

A photograph of a mule deer with large, velvet-covered antlers, looking towards the camera. The deer is positioned in the center of the frame, partially obscured by thin, bare tree branches. The background is a soft-focus forest with trees displaying vibrant autumn foliage in shades of yellow, orange, and brown. The lighting is warm and natural, suggesting a late afternoon or early morning setting. The overall mood is serene and naturalistic.

Nevada Mule Deer Program 2015-2016 Project Update

Presented by
Cody Schroeder & Kari Huebner

2015-2016 Mule Deer Program Project Highlights

NDOW continues to monitor and collar mule deer throughout Nevada

- Survival
- Migration Corridors
- Habitat Use
- Highway Safety Crossing Structures



2015-2016 Project Highlights (cont.)

NDOW has contributed > \$500K to NDOT for the Pequop Summit Wildlife Crossing Project

- \$100K from the Wildlife Heritage Trust Account

SR – 160 initiated new collar study of big game including elk, bighorn sheep, and mule deer

- Collaboration with NDOT for future highway crossing structure
- \$40K from Wildlife Heritage Trust Account



2015-2016 Project Highlights (cont.)

- Tools for data management and analysis
- Kari Huebner Presentation
 - Area 7 Mule Deer Crossing Projects
- Mule Deer Video by Tim Torell



Mule Deer Publications

MULE DEER AND MOVEMENT BARRIERS

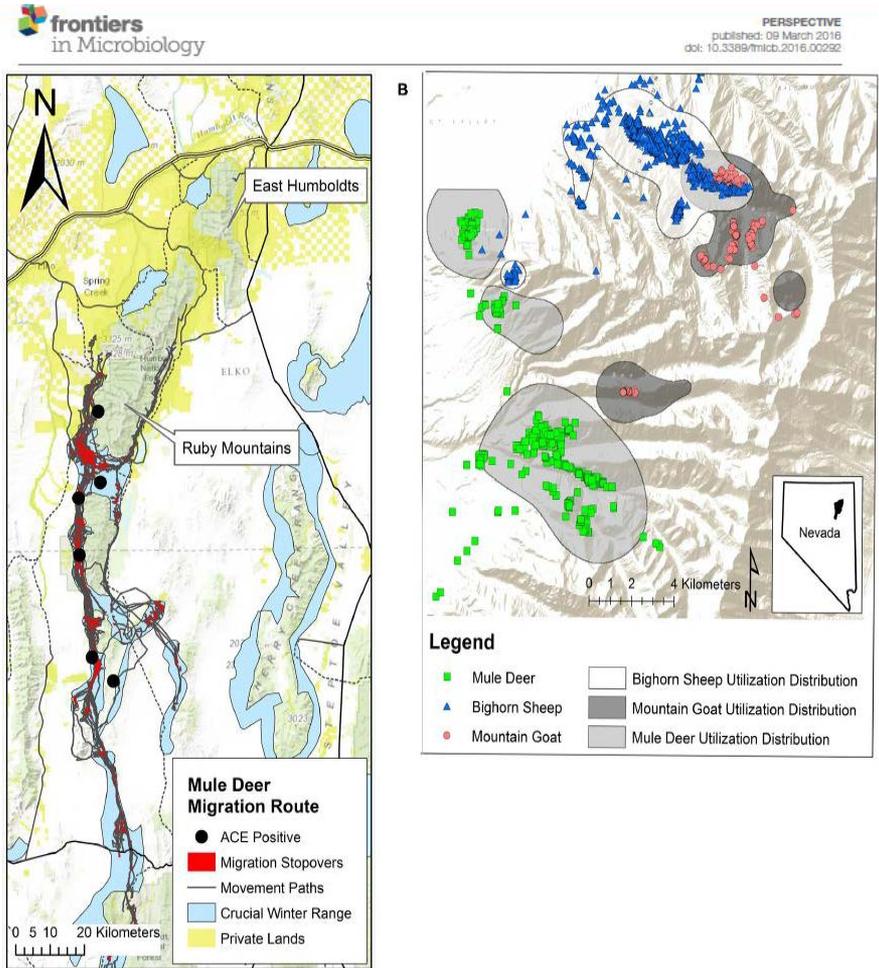


FIGURE 2 | (A) Population-level migration route (gray) and stopover sites (red) estimated for the Ruby Mountain (RM) mule deer herd, 2012–2013 (Sawyer and Britzell, 2014) population estimate of 20,000. Approximately 80% of this herd exhibits a long distance migratory strategy to winter range (blue) while the remaining 20% remains in the summer range (yellow). (B) Utilization distribution (UD) maps for mule deer (green), bighorn sheep (blue), and mountain goat (red) populations in the Ruby Mountains region of Nevada. The UD maps were generated using kernel density estimates (KDE) to determine the population level impacts of BVDV infection on these three species.

