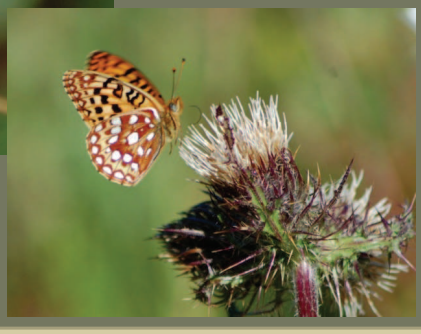


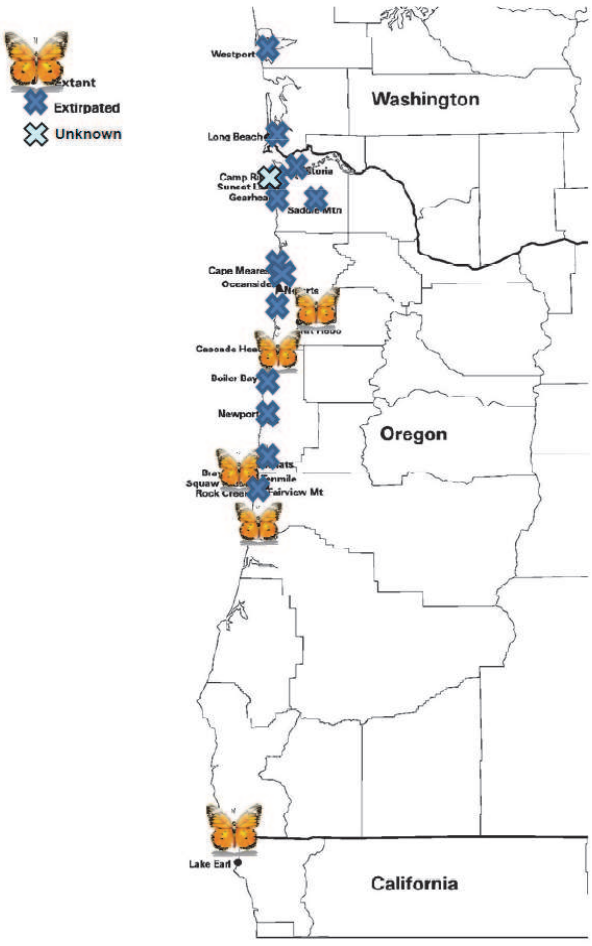
OREGON SILVERSPOT BUTTERFLY HABITAT ANALYSIS

GEOG 492 / 592
March 15, 2012

Final Project Presentation: Paul Allen & Jalene Littlejohn

Background

- Endangered species
- Extirpated from range
- Captive rearing at Oregon & Woodland Zoos
- New sites to restore?



Research Goal

Identify possible restoration sites for the Oregon silverspot butterfly

Main Assumptions

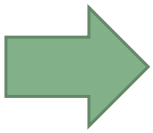
- Current extant site characteristics are preferred or optimal – *elevation, grassland vegetation, location*
- Any suitable site can be investigated, regardless of historic recorded sightings
- Available data can serve as a proxy until further research is conducted

