

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 Garrett, 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



Shawn Stewart



Wildlife movement needs

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

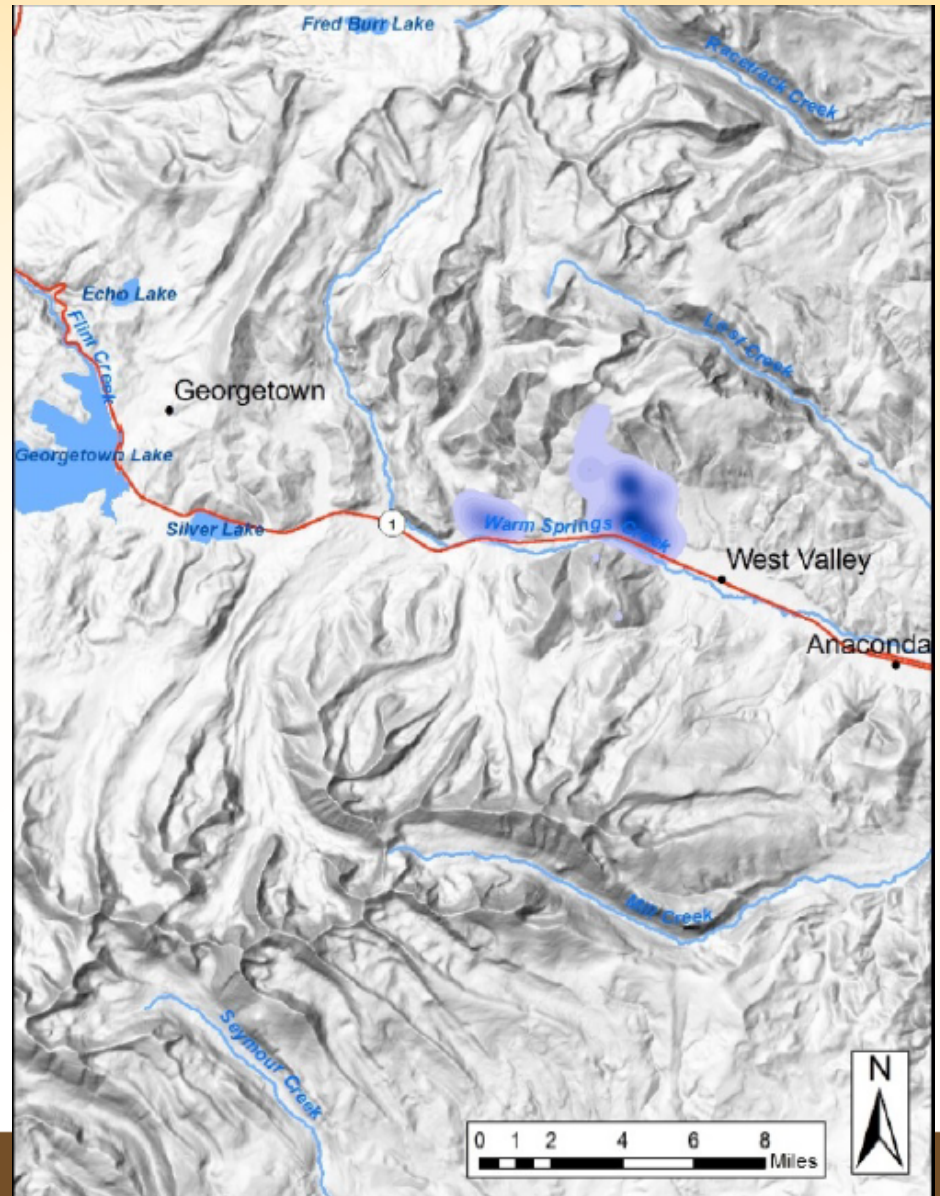


Kelly Proffitt

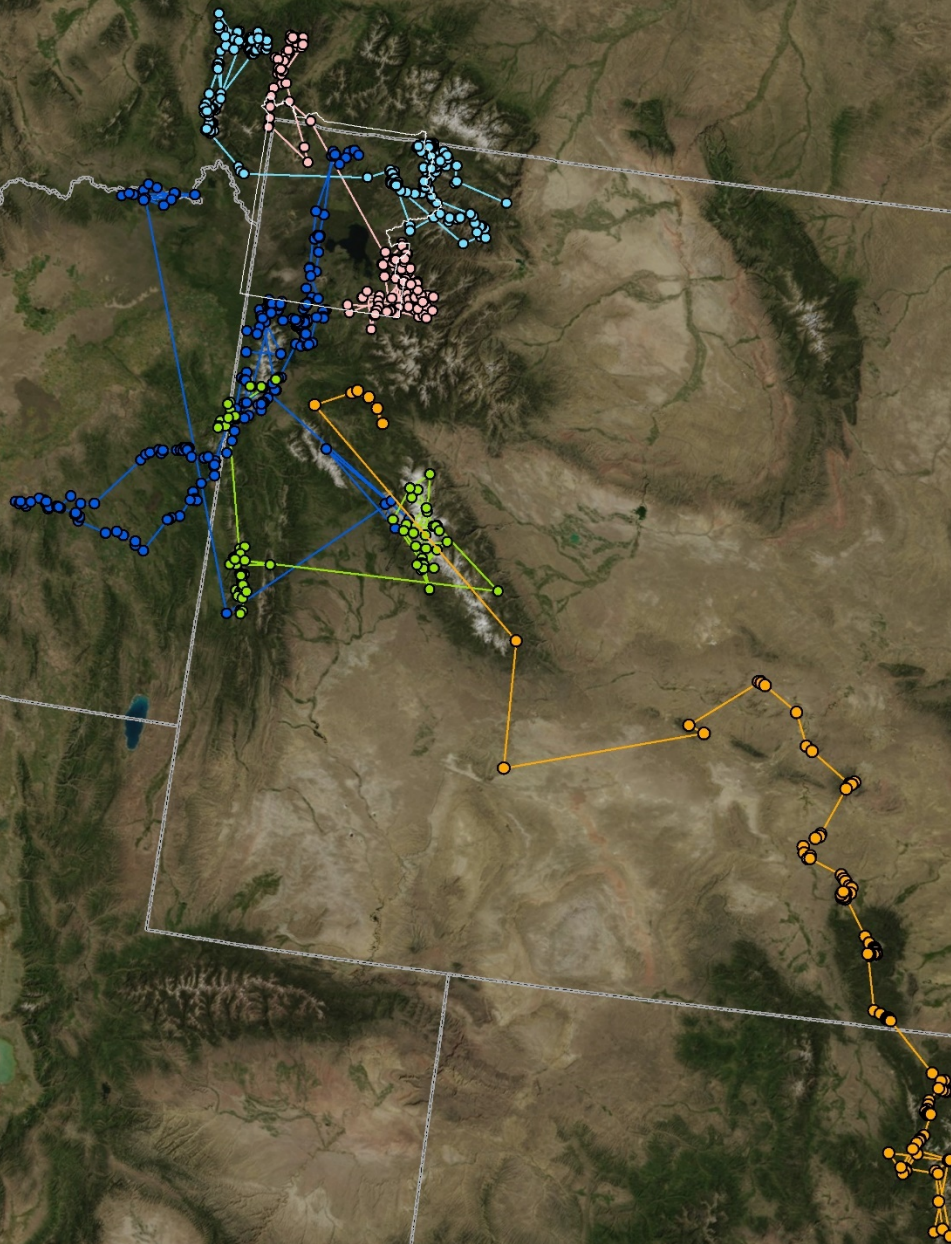


Within-range movements

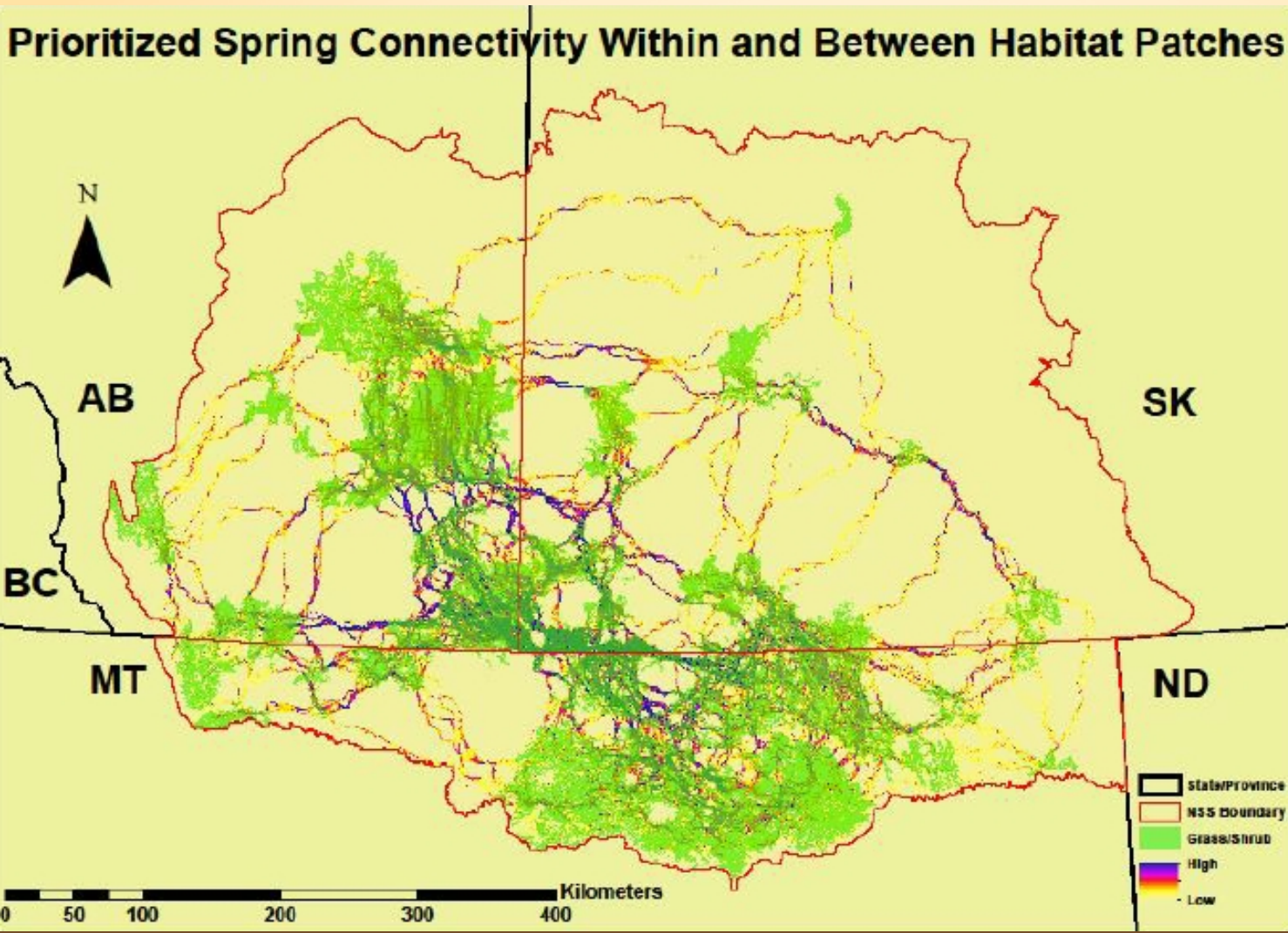
Garrott et al. 2017. The role of disease, habitat, individual condition, and herd attributes on **bighorn sheep** recruitment and population dynamics in Montana. Federal Aid in Wildlife Restoration Grant W-159-R
Annual report, Helena, Montana.



