Home on the Range: where deer [and antelope] compete with feral horses for limited resources

David Stoner & Cody Schroeder

Utah State University

Nevada Dept of Wildlife

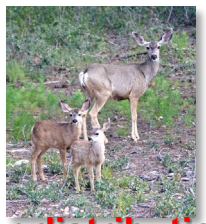
Results are preliminary and not for citation or distribution

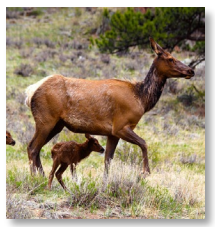
The Journal of Wildlife Management 85(6):1062–1073; 2021; DOI: 10.1002/jwmg.21993

Special Section on Management of Feral Equids

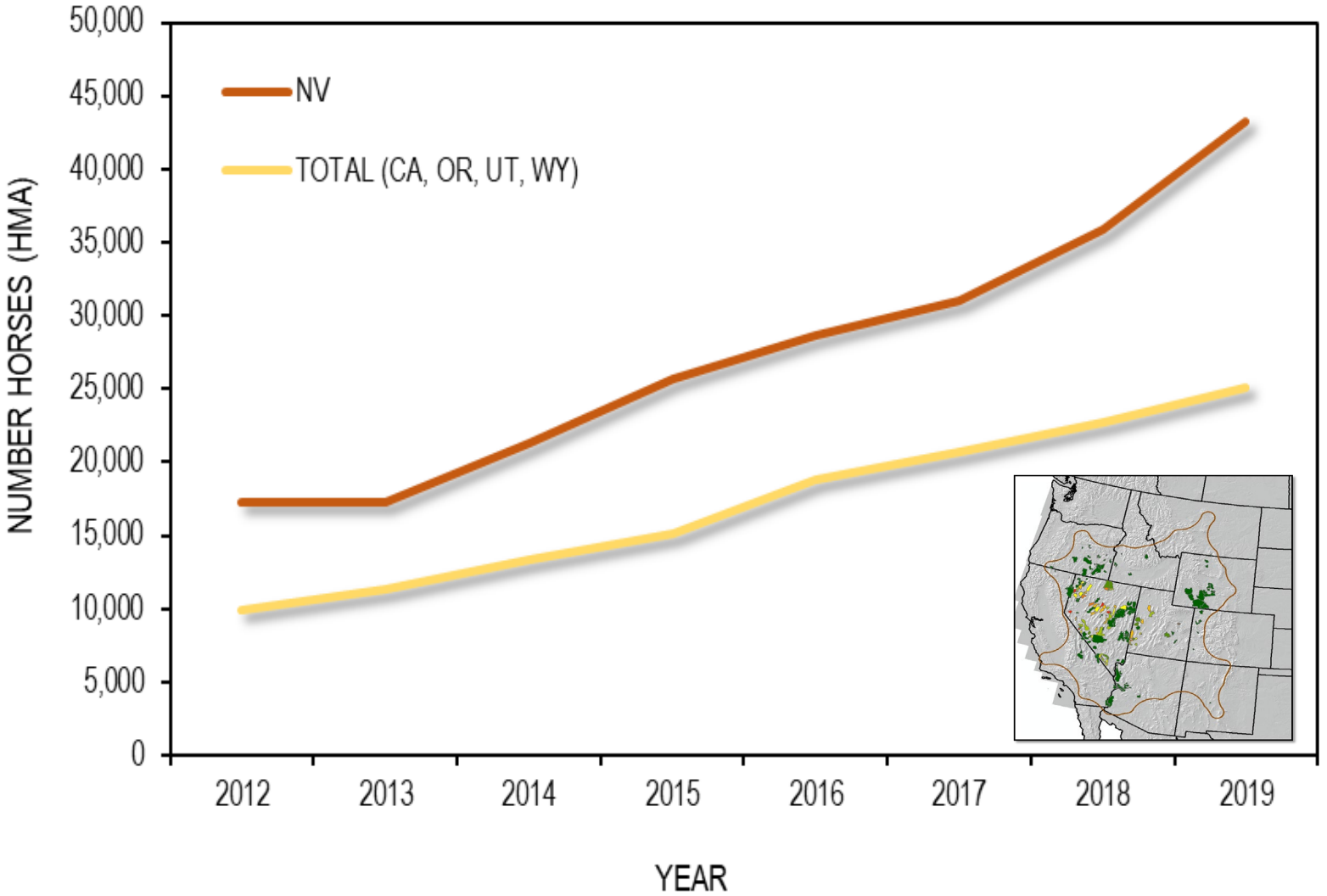
Distribution of Competition Potential Between Native Ungulates and Free-Roaming Equids on Western Rangelands

DAVID C. STONER,[1] *Department of Wildland Resources, Utah State University, 5230 Old Main Hill, Logan, UT 84322-5230, USA*
MICHAEL T. ANDERSON, *Department of Wildland Resources, Utah State University, 5230 Old Main Hill, Logan, UT 84322-5230, USA*
CODY A. SCHROEDER, *Nevada Department of Wildlife, 6980 Sierra Center Pkwy, Reno, NV 89511, USA*
COLE A. BLEKE, *Department of Wildland Resources, Utah State University, 5230 Old Main Hill, Logan, UT 84322-5230, USA*
ERIC T. THACKER, *Department of Wildland Resources, Utah State University, 5230 Old Main Hill, Logan, UT 84322-5230, USA*






What's the Problem?



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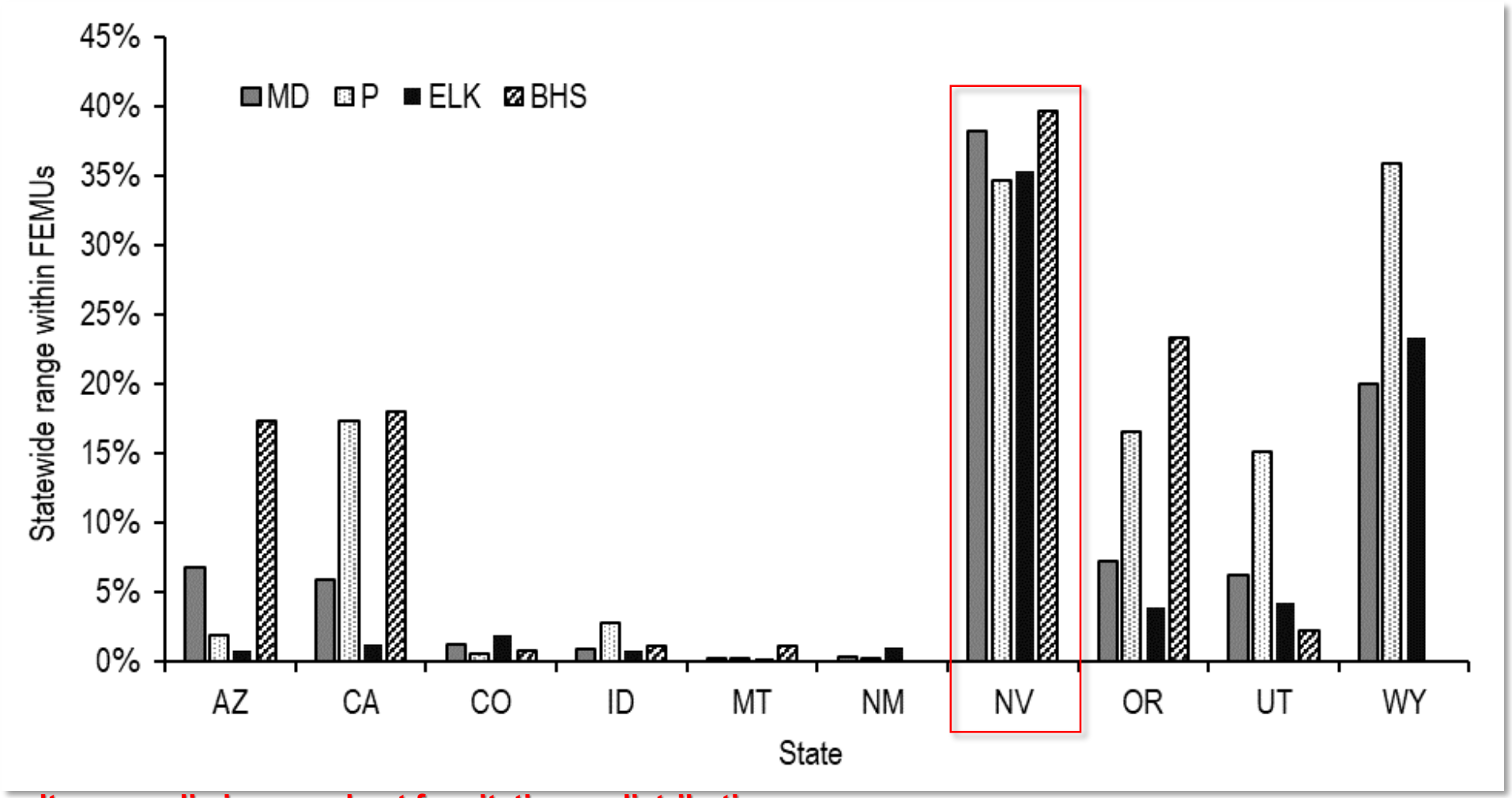
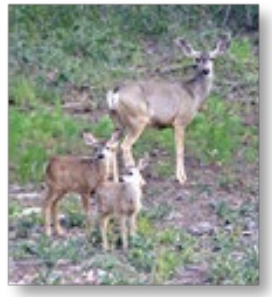
How much wildlife habitat is occupied by feral horses & burros?