Keywords: bovine viral diarrhoea virus, bighorn sheep, mountain goat, mule deer, Nevada, *Odocoileus hemionus*, *Oreamnos americanum*, *Ovis canadensis*

doi: 10.3389/fmicb.2016.00292

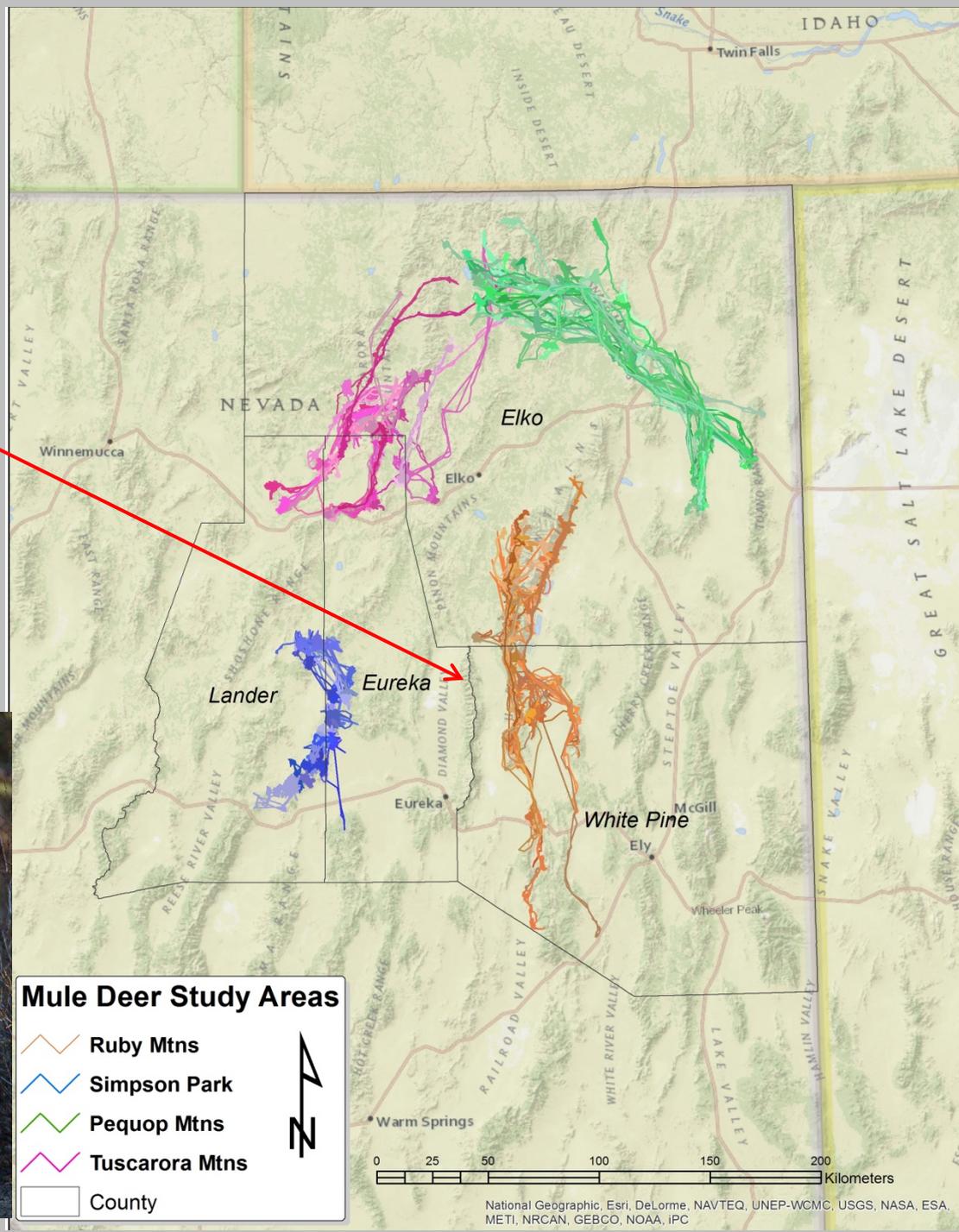


A PRODUCT OF THE
MULE DEER WORKING GROUP
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2015

