Wildlife movement and transportation in Montana



Justin Gude

December 5, 2018

Rick Northrup, Renee Lemon, Quentin Kujala, Cecily Costello, Bob Inman, Katie Carroll, Andrew Jakes, Bob Garrott, Kelly Proffitt, Jenny Jones, Nick DeCesare, Deb Wambach, Patty Cramer, Patty Gude

Photo: Dean Waltee

Presentation Outline

1. Wildlife movement needs
2. Priority taxa and areas
3. Useful data for prioritization
4. Future collaboration



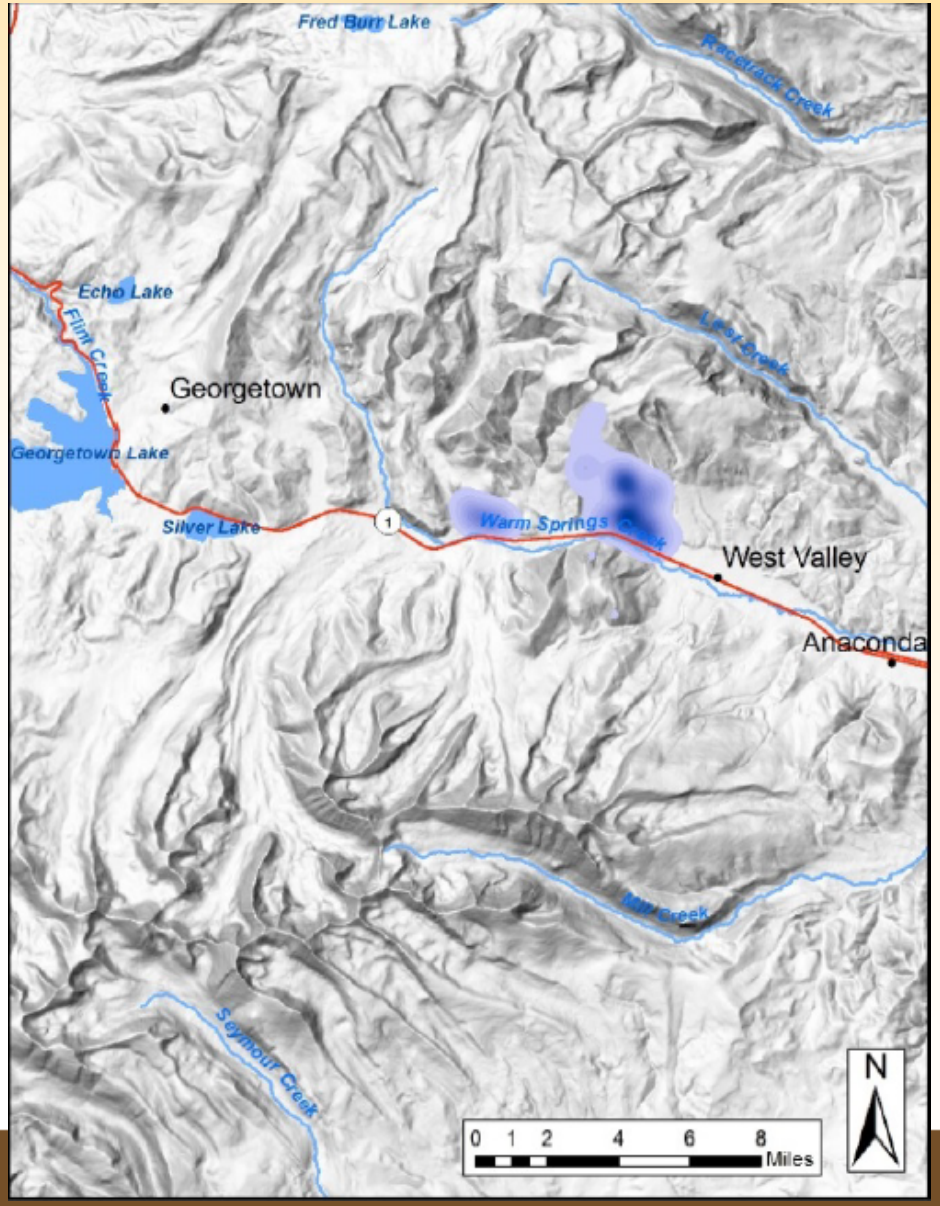
Wildlife movement needs

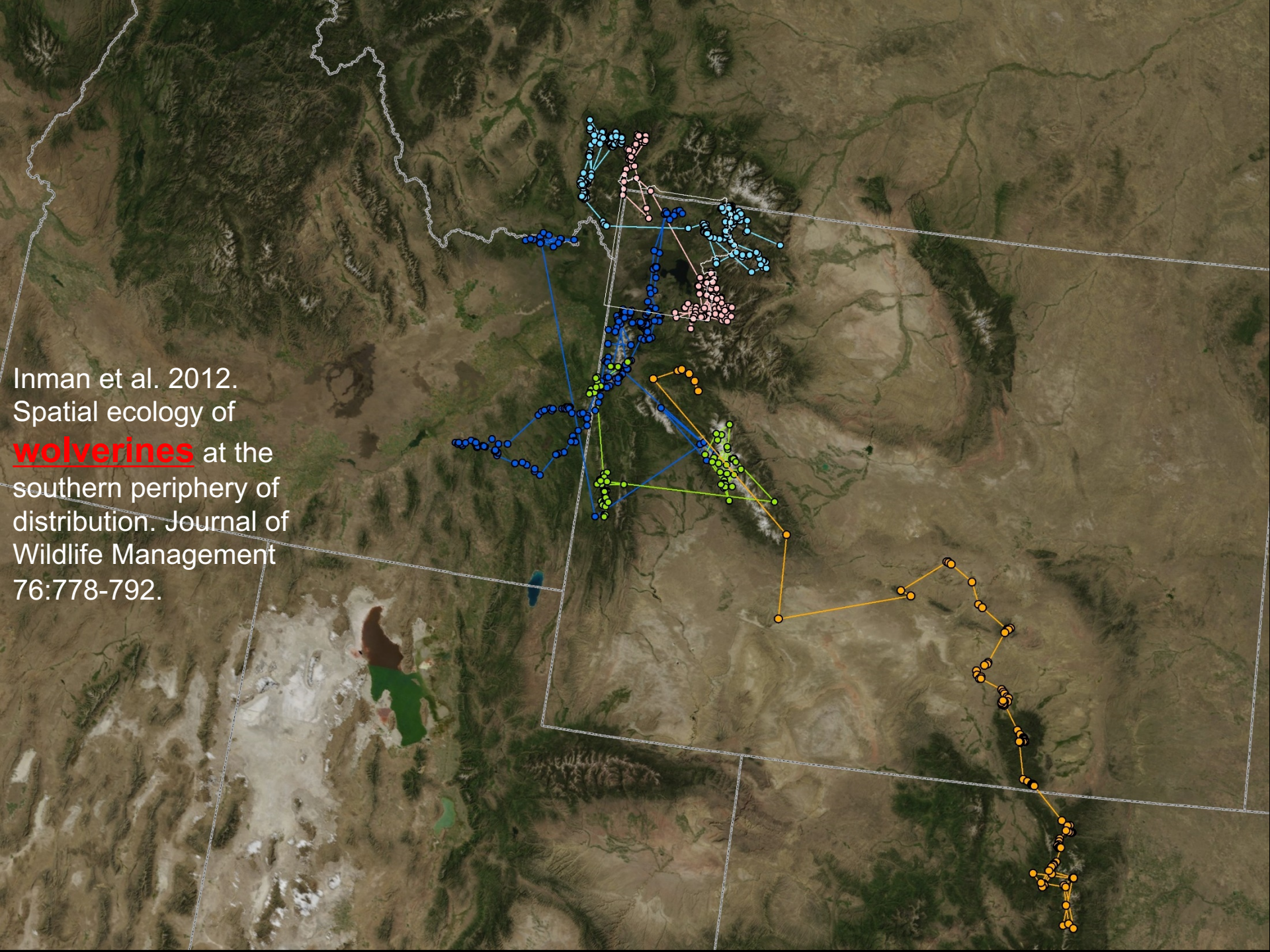
1. Within range movements
2. Migration
3. Dispersal
4. Gene flow
5. Range shifts



