

Mule Deer and Bald Mountain Trails

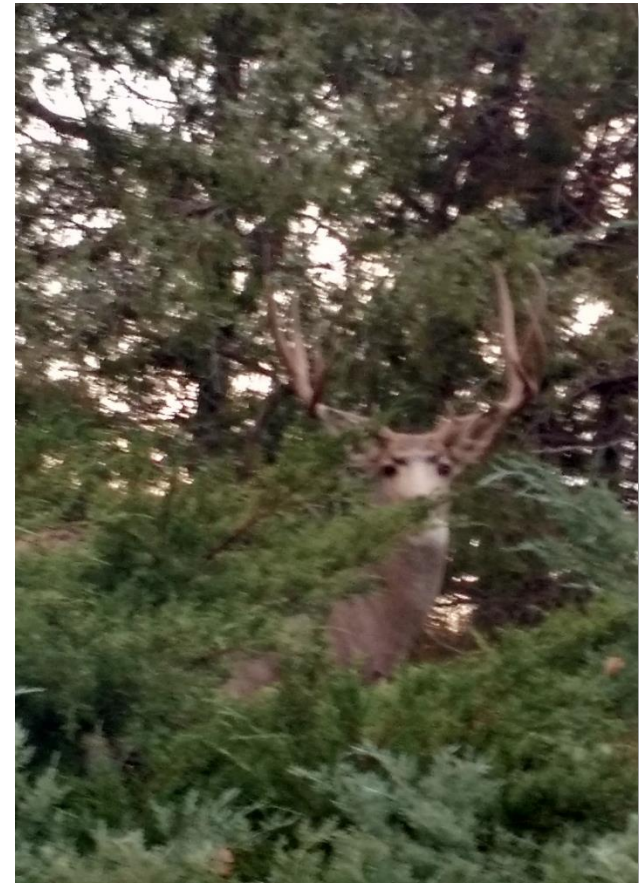
NorCal - Eagle Lake Field Office/NOC



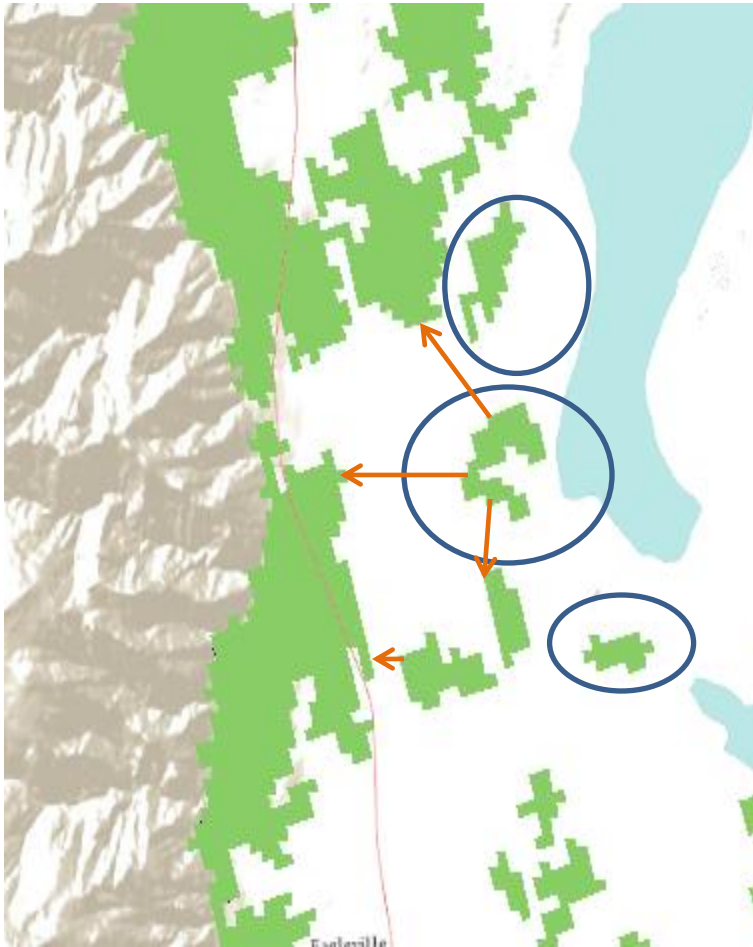
November, 2016

Outline

- Terminology
- MQ: What are the impacts of 30 miles of non-motorized trail within Bald Mountain - an area of important mule deer habitat?
- Broad Scale Boundaries
- Data sets



Terminology: Broad Scale Indicators



■ The **spatial distribution** of plant and animal species and their habitats allows for reproduction and recovery from localized catastrophic events

■ **Habitat areas or patches** should be large enough to support viable populations or are **connected** adequately with other similar habitat areas

- **Connectivity** distances can be dispersal or migration
- **Connectance** is the percentage of functional joins between all patches of the same type