Deer and horse population trends in Nevada

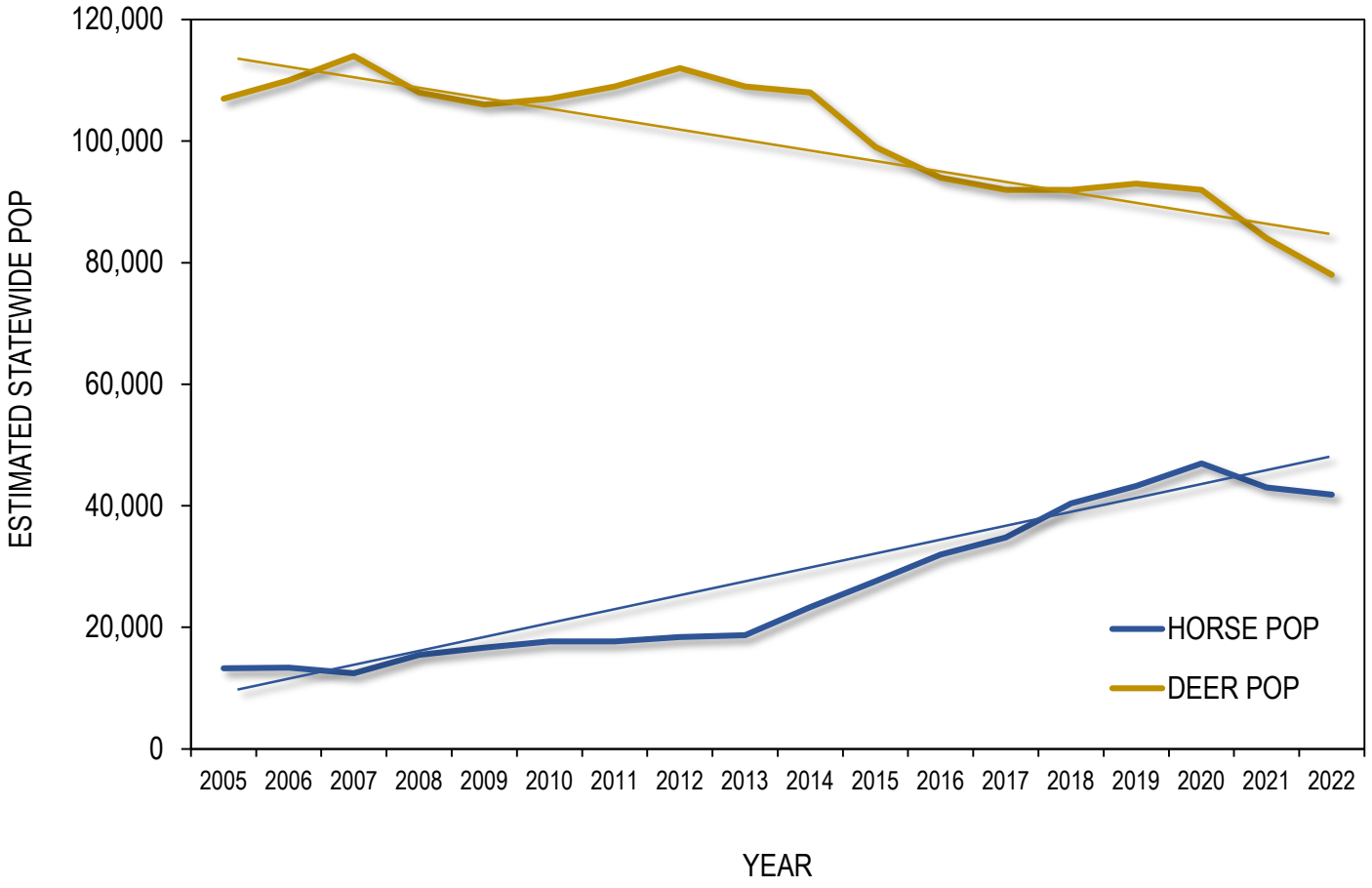


Table 6–5 Animal-unit equivalents guide

Kinds / classes of animals	Animal-unit equivalent	Forage consumed		
		day	month	year
Cow, dry	0.92	24	727	8,730
Cow, with calf	1.00	26	790	9,490
Bull, mature	1.35	35	1,067	12,811
Cattle, 1 year old	0.60	15.6	474	5,694
Cattle, 2 years old	0.80	20.8	632	7,592
Horse, mature	1.25	32.5	988	11,862
Sheep, mature	0.20	5.2	158	1,898
Lamb, 1 year old	0.15	3.9	118	1,423
Goat, mature	0.15	3.9	118	1,423
Kid, 1 year old	0.10	2.6	79	949
Deer, white-tailed, mature	0.15	3.9	118	1,423
Deer, mule, mature	0.20	5.2	158	1,898
Elk, mature	0.60	15.6	474	5,694
Antelope, mature	0.20	52	158	1,898
Bison, mature	1.00	26	790	9,490
Sheep, bighorn, mature	0.20	5.2	158	1,898
Exotic species (To be determined locally)				

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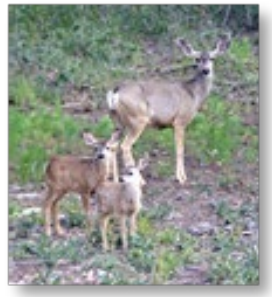
1 horse eats 6.25x as much forage as 1 adult deer

Why is this important?

- Four native species deemed vulnerable to competition with feral equids for water and forage (BLM 2018)

- “In 2011, state residents & nonresidents spent $1.2 billion on wildlife recreation in Nevada” (USFWS 2011)







What do we know?