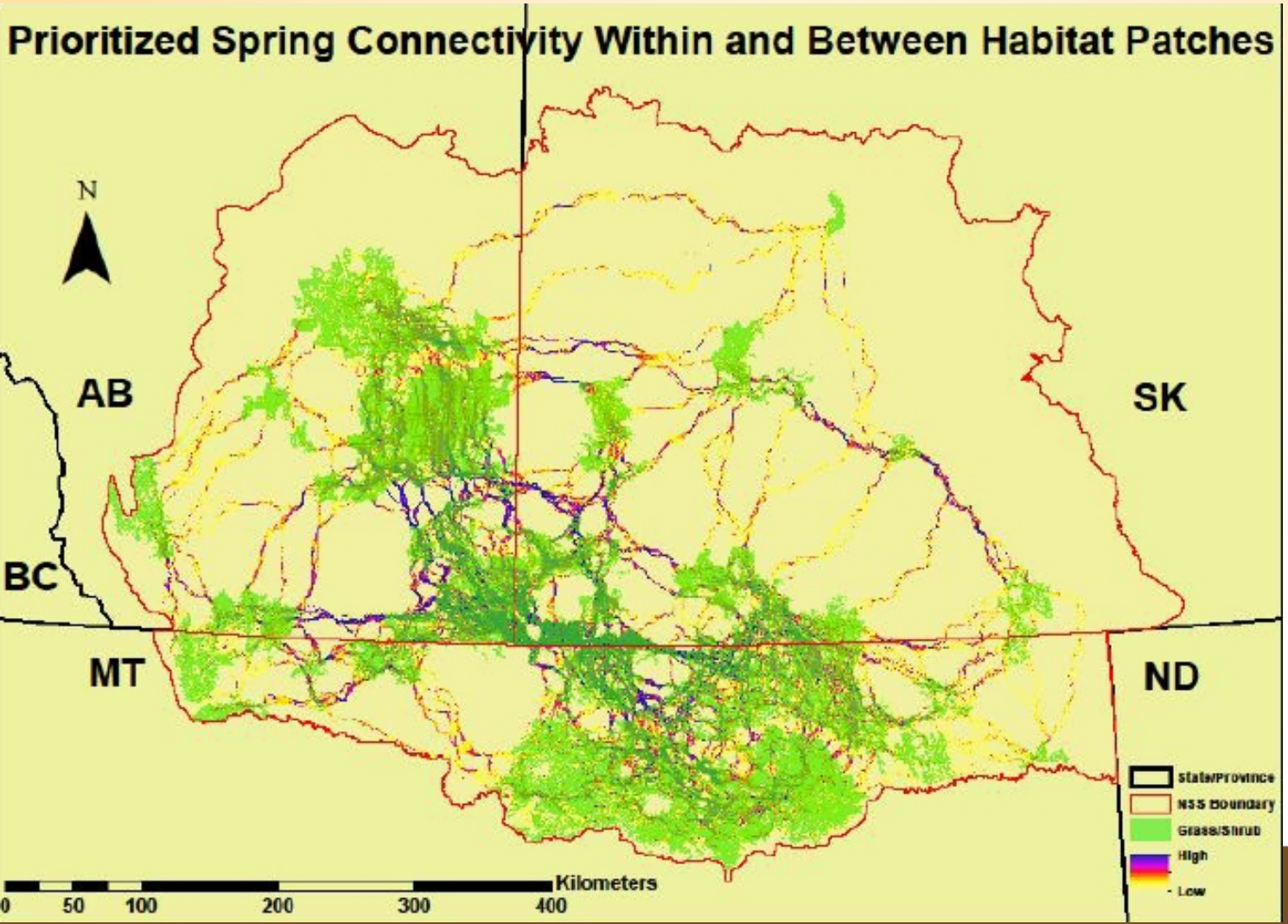
Within-range movements

Garrott et al. 2017. The role of disease, habitat, individual condition, and herd attributes on **bighorn sheep** recruitment and population dynamics in Montana. Federal Aid in Wildlife Restoration Grant W-159-R
Annual report, Helena, Montana.



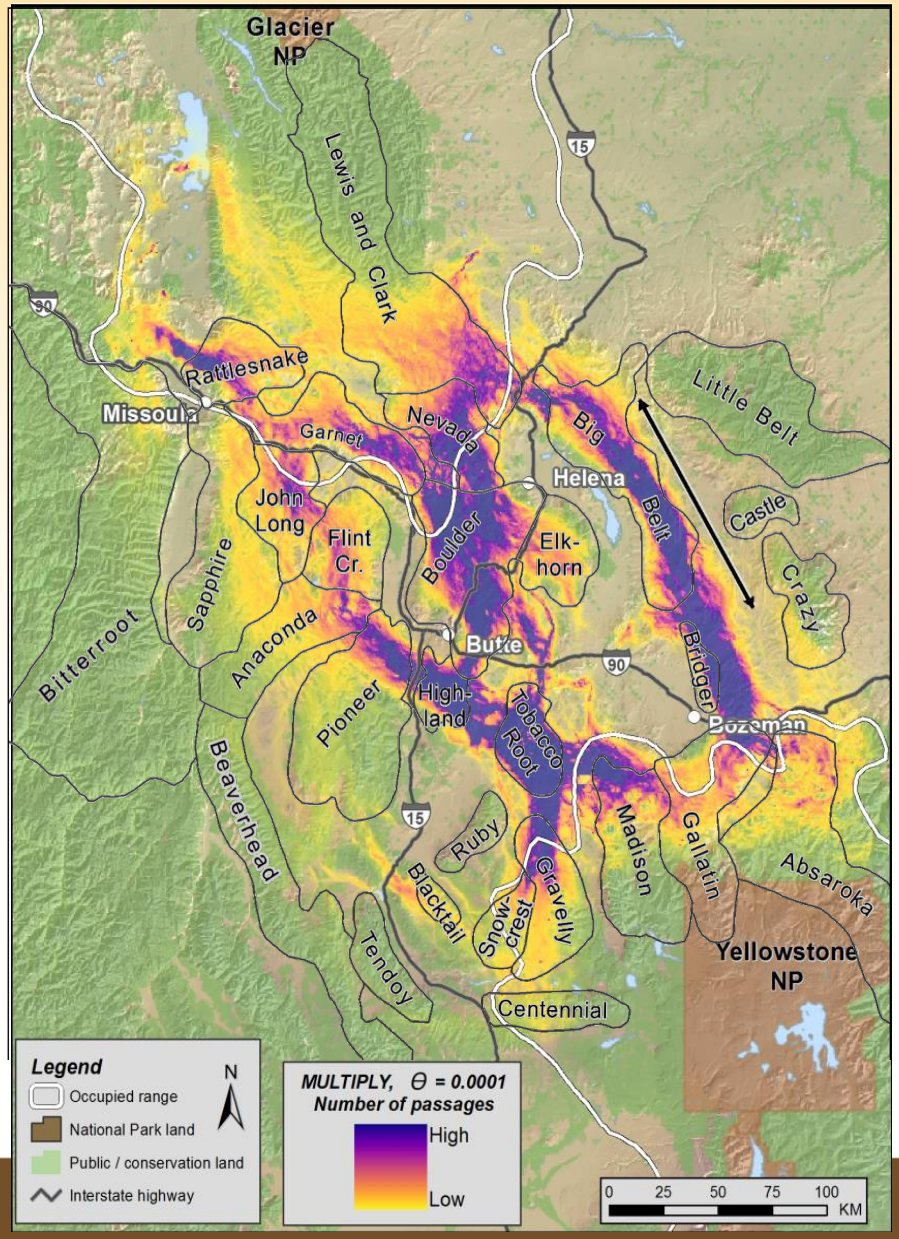

Inman et al. 2012. Spatial ecology of wolverines at the southern periphery of distribution. Journal of Wildlife Management 76:778-792.