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

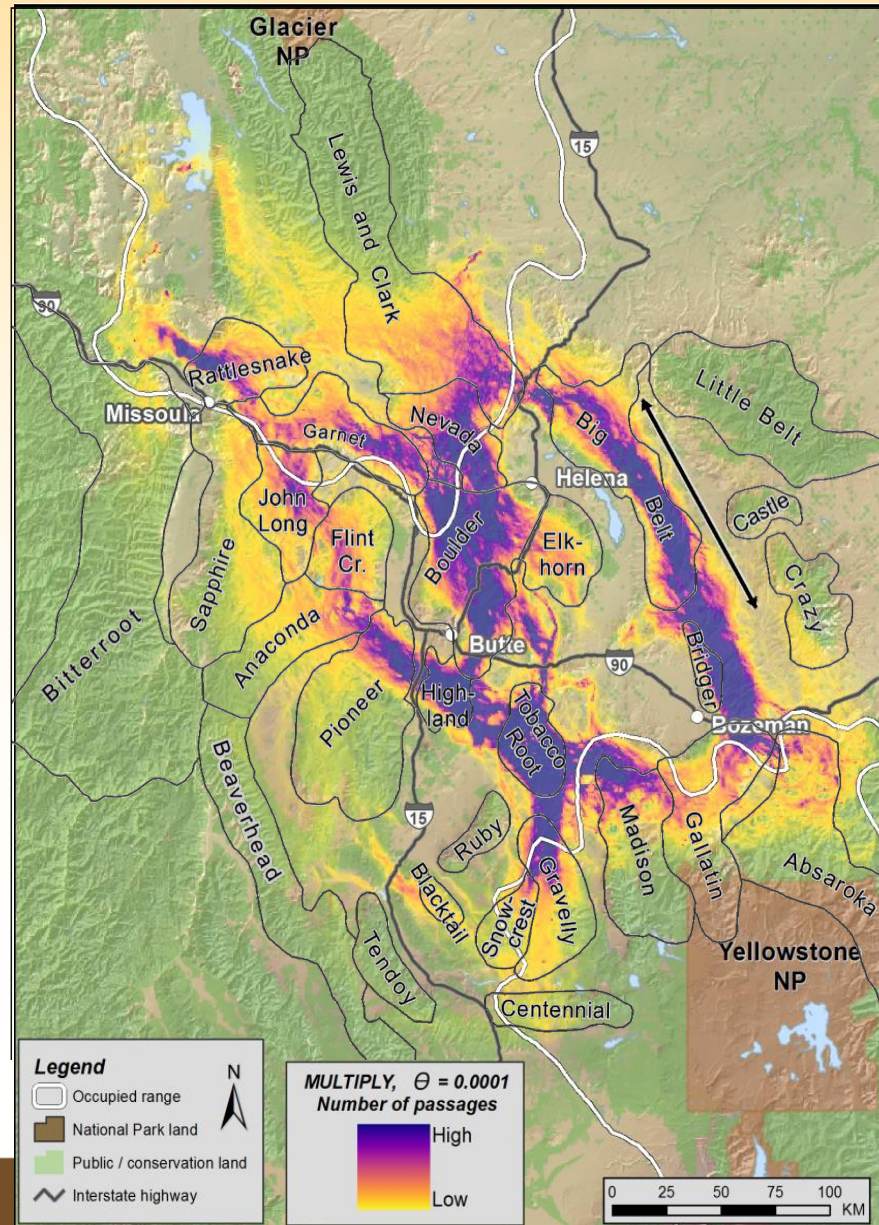


Migration movements



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

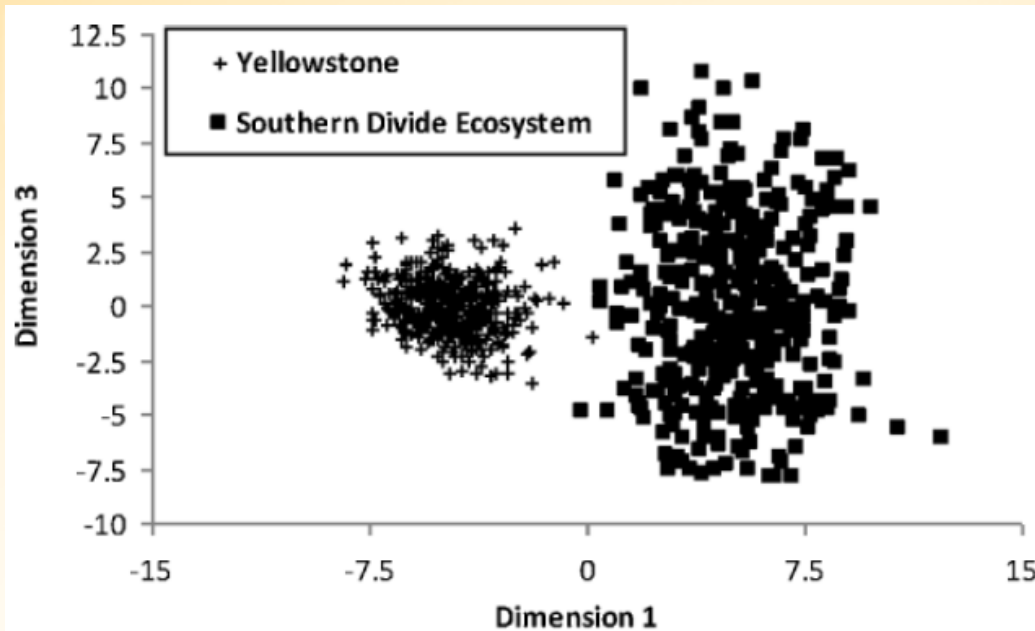
Dispersal movements



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



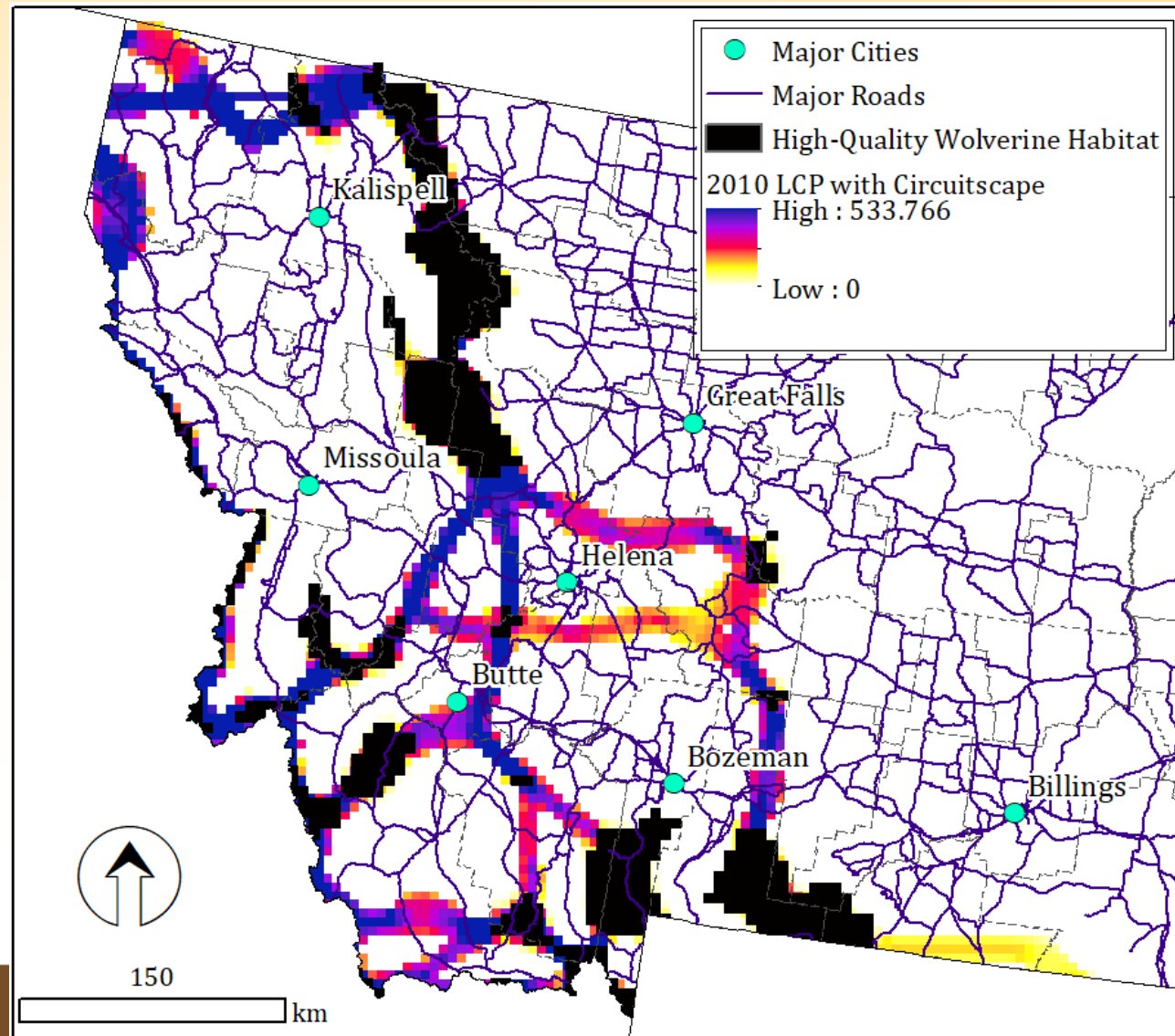
Proctor et al. 2012.
Population fragmentation
and inter-ecosystem
movements of grizzly
bears in western
Canada and the northern