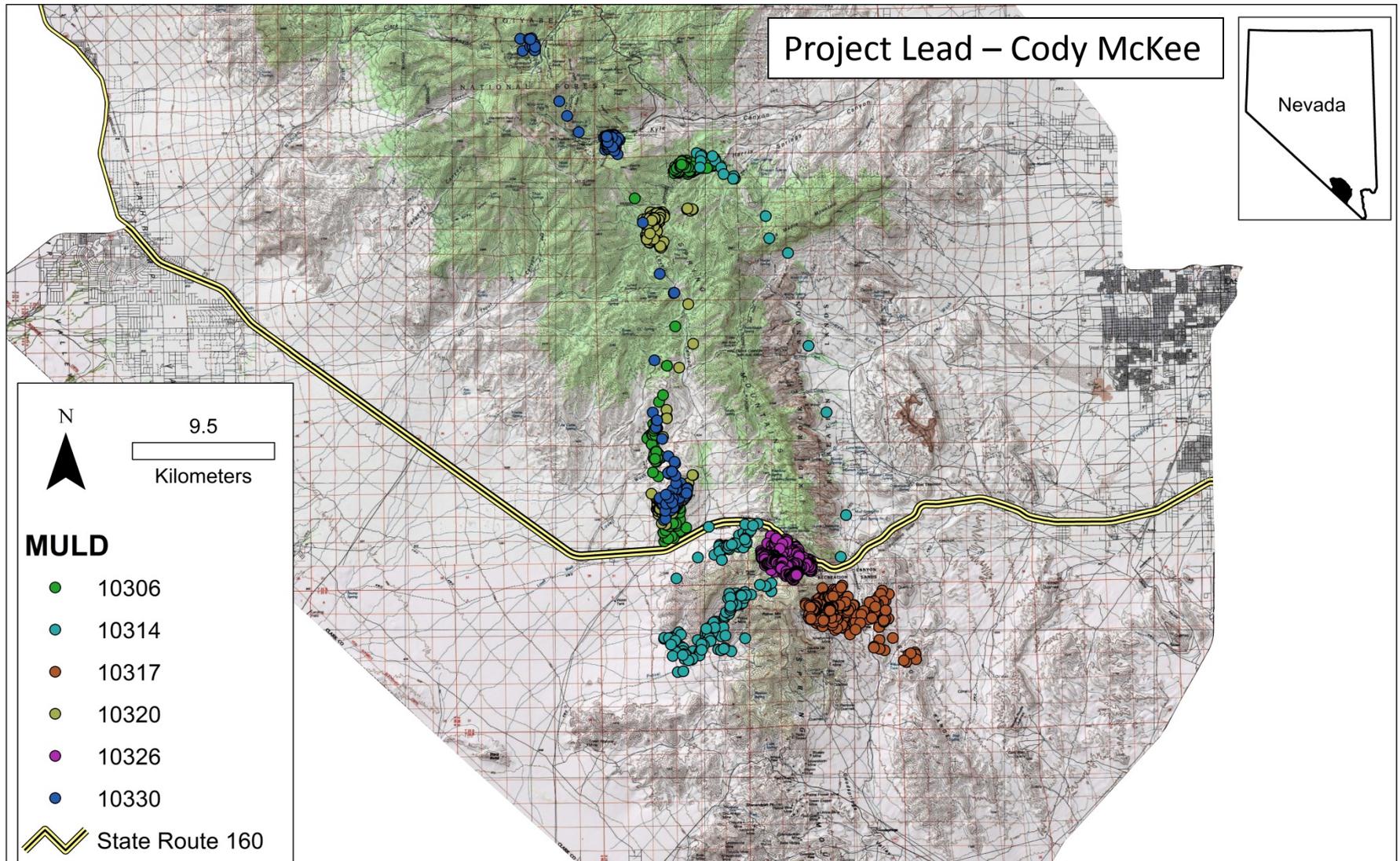
Mule Deer
Working Group

Mule Deer Migration Studies

New Project for FY2017
Management Area 14
Diamond Mountains



SR-160 Mule Deer Collaring Project



Data presented is preliminary.
No warranty is made by the Nevada Department of Wildlife as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.

