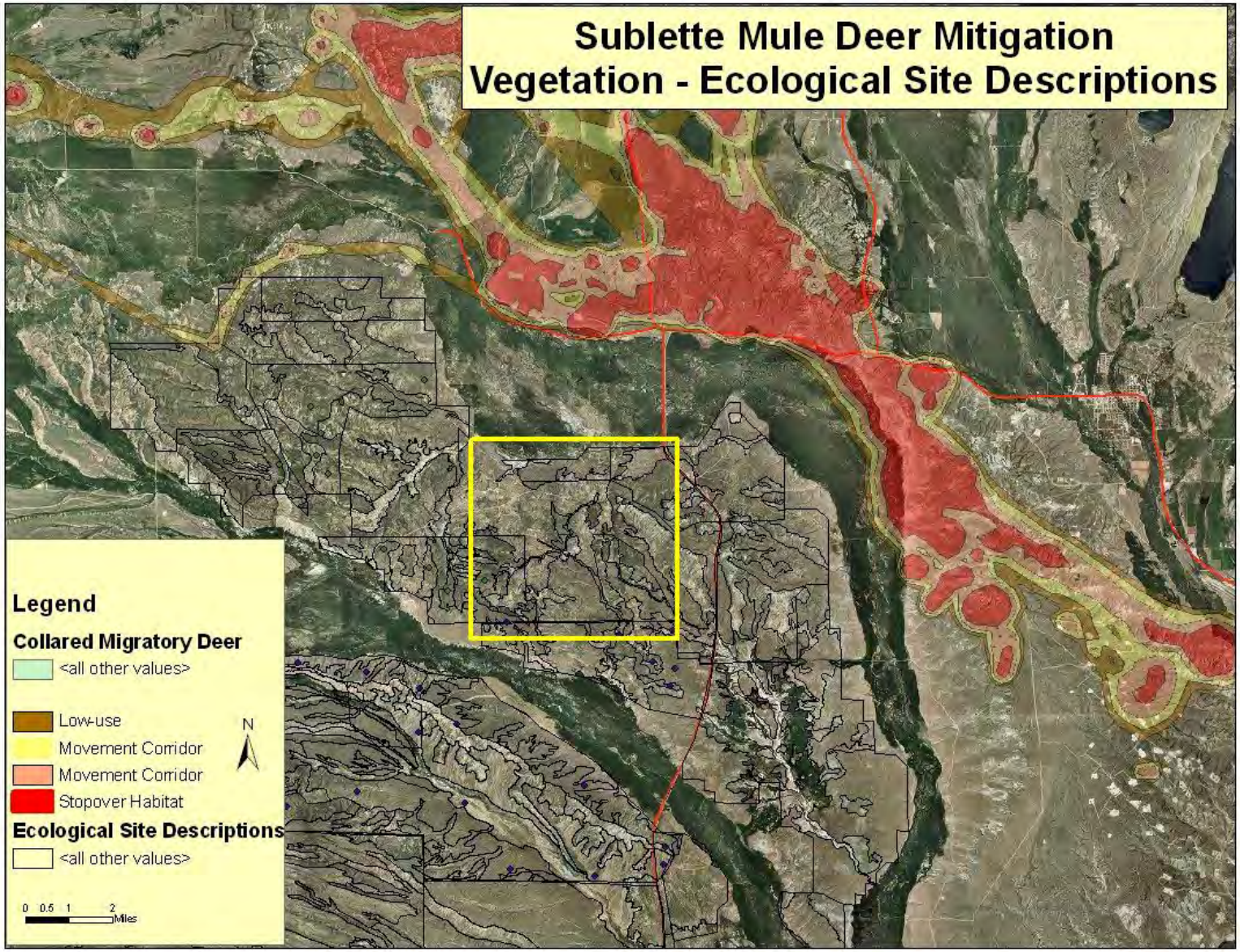
Climatic Features

Annual precipitation ranges from 10-14 inches per year. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation.
Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