United States. Wildlife
Monographs 180:1-46.



Range shifts

2010

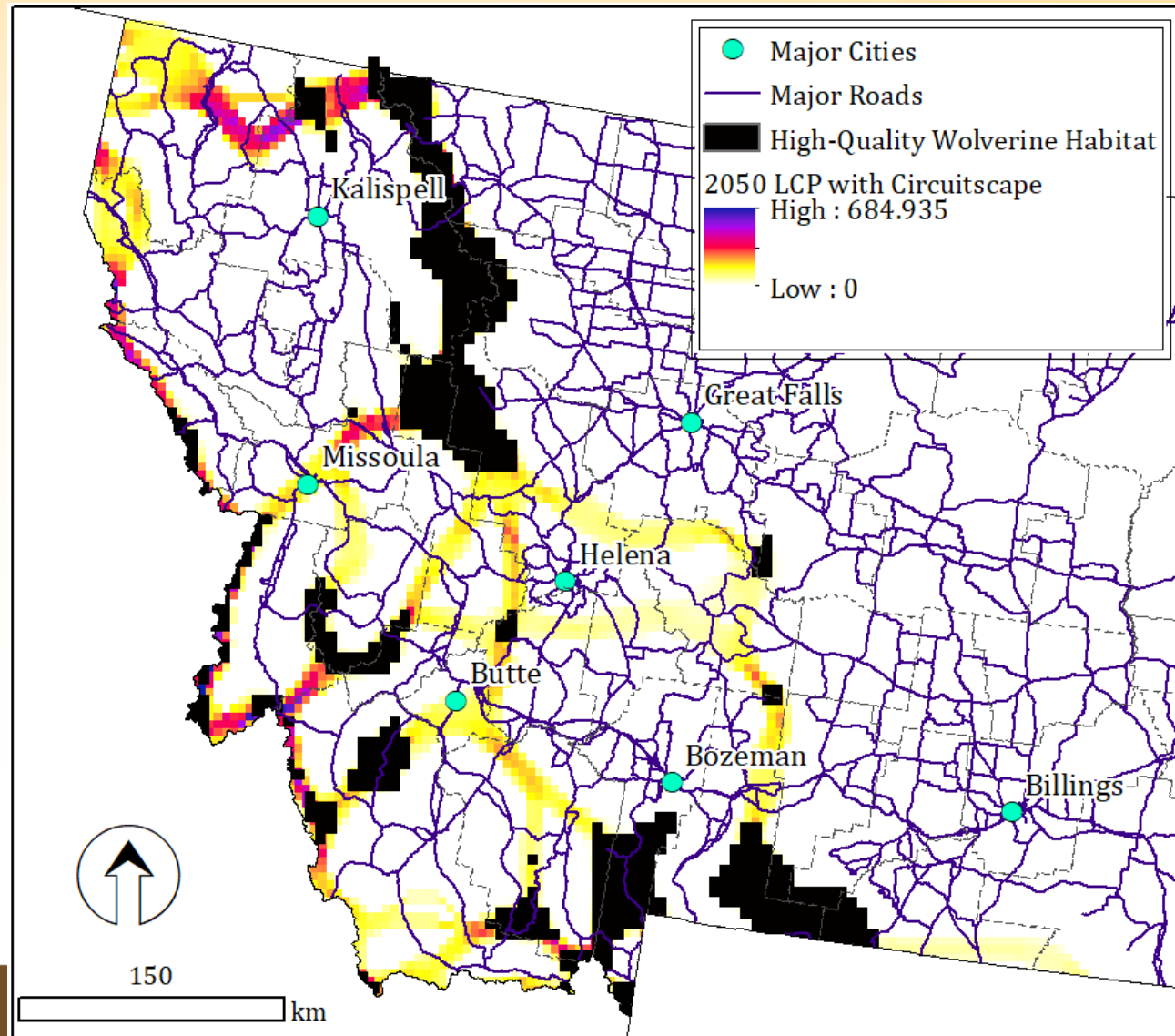
Carroll et al. 2018. Final Report: Wolverine Habitat Connectivity. Technical Report, Montana State University and Montana Fish, Wildlife and Parks, Helena, Montana.



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



Michael Forsburg



Priority taxa and areas



Bob Wiesner



Nick DeCesare

Priority taxa and areas

At risk species:

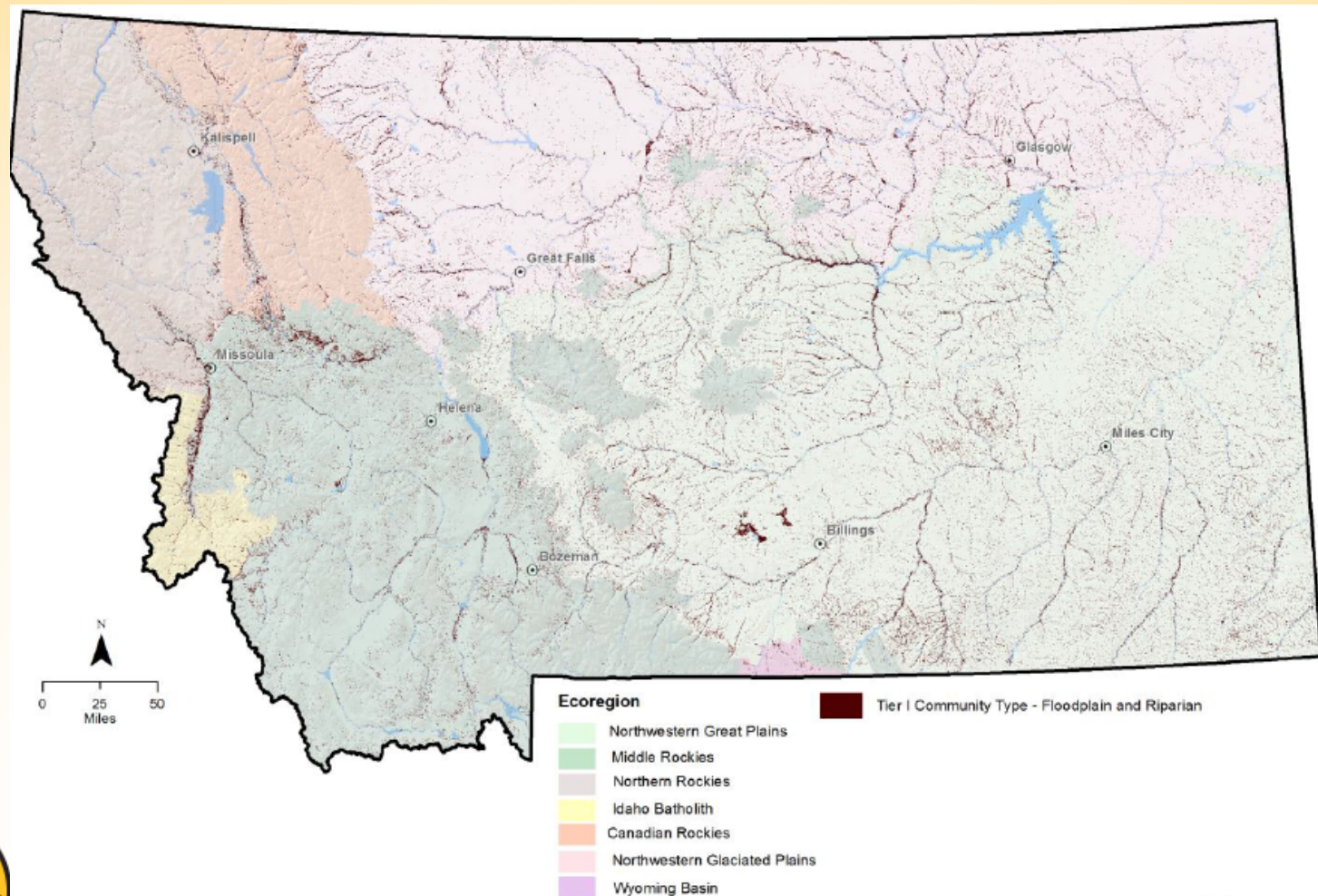
- Federally listed
- SOC category 1 or 2
- SGCN

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



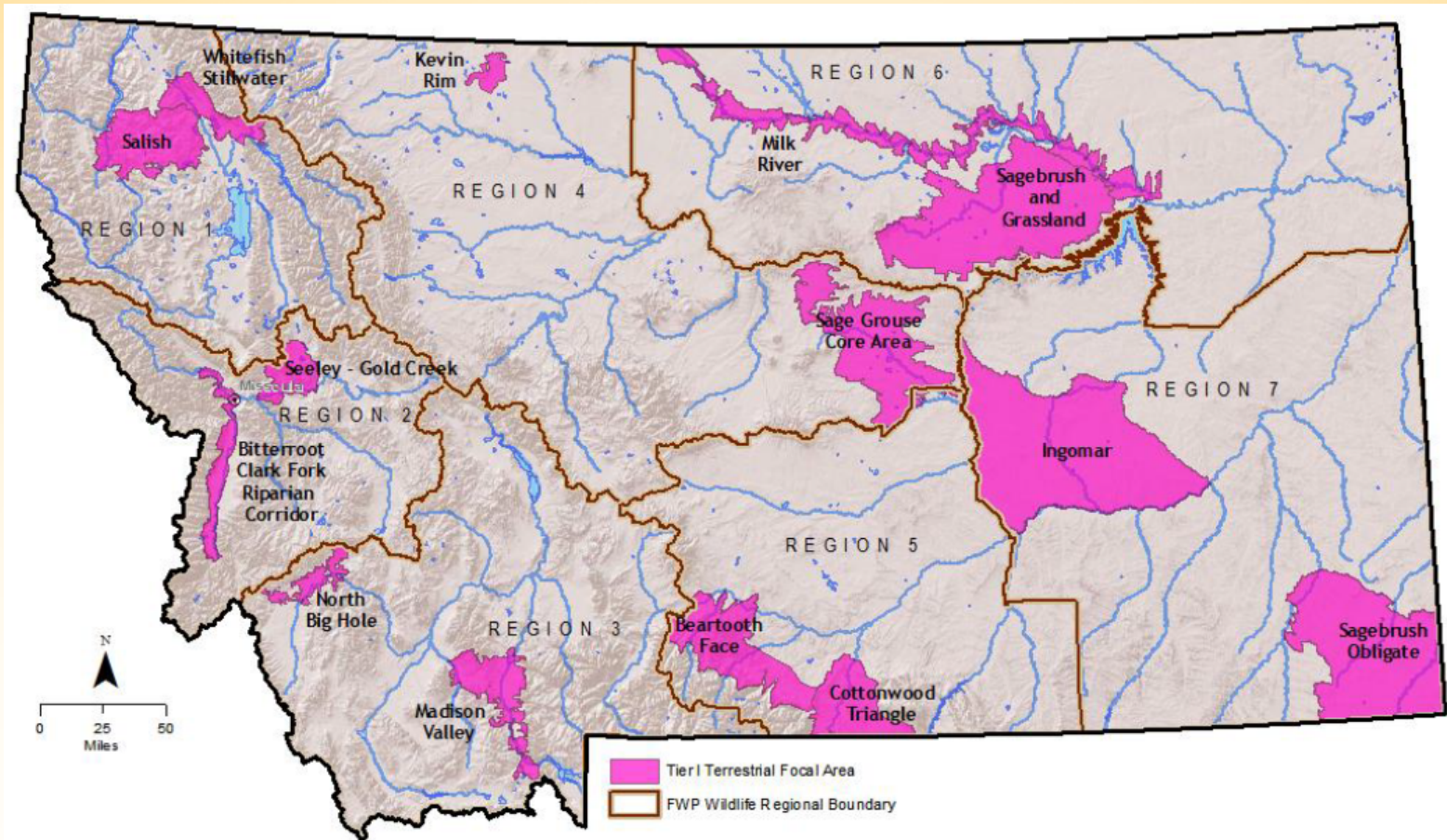
Priority taxa and areas

SWAP community types of greatest conservation need



Priority taxa and areas

SWAP focal areas



Data for Prioritization

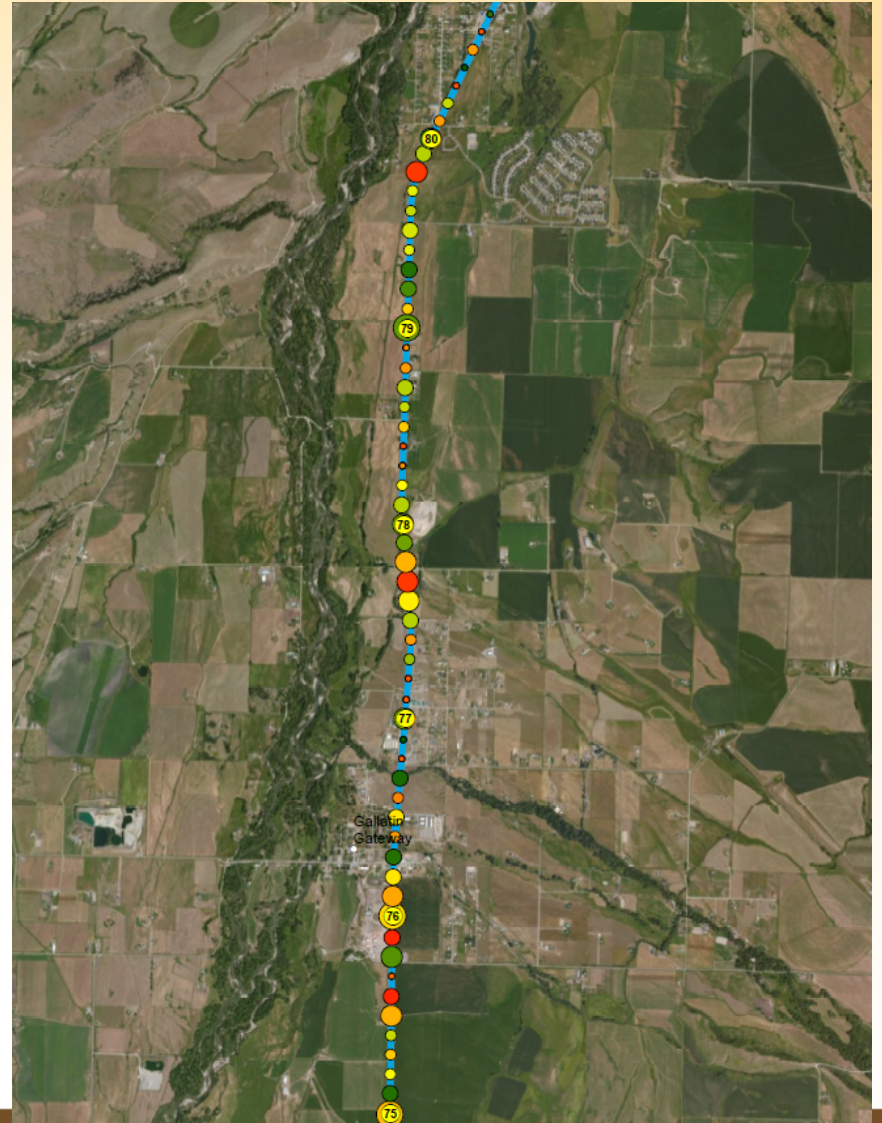


1. Road-related data: collisions, traffic volume, etc.
2. Fine-scale wildlife movement data
3. Population status and impacts
4. Impact studies