Overview: Methods

Gather available data

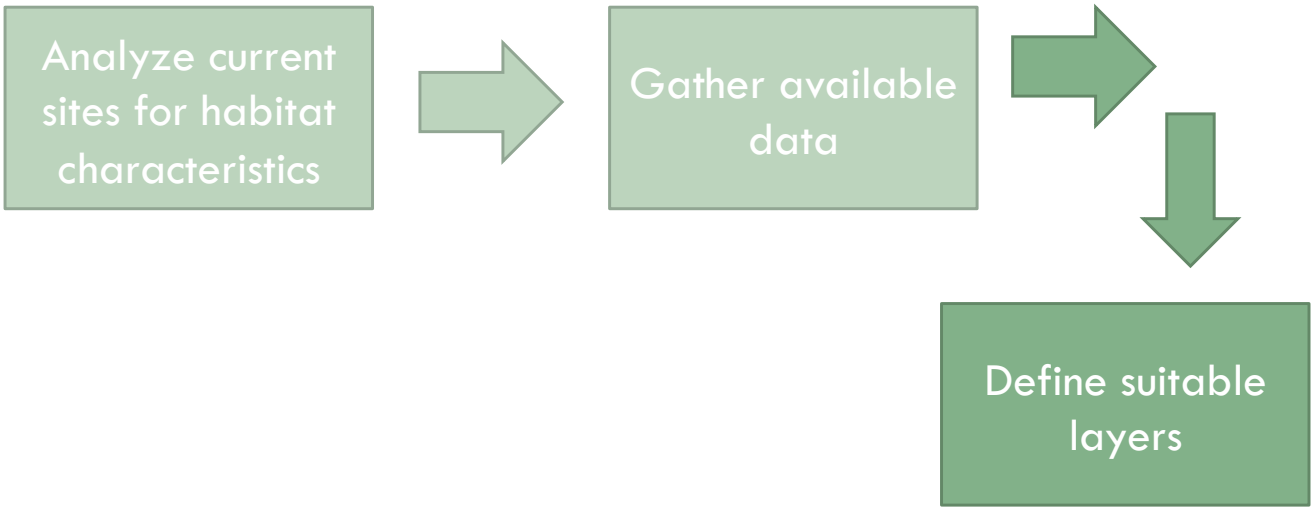
Overview: Methods

Gather available data

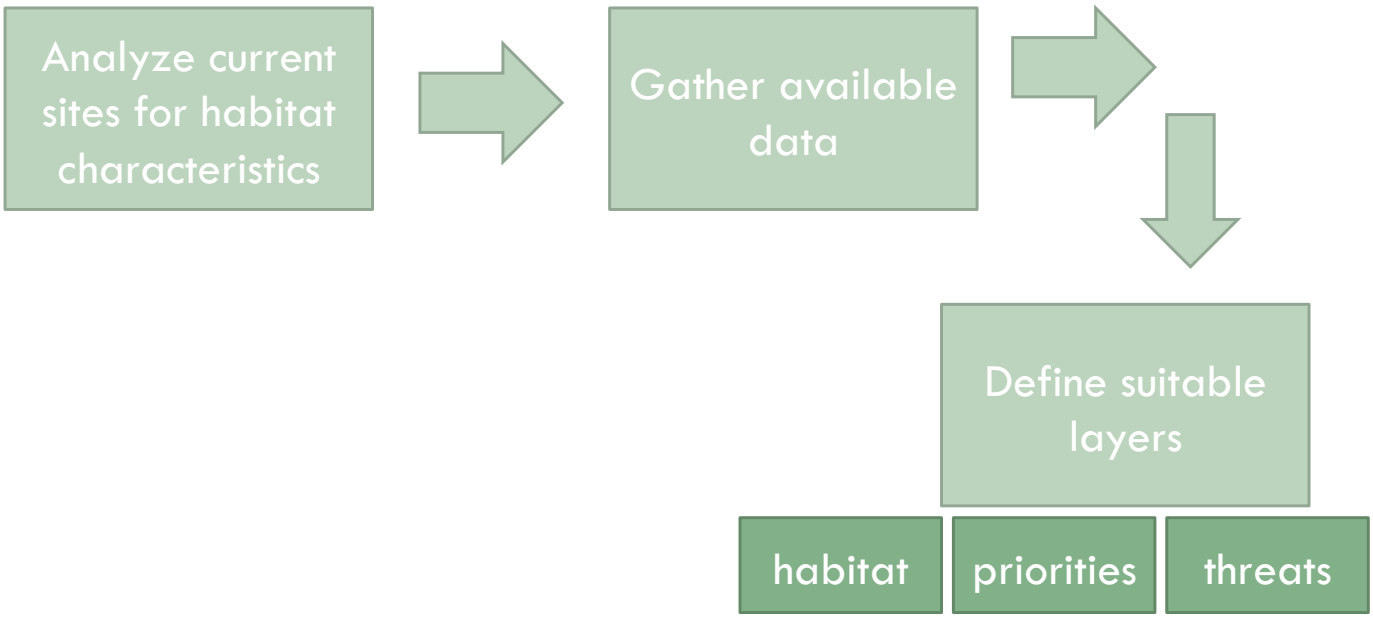


Analyze current sites for habitat characteristics

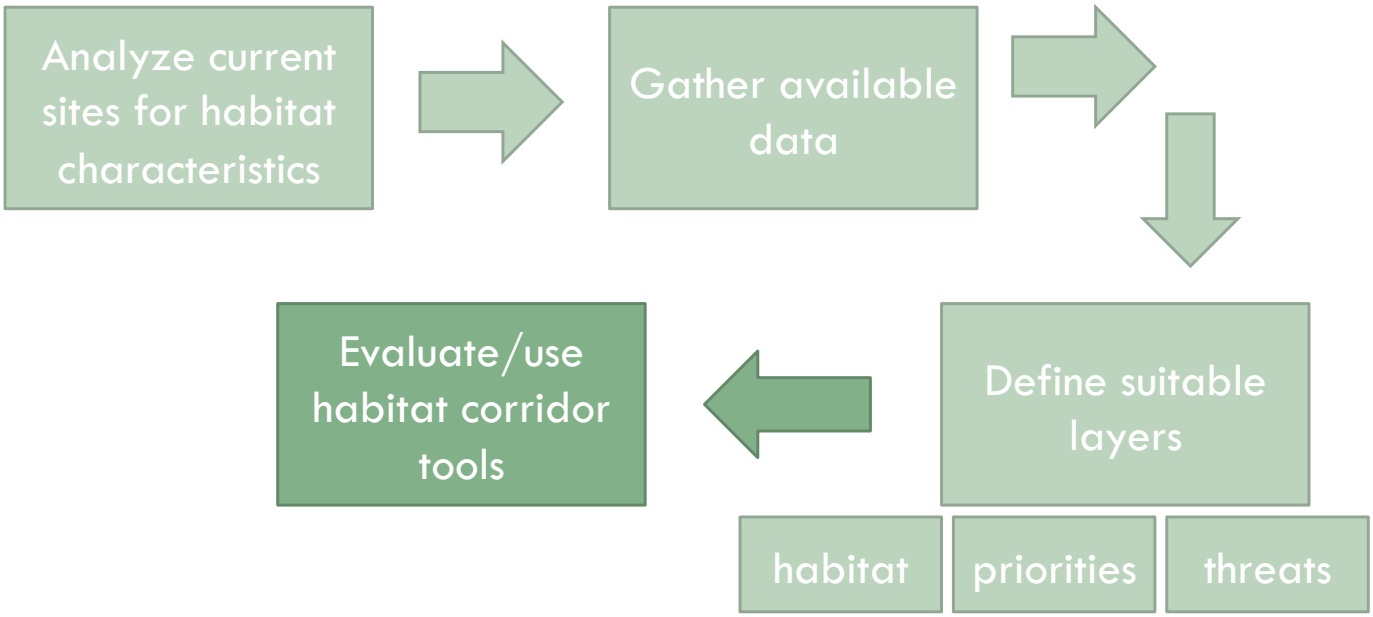
Overview: Methods



