

Mountain lion predation on feral horses in Nevada: *chance encounters or a new economy?*



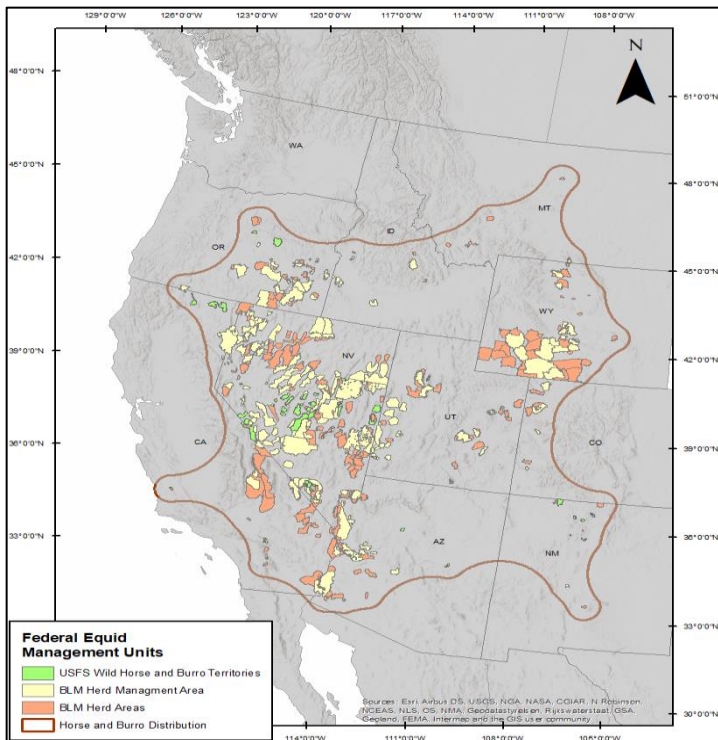
*Presentation to the NDOW Commission
November 5, 2021*



Dr. David Stoner, Utah State University, Logan
Dr. Kate Schoenecker, USGS-Fort Collins Science Center
Pat Jackson, NDOW Predator Specialist, Reno

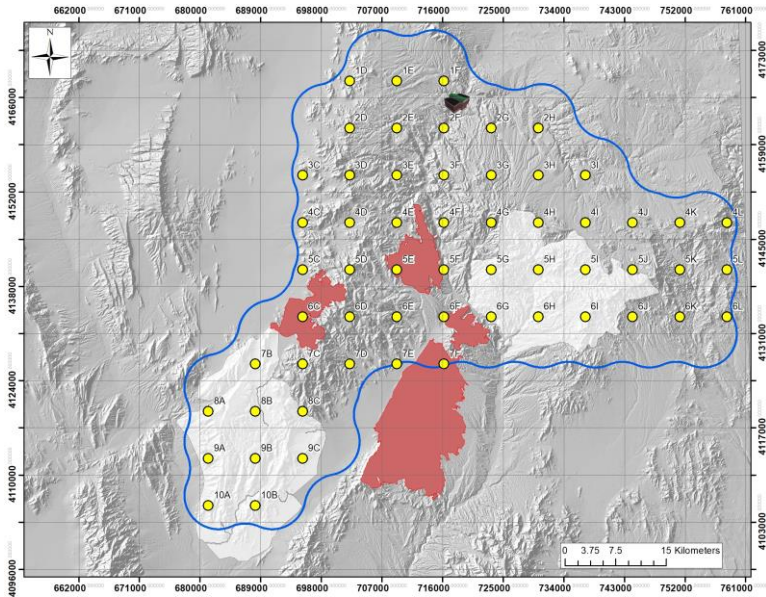
Background

- Nevada has most feral horses; broad implications for management
- NDOW radio collaring mtn lions; diet includes horses
- NDOW developed formal study with USGS and USU



Overarching questions:

- How much of mtn lion diet is comprised of horses?
 - *Are lions 'selecting' horses, or just opportunistic because of availability?*
- How does horse removal affect mtn lion diet selection?
 - *Switching to bighorns? Increasing deer consumption? Livestock?*
- Do horse removals influence mtn lion home range size or fertility?

