

East Region Wildlife Research Update



Darren A. Clark, PhD

Wildlife Research Project Leader

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Ontario, OR

Topics Covered Today



30+ years of research

6 years into a 12 year project



Other Research

Recently completed:

- ◇ Elk calf survival
- ◇ Kit fox habitat use
- ◇ Wolf-cougar interactions
- ◇ Cougar predation
- ◇ Cougar effects on elk

Ongoing:

- ◇ Mule deer habitat use
- ◇ Effects of hunting on mule deer and elk
- ◇ Elk habitat models in Blue Mountains
- ◇ Pronghorn habitat use and survival

Elk Habitat Management



- Long-term behavioral shifts in elk
- Crop/property damage
- Lack of hunting or viewing on public lands

Key Components of Elk Habitat

- 1. Nutrition**
- 2. Landscape Features**
- 3. Roads and Associated Human Disturbance**

Elk Nutrition

Nutrition influences :

1. Body condition



2. Pregnancy rates/dates



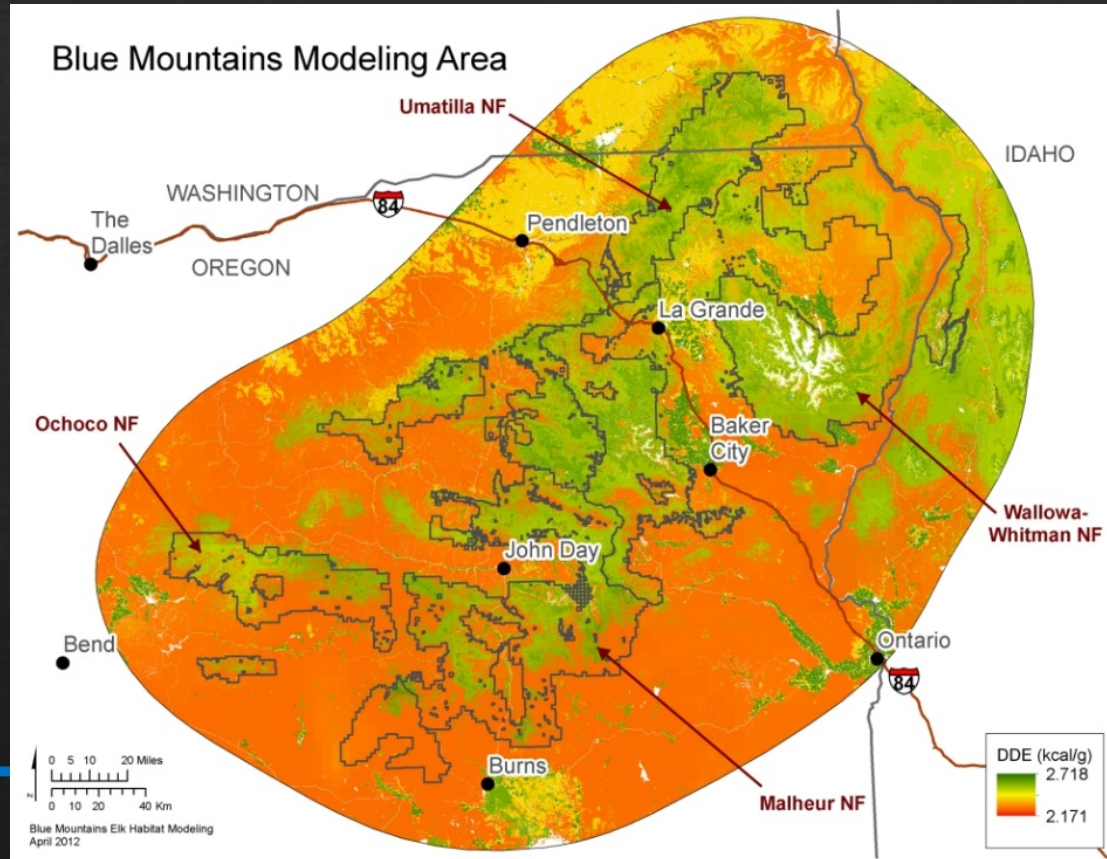
3. Birth dates/weights



4. Calf survival



5. Cow survival



Elk Nutrition

Nutrition influences :