Migration movements



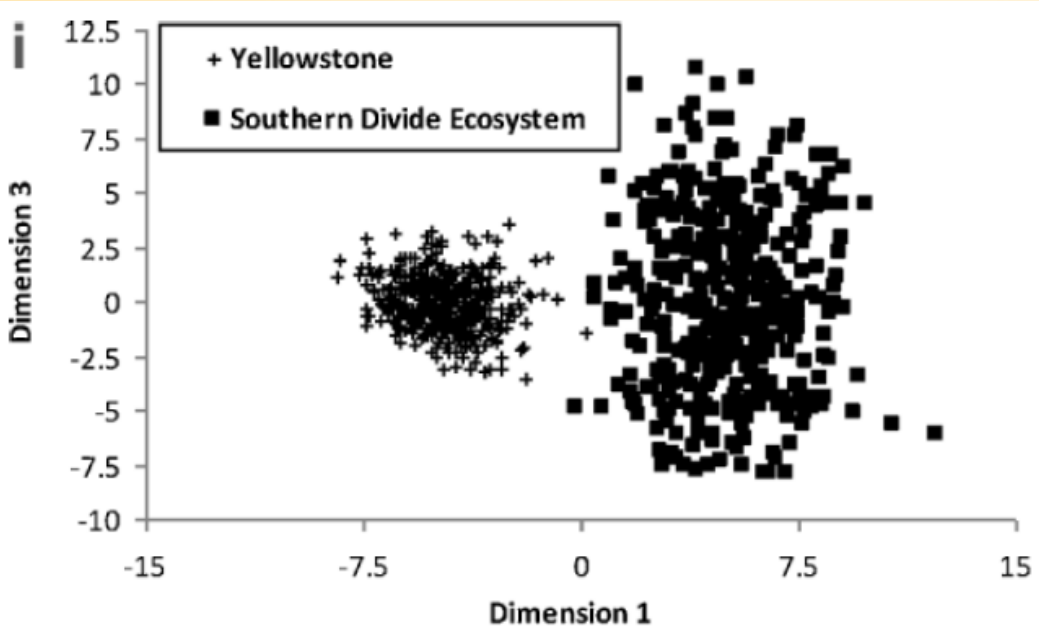
Jakes, A. F. 2015. Factors Influencing Seasonal Migrations of **Pronghorn** Across the Northern Sagebrush Steppe. PhD Dissertation, University of Calgary.

Dispersal movements



Peck, C. P., et al. 2017. Potential paths for male-mediated gene flow to and from an isolated **grizzly bear** population. Ecosphere 8(10):e01969.

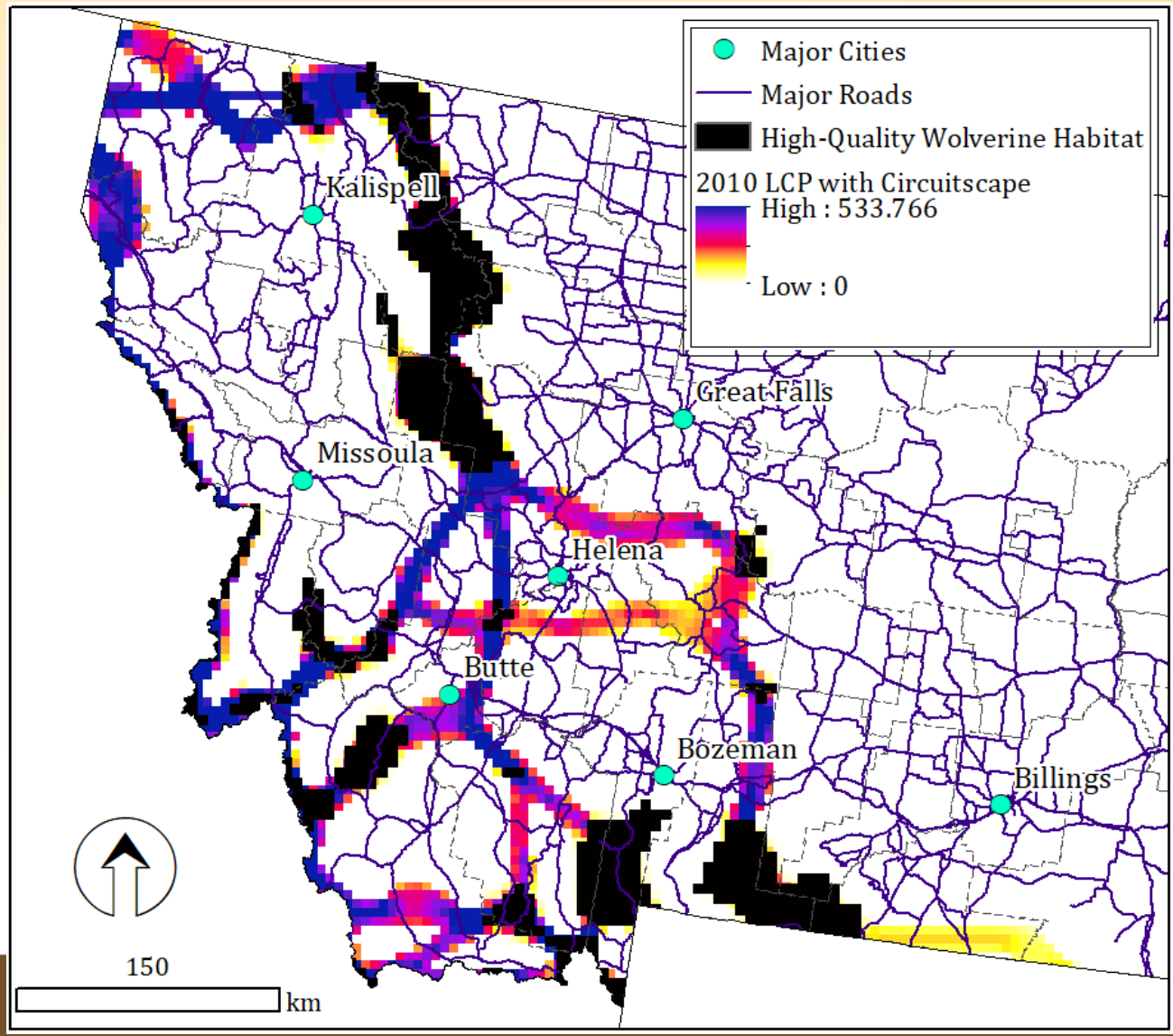
Gene flow



Proctor et al. 2012. Population fragmentation and inter-ecosystem movements of **grizzly bears** in western Canada and the northern United States. Wildlife Monographs 180:1-46.

Range shifts

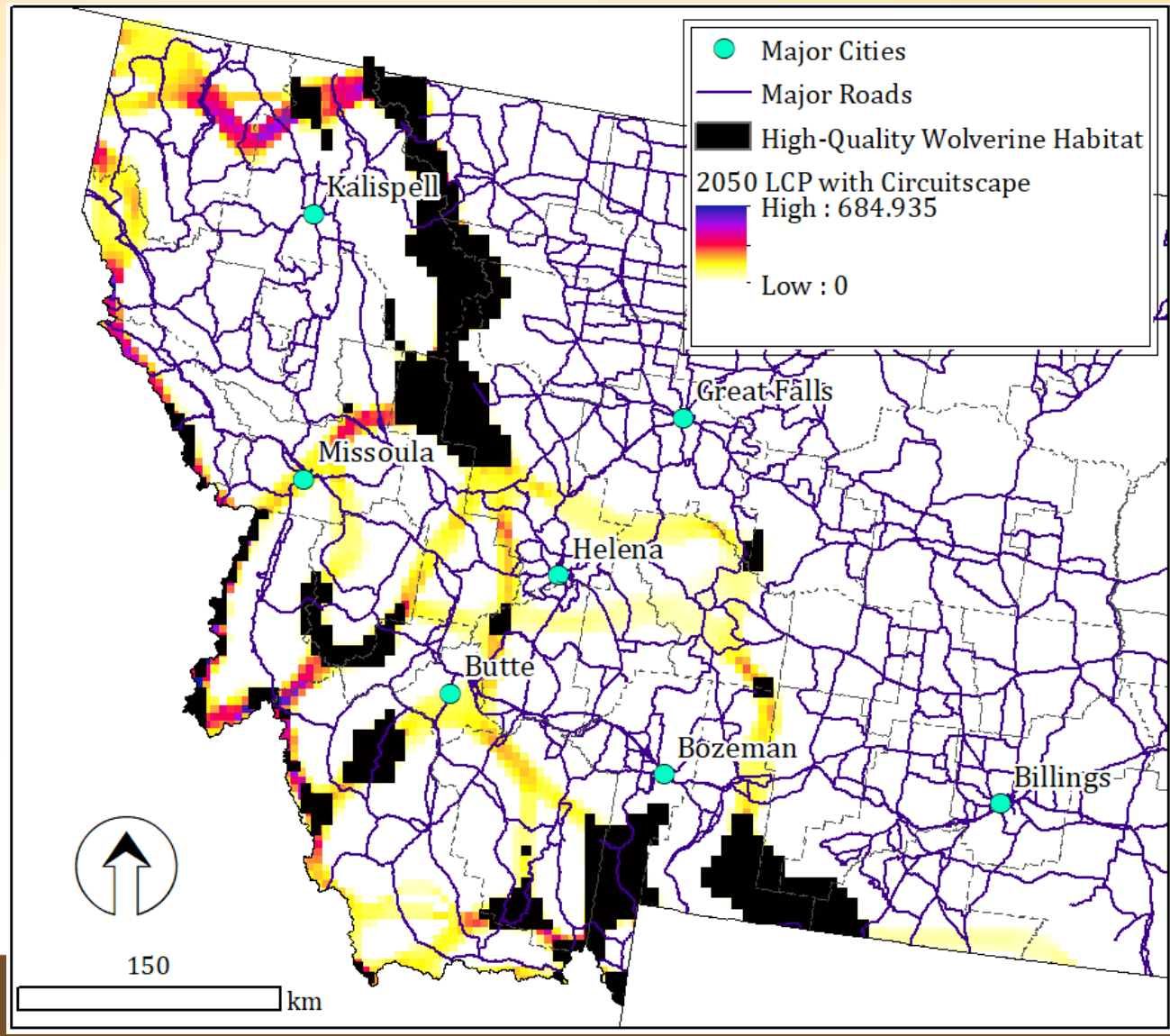
2010



Carroll et al. 2018. Final Report: Wolverine Habitat Connectivity. Technical Report, Montana State University and Montana Fish, Wildlife and Parks, Helena, Montana.