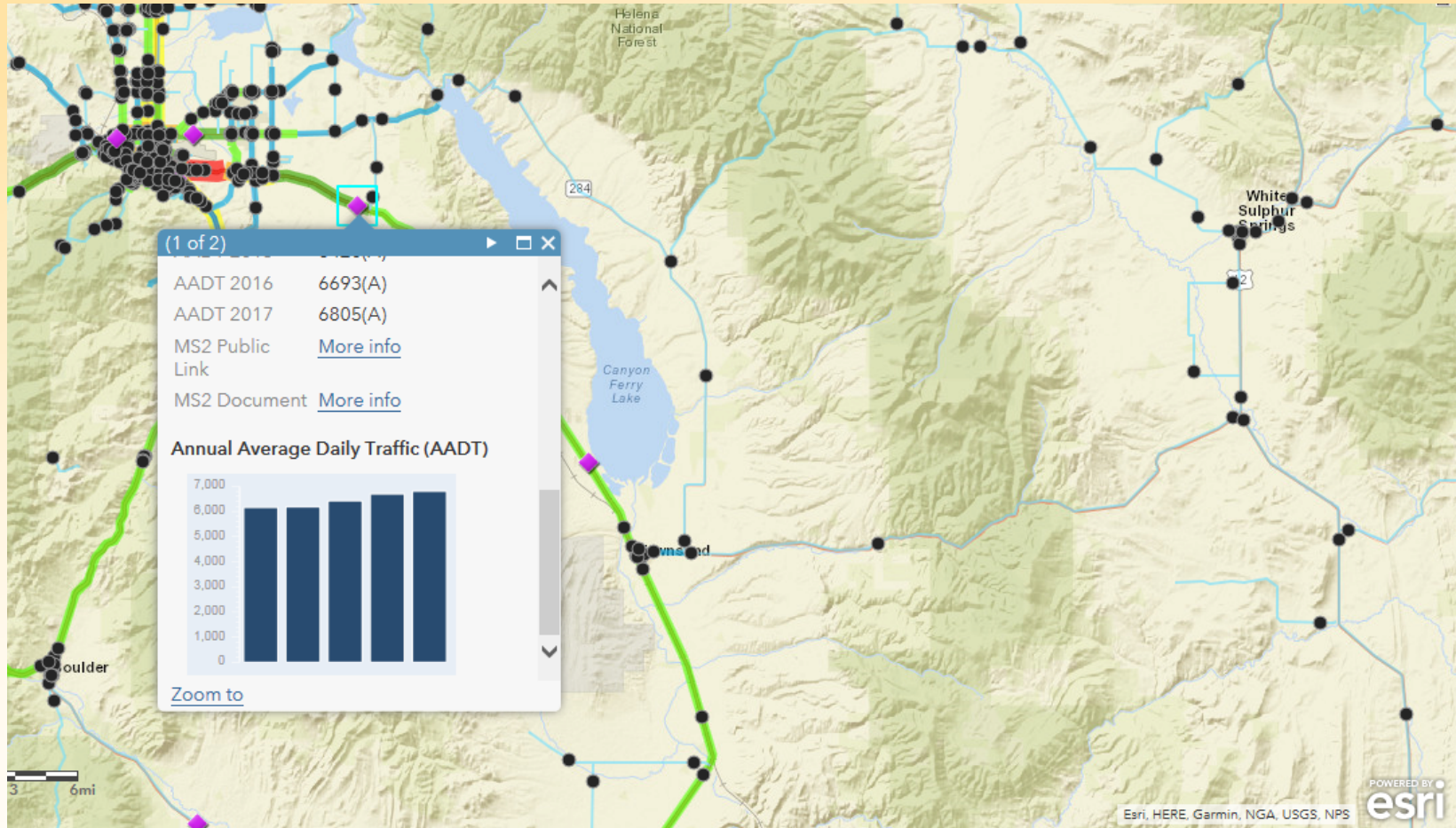


Data for Prioritization

MDT-managed carcass
database



Data for Prioritization

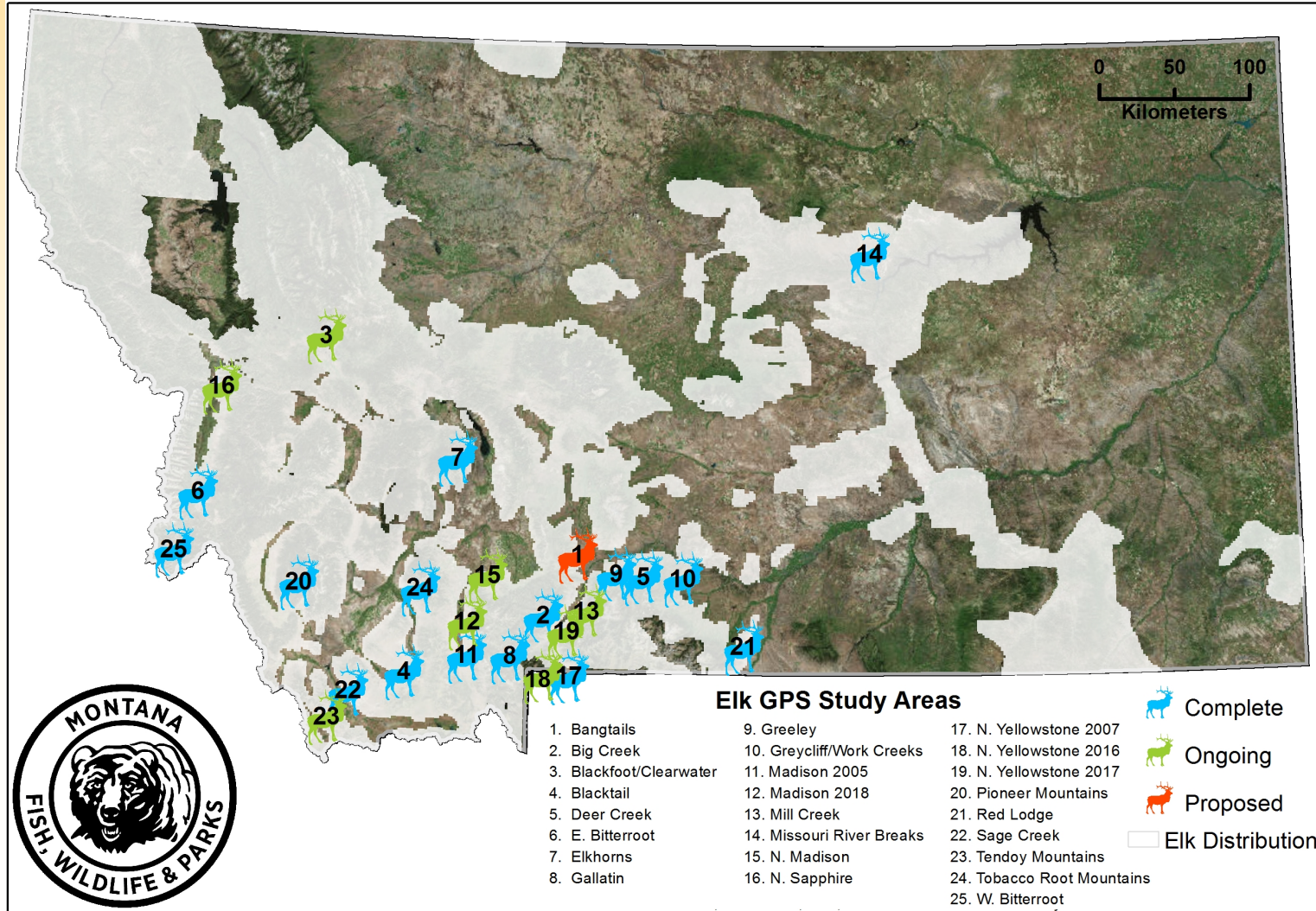


<https://www.mdt.mt.gov/publications/map-gallery.shtml>



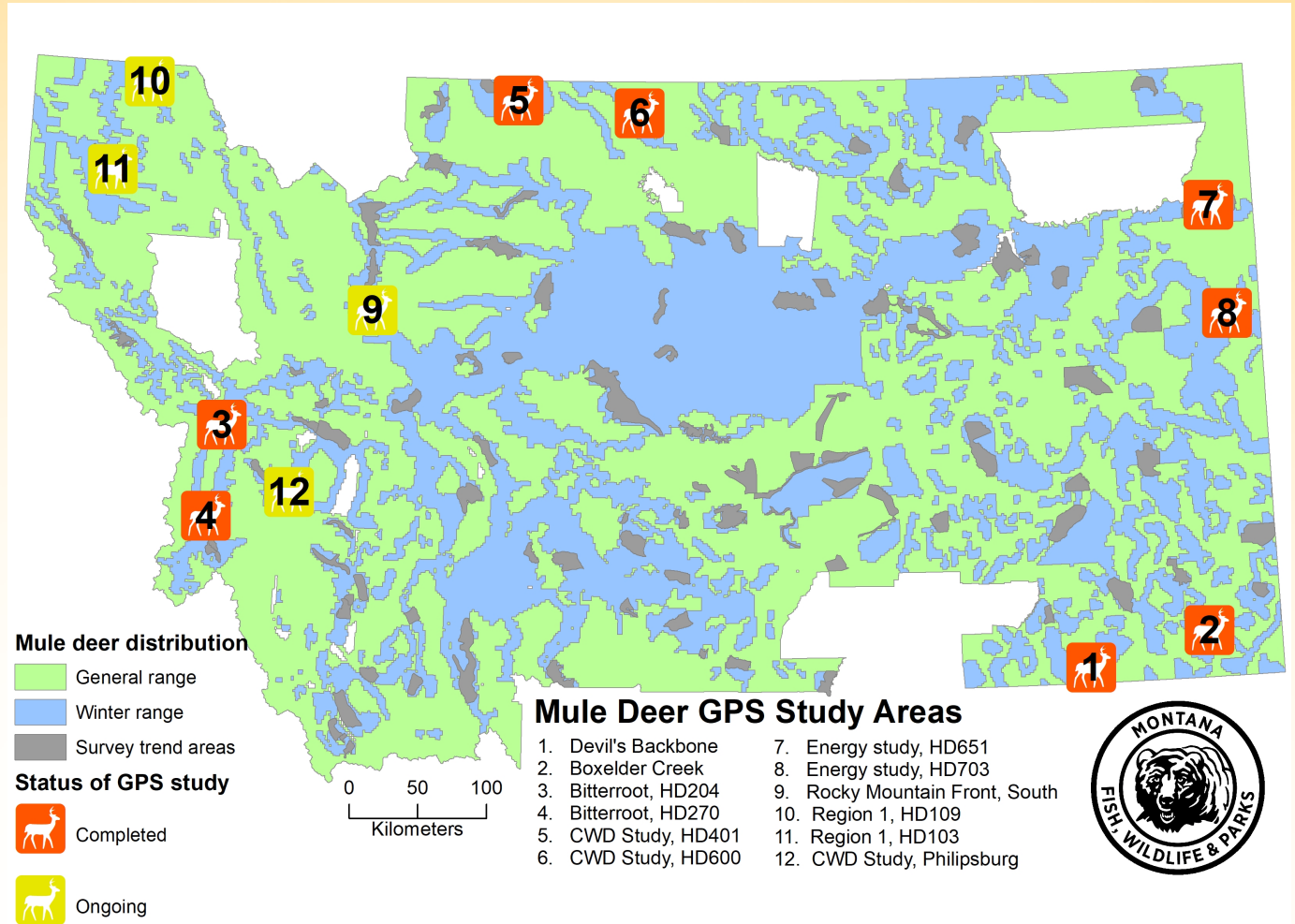