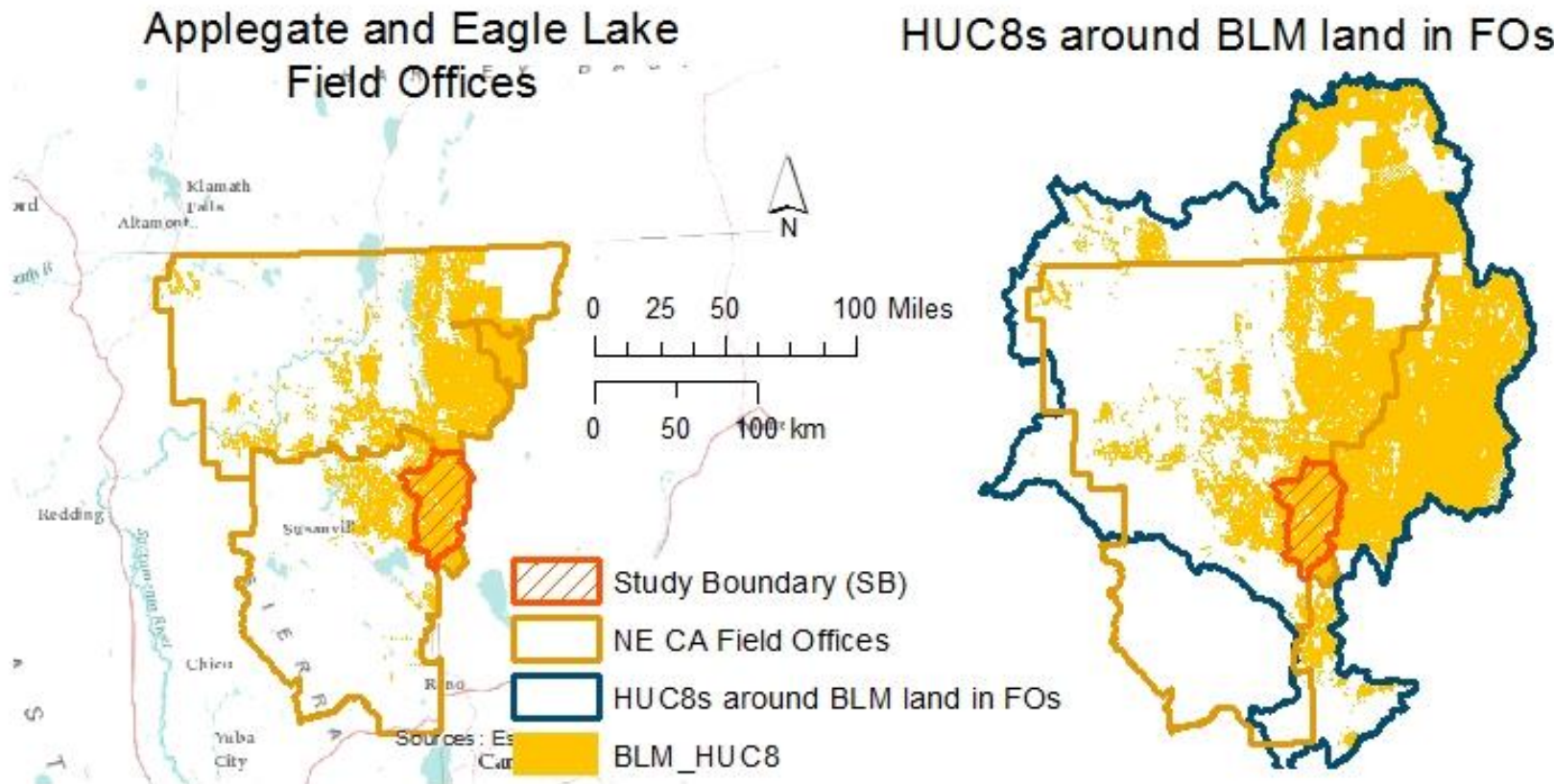
MQ: What are the impacts of 30 miles of non-motorized trail within Bald Mountain - an area of important mule deer habitat?

- Boundaries
- Data are available for local and broad scale
- The data, analyses, and assumptions are then quite different...
- Seasonal mule deer habitat data
 - **Broad scale:** data covering North America from Utah State U. (in NGB and CBR REAs)
 - **Local scale:** from ELFO-RMP

Setting NorCal Boundaries (1 of 2)