Range shifts

2050



Carroll et al. 2018. Final Report: Wolverine Habitat Connectivity. Technical Report, Montana State University and Montana Fish, Wildlife and Parks, Helena, Montana.

Priority taxa and areas



Priority taxa and areas





Priority taxa and areas

At risk species:

- Federally listed
- SOC category 1 or 2
- SGCN

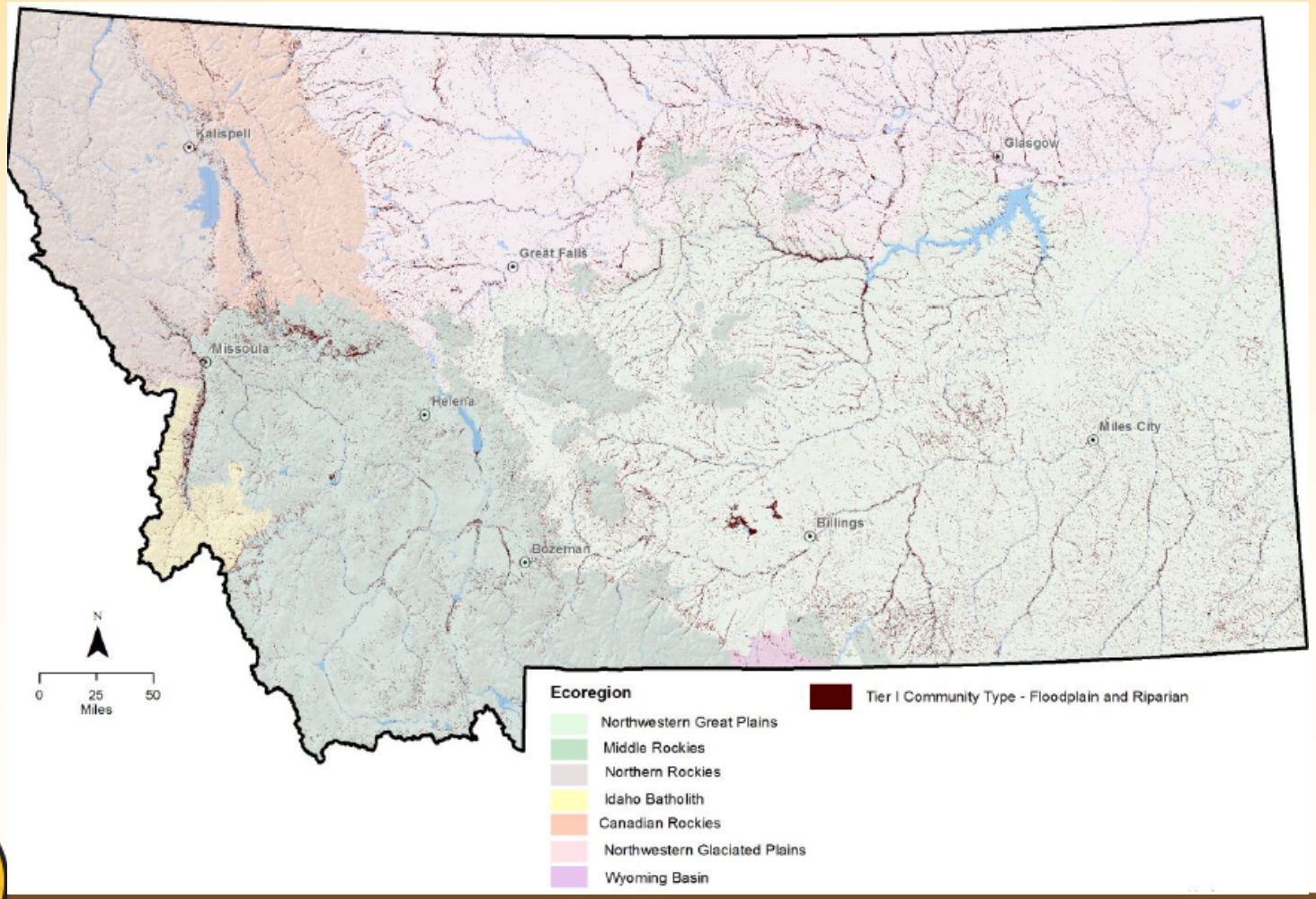
http://mtnhp.org/SpeciesOfConcern/?AorP=a