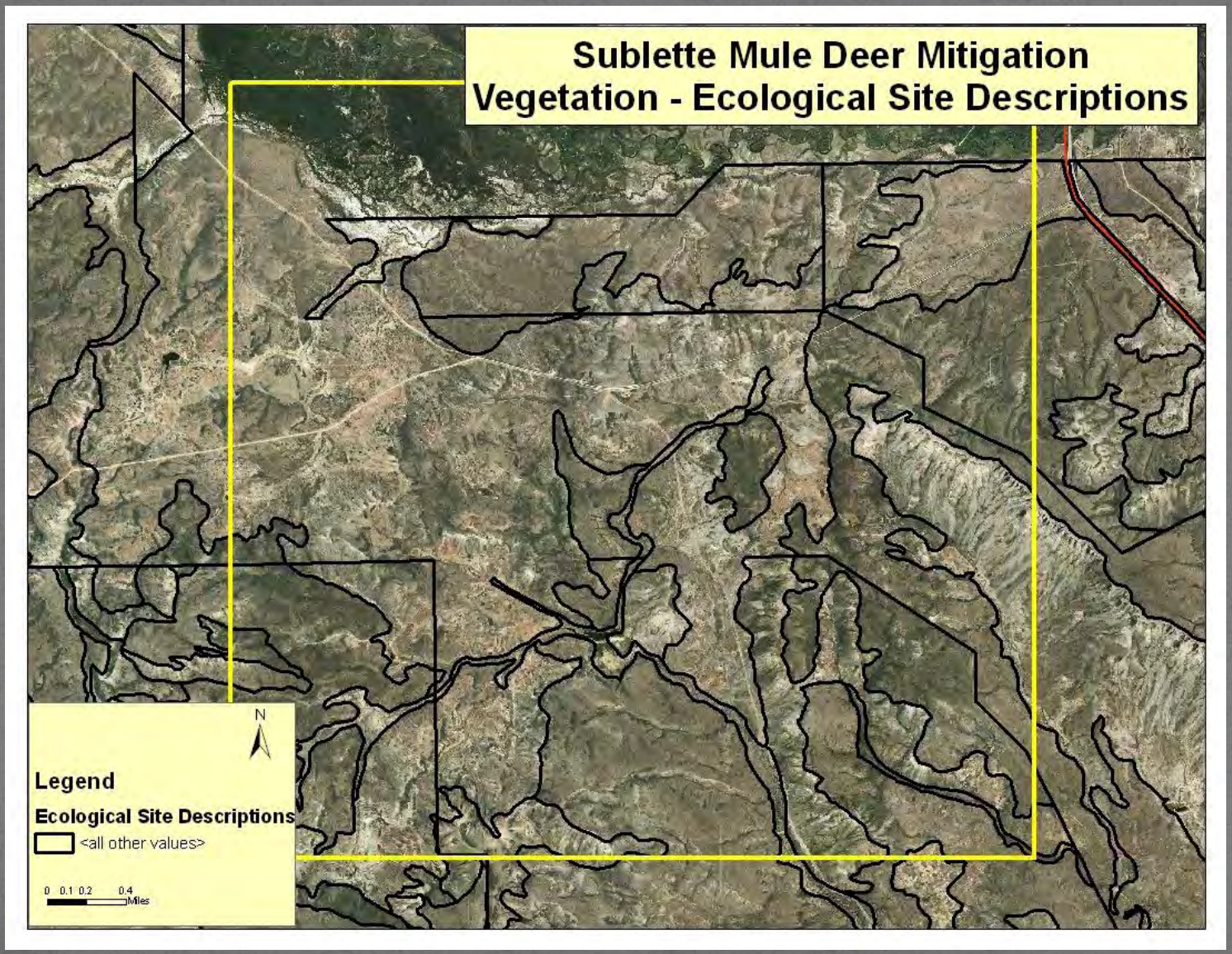
Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 50 mph.

Growth of native cool season plants begins about April 15 and continues to about August 15. Some green up of cool season plants usually occurs in September depending upon fall moisture occurrences.

Refinement of Information



Data Refinement



Habitat Enhancement (cont'd)

Specific tools for treatments will depend on various site attributes including:

- **Soil type** (loamy soils typically have better capabilities for response)
- **Precipitation** (greater precipitation will produce quicker results and also are conducive to better success)
- **Current management** including livestock use and distribution
- **Other ungulate use** (including level of use by mule deer)
- **Current site condition**
- **Shrub species and subspecies** targeted, and other existing vegetation on site.