Data for Prioritization

Elk GPS collar
study areas

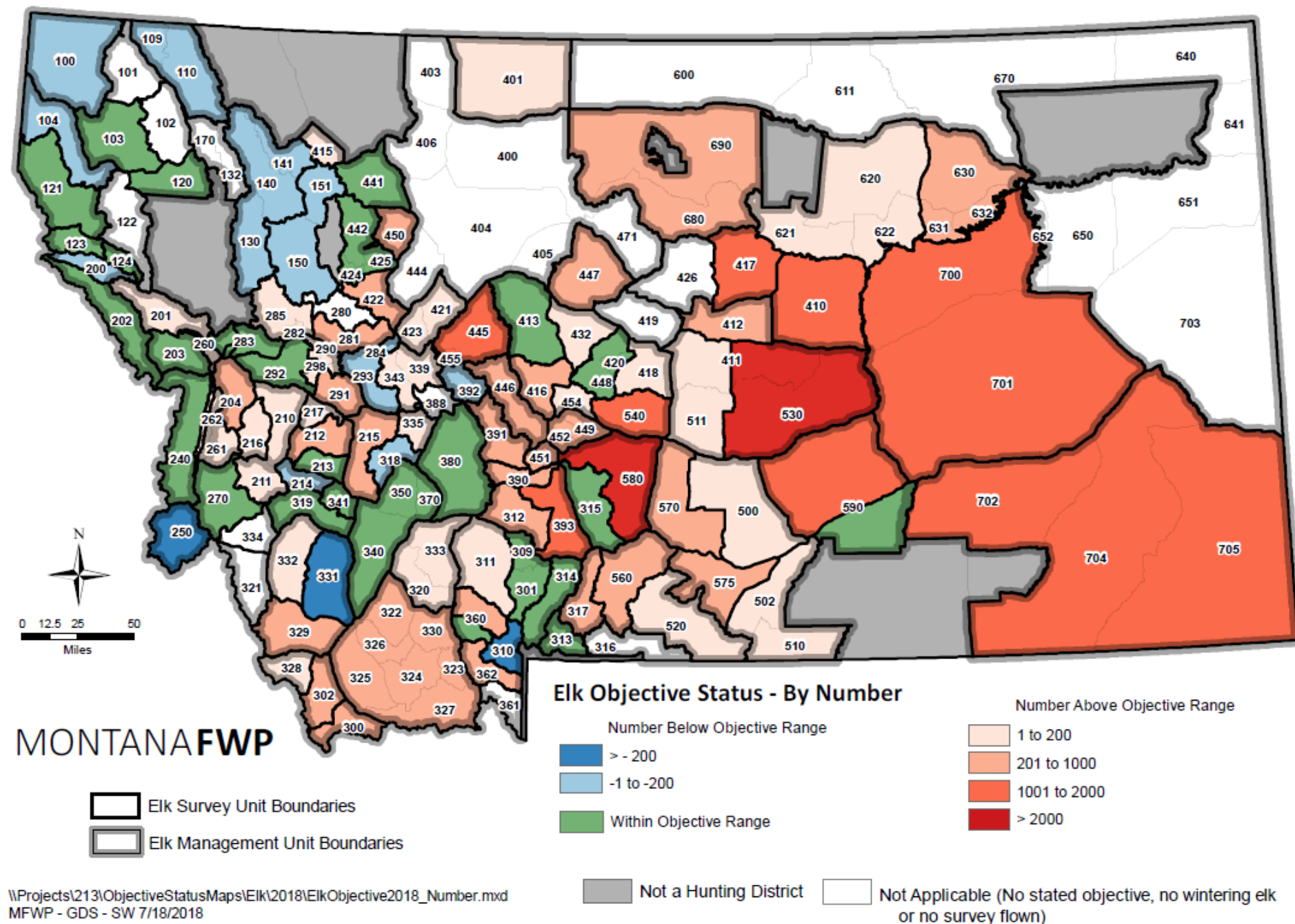


Data for Prioritization

Mule Deer
GPS collar
study areas

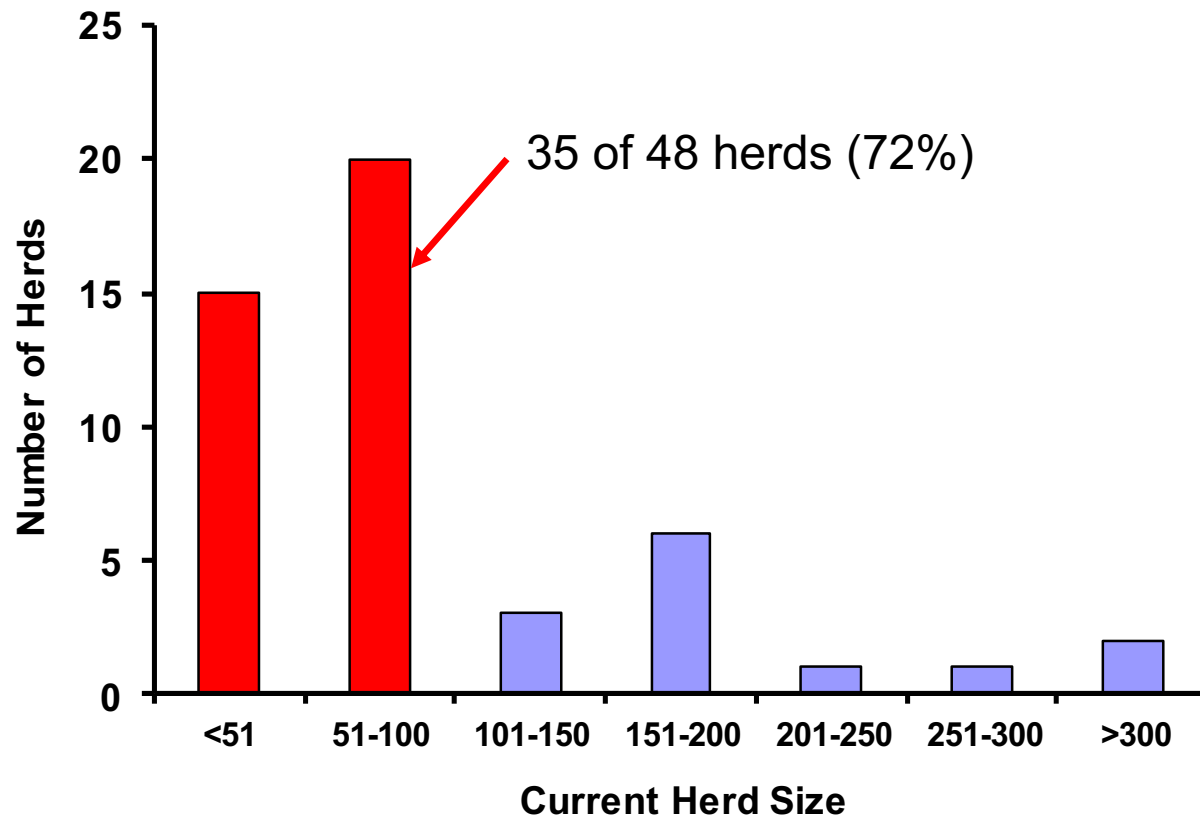


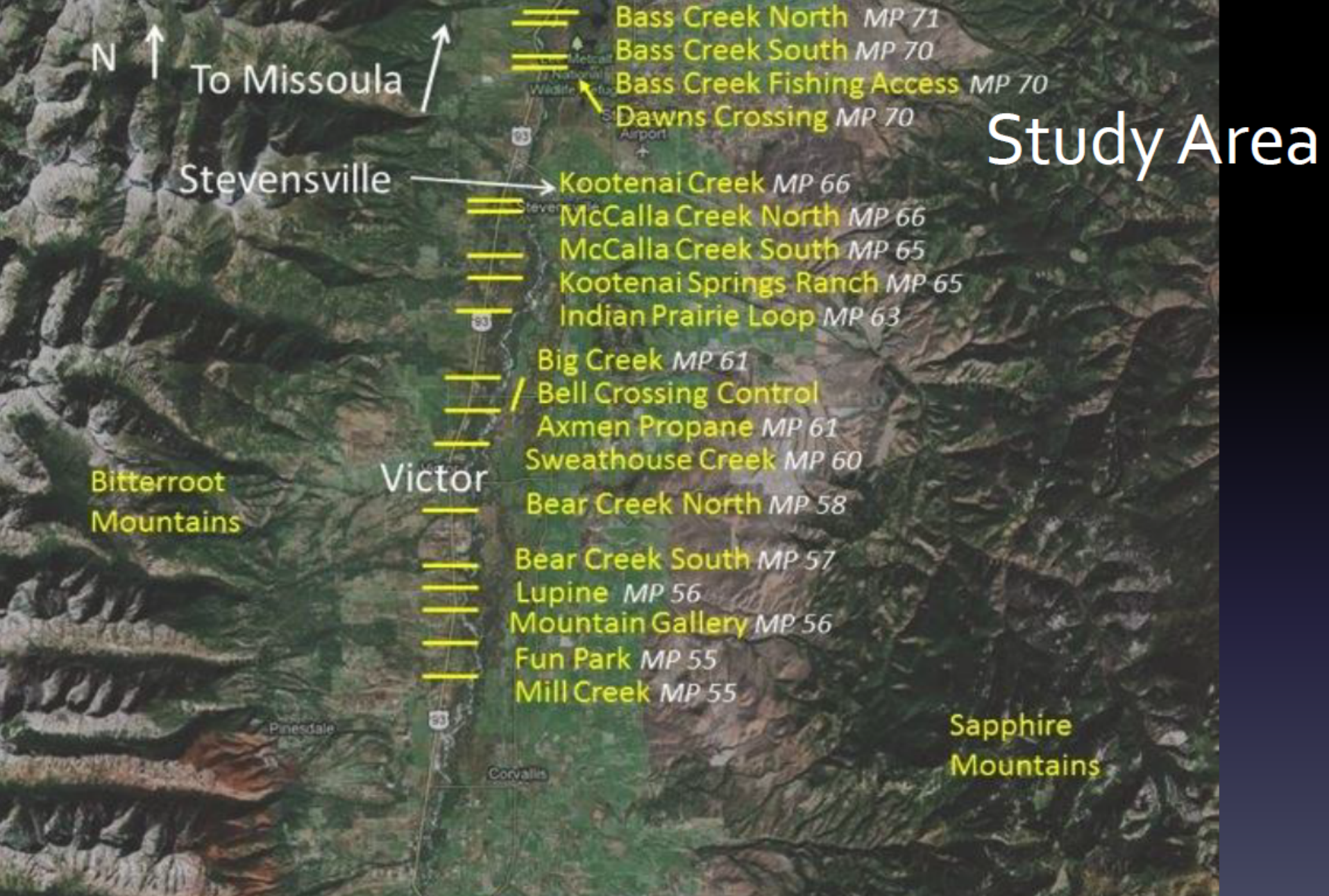
Elk Population Objective Status (Number) - 2018