Updated by cmckee: 6/22/2016

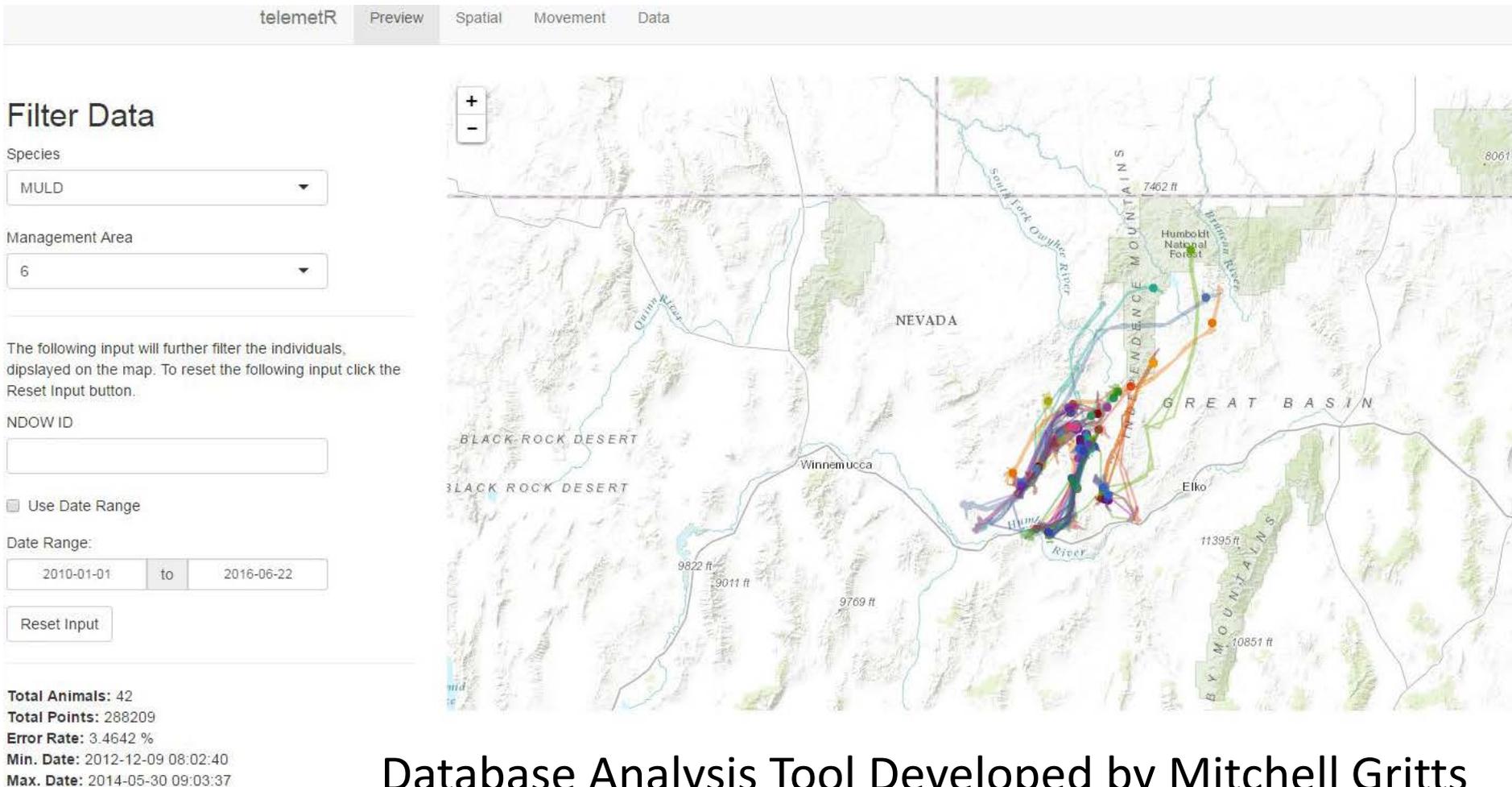
Research questions

- What specific conditions drive timing of migration
 - Environmental (Snow depth, temperature, photoperiod, Spring green-up)
 - Physiological (Body condition, Age, reproductive status, etc.)
 - Behavior (Cultural transmission, mother-offspring bond, social groups)