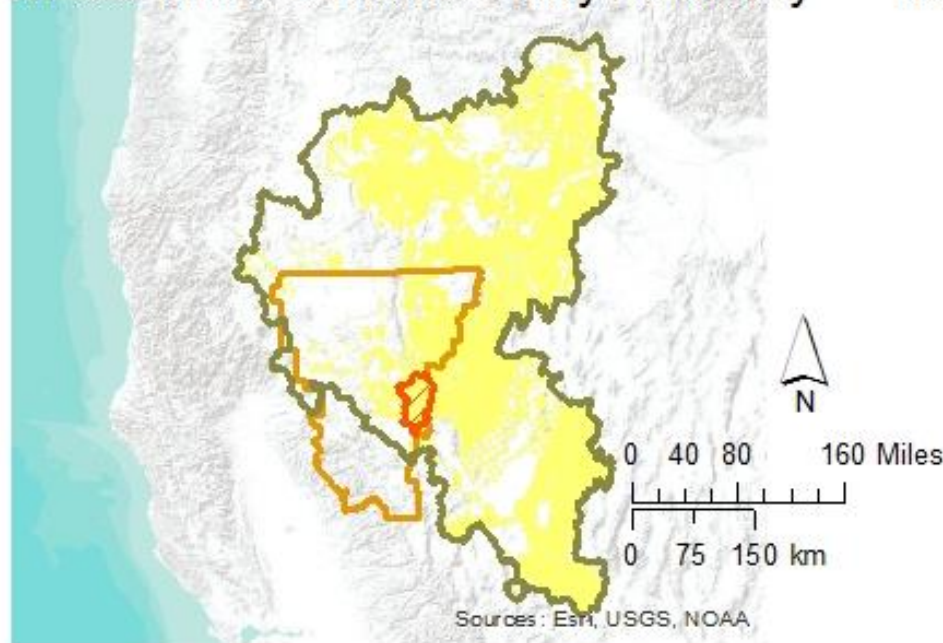
Complex geopolitical, ecological, physiographic region

NorCal: Suggested Boundaries for the Context Analysis

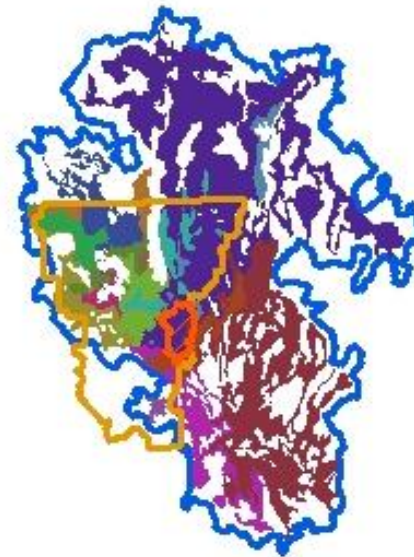


Setting NorCal Boundaries (2 of 2)

NRCS MLRAs around Study Boundary



HUC10s around level 4 ecoregions



MLRA & HUC10s around study boundary

Study Boundary (SB)

NE CA Field Offices

HUC8s around BLM land in FOs

HUC 10s around L4 ecoregions

BLM

Level 4 ecoregions

US_L4NAME

Adin/Dixie Low Hills

California Cascades Eastside Conifer Forest

High Lava Plains

Klamath Juniper Woodland/Devils Garden

Klamath/Goose Lake Basins

Lahontan Salt Shrub Basin

Lahontan and Tonopah Playas

Likely Tableland

Modoc Lava Flows and Buttes

Modoc/Lassen Juniper-Shrub Hills and Mountains

Pit River Valleys

Pluvial Lake Basins

Semiarid Uplands

Sierra Nevada-Influenced Semiarid Hills and Basins

Sierra Valley

What are the impacts of non-motorized trails on mule deer?

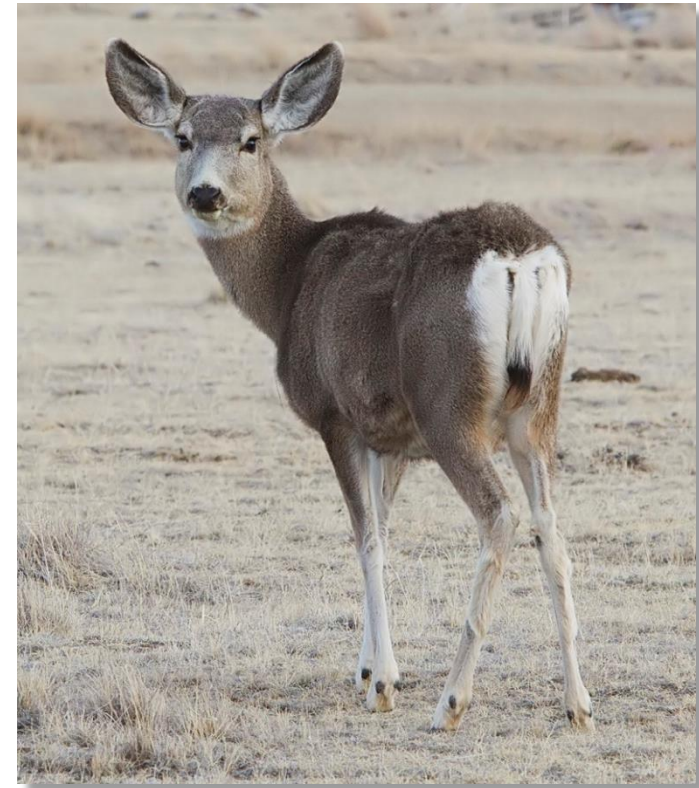
Probability of flushing a mule deer at 100 m from a trail:

- 70% for a single human on trail and
- 96% for a single human off trail
- whether hiking or mountain-biking

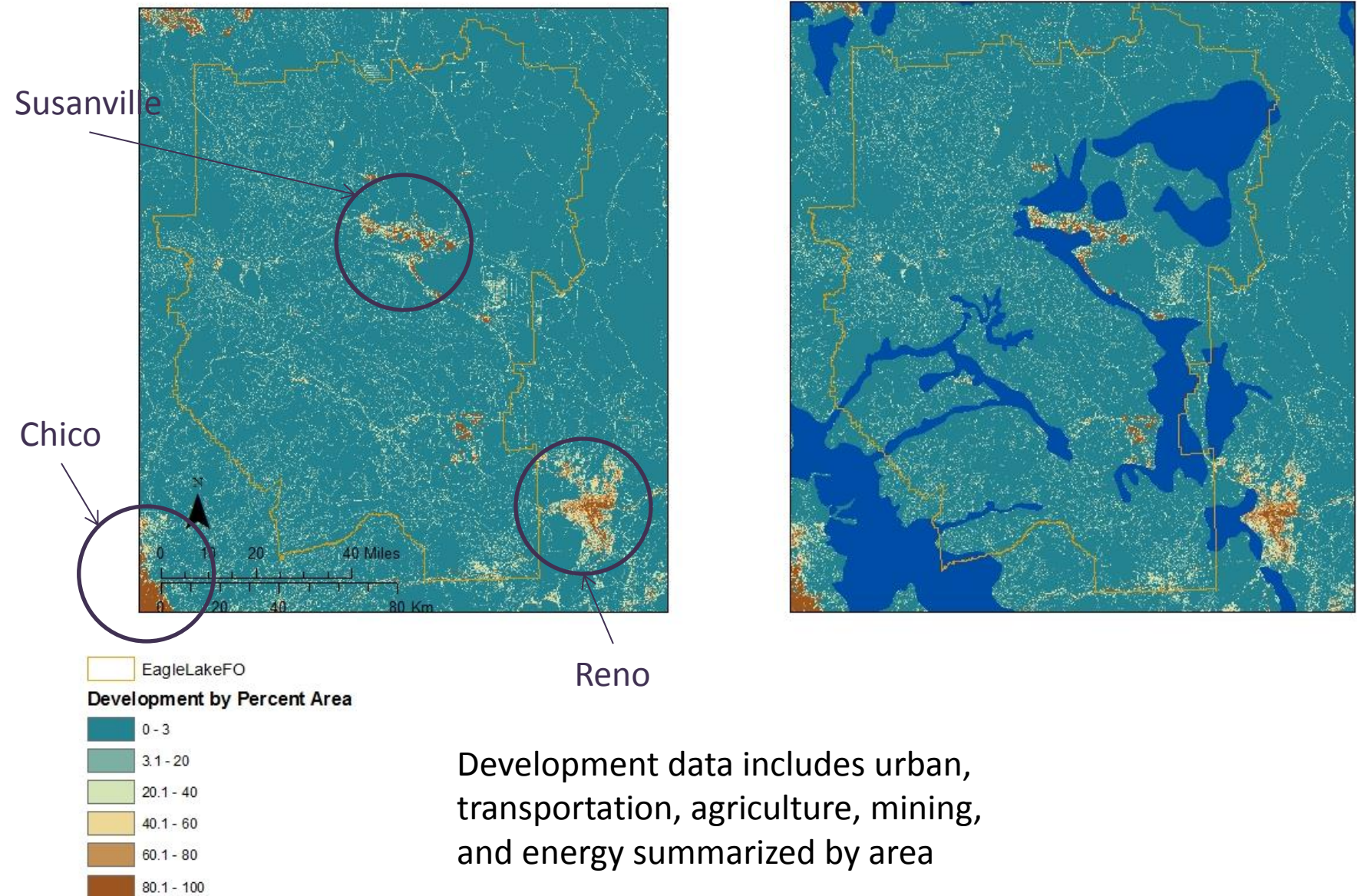
(Taylor and Knight, 2003)

GIS data processing:

- Buffered Bald Mountain Trails by 100 m and merged into development raster
- Excluded areas with > 3% development (WY F&G) and areas that are not mule deer winter range and winter concentration