- Behavioral dominance at water sources
- Reduced forage biomass
- Degradation of wetlands and rangelands
- Spread cheatgrass
- ***Herbaceous veg important during lactation for all ungulates***

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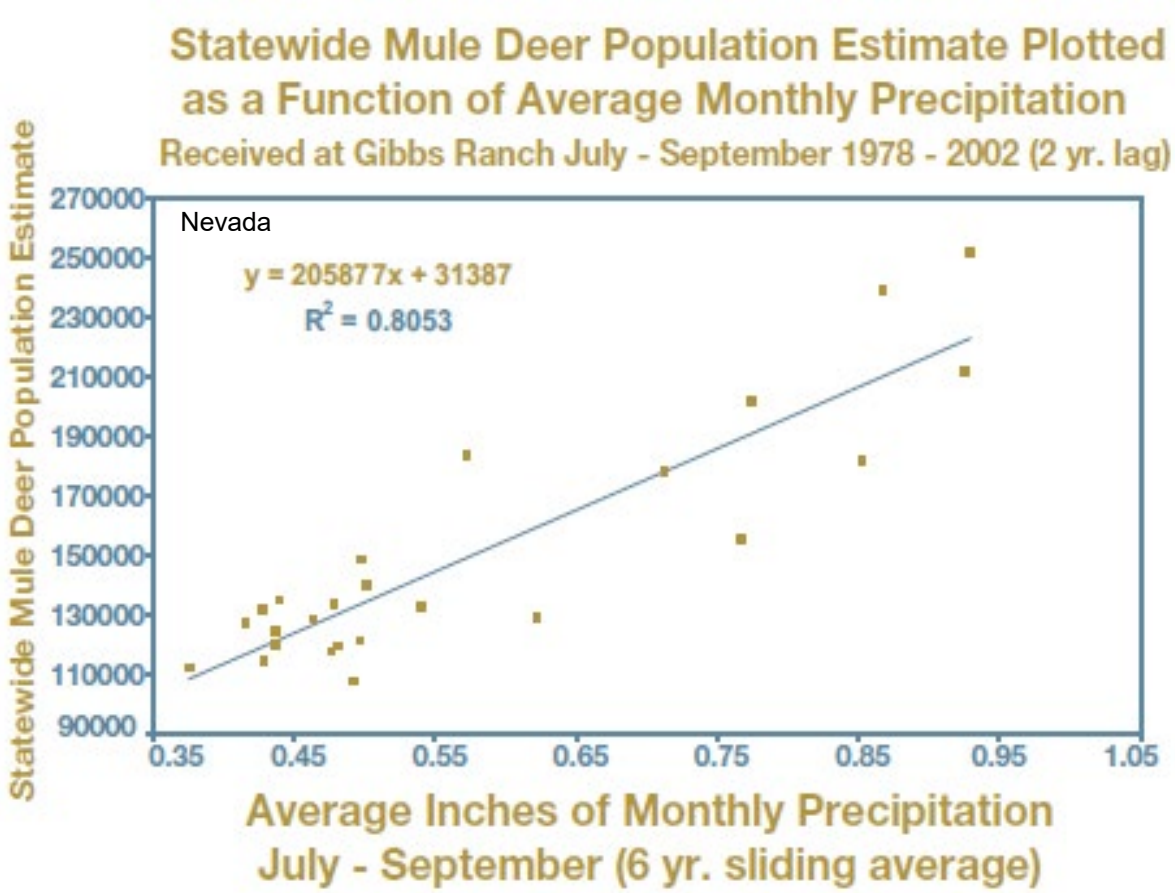
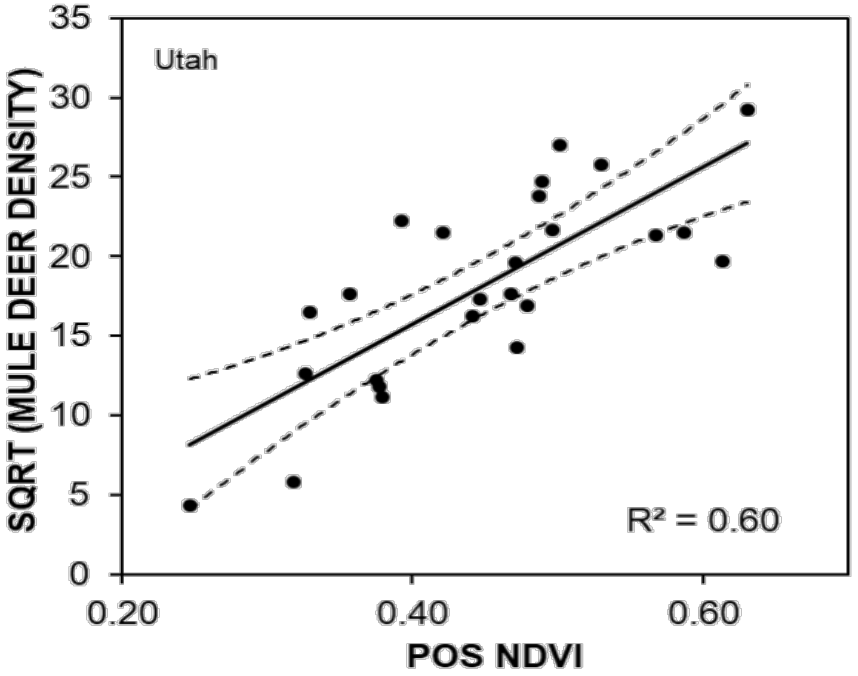
Objectives:

1. What drives mule deer population dynamics?
2. How much deer habitat does Nevada have?
3. Which fawning habitats are occupied by horses?
4. What do we need to measure to determine if horses are competing with deer?

What drives mule deer population dynamics?





Wasley 2004

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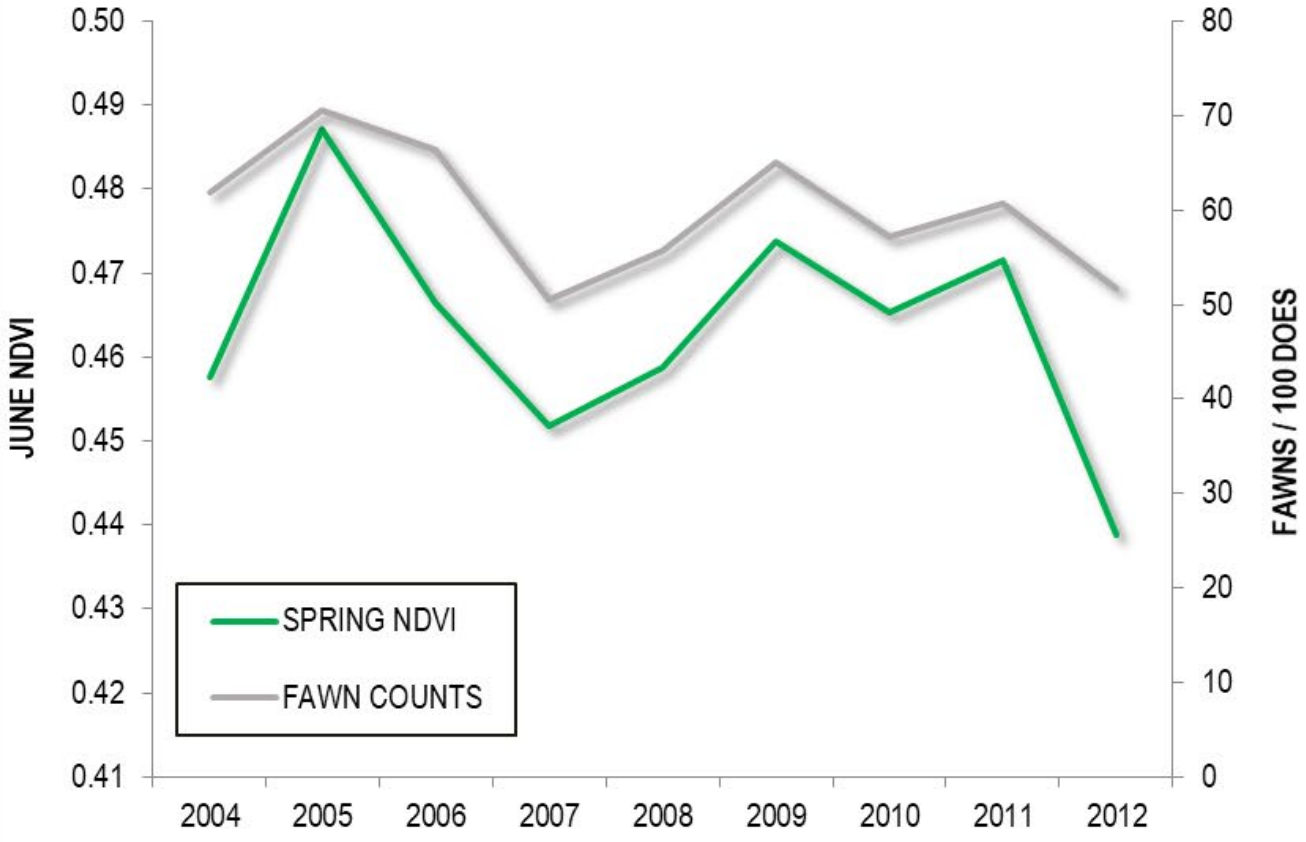
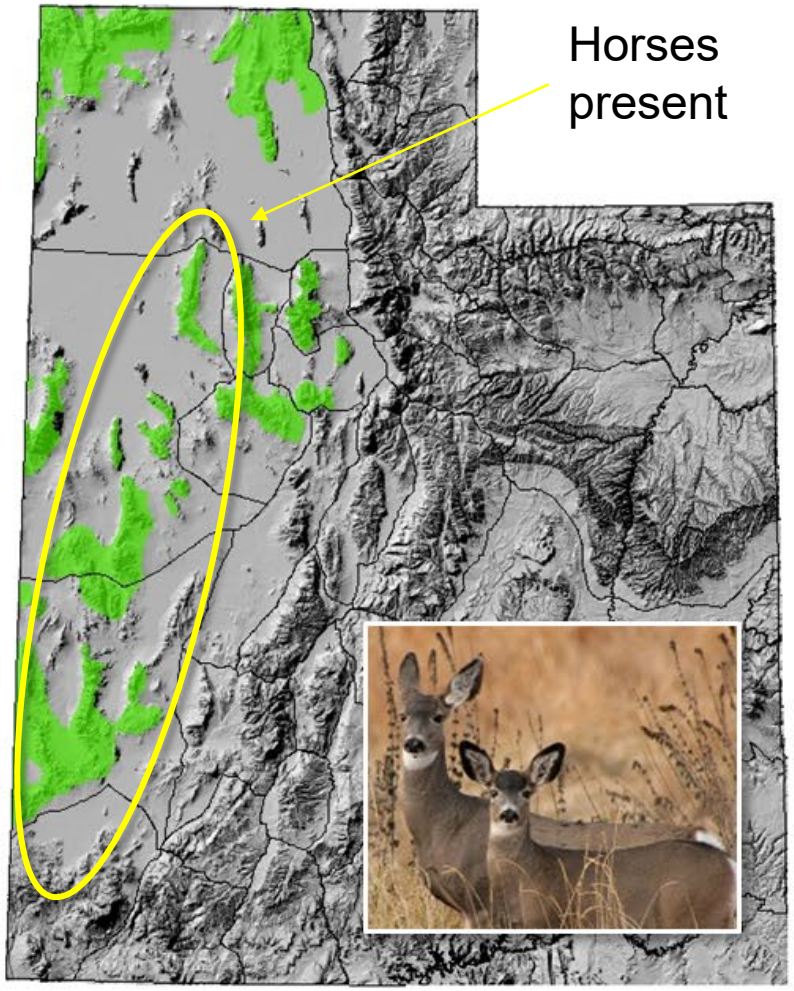
Stoner et al. 2018