Habitat Enhancement (cont'd)

- Seasonal range
  - The season of use plays an important part in any treatment
    - Spring and fall ranges should typically focus as much or more on providing the herbaceous component as it does on shrub conditions. This period and especially during the spring is important for getting the does in shape for fawning and in some cases just getting the nutrition level up after winter.
    - Winter ranges typically focus more on shrubs and shrub productivity. In some instances providing added shrub diversity can greatly expand the winter survival and capacity of the winter range.

Mule Deer Needs – Data &Research

- Most western states currently have management plans specific to mule deer and are looking at associated habitat needs
- Western Association of Fish and Wildlife Agencies – formulated a mule deer working group
- Current research in various locations (e.g. Colorado, Idaho, Nevada, Utah) identify nutrition as an aspect currently limiting mule deer's ability to increase in numbers. This is especially important, not only on winter ranges, but on transitional ranges as well.

Mule Deer Needs – Data &Research

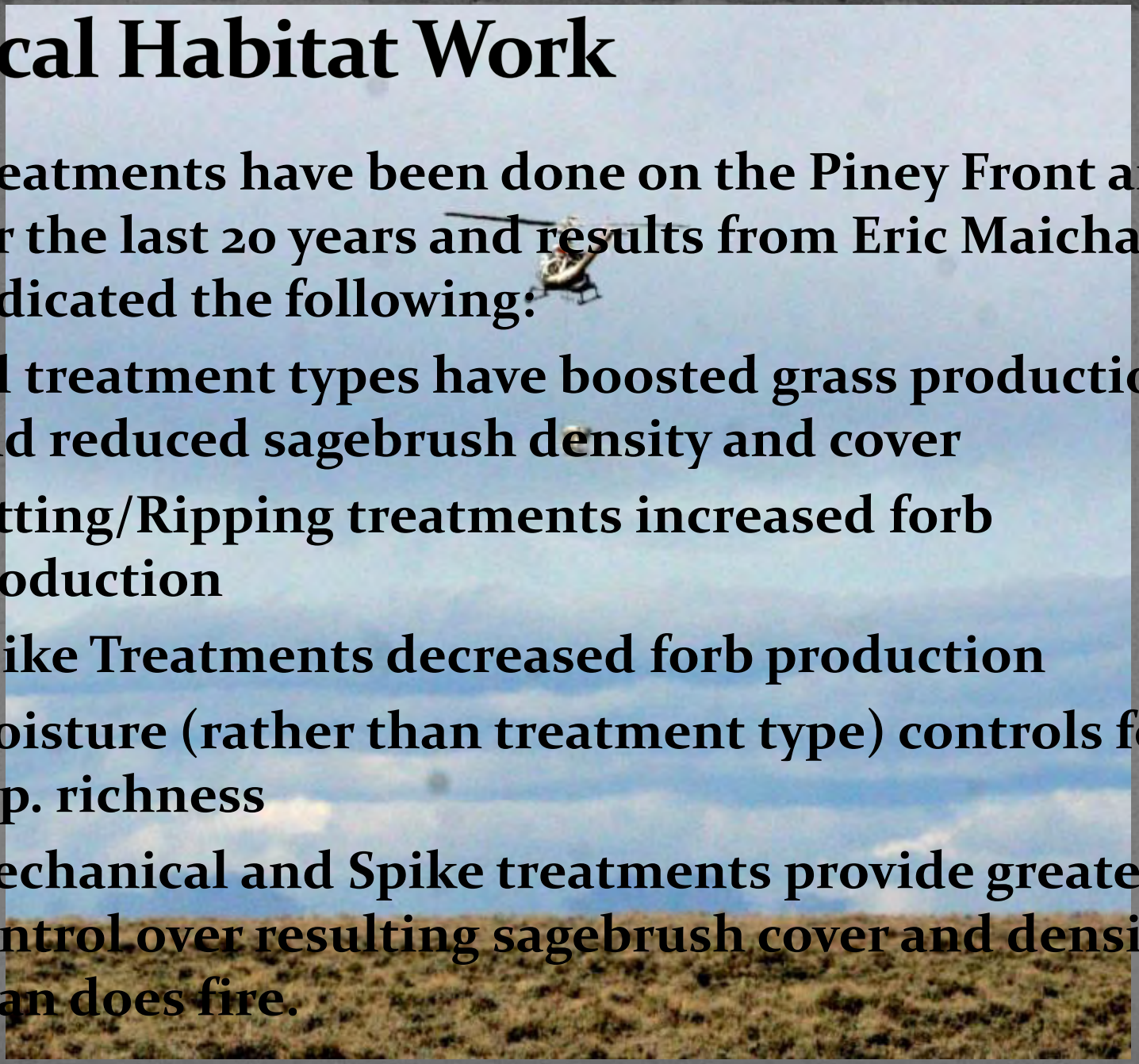
- Some reports have pointed to shrub age as an important aspect of mule deer habitat, indicating older aged plants are more typical with most evaluations.