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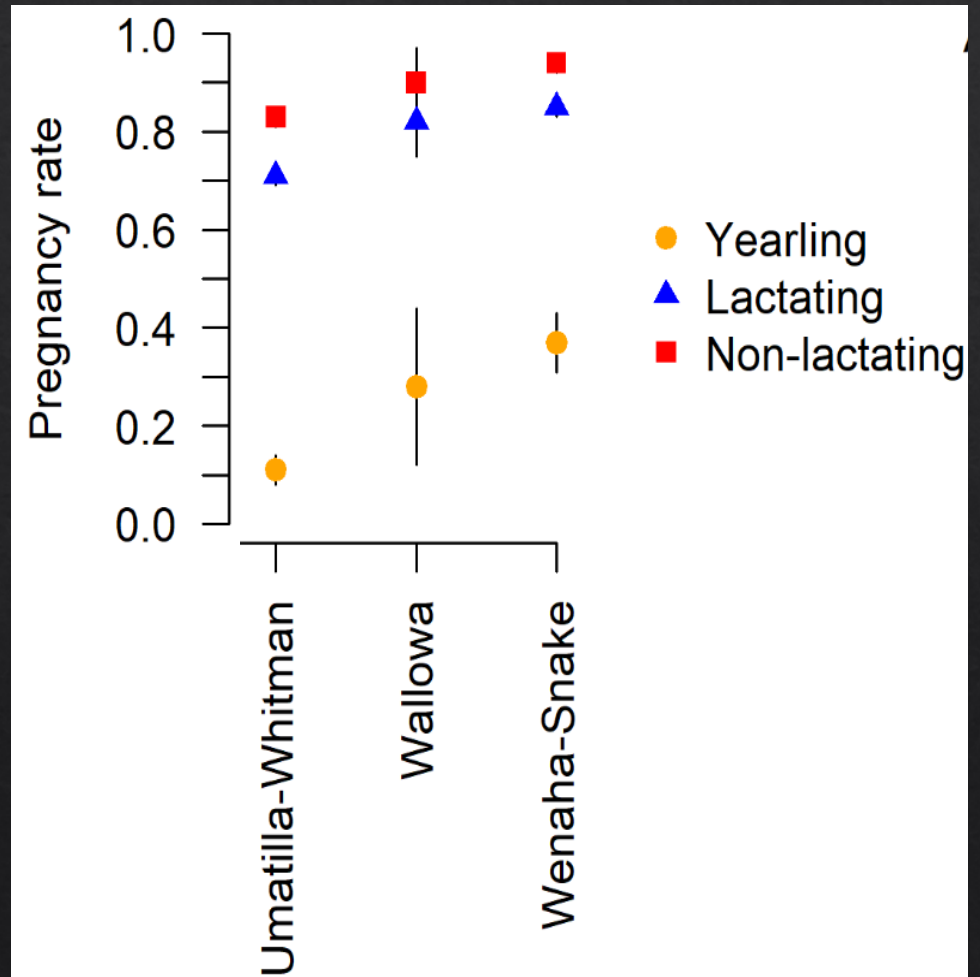
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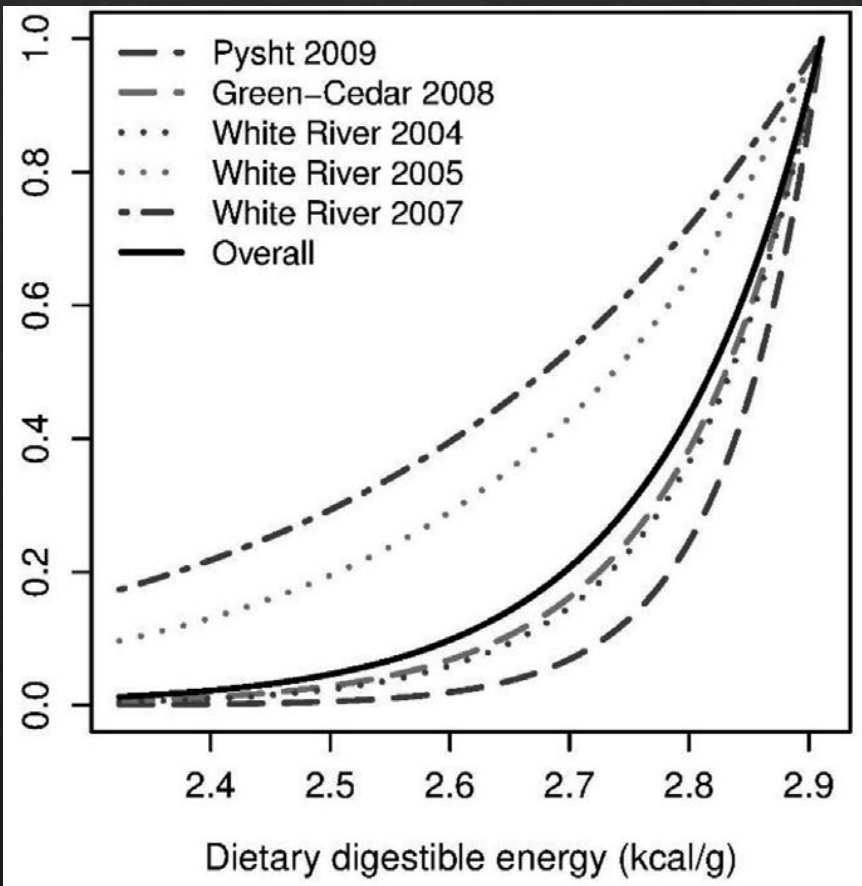