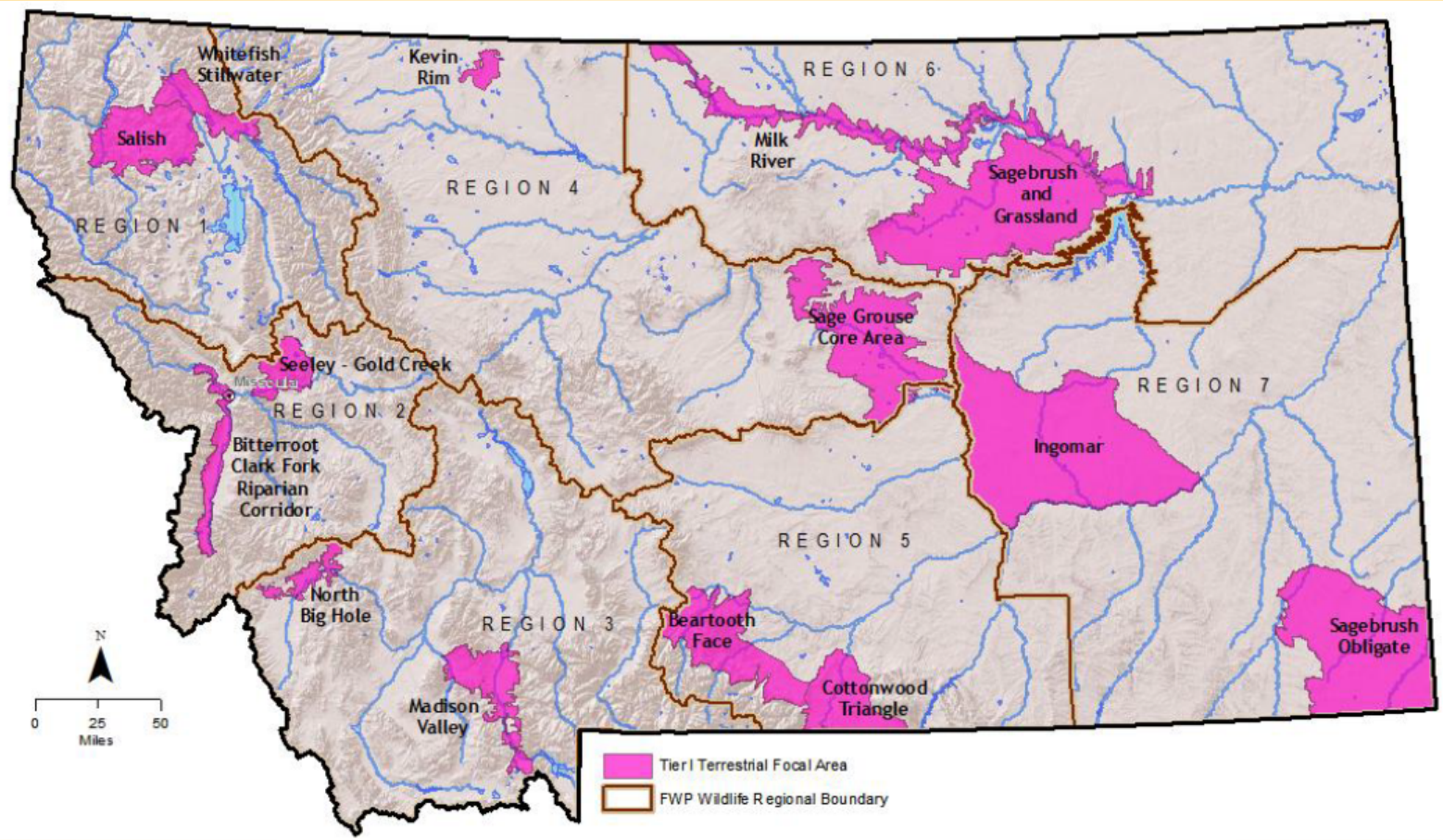
Priority taxa and areas

SWAP community types of greatest conservation need



Priority taxa and areas

SWAP focal areas



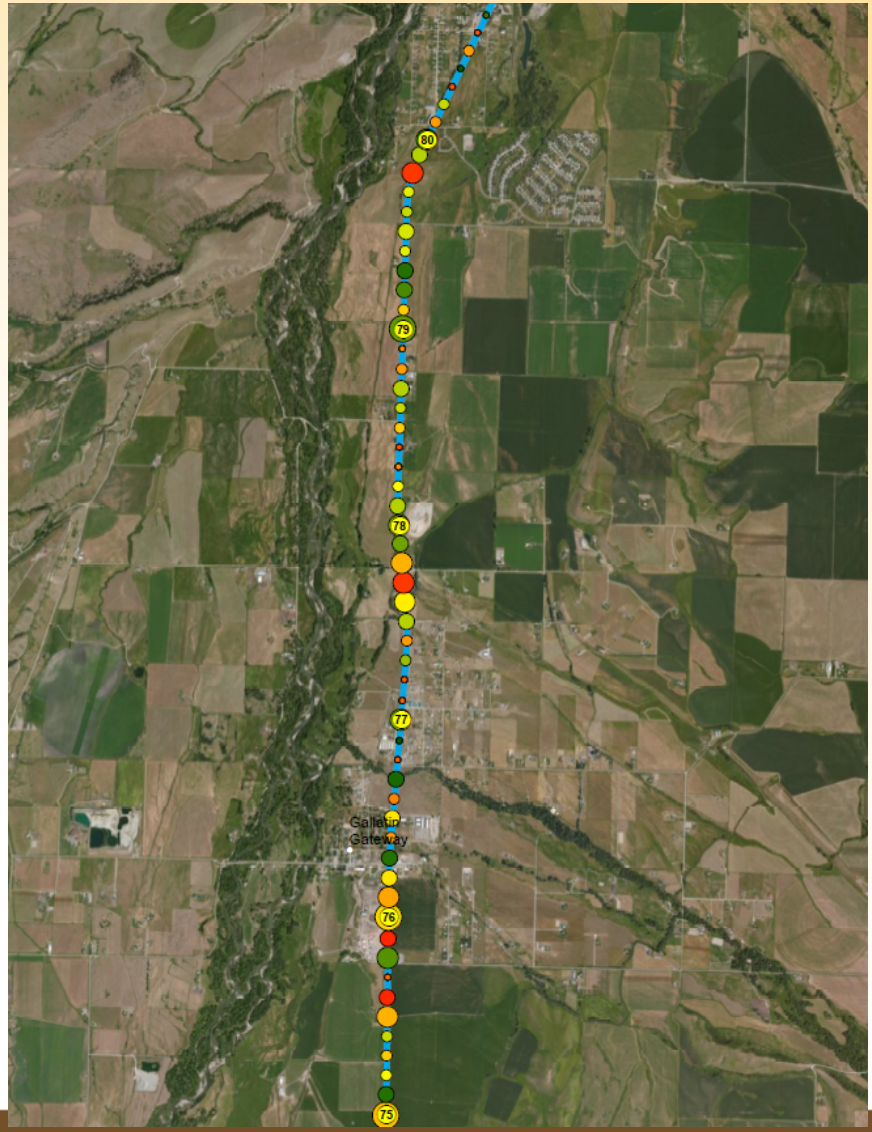
Data for Prioritization



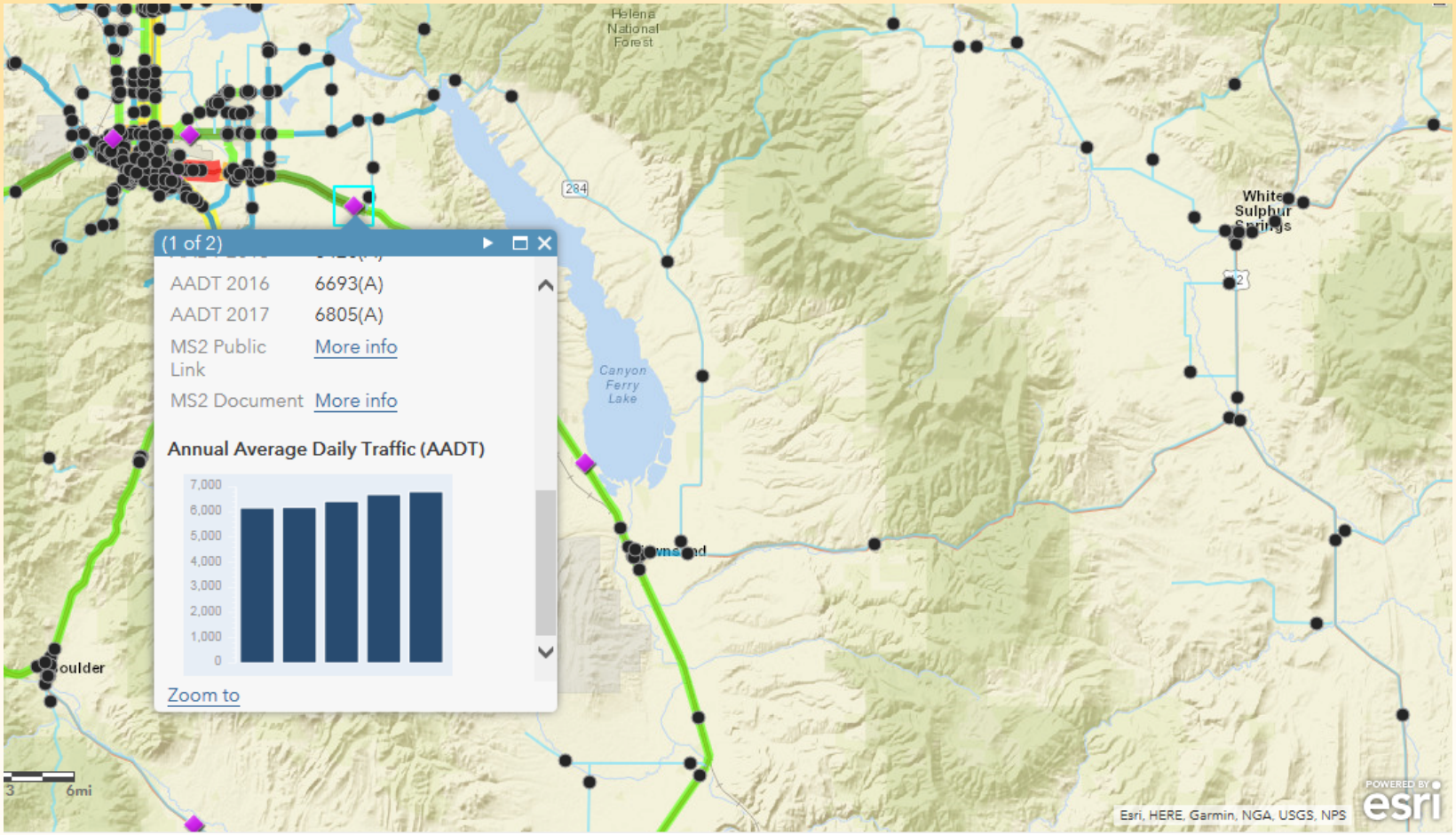
1. Road-related data: collisions, traffic volume, etc.
2. Fine-scale wildlife movement data
3. Population status and impacts
4. Impact studies