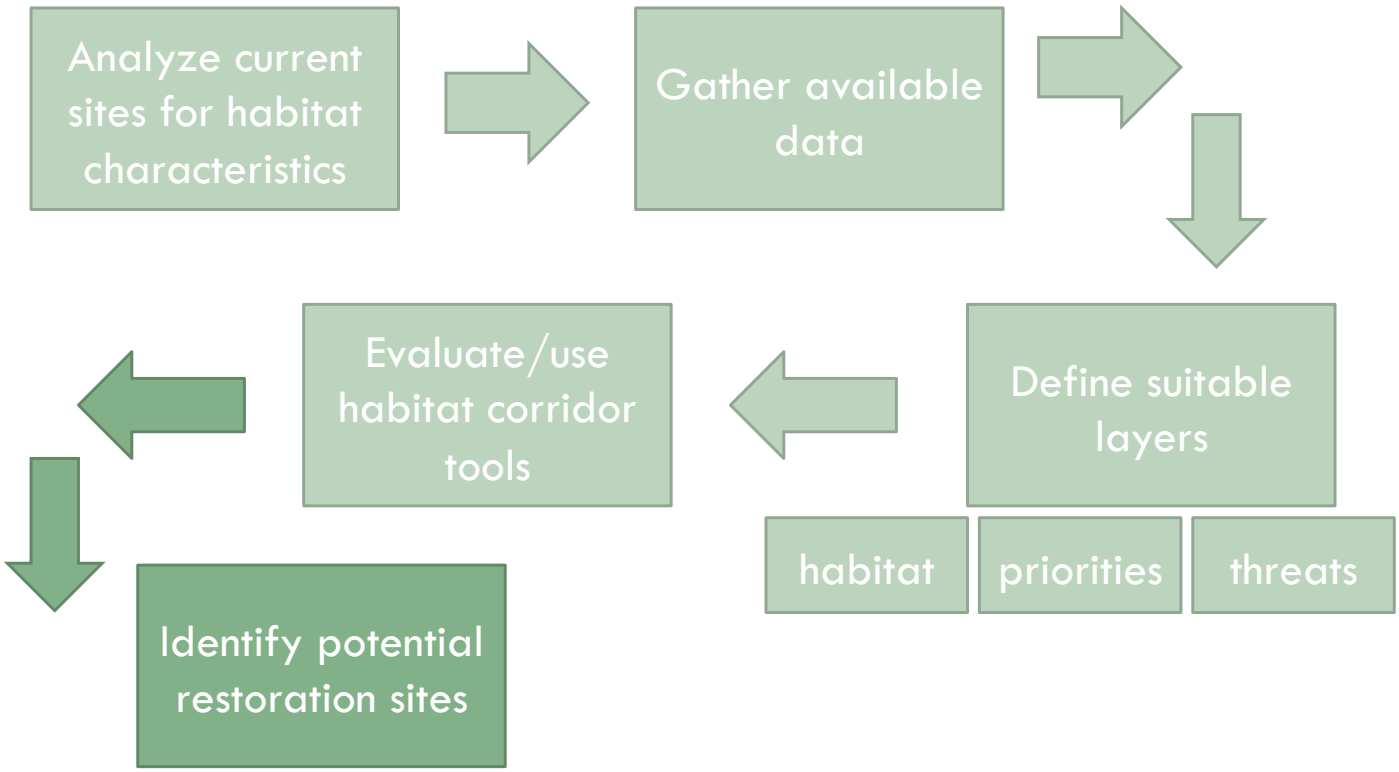
Overview: Methods



Overview: Methods

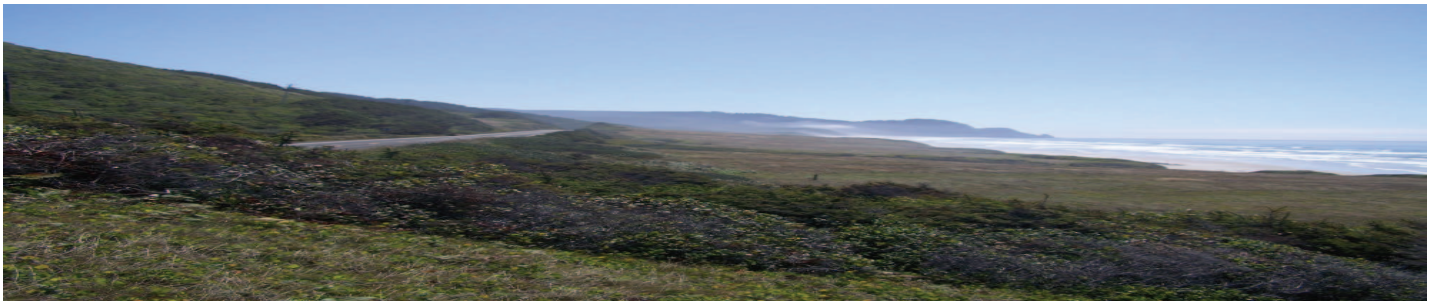


Overview: Methods



Methods: Defining Habitat

- Small-Scale analysis of Hebo:
  - Available Data (USFS & Oregon Geospatial Database):
    - Mt. Hebo meadow sites
    - Nectar plant surveys at Mt. Hebo