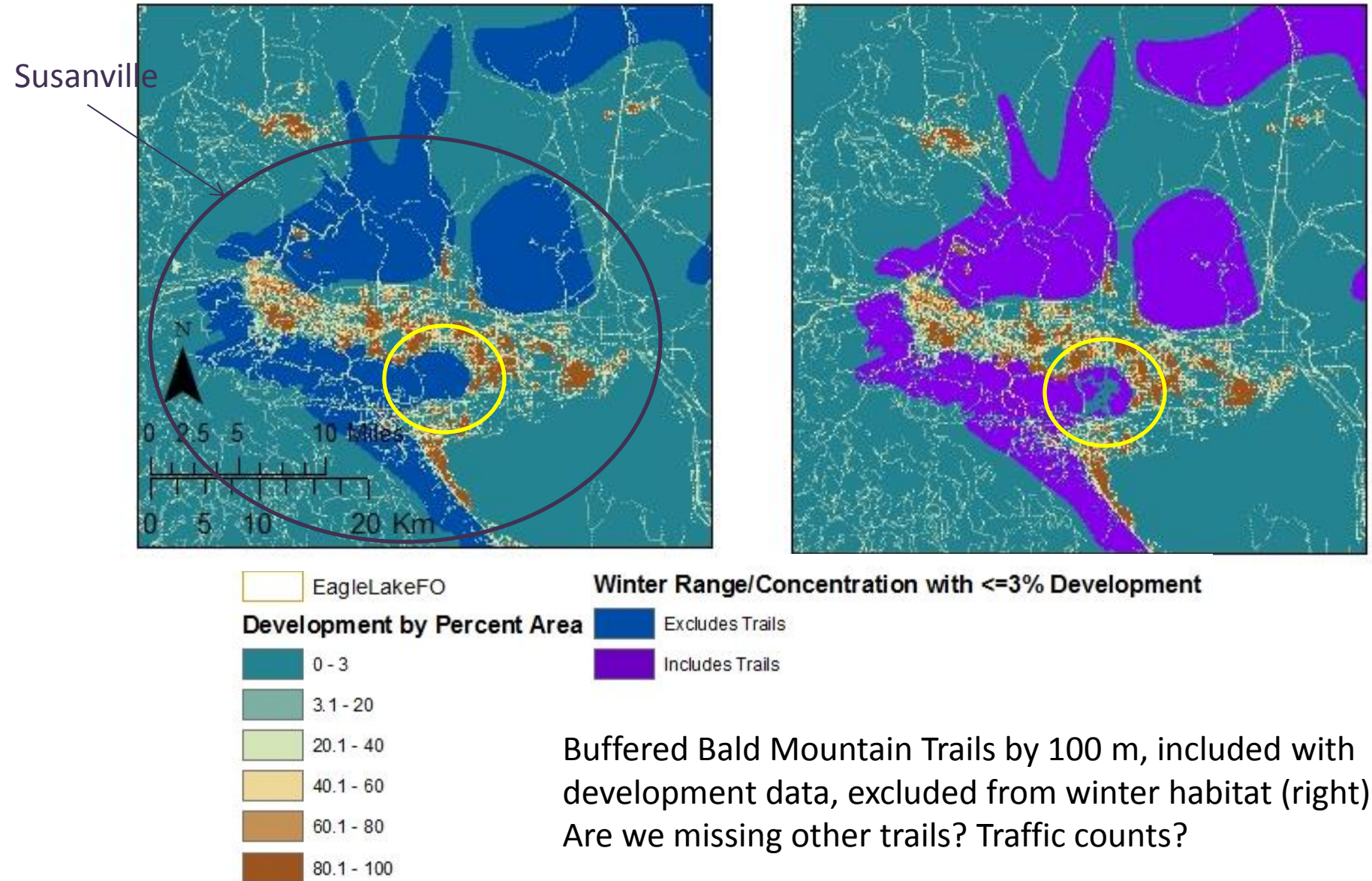
Broad Scale Development Data (left) and Mule Deer Winter Range and Winter Concentration (right - dark blue)