Data for Prioritization

MDT-managed carcass database



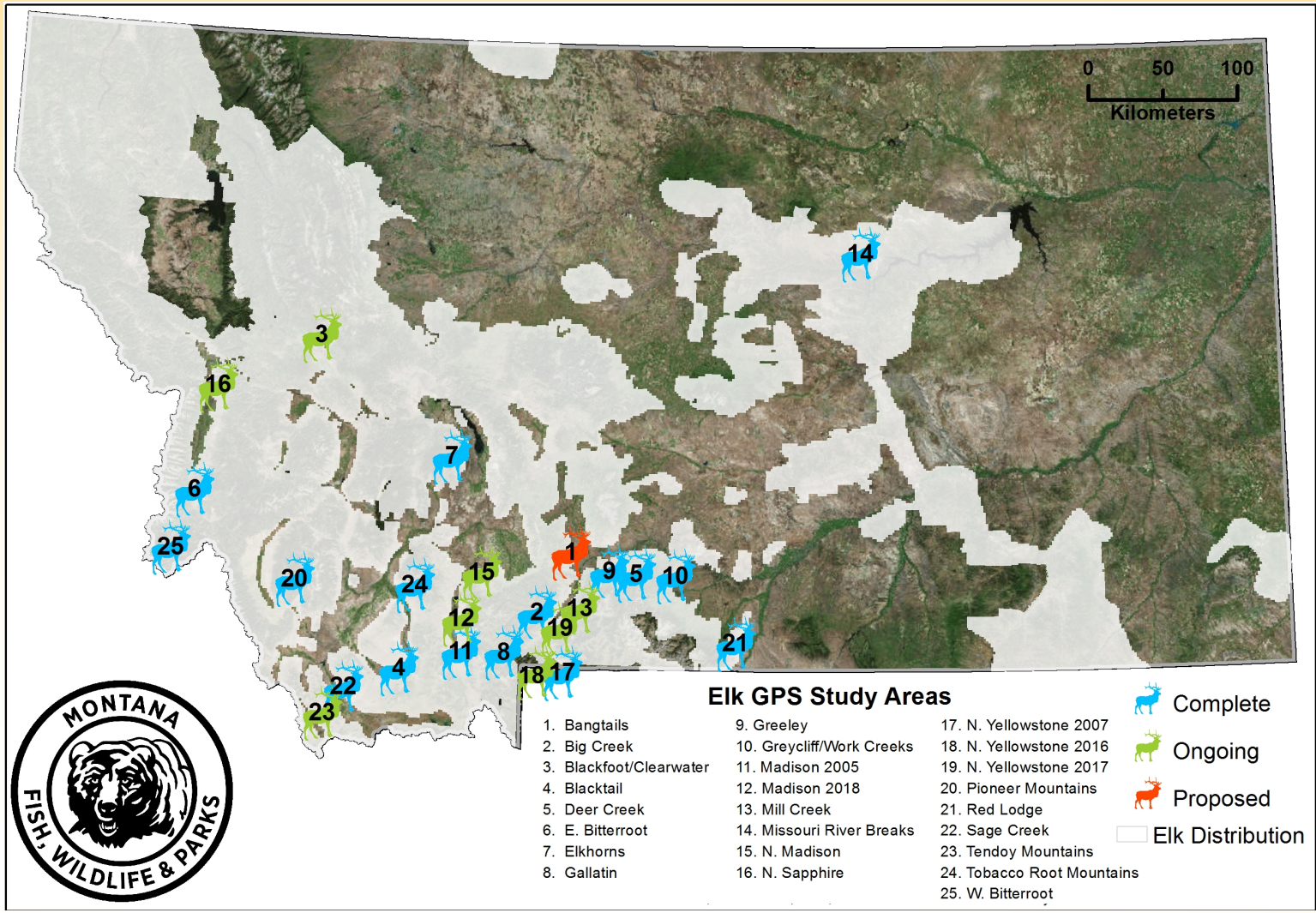
Data for Prioritization



https://www.mdt.mt.gov/publications/map-gallery.shtml

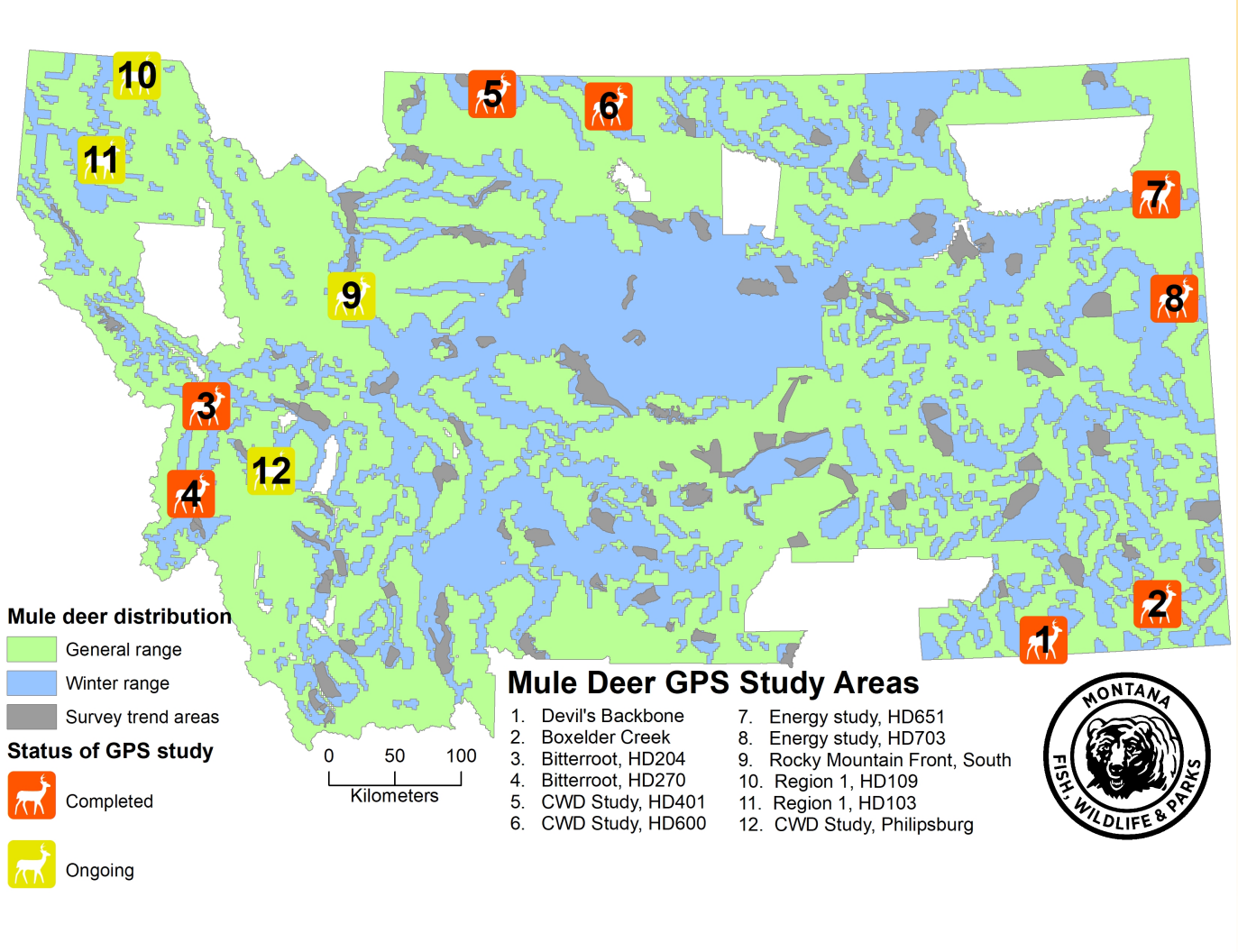
Data for Prioritization

Elk GPS collar study areas



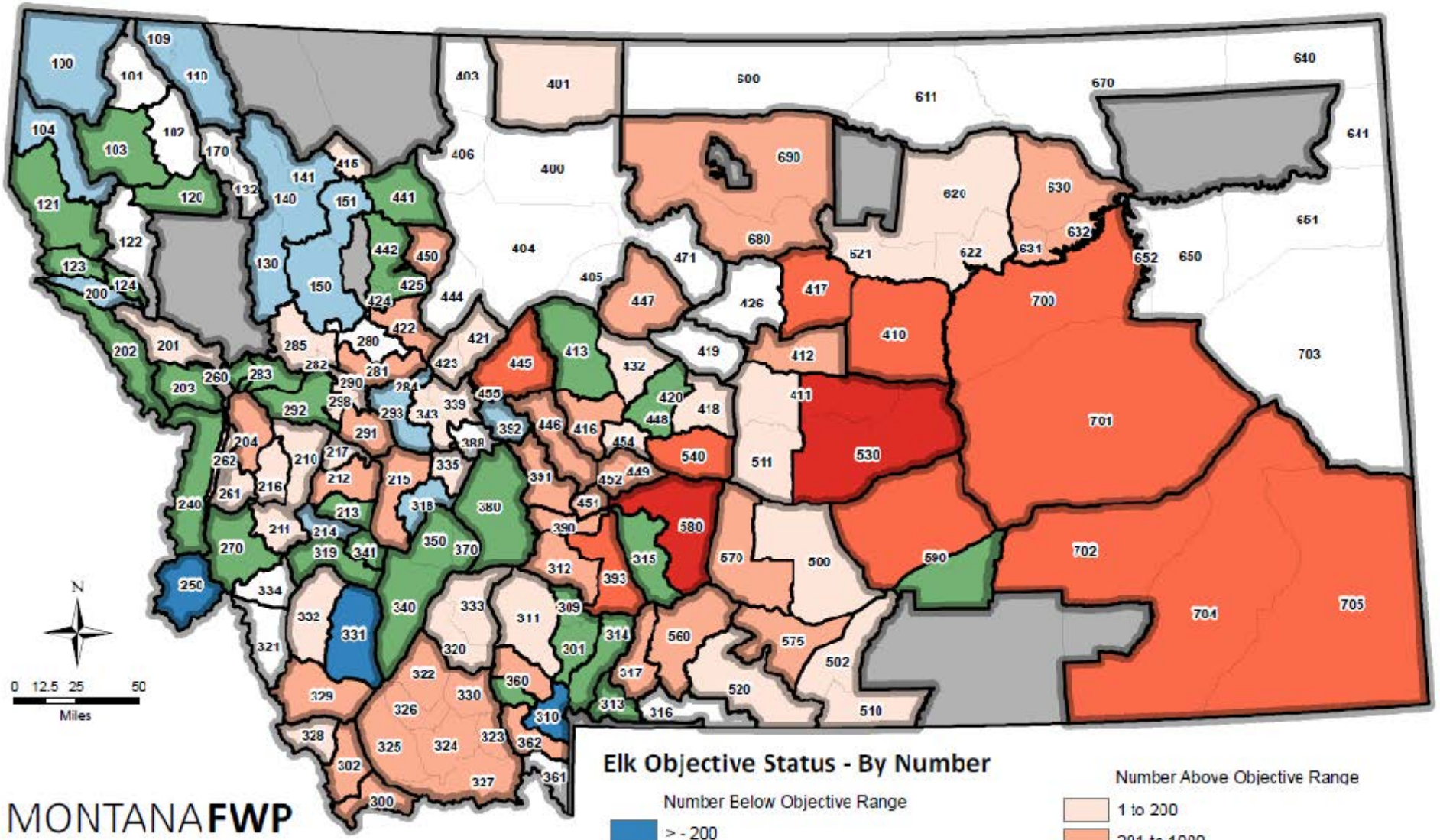