Fawn production tracks annual variation in herbaceous resources





Cheatgrass effect (?)

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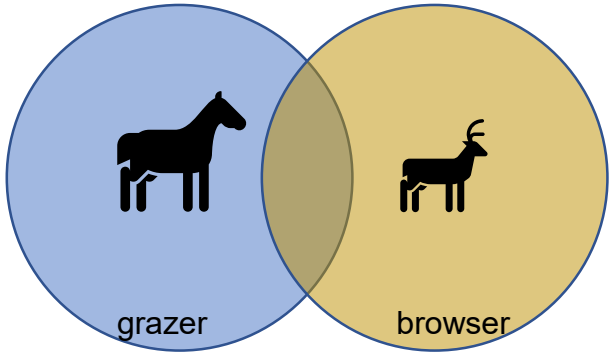
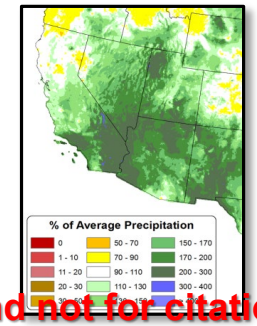
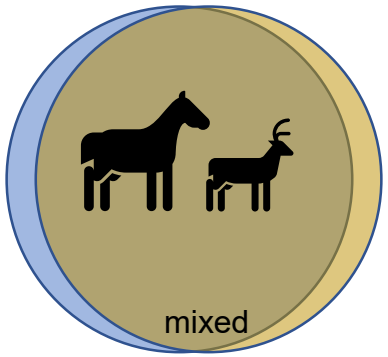
Deer browse, horses graze – what's the problem?

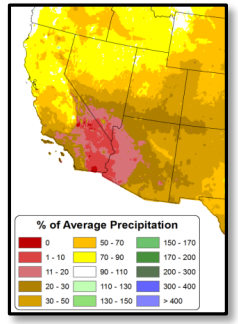


Wet years and / or low horse densities



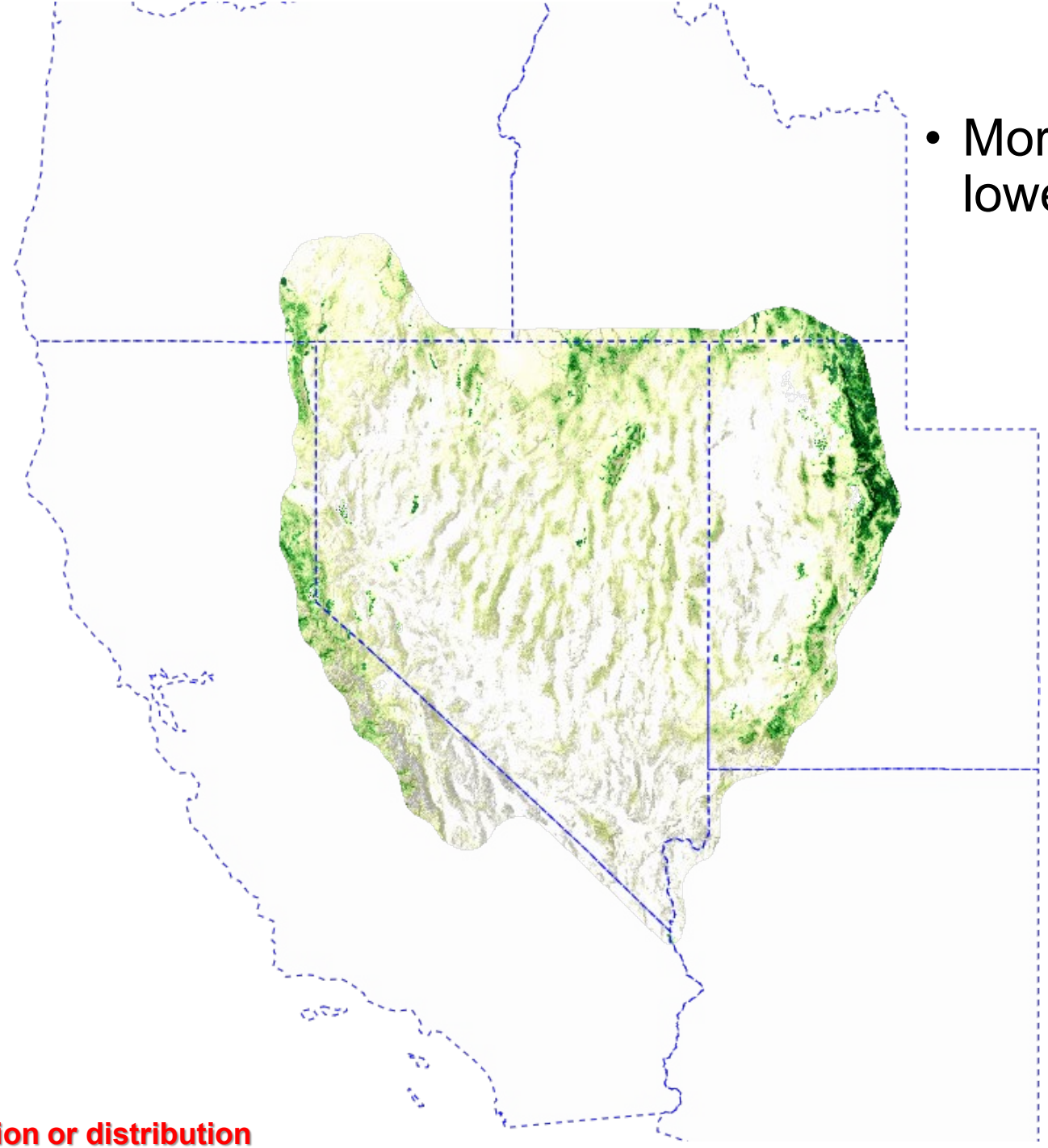


Dry years and / or high horse densities



June NDVI

Wet
(90th percentile)