Zoom in to Susanville and Bald Mountain

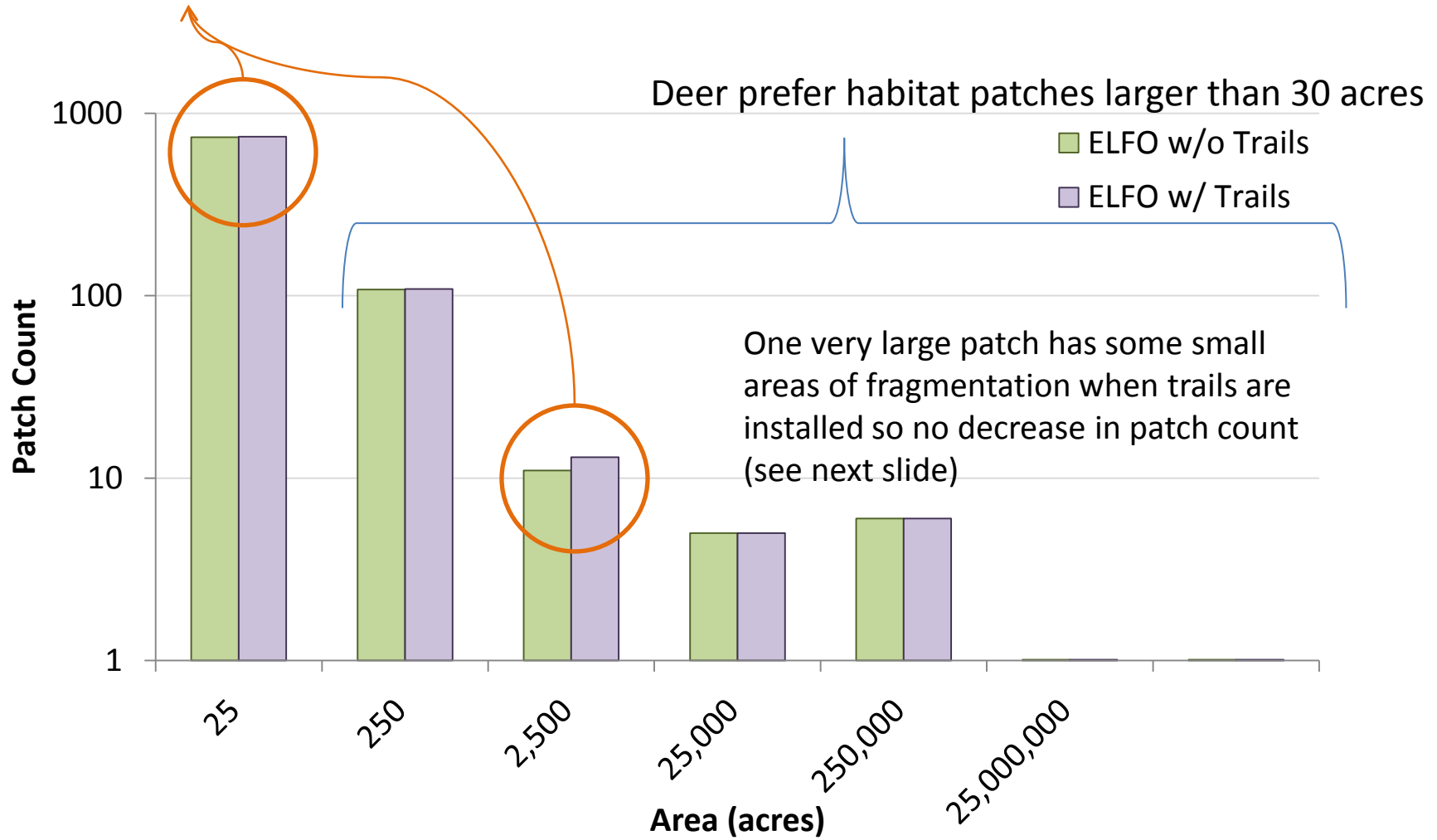
Development Data and Mule Deer Winter Habitat

○ Left: Without Bald Mtn. Trails, Right: With Bald Mtn. Trails



Deer Habitat Patch Sizes Frequency for ELFO

Increase in small patches (n=6)