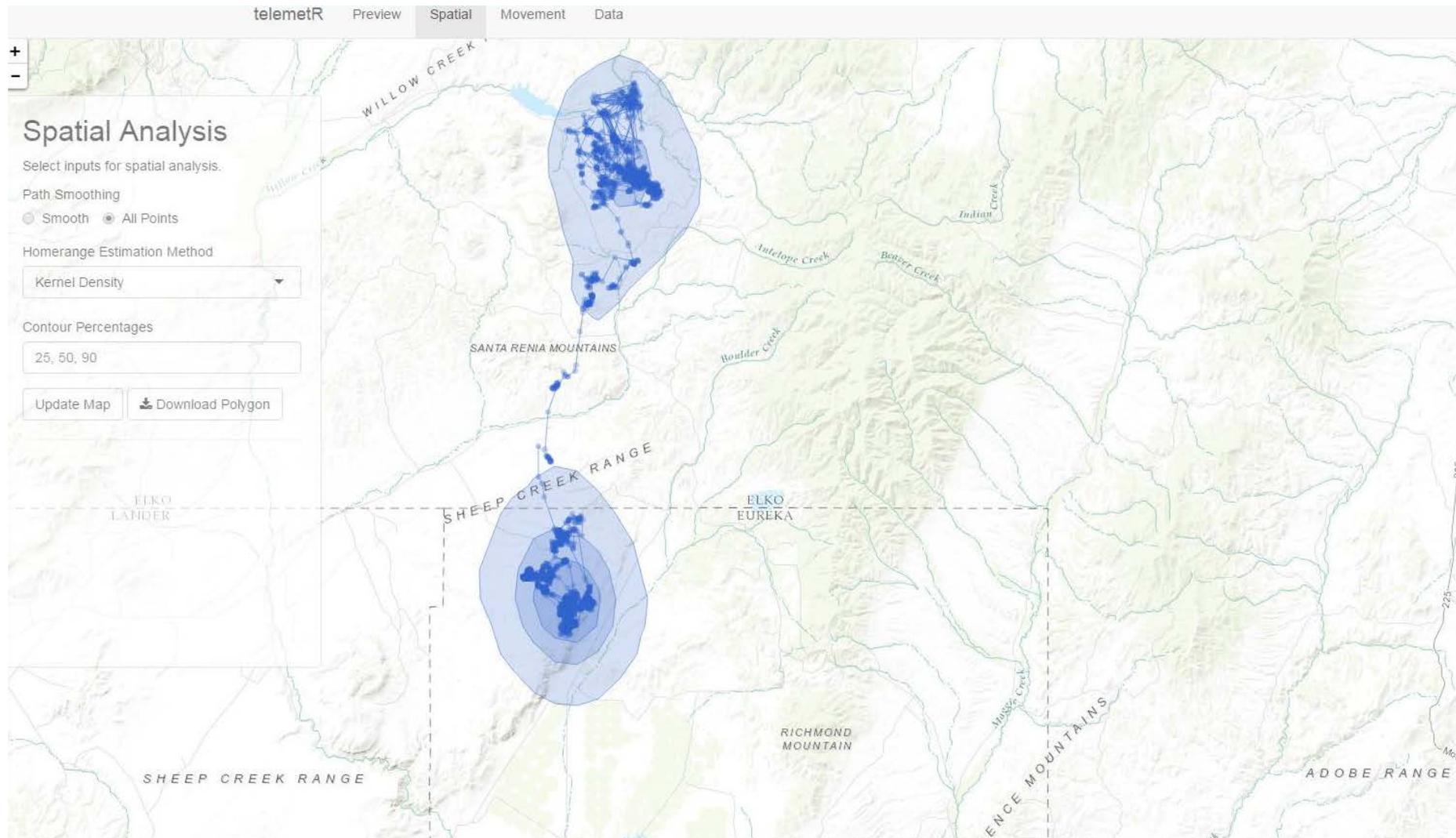
Research Questions

- Do mule deer populations in Nevada exhibit different strategies of seasonal distribution?
 - Obligate migration strategy
 - Deep snow at upper elevations force deer to lower elevation winter ranges (most northern NV populations)
 - Facultative or (Partial) migration strategy
 - Only migrate during severe winters (migration distance and vary greatly)
 - Resident strategy
 - No major movements outside of normal home-range
 - May occur in agricultural areas or regions without significant weather events
 - (ie where year round forage is available)

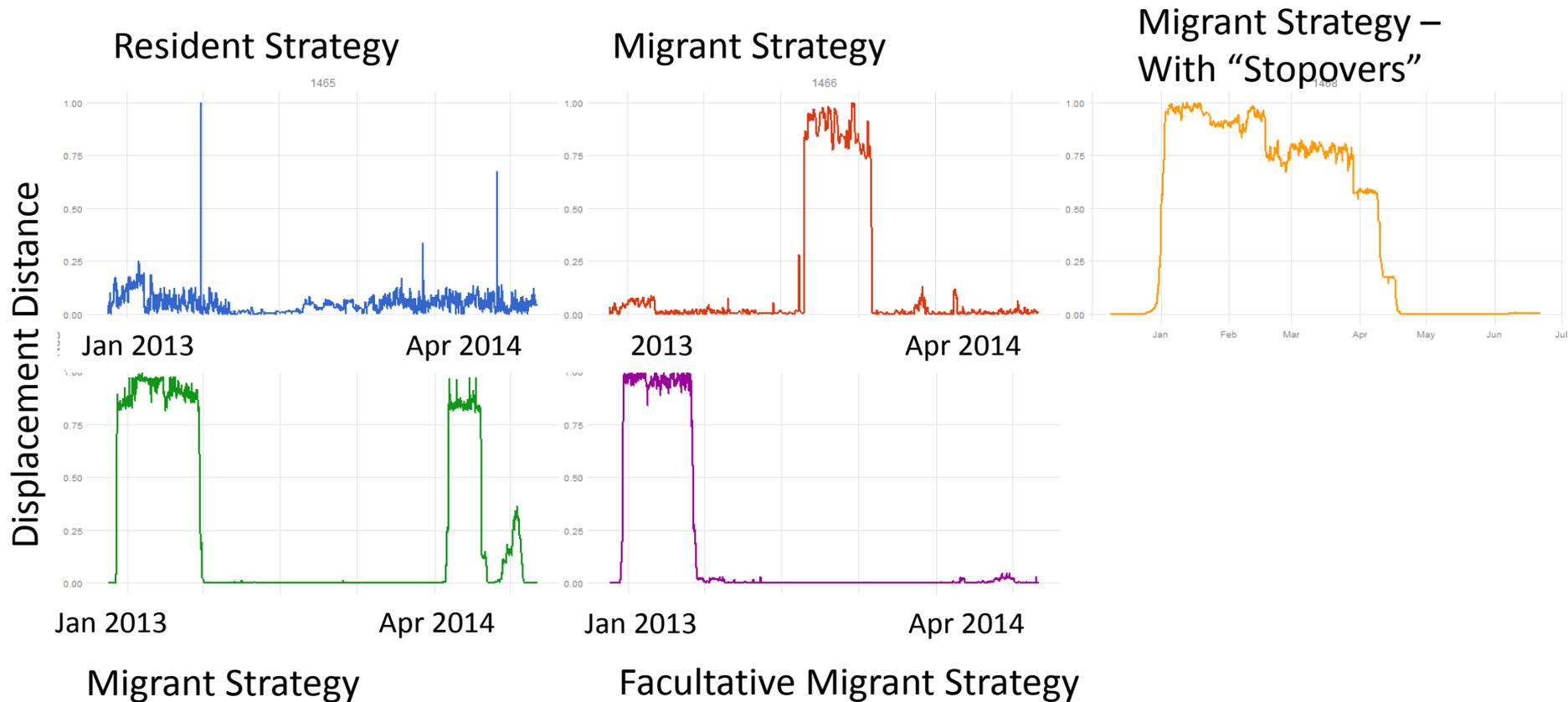
Database structure – Analysis Tools – Website Development – GIS Department