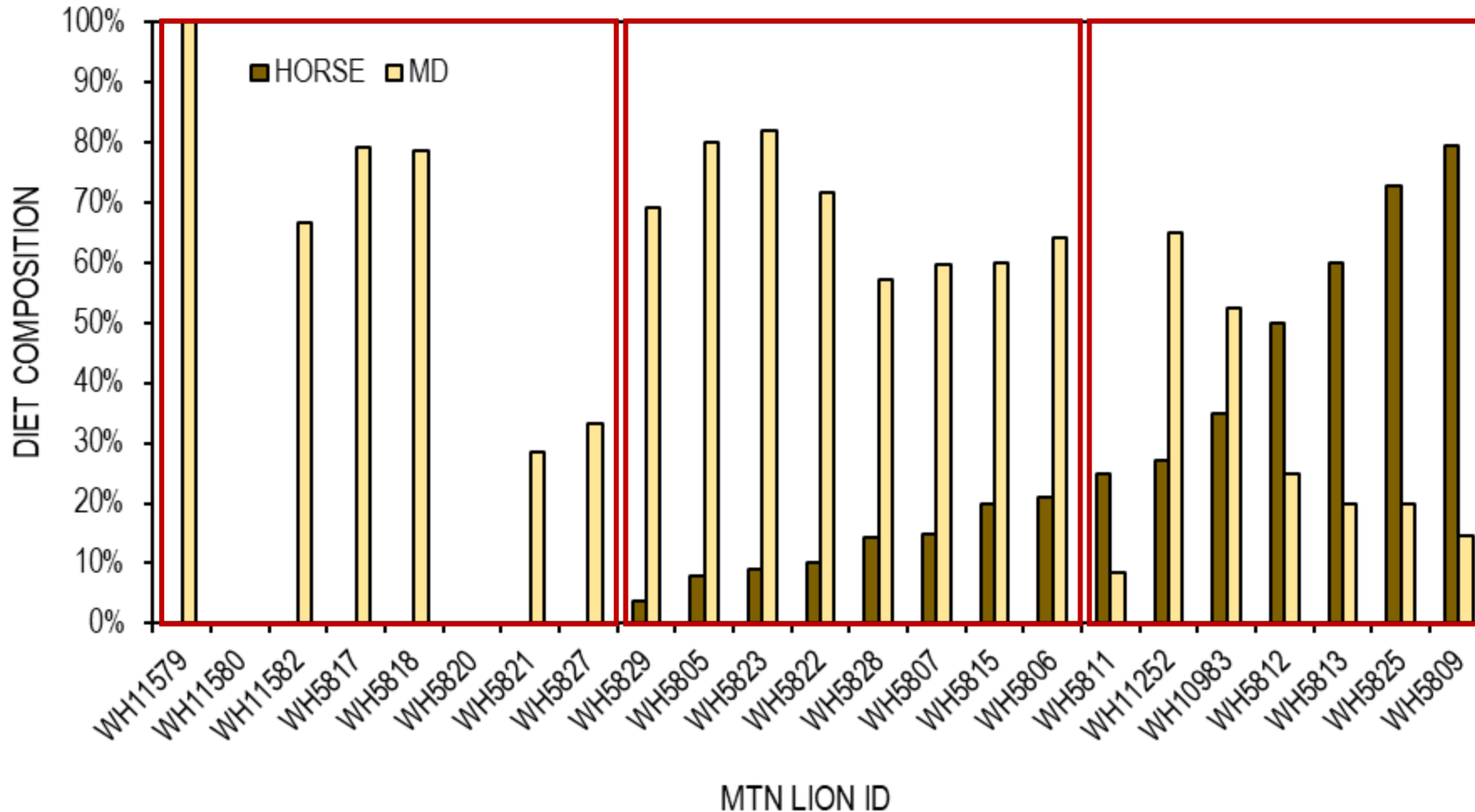


Progress: 2017-2021

- Deployed 31 radio collars (18F, 13M mtn lions);
- Deployed 56 cameras to measure prey abundance
- Hired graduate student and field technicians to collect data
- Gather (treatment) occurred in Dec 2020 (455 horses removed)
- 12/20 forward: collecting post treatment data (Δ in behavior)