Data for Prioritization

Mule Deer GPS collar study areas



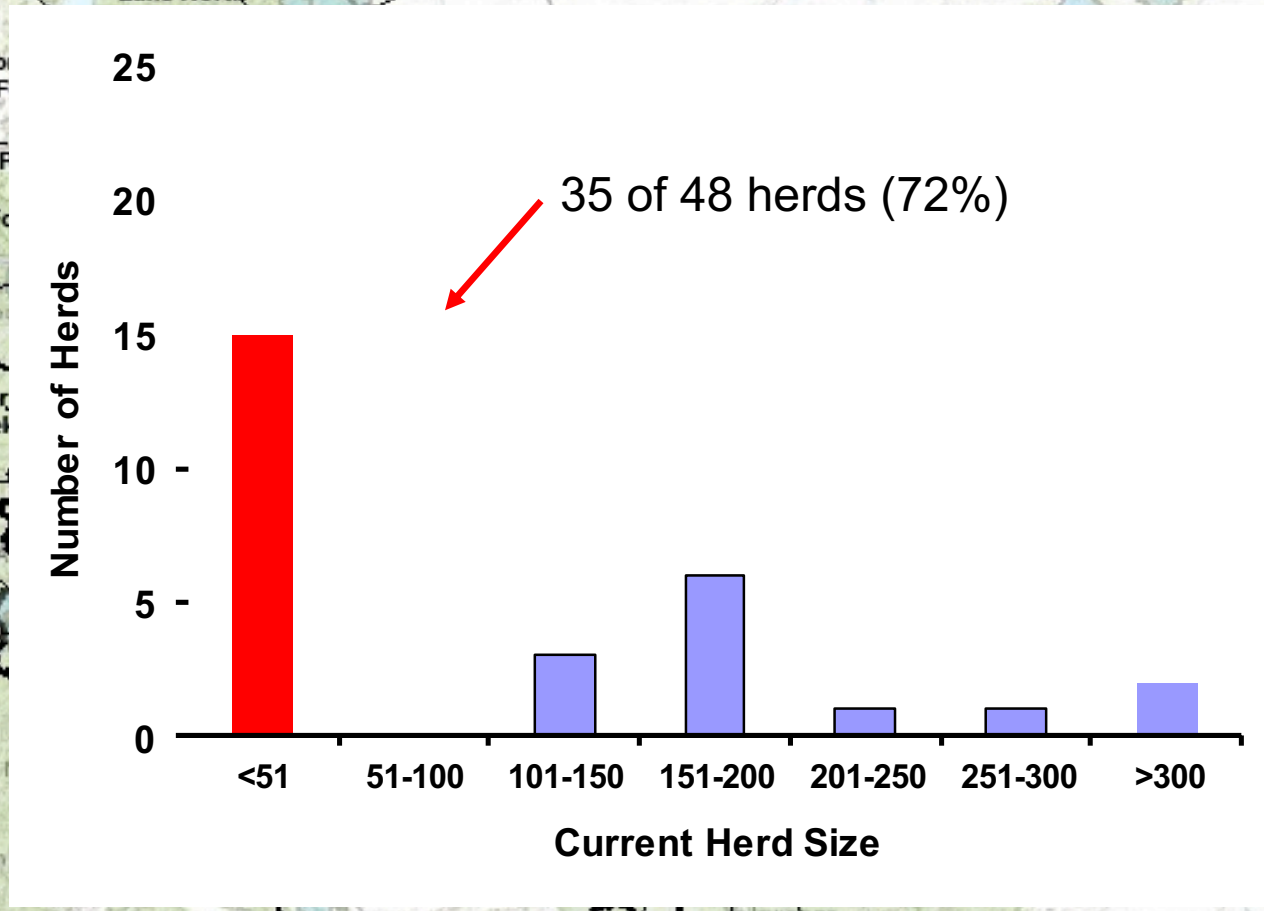
MONTANA
FISH, WILDLIFE & PARKS

Elk Population Objective Status (Number) - 2018



\\Projects\213\ObjectiveStatusMaps\Elk\2018\ElkObjective2018_Number.mxd
MFWP - GDS - SW 7/18/2018