5. Cow survival

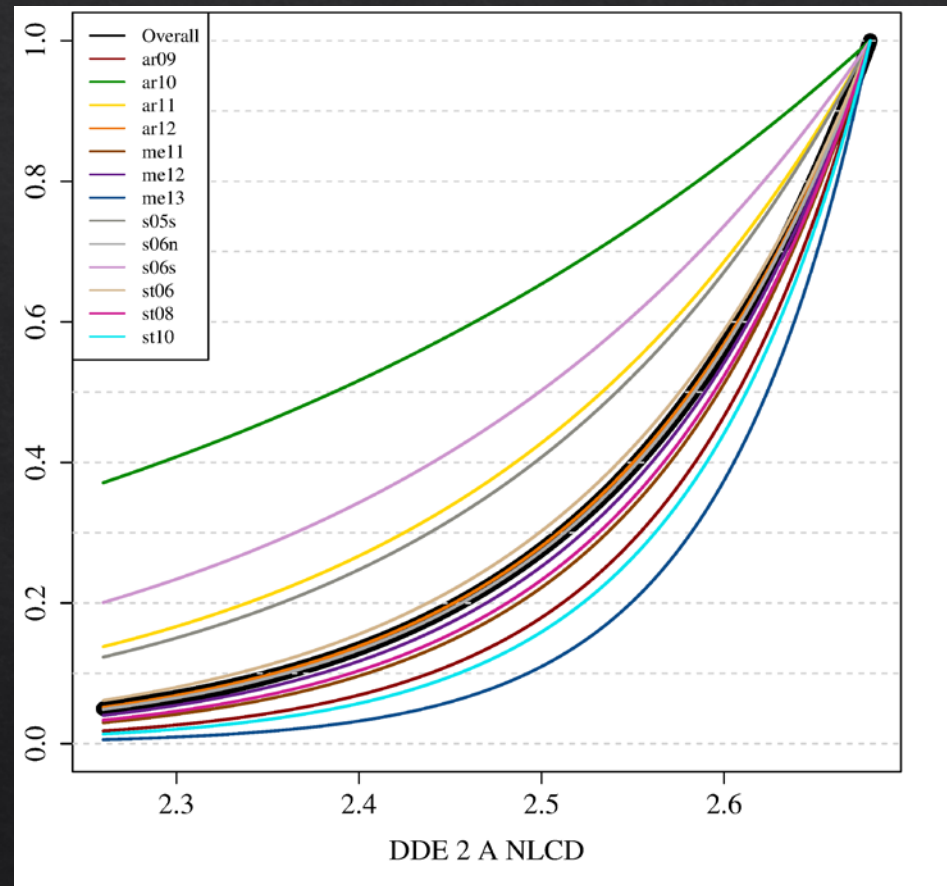


Elk Nutrition

Nutritional resources predicts elk habitat use



Western Oregon/Washington

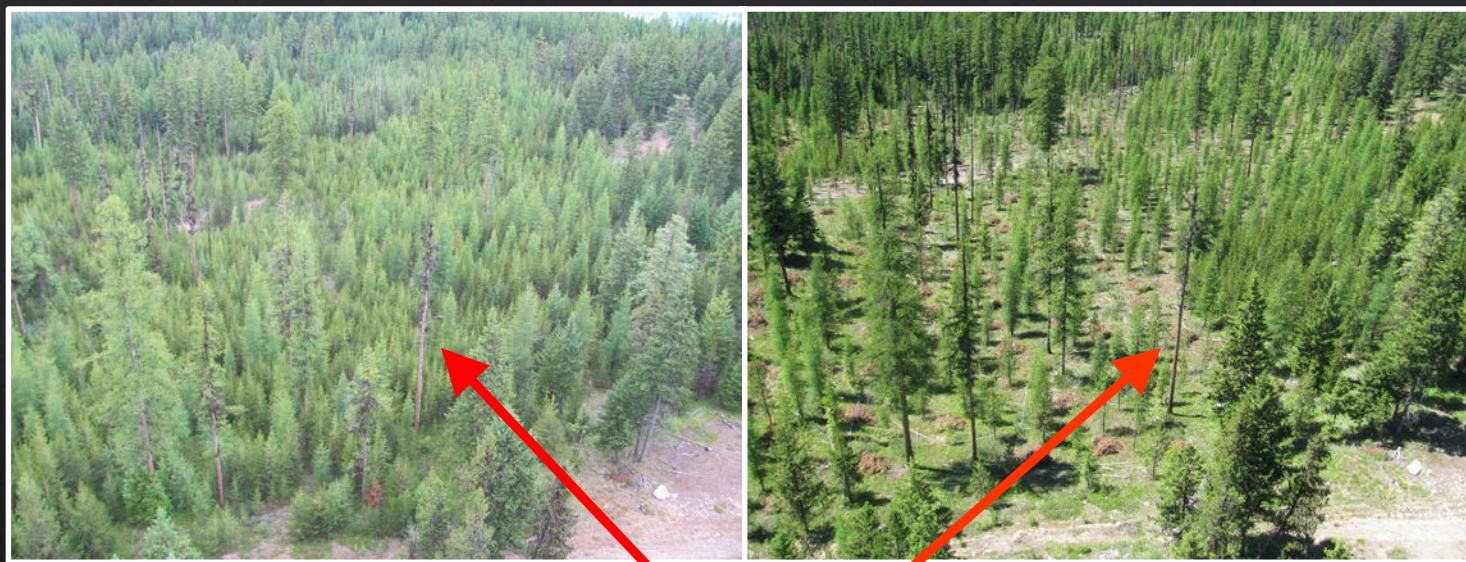


Eastern Oregon