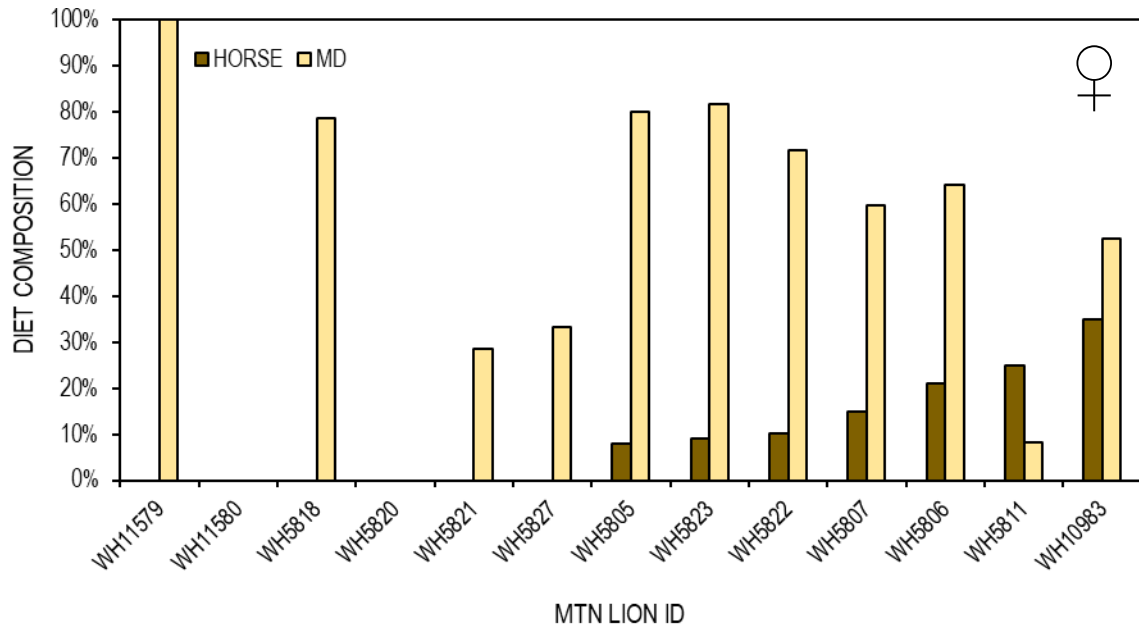
Preliminary Results: Proportion of deer & horses in mtn lion diet (Delamar Mtn, 2018-2021)



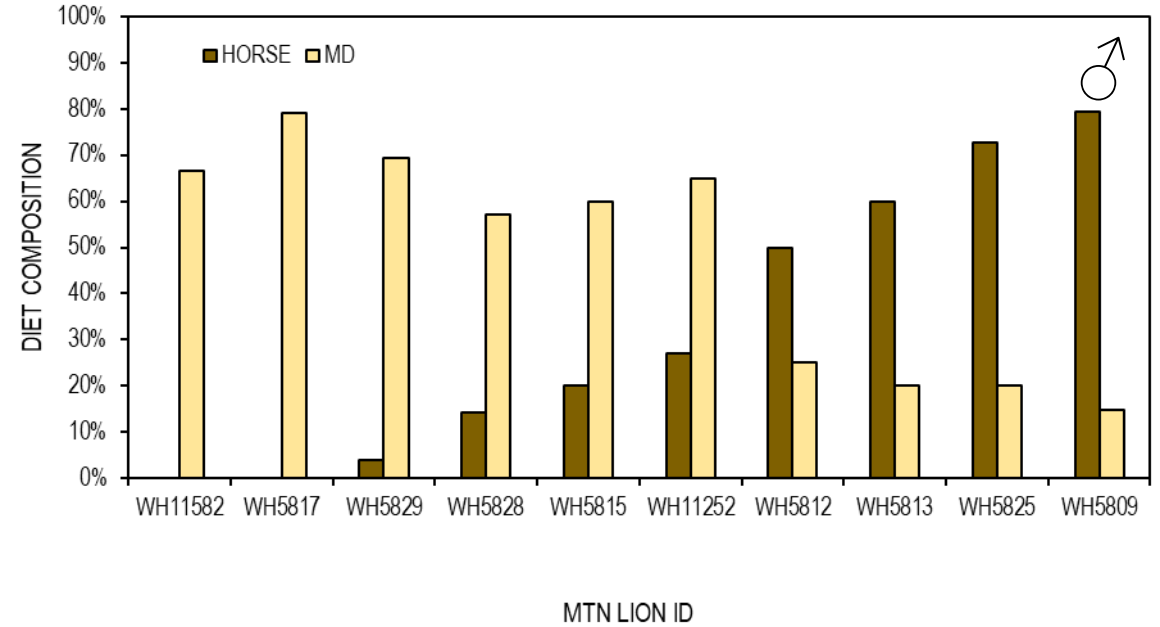
These data are preliminary and subject to revision. They are being provided to meet the need for timely best science. The data are provided on the condition that neither the U.S. Geological Survey nor the U.S. Government may be held liable for any damages resulting from the authorized or unauthorized use of these data.