    - Silverspot butterfly counts at Mt. Hebo
  - Not enough information for small-scale analysis

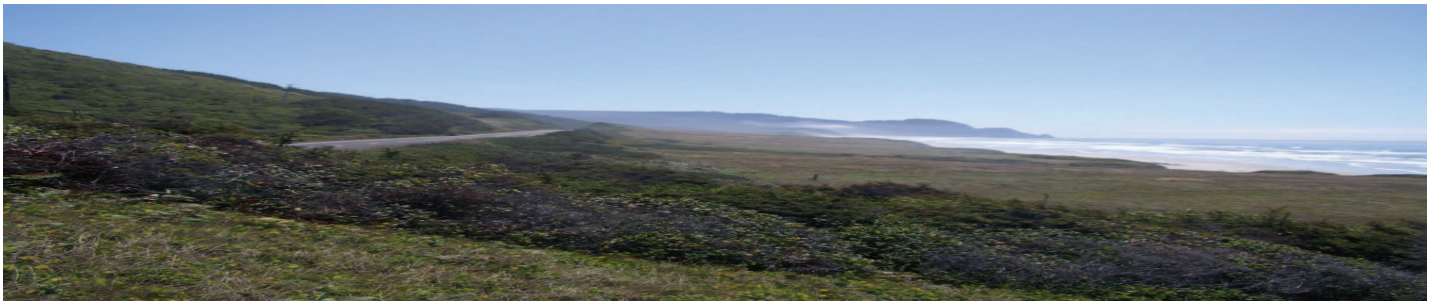


Methods: Defining Habitat

- Available Data (USFS & Oregon Geospatial Database):
  - Oregon Vegetation: grassland / meadow / successive
  - Nectar plant surveys at Mt. Hebo
  - Silverspot butterfly counts at Mt. Hebo
  - Current extant sites
  - Elevation (<3500 ft)
  - Distance from coast (20 km)

Methods: Defining Habitat

- Unavailable Data:
  - Fine scale vegetation data at statewide extent – nectaring plants, violets