MONTANA FWP

48 Bighorn Sheep Populations





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

Future collaboration

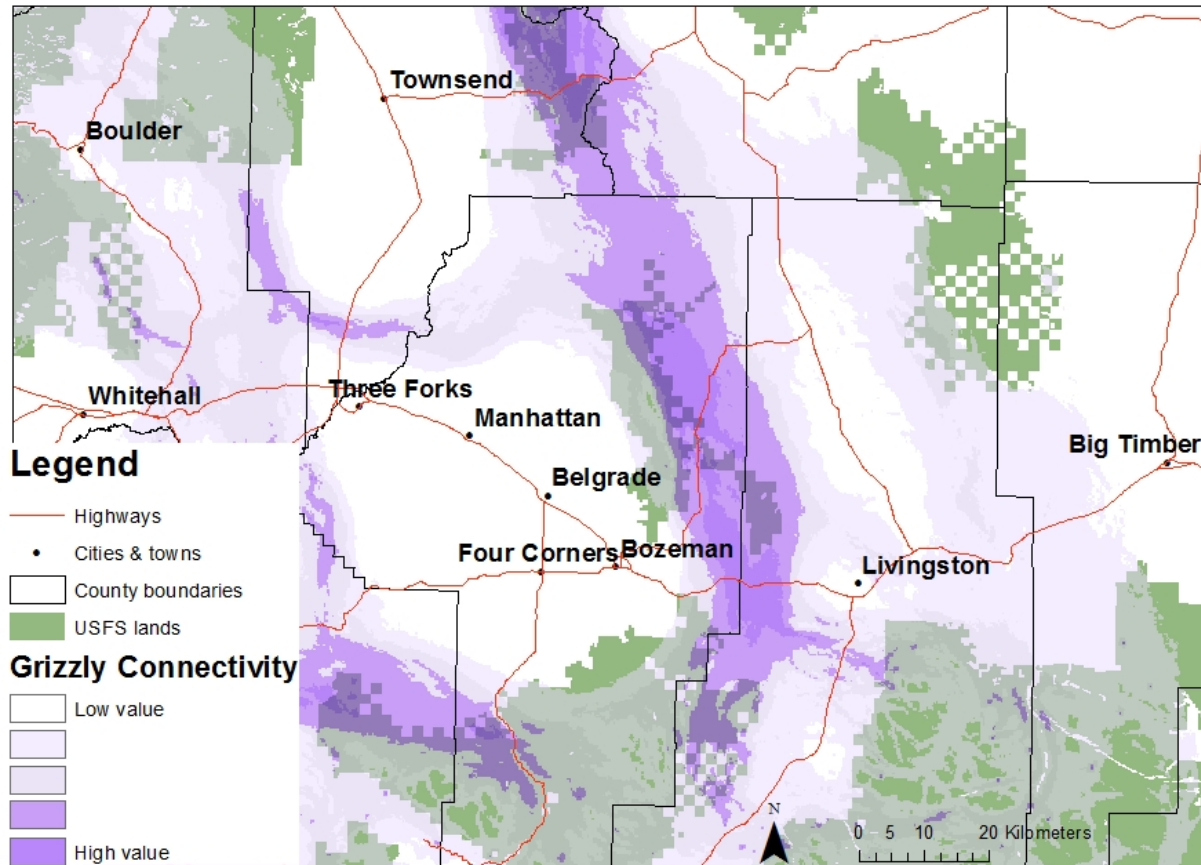
1. Wildlife movement across highways: priority or problem?
2. Integrated conservation planning