Database structure – Analysis Tools – Website Development



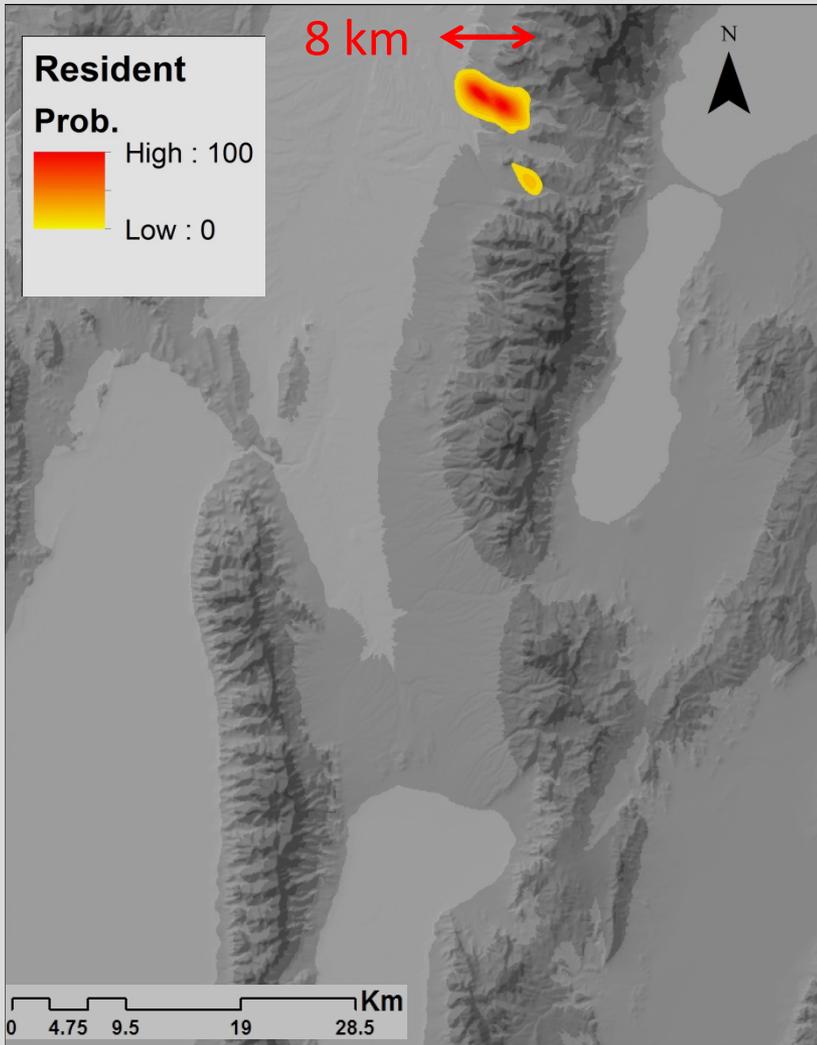
Database structure – Analysis Tools – Website Development