- In addition, older plants typically produce leaders with greater lignin, greater secondary compounds which limit digestibility and less vigor.

Habitat Enhancement

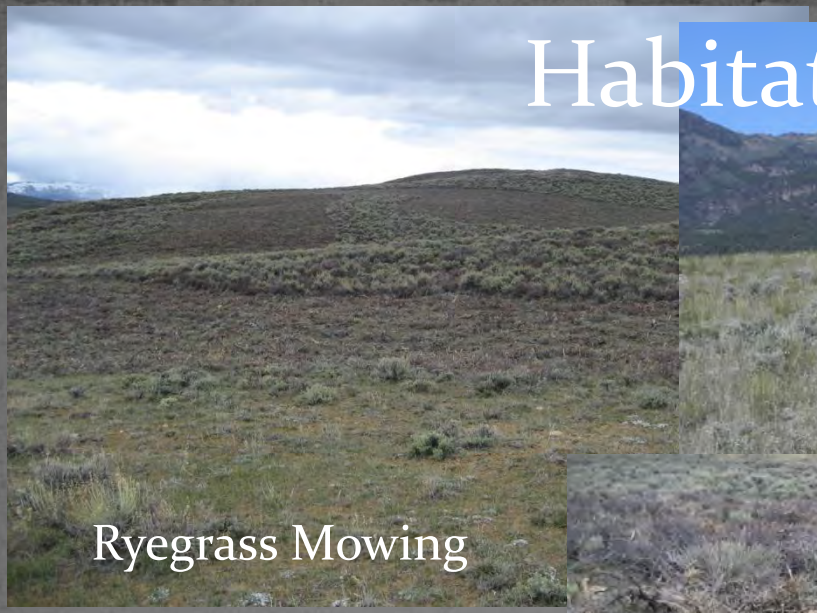
- Numerous efforts are underway in various states to enhance mule deer habitat and include the following:
- 1. Restoration work including seeding after wildfires.
- 2. Mechanical treatments such as crushing with an aerator and including seeding with the treatment. Also listed are chaining, disking and imprinting, pipe harrowing and aerating.
- 3. Prescribed burning.
- 4. Chemical thinning.
- 5. Mowing.
- 6. Planting of shrubs and aspen (Idaho).
- 7. Control of invasive species such as cheatgrass.

Local Habitat Work



- Treatments have been done on the Piney Front area for the last 20 years and results from Eric Maichak indicated the following:
- All treatment types have boosted grass production and reduced sagebrush density and cover
- Pitting/Ripping treatments increased forb production
- Spike Treatments decreased forb production
- Moisture (rather than treatment type) controls forb spp. richness
- Mechanical and Spike treatments provide greater control over resulting sagebrush cover and density than does fire.