- More forage, space, lower competition;

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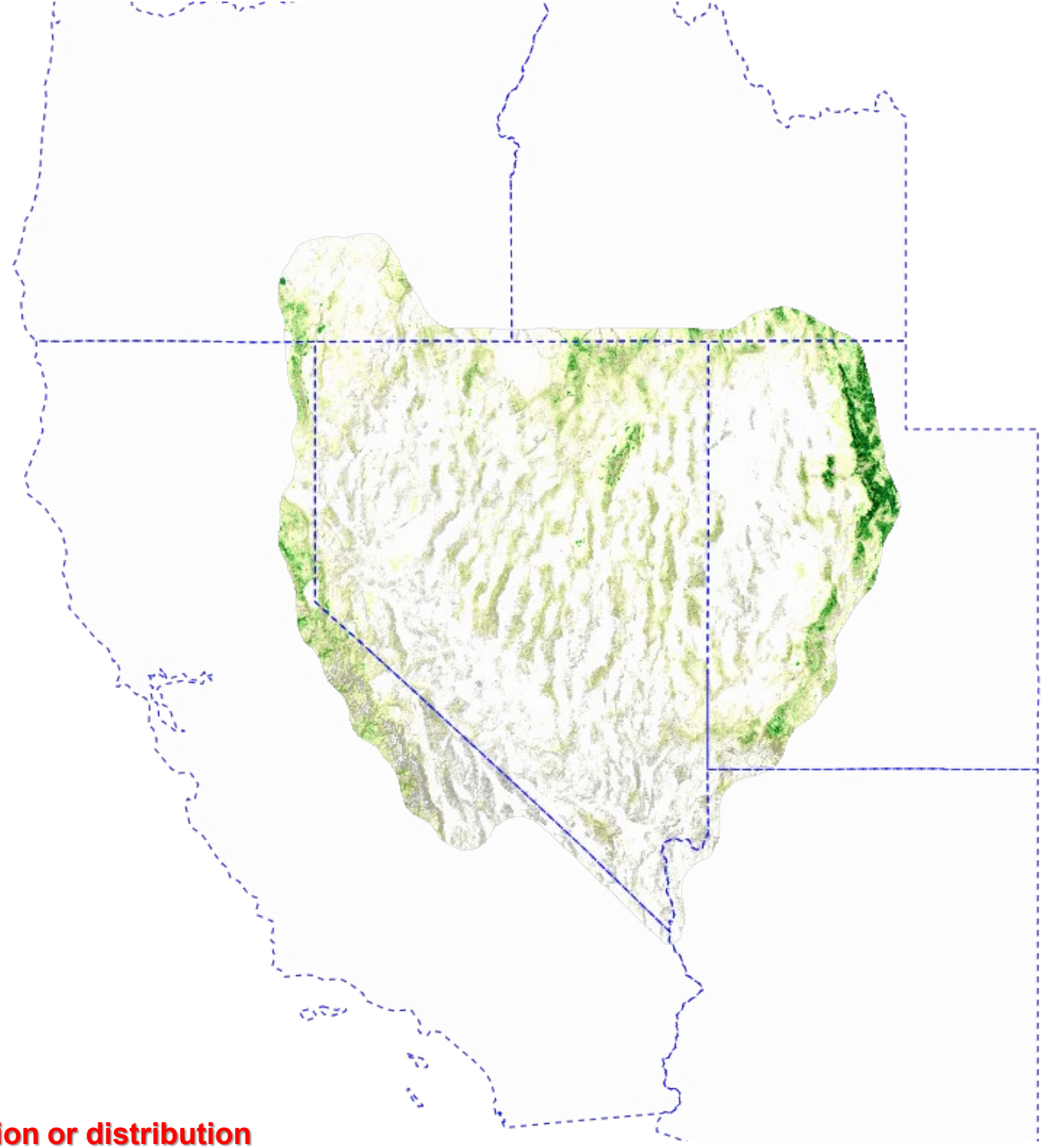
June NDVI

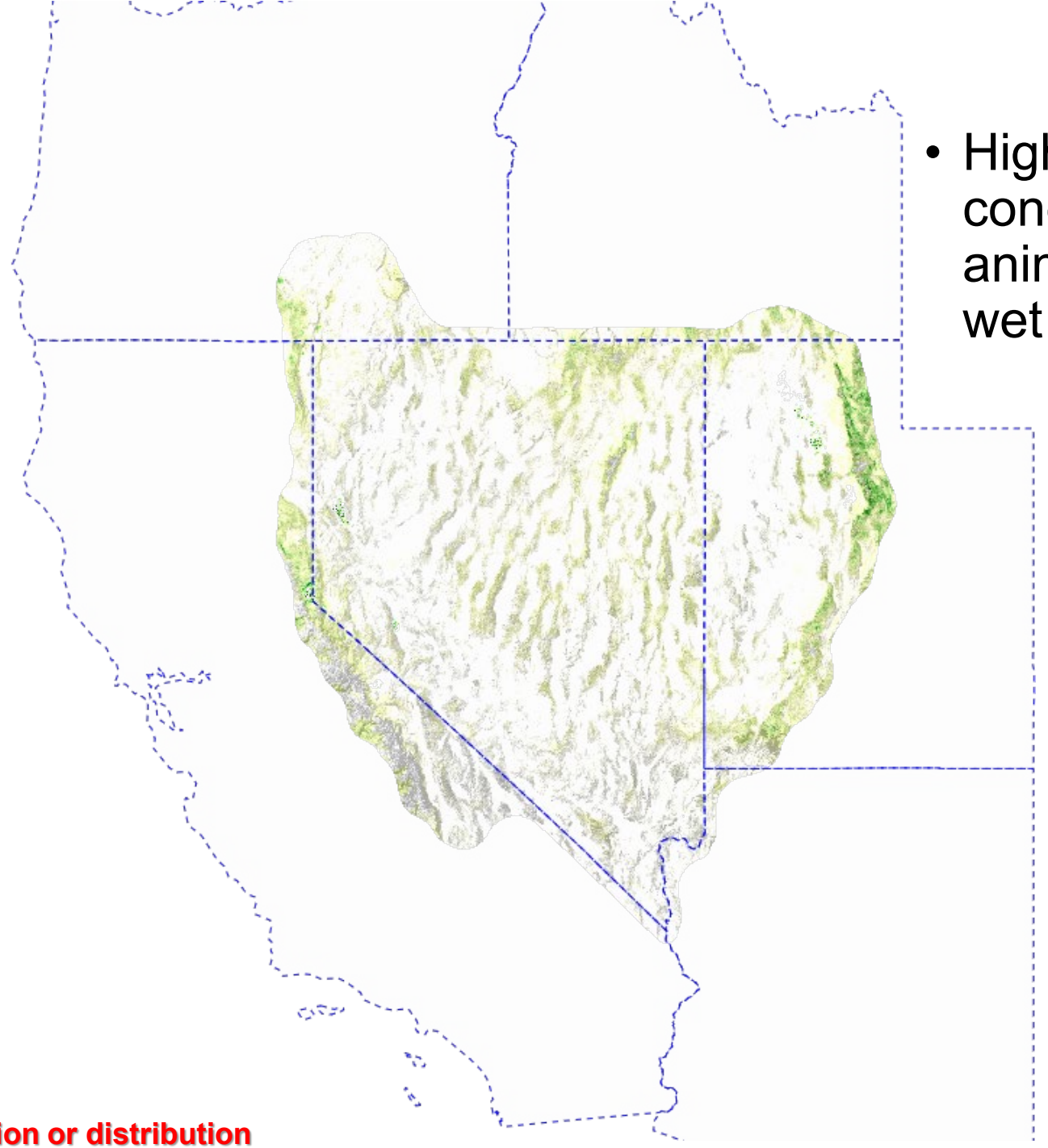
Normal
(50th percentile)