Nutrition and Vegetation Management

Before

After



Reference Larch

Nutrition and Vegetation Management

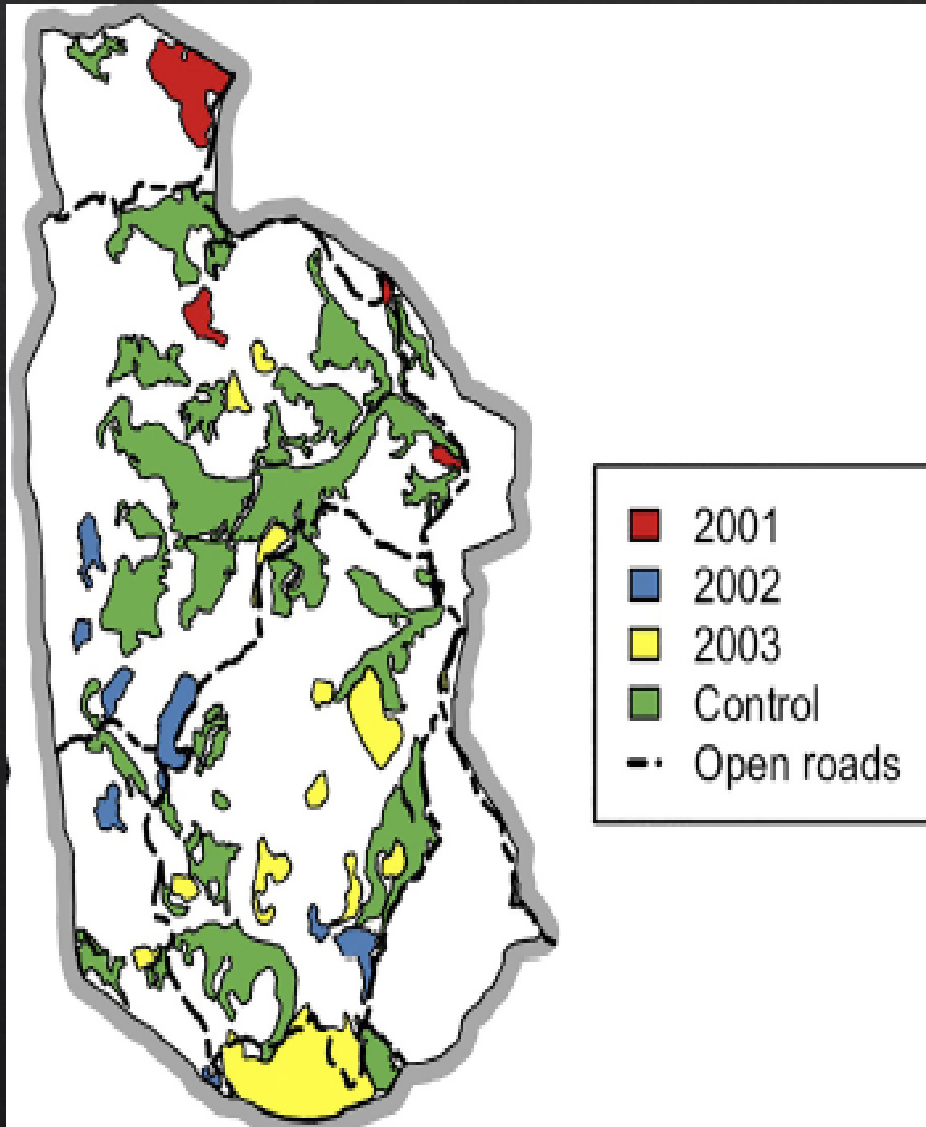


Low

High

Nutritional Quality

Elk Response to Thinning and Burning



Treated Areas:

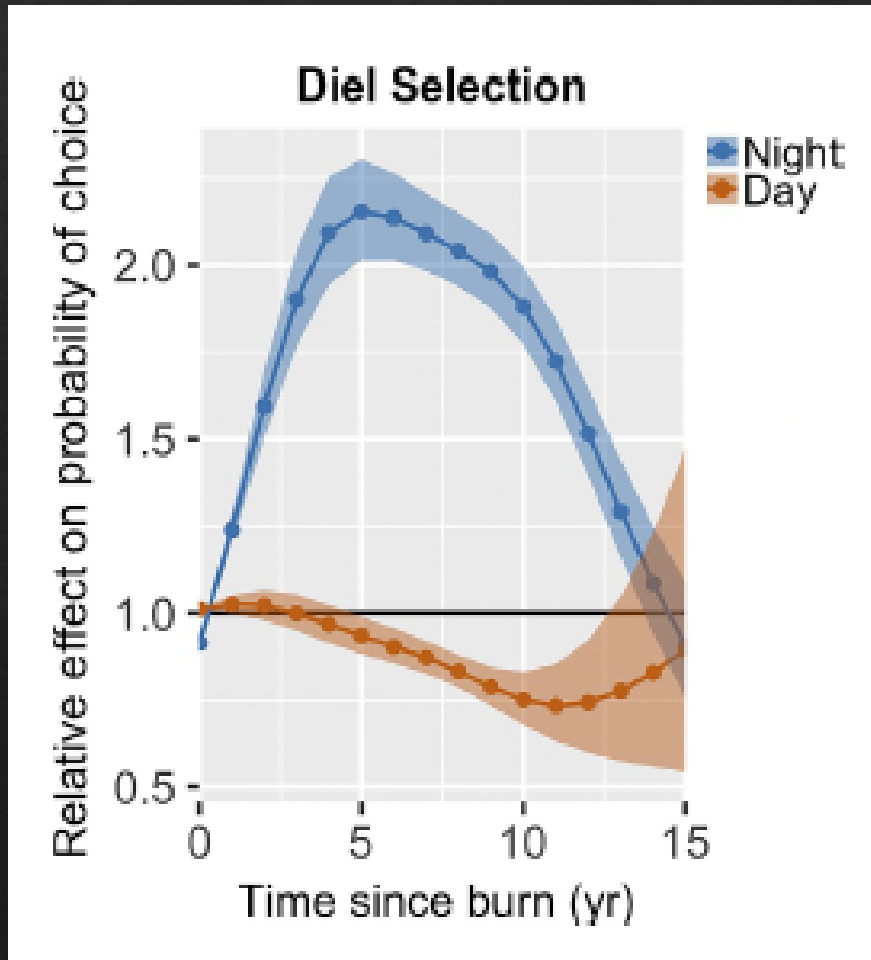
- Used more in spring/summer
- Used more at night

Untreated/Control Areas:

- Used more in the fall
- Used more during day

Elk need a mosaic of conditions

Elk Response to Thinning and Burning

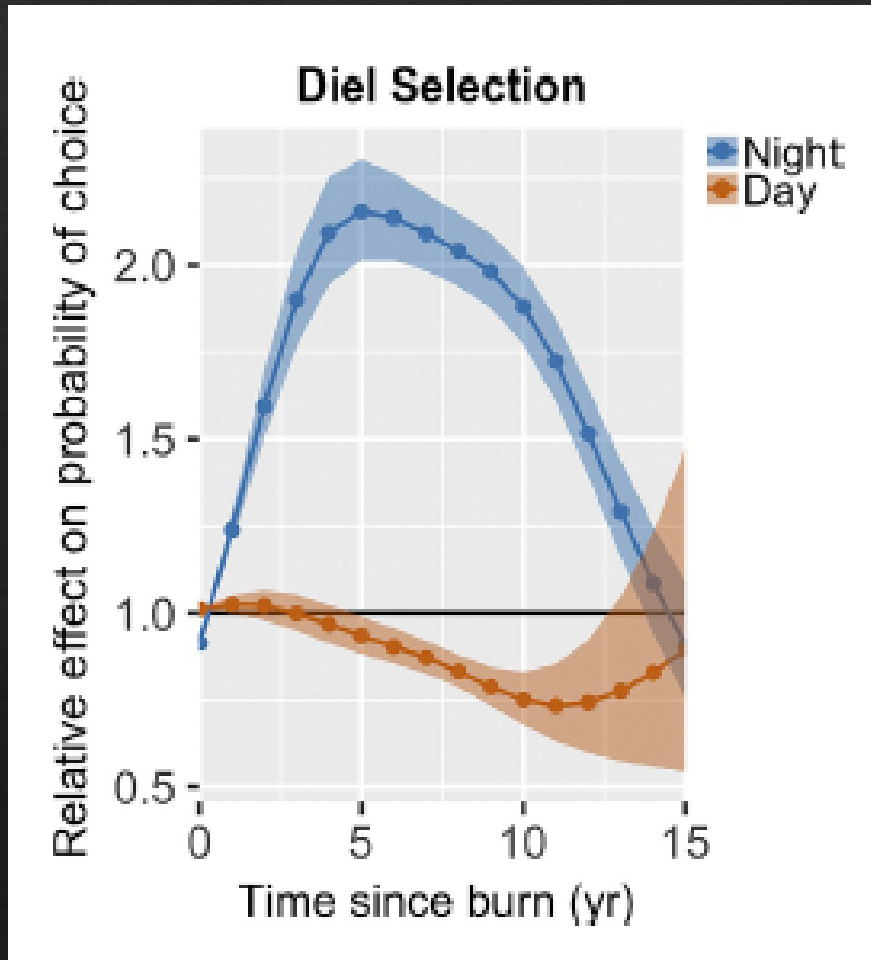


Positive benefits lasted 15 years.

Peak benefits occurred at 5 years.

Benefits then subsequently declined and matched untreated stands.