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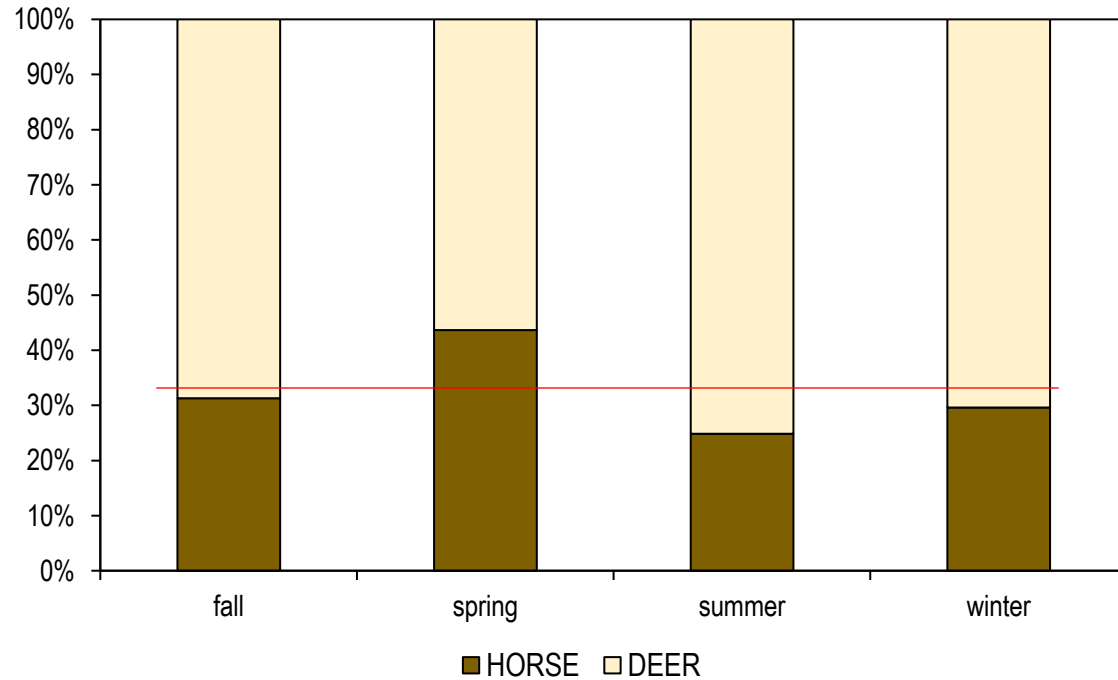
females



males

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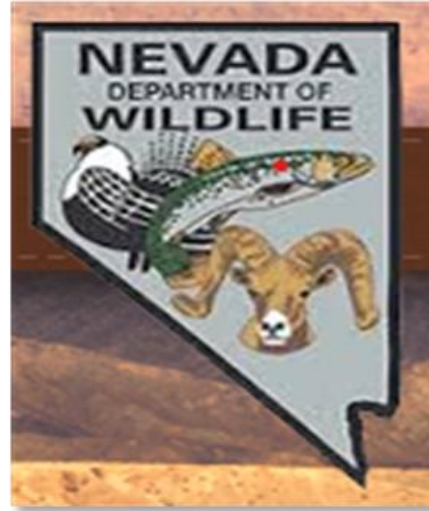
Preliminary Results: Seasonal use of deer & horses in mtn lion diet (Delamar Mtn, 2018-2021)



SEASON	HORSE	DEER
Fall	31%	69%
Spring	44%	56%
Summer	25%	75%
Winter	30%	70%
MEANS:	33%	68%