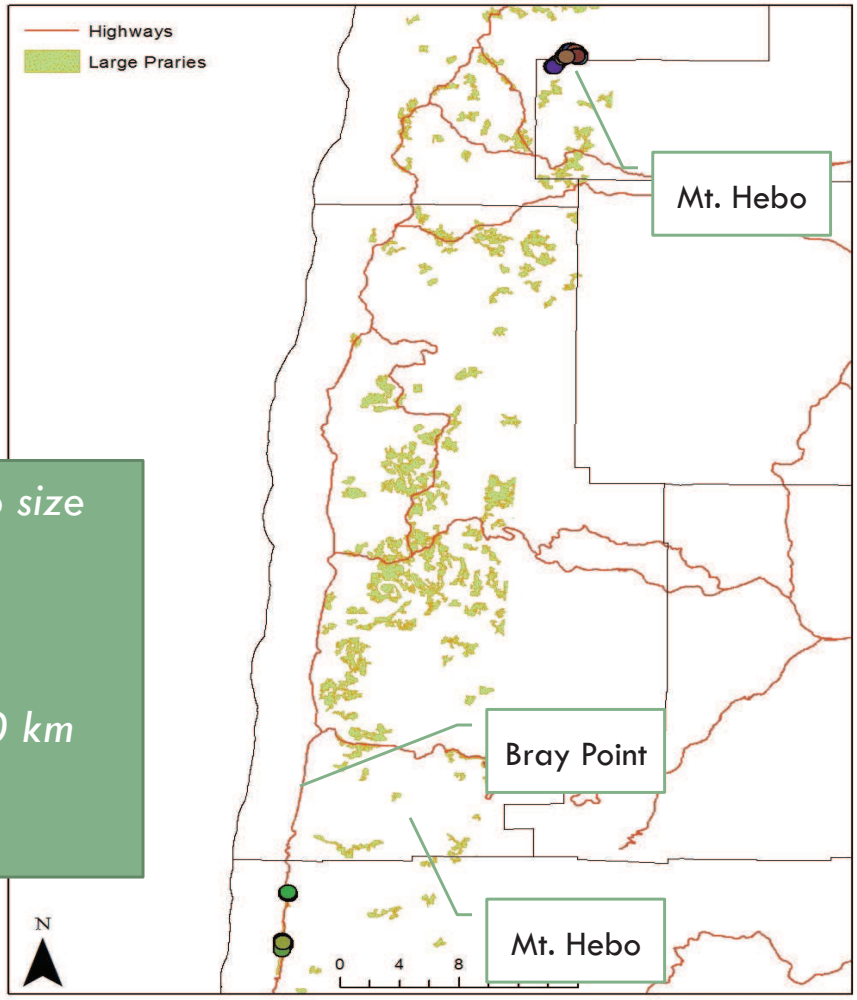
Methods:

Habitat Layer

Meadow size > Mt. Hebo size

Elevation < 3500 ft

Distance from coast < 20 km



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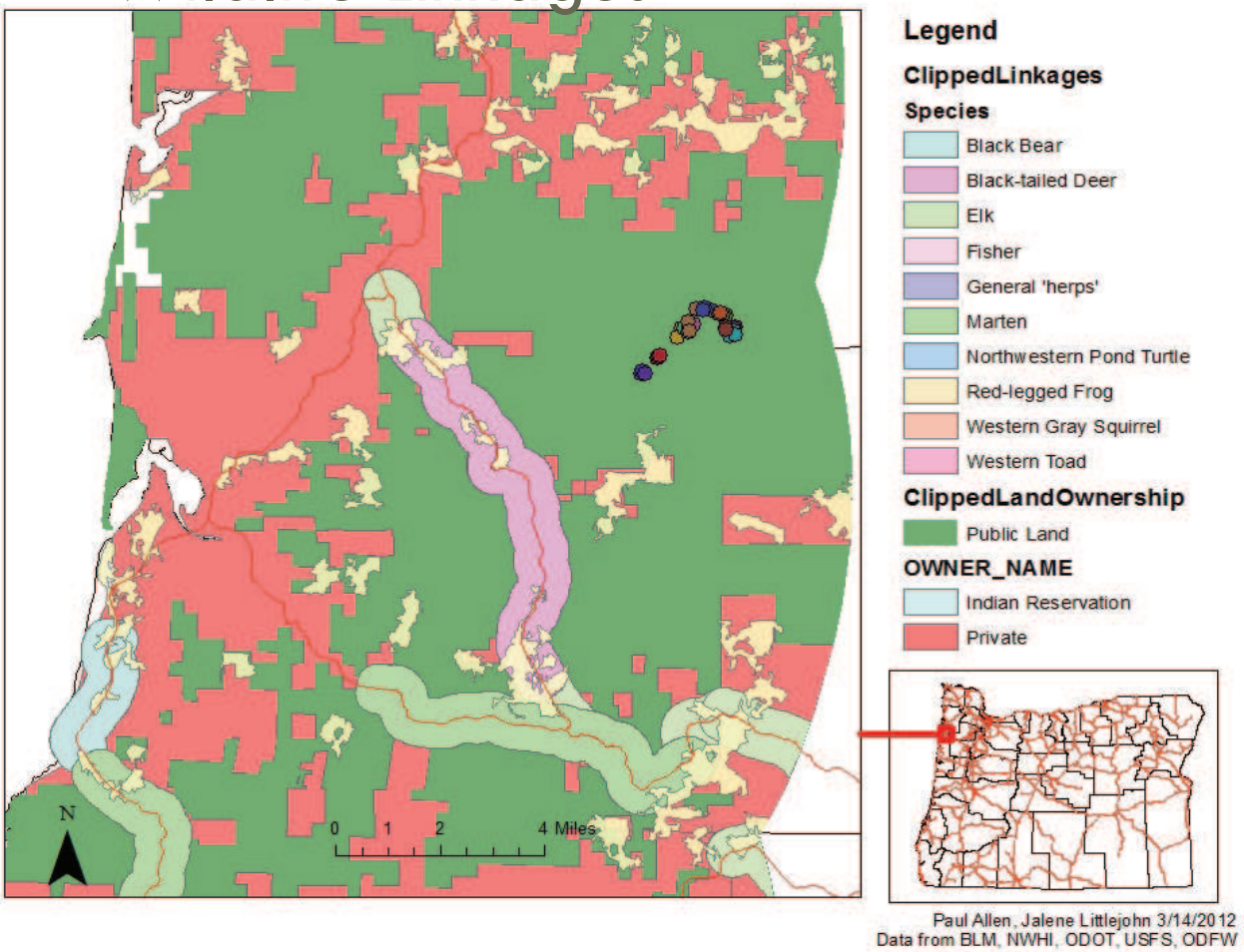
Data from BLM, NWHI, ODOT