Results are preliminary and not for citation or distribution

June NDVI

Drought
(10th percentile)



- Higher concentration of animals in the few wet areas;

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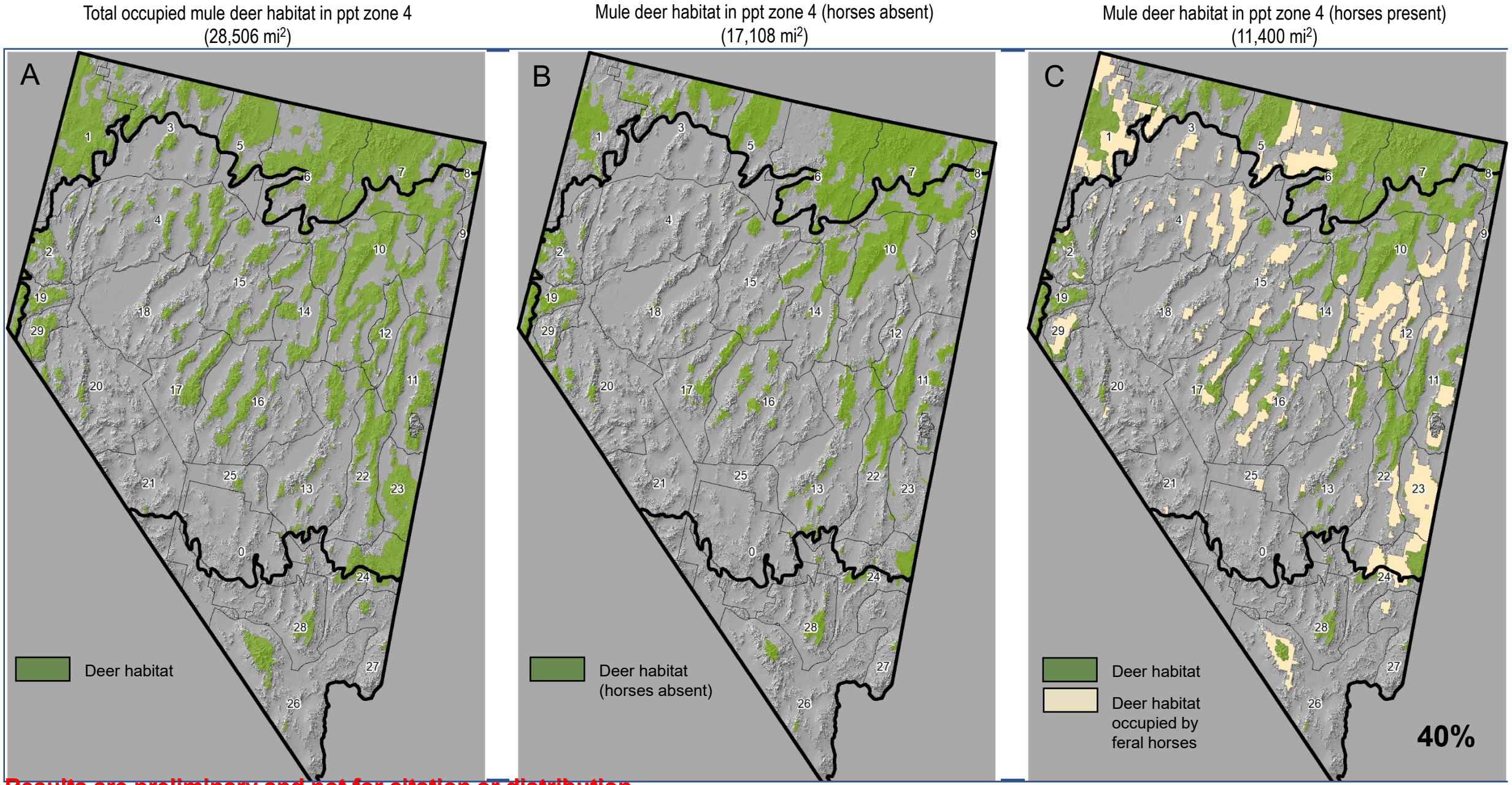
How much deer habitat does Nevada have?

Wet sites (> 12” annual ppt)



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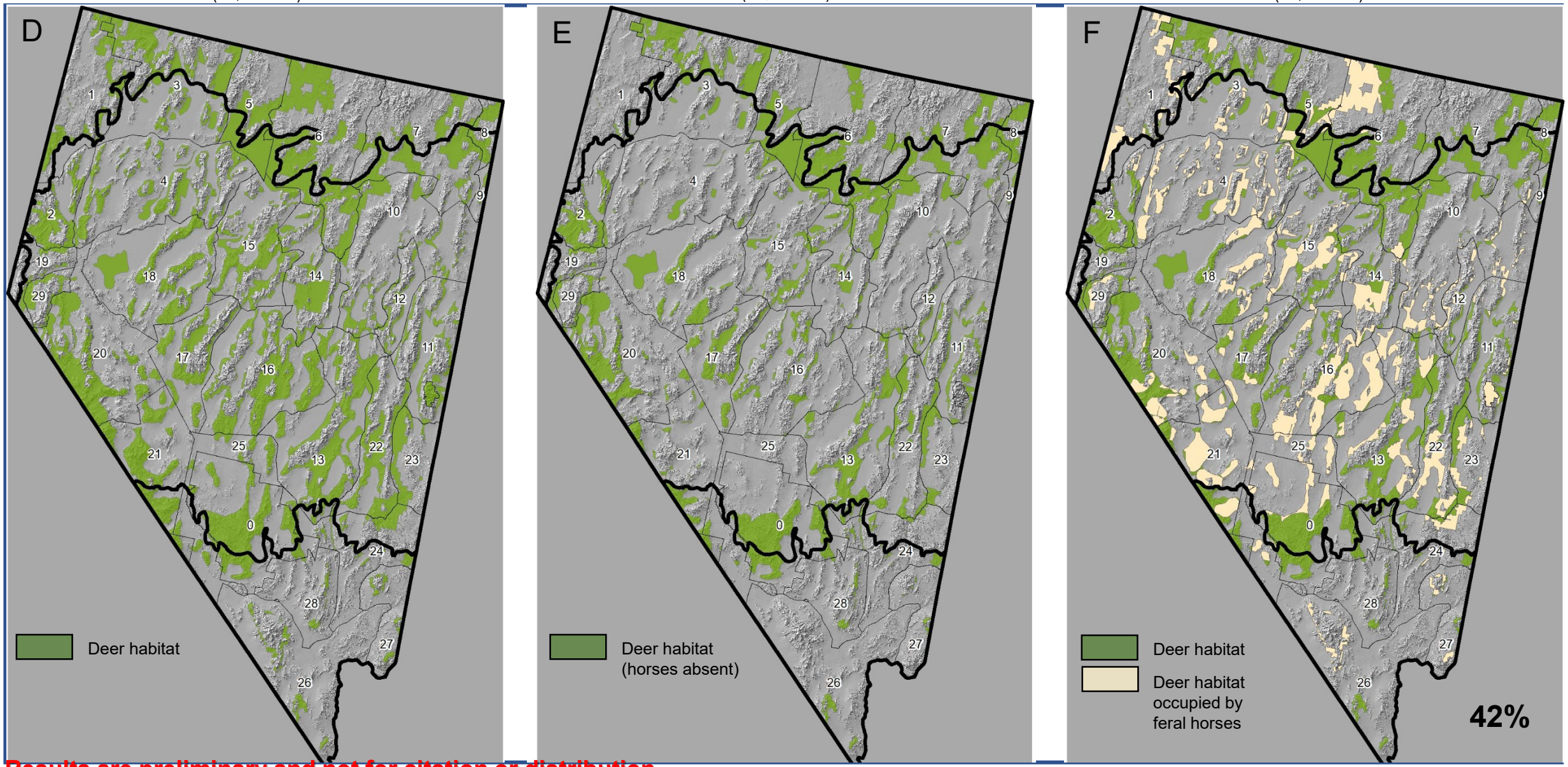
How much deer habitat does Nevada have?