48 Bighorn Sheep Populations



Study Area



https://www.mdt.mt.gov/research/projects/sub_listing.shtml

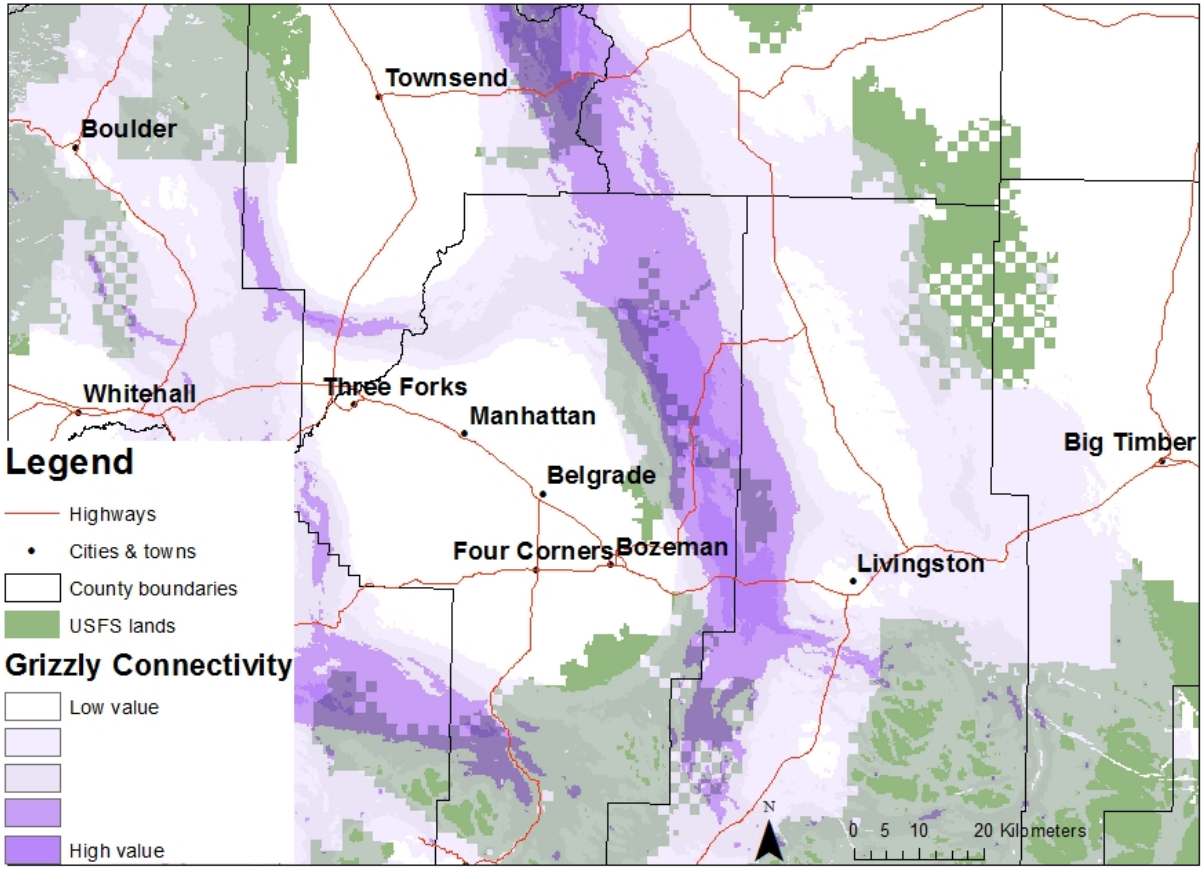
Future collaboration

1. Wildlife movement across highways: priority or problem?
2. Integrated conservation planning

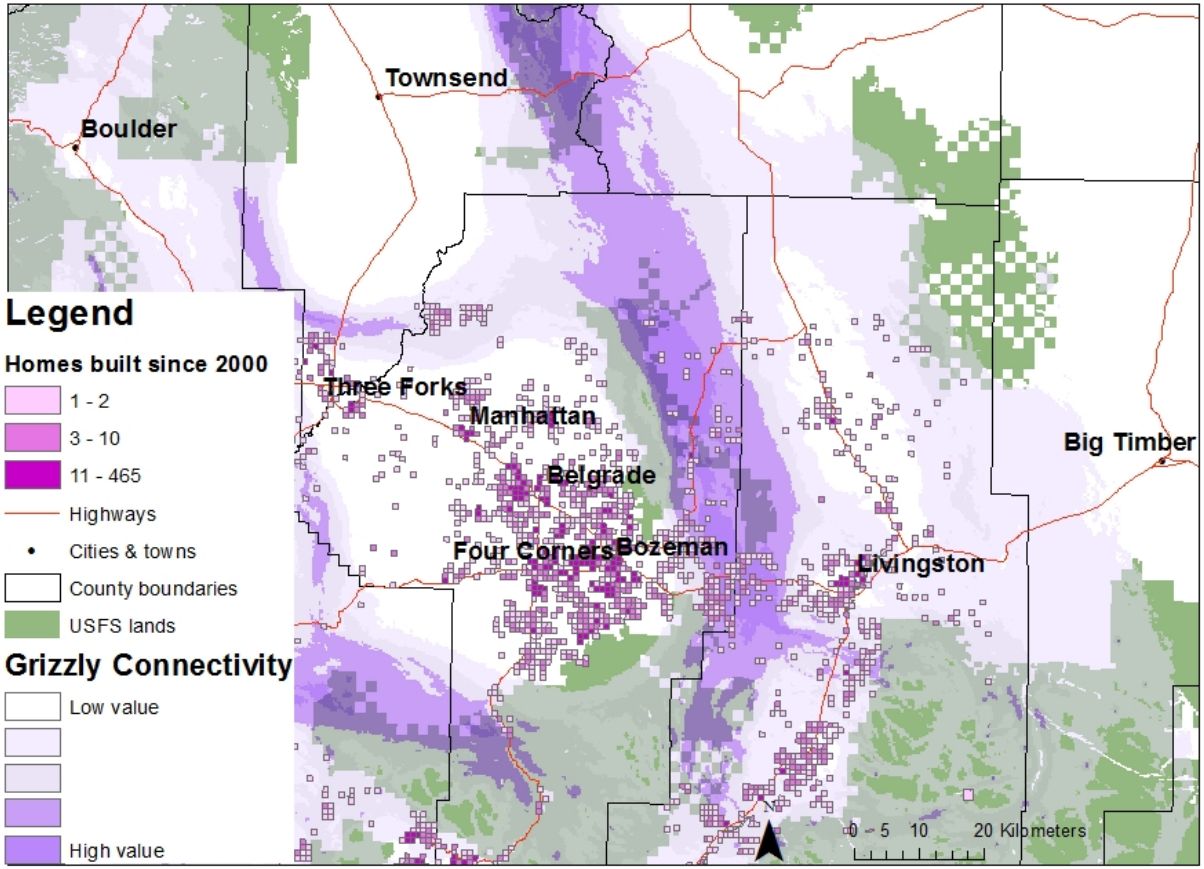


Craig Jourdonnais

Male Grizzly Bear Dispersal Corridors



Male Grizzly Bear Dispersal Corridors



Data courtesy of Headwaters Economics

Future collaboration

1. Wildlife movement across highways: priority or problem?
2. Integrated conservation planning
3. Relative importance of roads and other habitat threats
4. Focal areas & targets

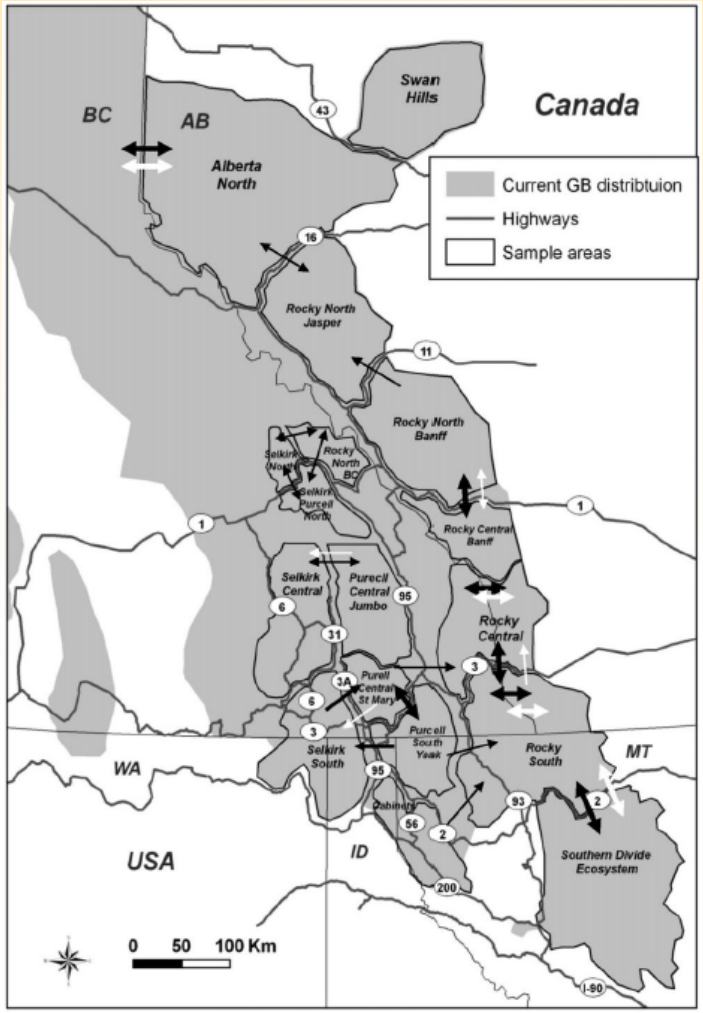


Thank You

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Gene flow



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