Methods: Compare to Priorities

- Available Data:
  - Wildlife linkage (ODFW data)
- Unavailable Data:
  - Fine scale vegetation data – nectaring plants, violets

Wildlife Linkages



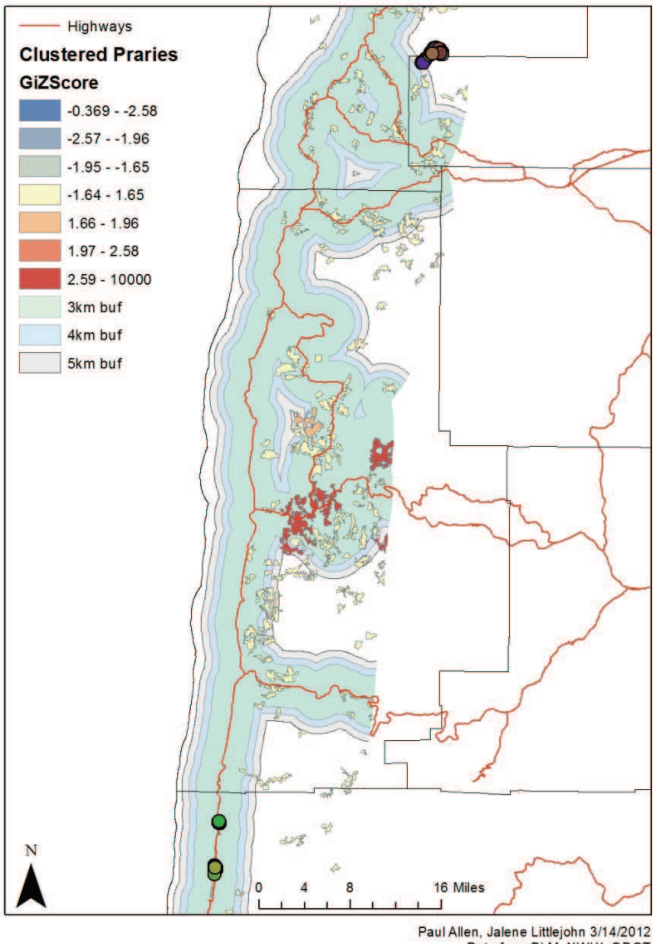
Methods: Compare to Human Threats

- Available Data:
  - Highway network
  - Railroad network
  - Public land and Indian reservation land weighted higher than private land