Habitat Responses


Ryegrass Mowing


Mowing – Ely, YV

Ryegrass Mowing


Upper Green Aerator


Mowing – Ely, NV

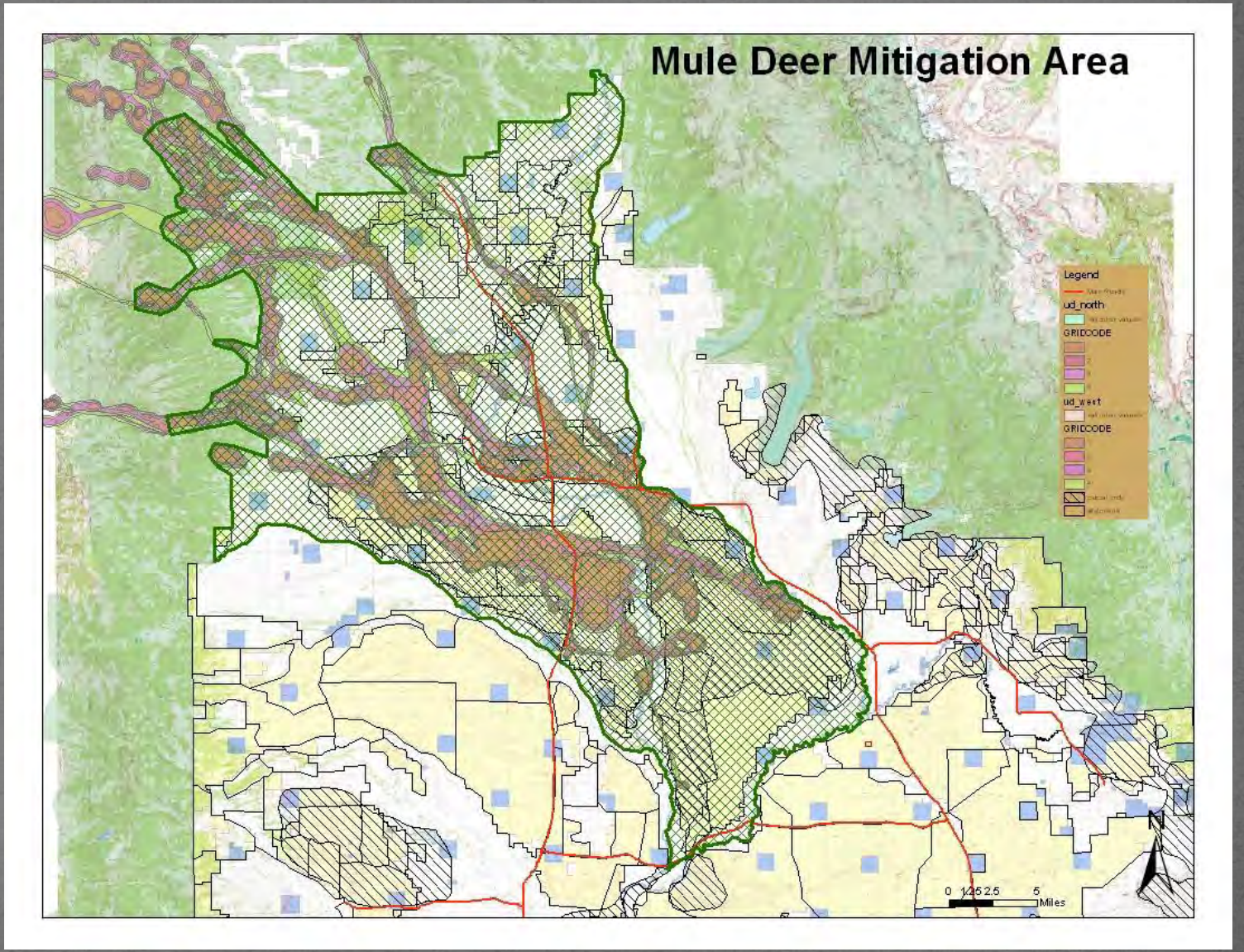
Off-site Mitigation

Other Opportunities

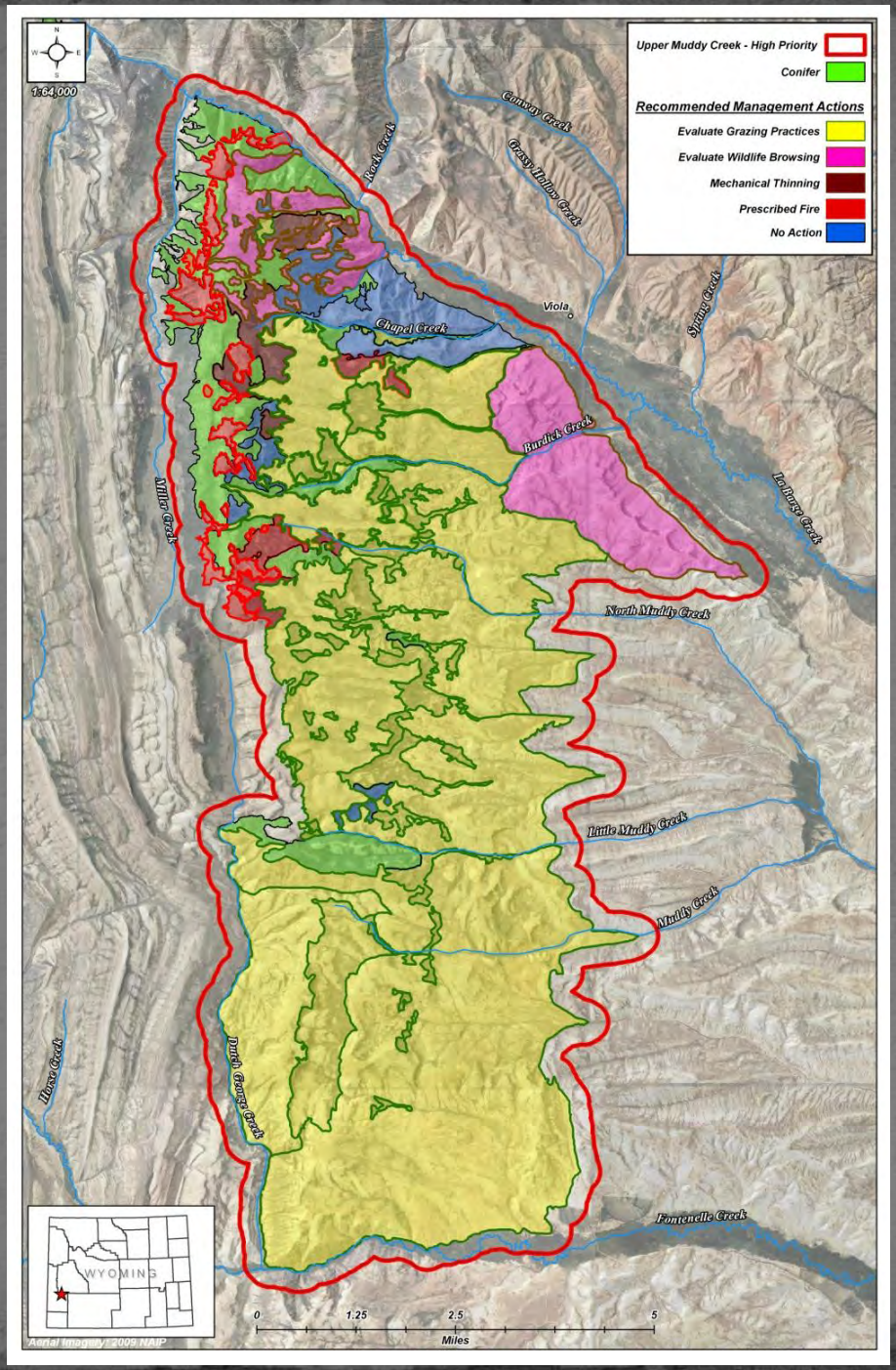
Shrub and/or tree plantings

Off-site Mitigation Long-term

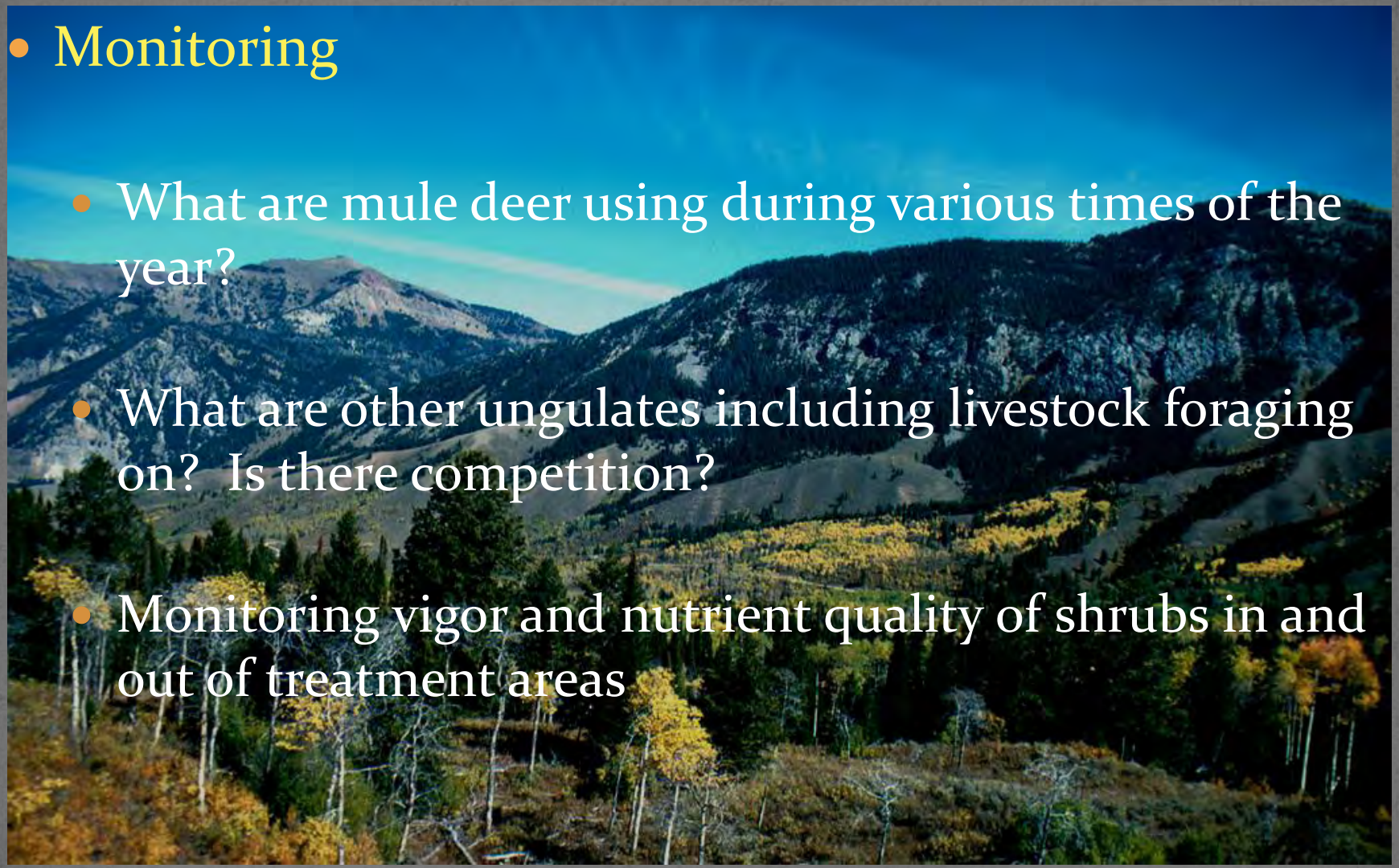
HABITAT ASSESSMENT



Example of habitat assessment for Wyo. Range Deer Herd