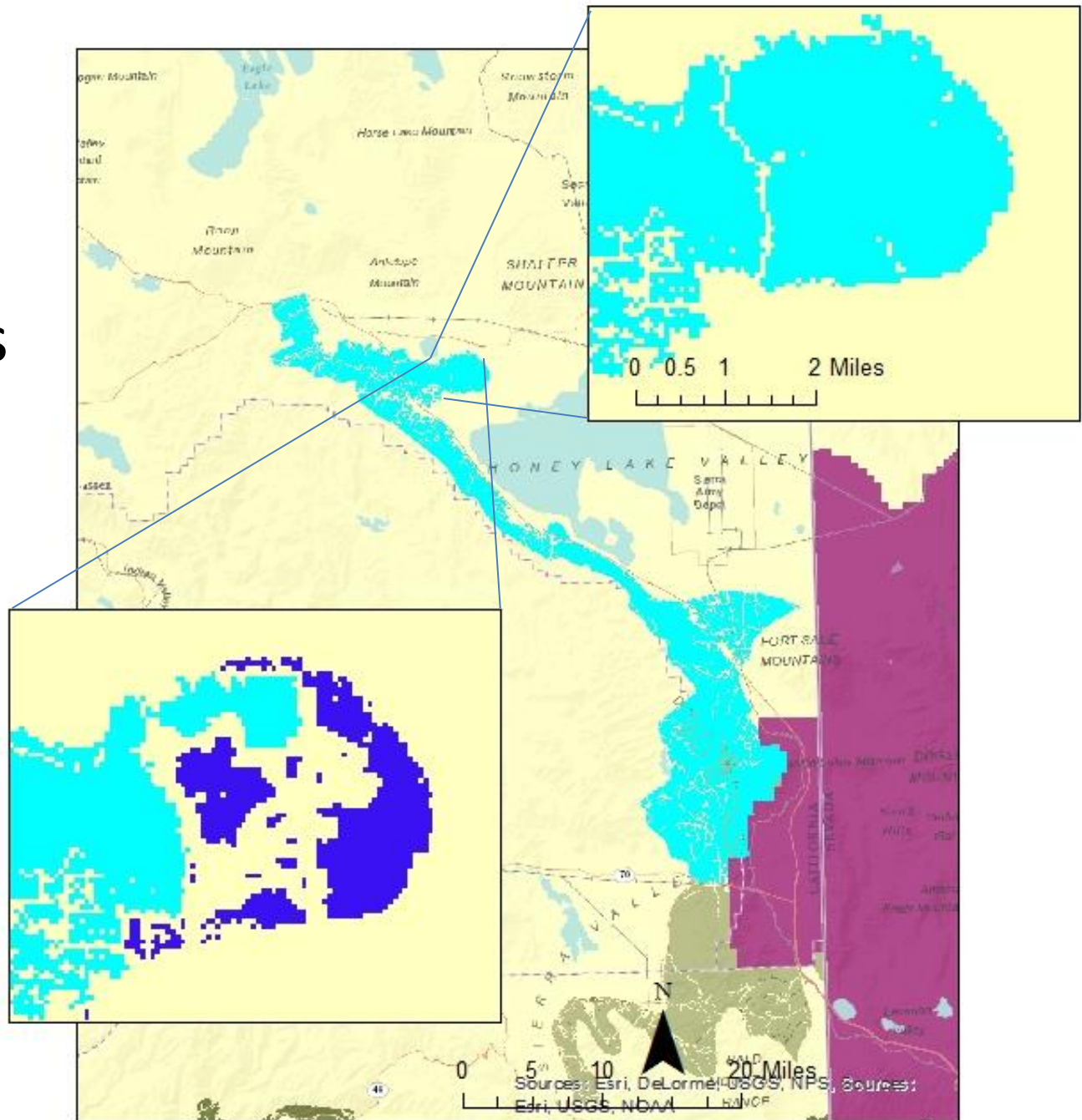


Fragmentation has occurred; is this enough to be a problem?

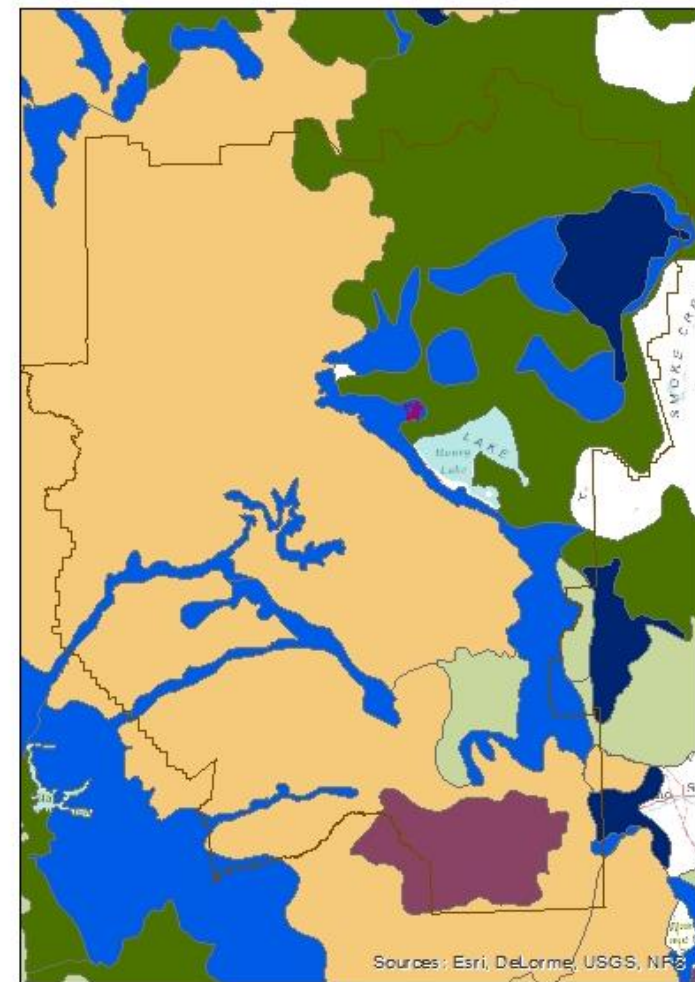
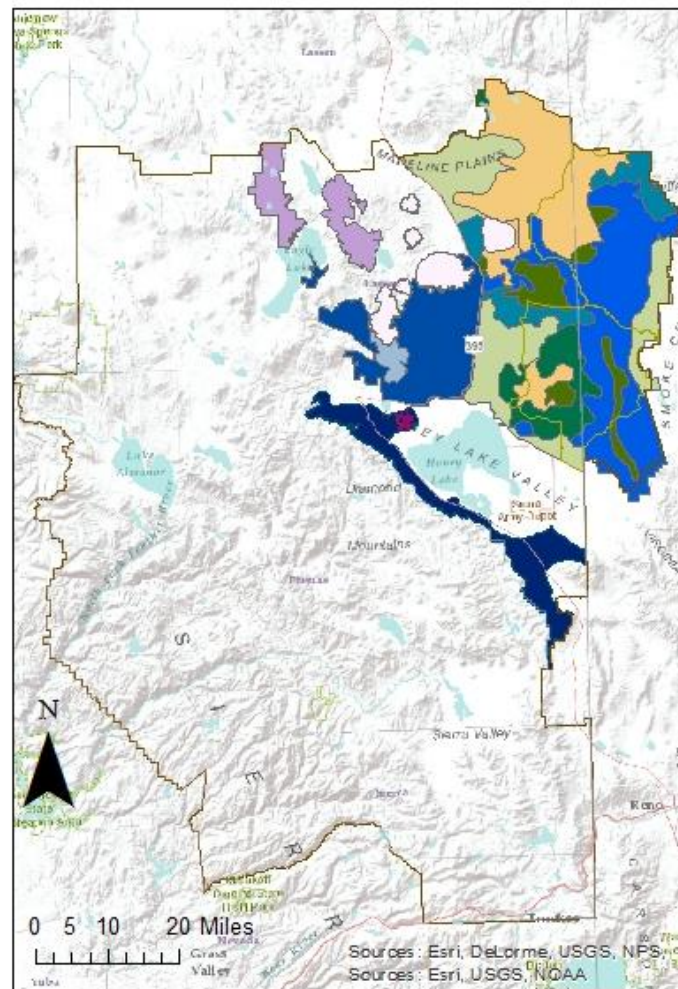
Other metrics available