- Data not included/unavailable:
  - Cities / towns
  - Development

Results

- Clustered prairie sites
- Most sites close to road based on euclidean distance
- Most sites on private land
- Linkages – defined for other animals; buffer roads



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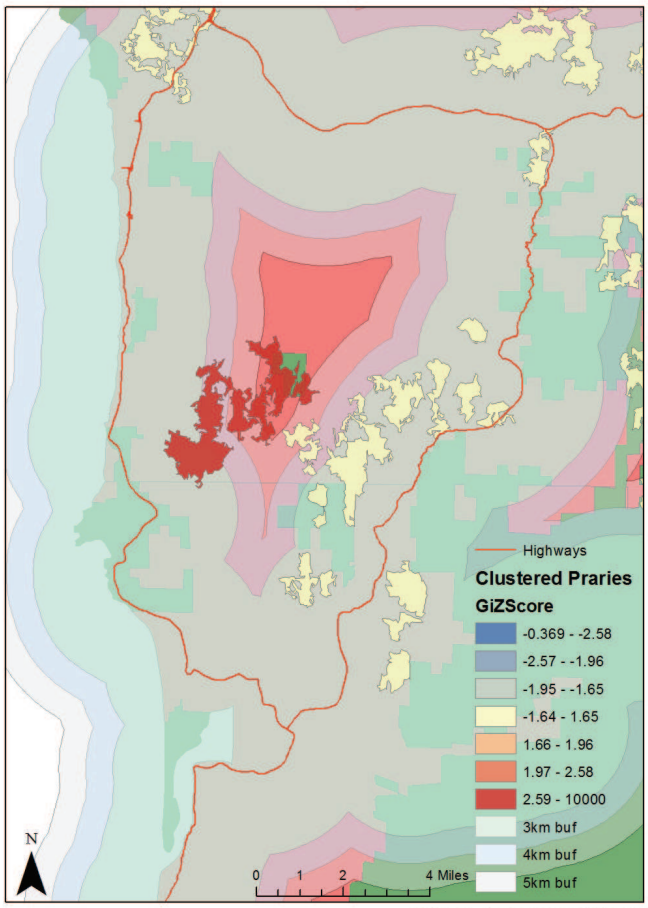
Data from BLM, NWHI, ODOT

Results

- Identified a location outside of road buffers
- Is there corridor potential?



Results

- Linkage tools produce scattered results – no defined corridor
- No connection to current sites with this data

Discussion

- Both small-scale and large-scale analysis of habitat is difficult to do without making many assumptions
- More information is needed about what habitat wildlife use and where that habitat is located at a finer-scale to be more effective

Conclusions

- GIS can be a powerful tool for evaluating habitat suitability and connectivity
- More information is necessary to create corridors

Future Analysis

- Gather information about prairie sites with and without endangered butterflies
- Include cities, population, and more information about private land
- Further analysis with linkage tools available

Questions?

References

- GIS data: Oregon Geospatial Database (gis.oregon.gov); ODFW online databases (nrimp.dfw.org); USFS layers (Dragoo, Bray) & online databases (http://www.fs.fed.us/r6/data-library/gis/)
- US Fish & Wildlife Service reports – *grey literature*
- Bennett, VJ. 2010. Addressing the primary threats that jeopardize the last remaining Oregon silverspot butterfly (*Speyeria zerene hippolyta*) populations. Technical Report. Oregon State University.
- Patterson, JM. 2010. Oregon Silverspot Fritillary Population Monitoring 2010 flight season. Annual Report to U.S. Fish and Wildlife Service. Order no. 10181AM326
- Majka, D., J. Jenness, and P. Beier. 2007. CorridorDesigner: ArcGIS tools for designing and evaluating corridors. Available at http://corridordesign.org.