Variation in Migration Strategy

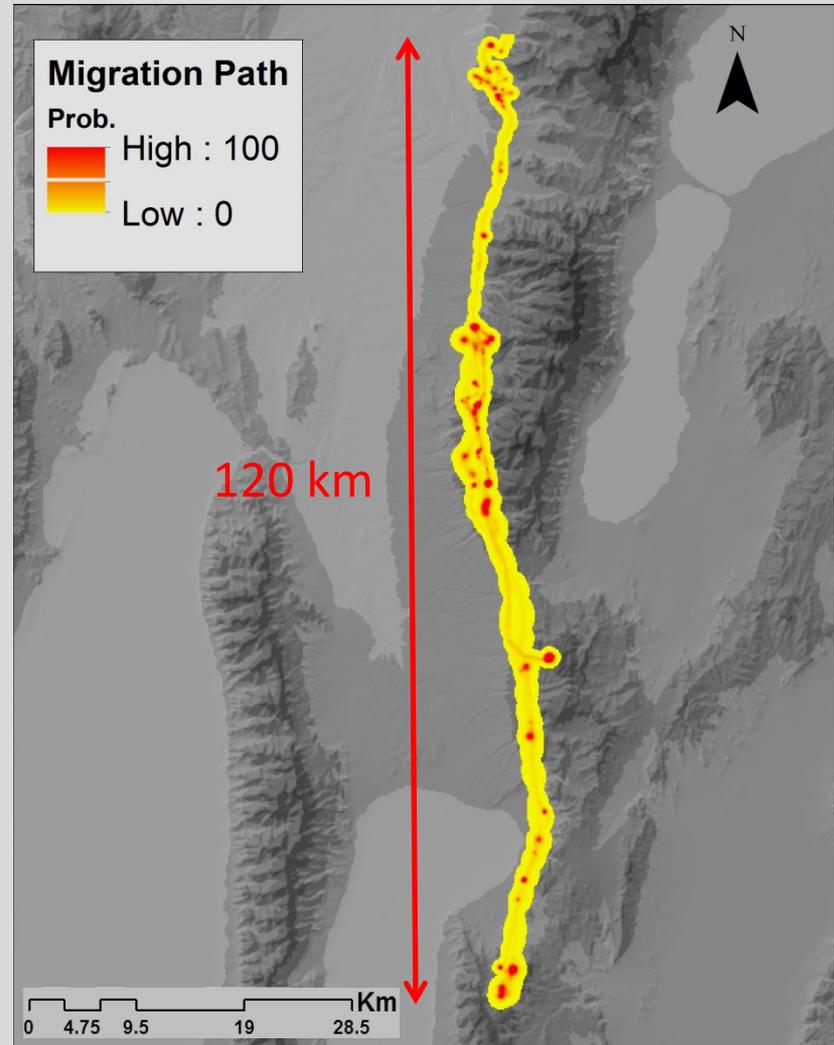
Resident Strategy

Net Displacement = 8 km

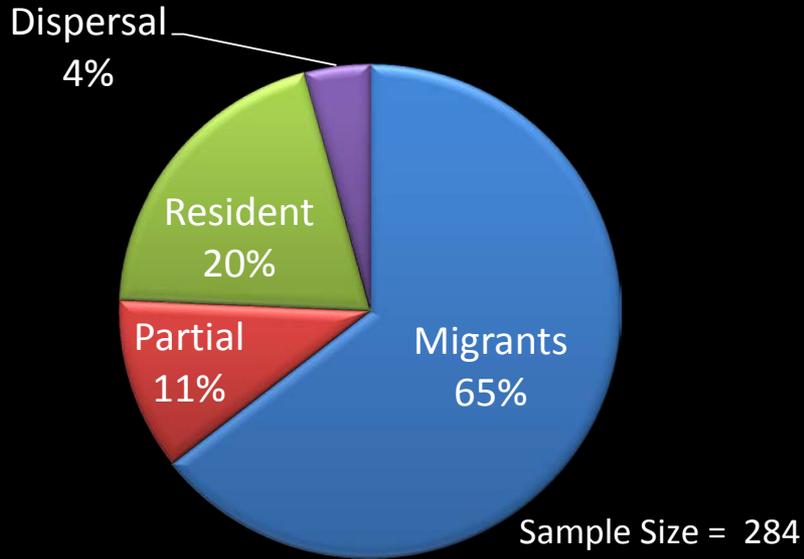


Migrant Strategy - Obligate

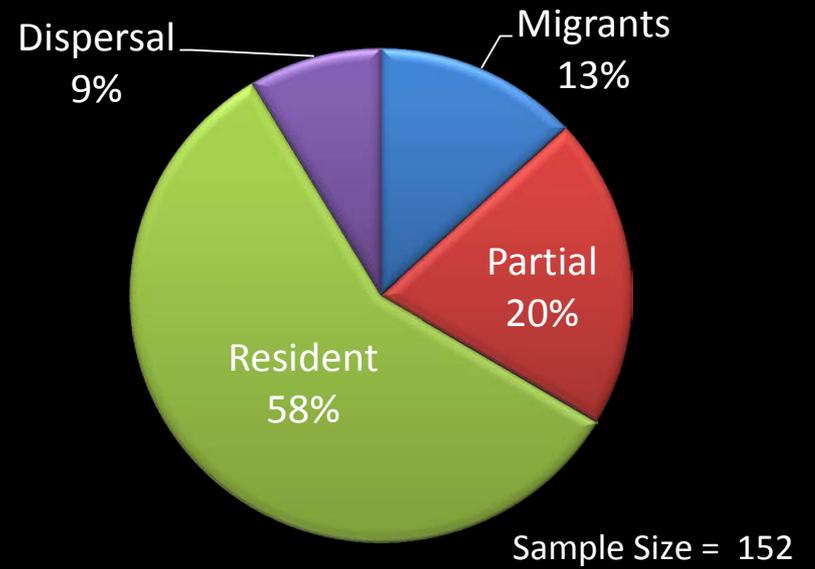
Net Displacement = 120 km



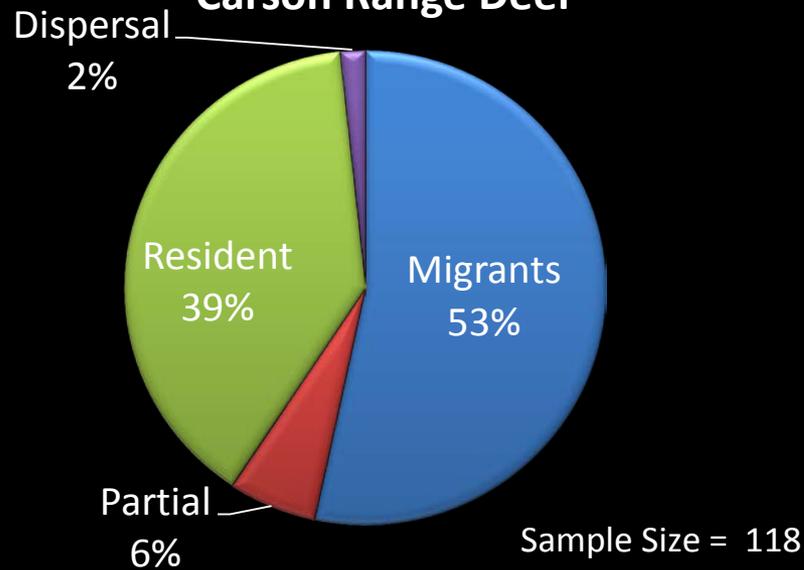
Ruby Mtn Deer



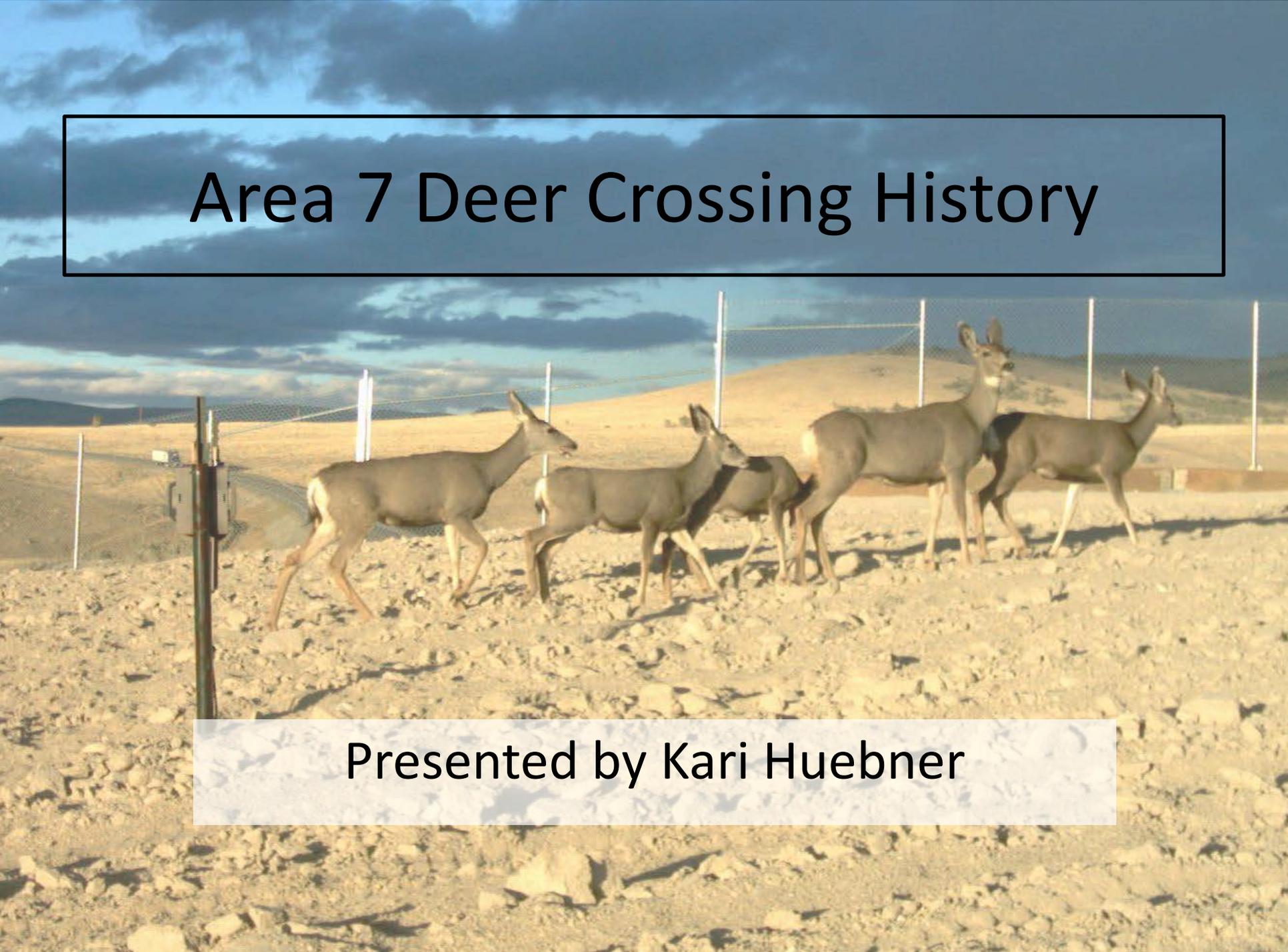
Simpson Park Deer



Carson Range Deer



Area 7 Deer Crossing History

A photograph showing four deer walking from left to right across a rocky, dry field. In the background, there is a chain-link fence supported by metal posts. Beyond the fence, the landscape consists of rolling, dry hills under a blue sky with scattered white clouds. The deer are in various stages of crossing the field, with some appearing to be near the fence.

Presented by Kari Huebner

Area 7 Deer Crossing History

- Discussions started between NDOW and NDOT in 2006
- At that time it was estimated that approximately 300 Area 7 deer were being struck on roadways during migration (I-80 and Hwy 93)
- After many meetings, the 10 mile location on Hwy 93 was chosen due to the number of vehicle collisions per mile and the ease of constructability

The 10 mile Overpass was completed in July 2010

Cost was \$1.8 million and it was funded by Q1 monies (\$500,000) and the American Recovery and Reinvestment Act



Three undercrossings and exclusionary fencing were completed Summer 2010

Cost was \$2.2 million. Funding came from Federal Highway Safety Funds and Wildlife and Sport Fish Restoration dollars.



HD Overpass was completed Spring 2011



Silverzone Safety Crossing was completed Fall 2013

First Overpass completed on I-80, with two tunnels covering 5 lanes of traffic



Pequop Summit Crossings

- Currently under construction
- Two overpasses and two underpasses



So do they work?

- UNR Graduate Study conducted starting Fall of 2010 through Spring 2013
- Over 16,000 crossings were observed in four migrations, 82% used the overpass and 18% used the undercrossings
- That was 16,000 potential deer-vehicle collisions avoided in the first two years alone!
- At 10 mile, deer-vehicle collisions were reduced by 50% with each subsequent migration
- Average cost of a deer vehicle collision = \$4,290

Mule Deer Migration Video by Tim Torell