Dry sites (< 12” annual ppt)

Total occupied mule deer habitat in ppt zones 1,2,3
(28,530 mi^2)

Mule deer habitat (ppt zone ≤ 3; horses absent)
(16,470 mi^2)

Mule deer habitat (ppt zones ≤ 3; horses present)
(12,062 mi^2)



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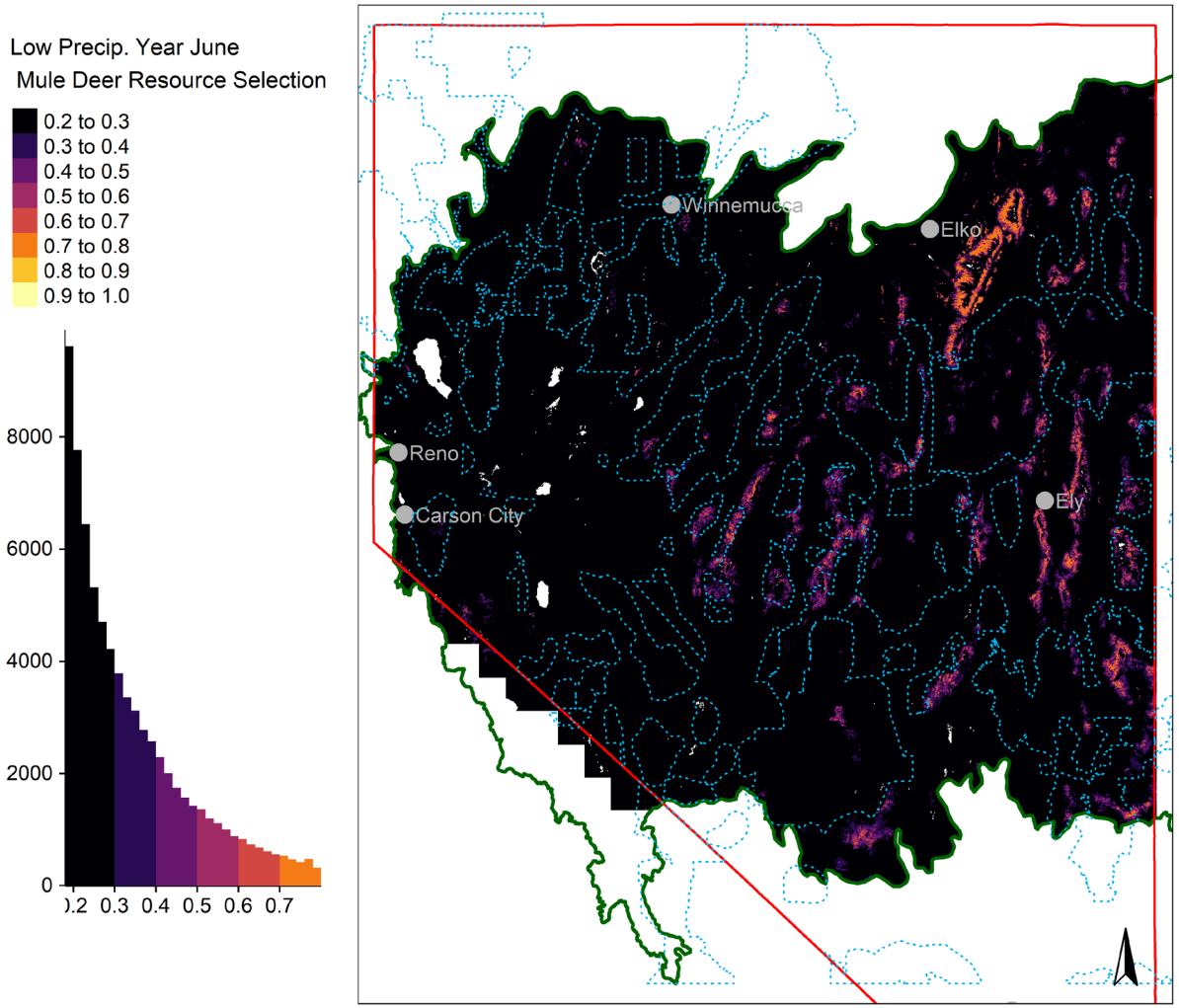
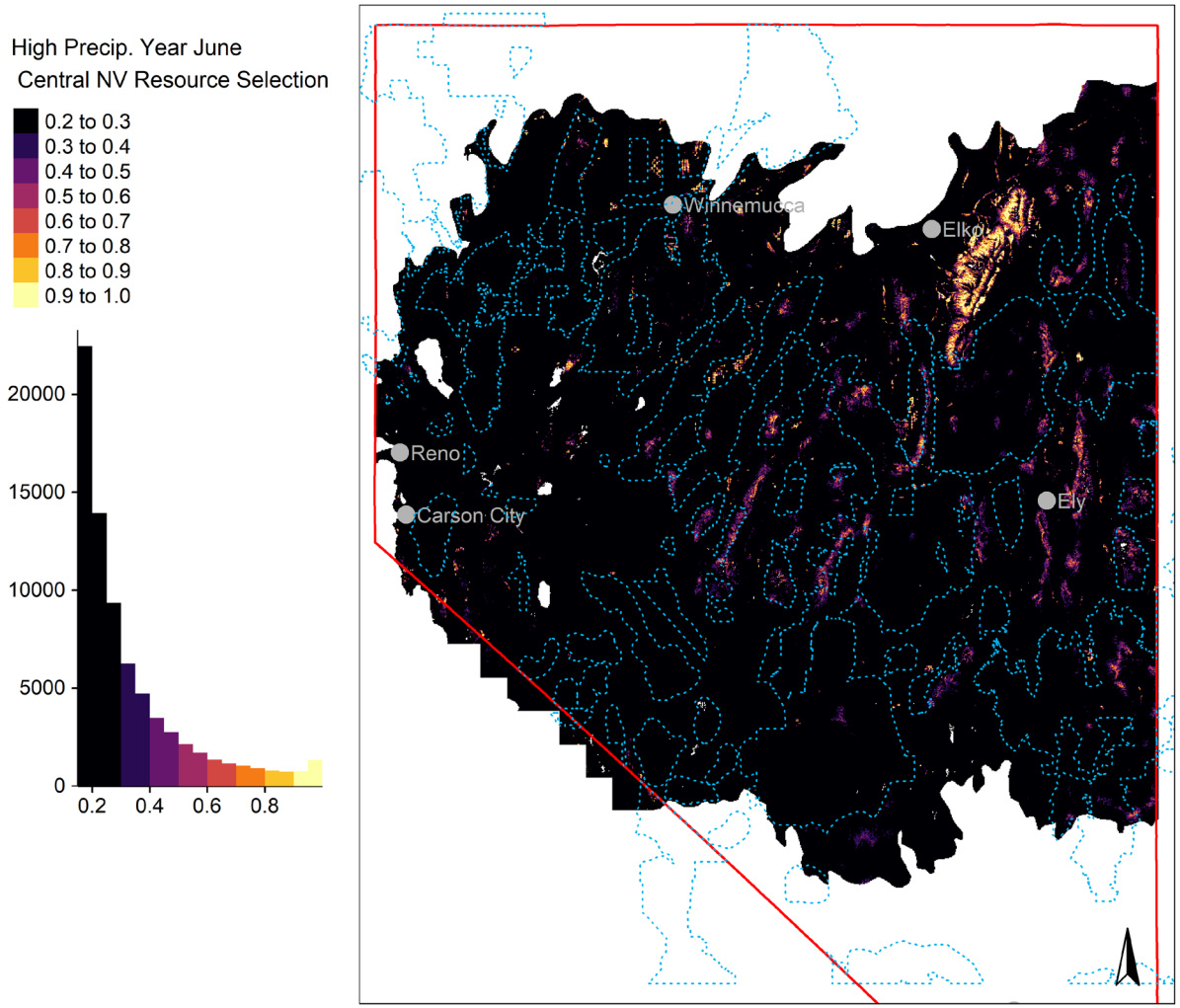
Which fawning habitats are occupied by horses?