Elk Response to Thinning and Burning



Roads and Human Disturbance



Effects of Roads and Human Disturbance

Habitat loss: direct loss of habitat to roads

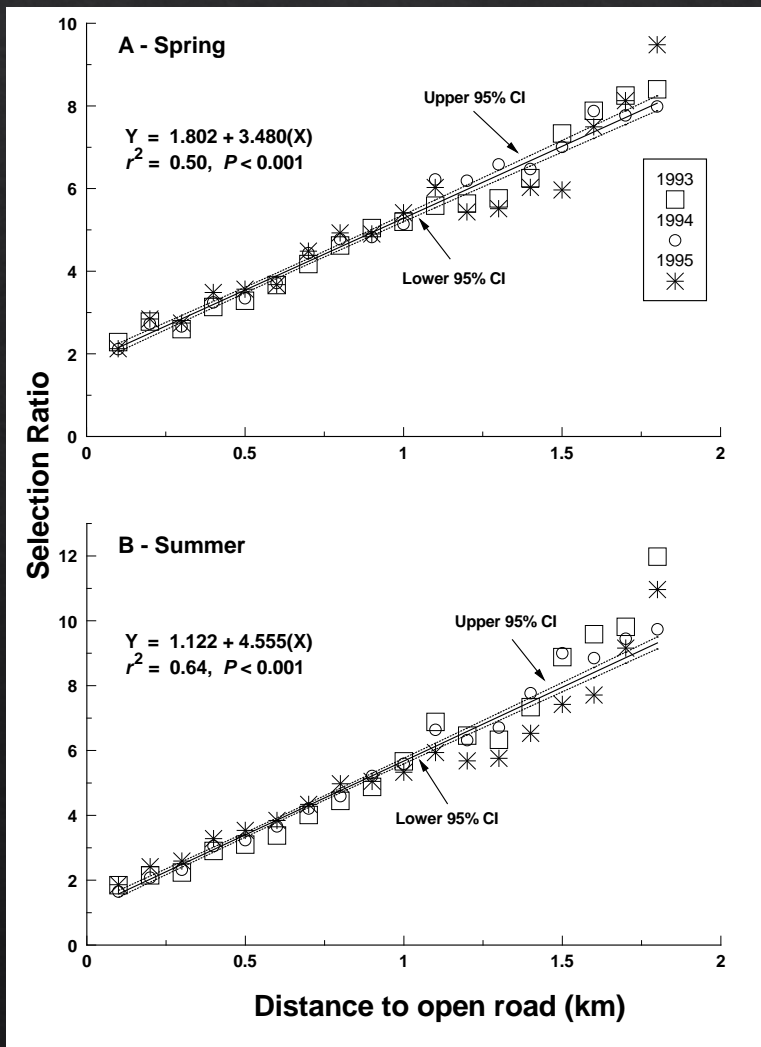
Physiological: increased stress, reduced immunity to disease