Patch analysis without trails (upper right) and with trails (lower left)

The light blue patch is the very large patch that is partially fragmented when trails are overlaid (all maps). The dark blue patches are the result of trails fragmenting Bald Mountain (lower right).



Local scale
(left) and
Broad Scale
(right)
Mule Deer
Data at
ELFO

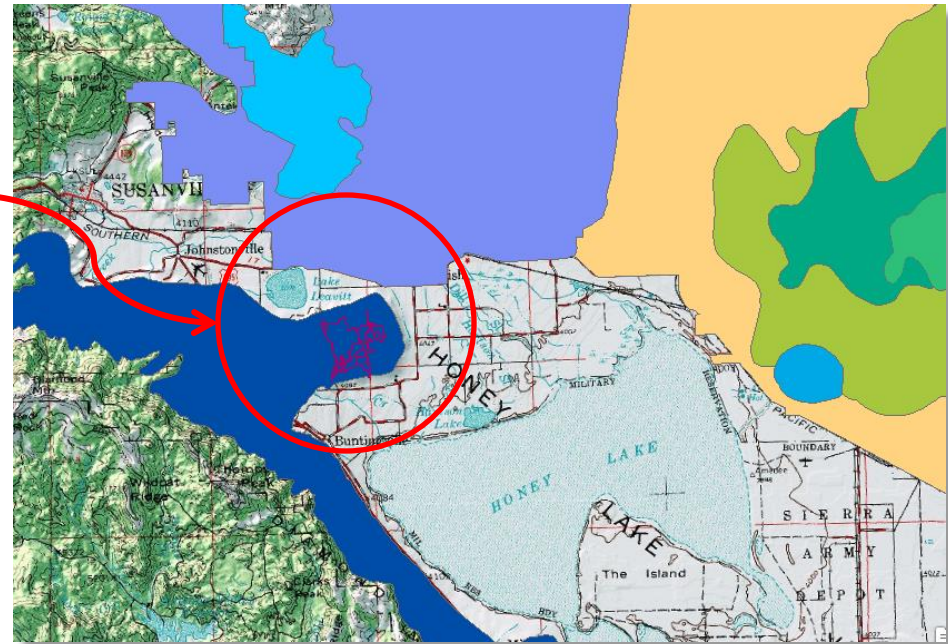


Bald Mountain Area Trails

- The trails are in mule deer priority winter habitat (103,000 acres)
- Priority winter habitat is 9% of the habitat map provided by ELFO
- The trails cover an area of roughly 4,800 acres or 5% of the priority winter habitat (0.5%)

BUT

- The area of Bald Mountain may provide an important link to the northern sections of mule deer habitat? (Min distance = 550m)
- Local knowledge of the linkage area (barriers?) and mule deer preferences are critical to determine the importance of this particular area.



Bald Mountain Trails

MultiScale Analyses summary

- Broad scale: Bald Mtn. Trails have a small effect on mule deer winter habitat metrics in the larger area.
- Local scale: Bald Mtn. Trails may create a pinch point limiting connectivity.
 - What are the barriers to mule deer crossing to the northern areas of habitat?
 - Only Field Office Staff can determine the importance of this effect on the ground.

Some Other Thoughts

- It's useful to examine and analyze the data at both scales
- The human eye is still the best pattern recognition tool!
- Data extents and resolutions need to be appropriate to the question
- The Field Office has the local knowledge for decision-making



Questions?