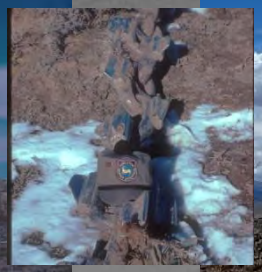


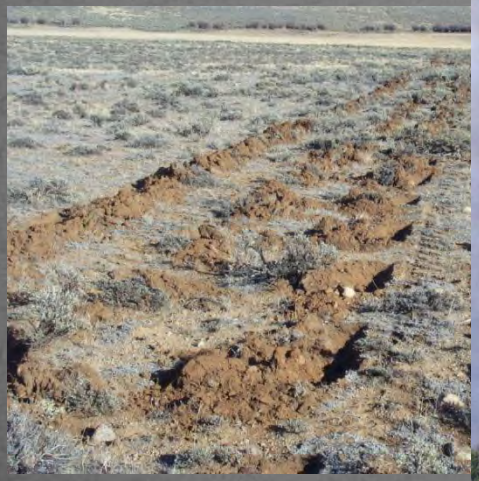
Additional Data Needs



- Monitoring
  - What are mule deer using during various times of the year?
  - What are other ungulates including livestock foraging on? Is there competition?
  - Monitoring vigor and nutrient quality of shrubs in and out of treatment areas

Treatments/Enhancements





Wrap Up

- We need to continue to review literature for other treatments, etc. that may have been missed.
- We should continue to examine what we can do from a reclamation perspective for various species of wildlife; of particular importance are legumes.
- We should further examine where we can reduce winter human impacts (e.g. is all current disturbance necessary? Can we close more roads? Etc.)
- We should consider closer examination of sage-grouse (and other species) responses to any type of treatment.