Energetic: less foraging and more movement -> lower body fat

Behavioral: avoidance and landscape shifts in distribution

Effects of Roads and Human Disturbance

Behavioral: avoidance

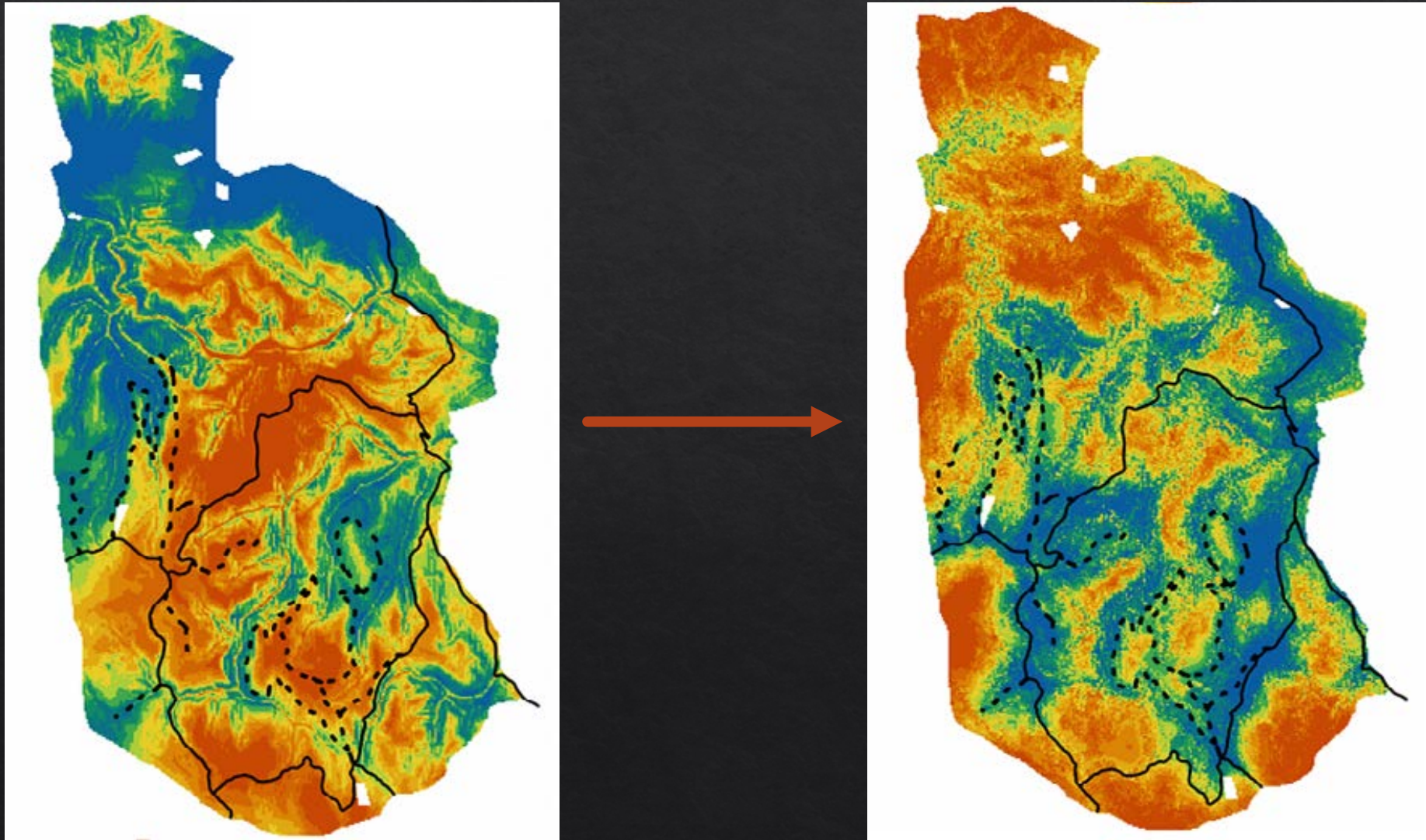


30+ studies over 40+ years

- Elk avoid roads open to public use
- Occurs during hunting and non-hunting seasons
- Respond to roads at distances > 1.5 miles

Effects of Roads and Human Disturbance

Behavioral: shifts in distribution



Elk Habitat Conclusions

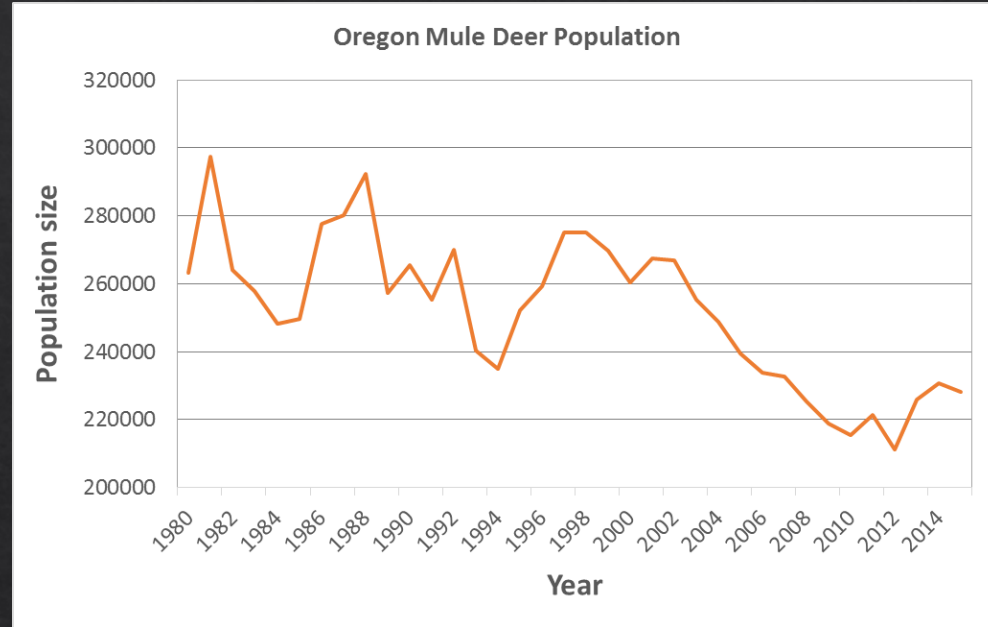
If you build it, elk will come.

1. Create forage conditions that encourage elk to use the area
2. Strategically utilize road closures to increase use by elk