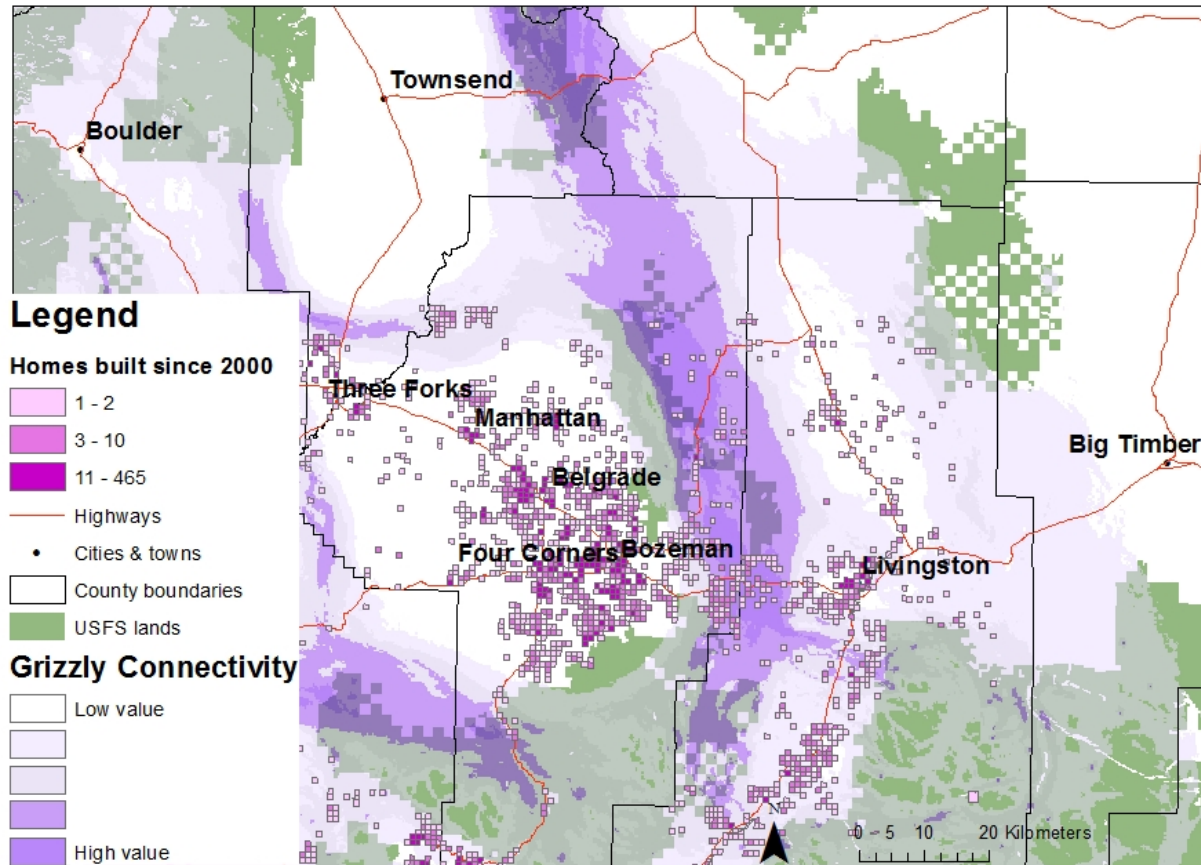
Craig Jourdonnais



Male Grizzly Bear Dispersal Corridors



Male Grizzly Bear Dispersal Corridors



Data courtesy of Headwaters Economics

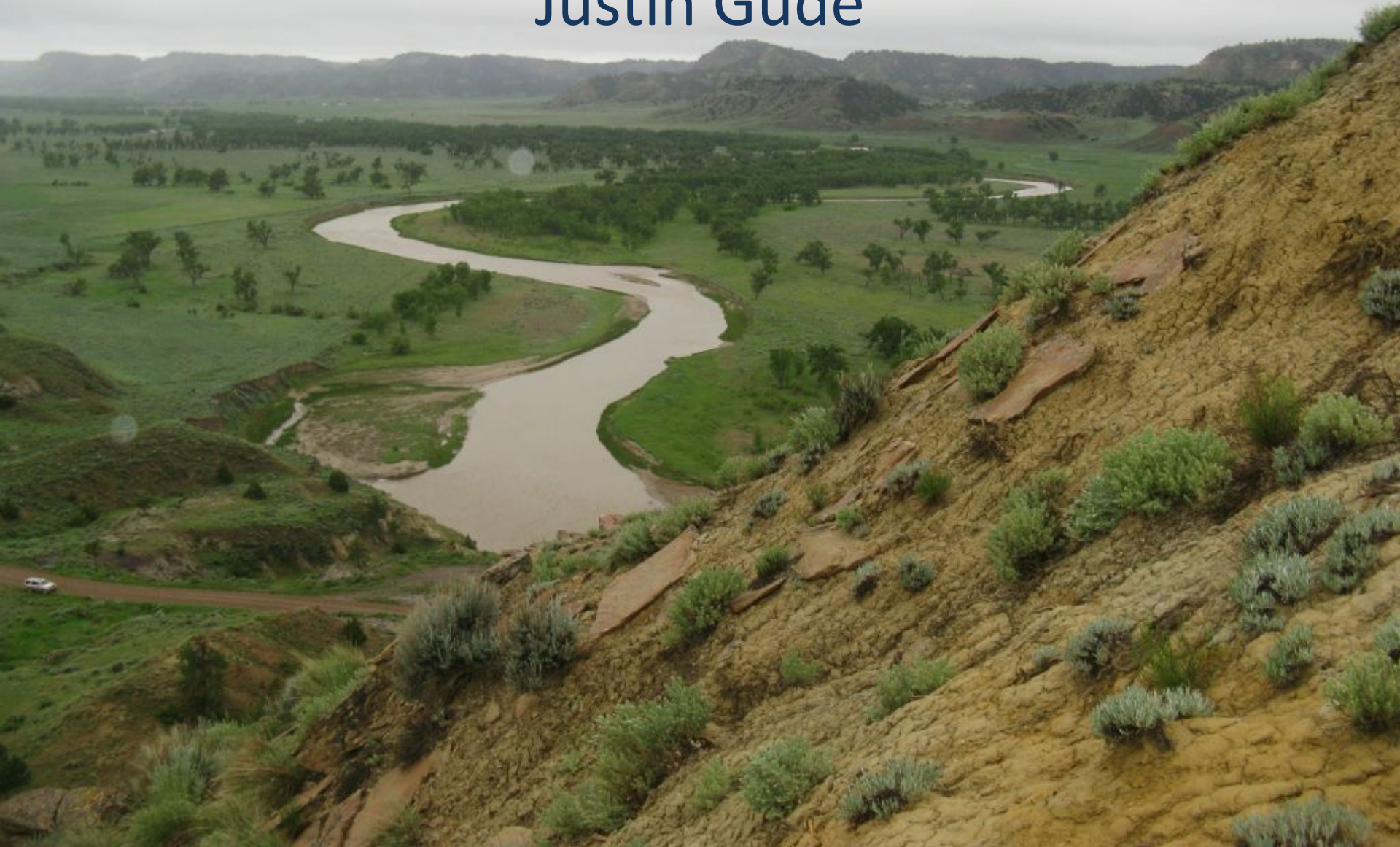
Future collaboration

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

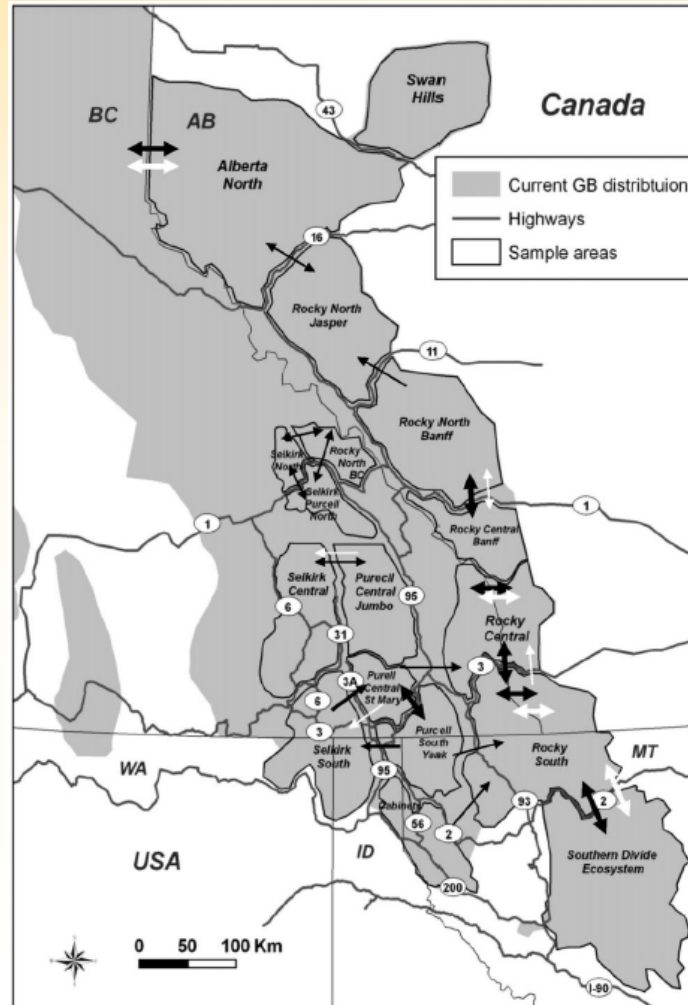


Thank You

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Gene flow



Proctor et al. 2012.
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