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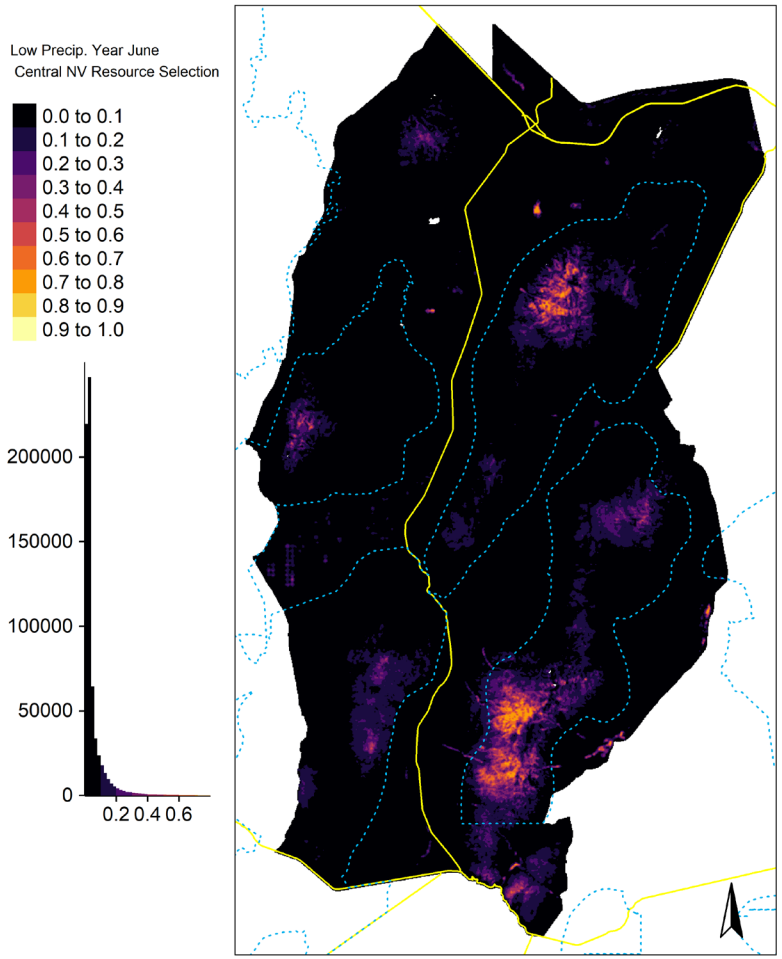

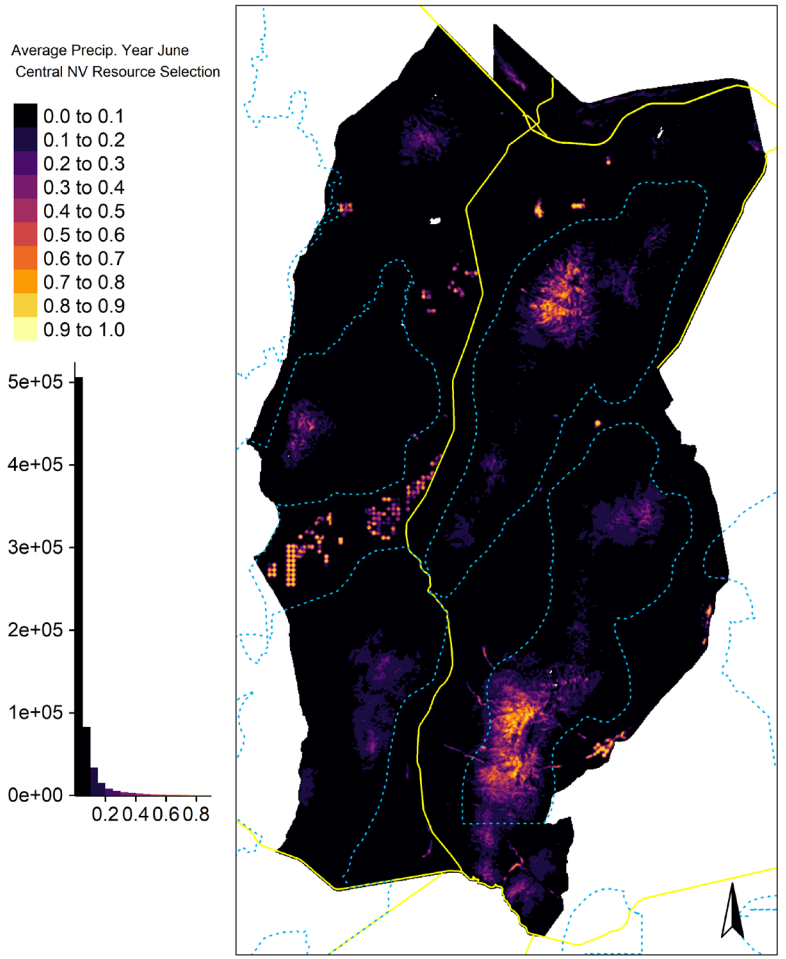

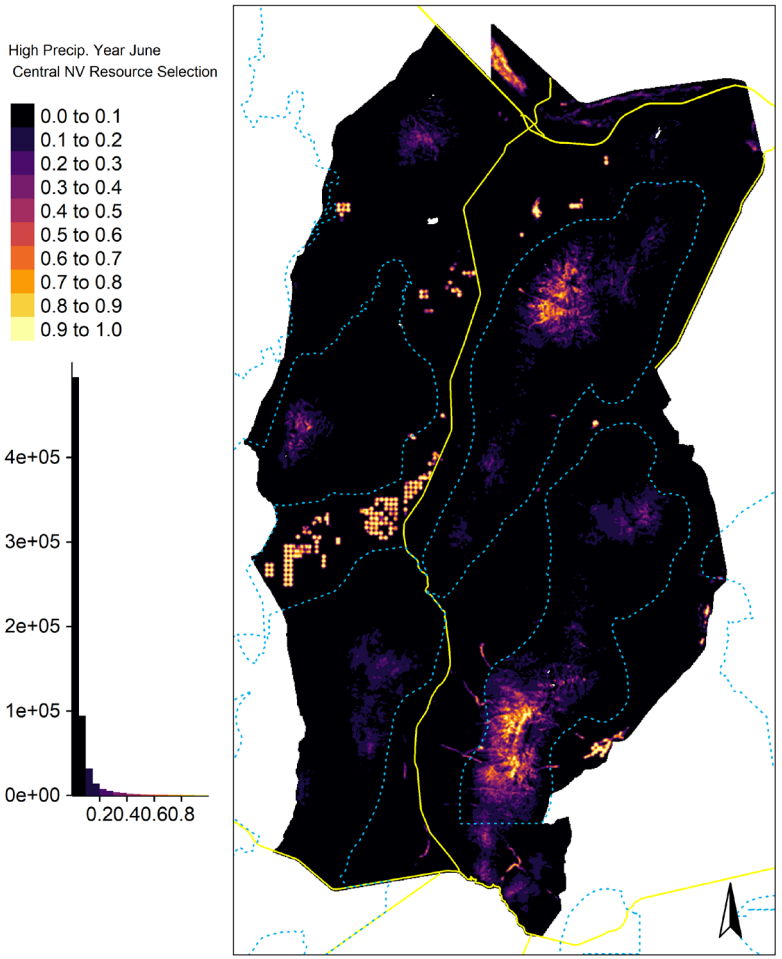

roads

WH Areas

Management Area 15 (central NV)

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What do we need to measure to determine if horses are competing with deer?

1. Compare diets of horses and mule deer in common environments

2. Compare deer home range and movements on units w/ and w/out horses

3. Compare fawn counts in units with and w/out horses, or pre-post gather

4. Compare antler size from units with and w/out horses, or pre-post gather