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Acknowledgements

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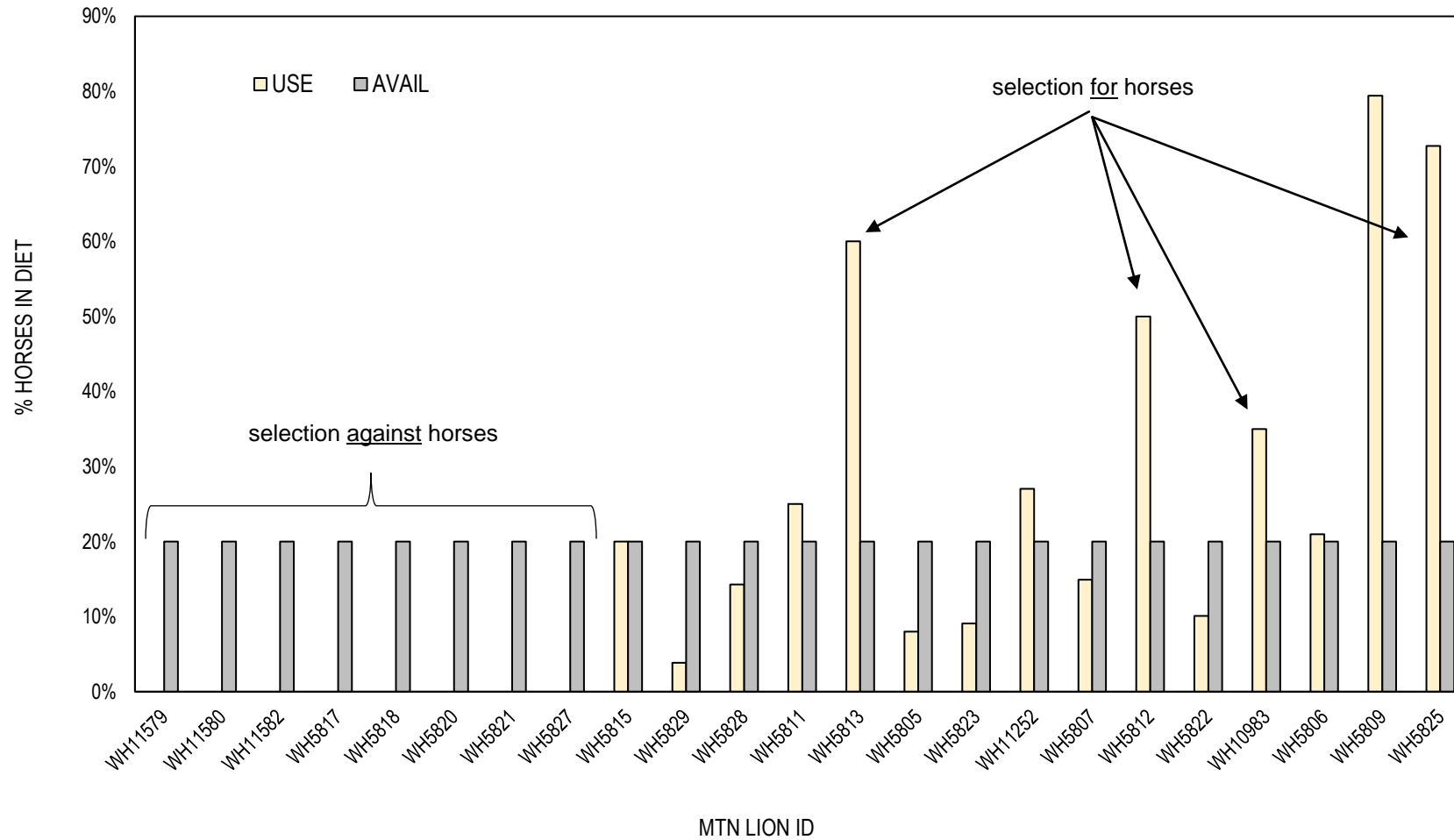
Are horses subsidizing mtn lions?

1. 5 of 31 collared lions dispersed to Utah (2 F, 3 M); 4/5 harvested
2. Large home ranges (~ 400 mi²);
3. High potential for deer-horse competition (shrub-dominated environment)
 - a. If so, then horses are replacing deer in diet; no subsidy (predation relief)
 - b. If no competition, then horses may be an additional food resource supporting more lions





Conceptual Diagram: Proportion of horses in diet relative to availability



Note: this assumes horses represent 20% of available ungulate prey biomass across the study area. We will ultimately use remote cameras to measure this at the level of the home range for each individual mtn lion.

Objectives

1. To determine relative proportion of mountain lion diet consisting of feral horses versus other ungulate prey in two feral horse populations in Nevada.
2. To test whether mountain lions switch to bighorn sheep or increase predation rates on mule deer following removal of feral horses.
3. To determine effect of horse removal on mountain lion home range size and daily movements.
4. To determine immigration rate of neighboring horses following removal, and changes in relative density.
5. To evaluate if horse population size can be estimated using camera traps with mark-resight analyses.