Current Mule Deer Research

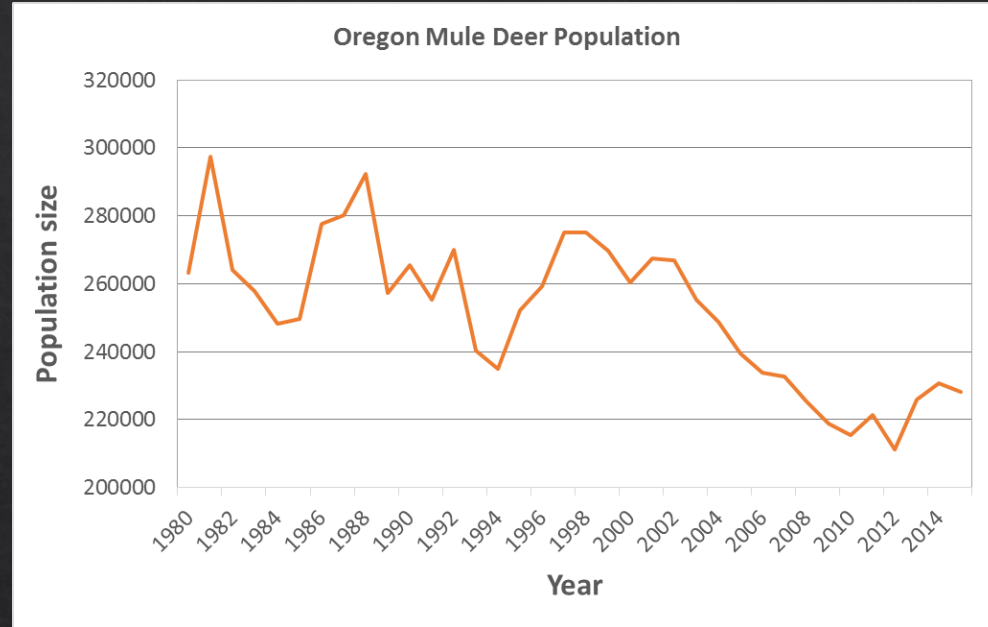


Declining mule deer populations



1. Declines in quality and quantity of winter range
2. Inadequate nutritional resources on summer range
3. Increased predation from a recovering carnivores
4. Competition with elk

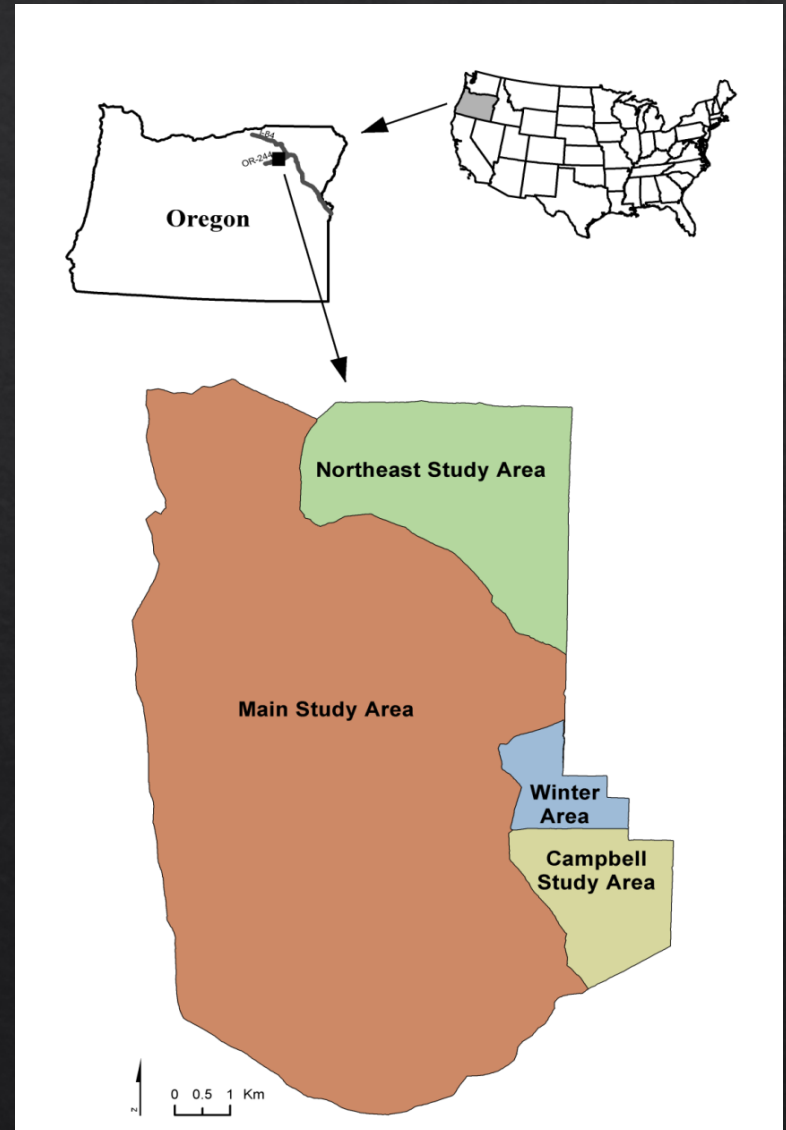
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Starkey Experimental Forest

- ◇ Main Study Area = 30 mi²
- ◇ Ungulate-proof fence allows manipulations of ungulate herds
- ◇ Typical of Blue Mountains in Oregon
- ◇ Elevations moderate (1,100-1,500 m)
- ◇ Rolling topography (slope averages 18%)



Controlled Experiment

Phase I – Pre-treatment (2014-2019)

- ◇ Currently 350+ elk in Main Study area.

Phase II – Treatment (2020-2025)

- ◇ Reduce elk population to ~75-100.

Monitor three components:

1. Mule deer demography (e.g., fawn and doe survival, pregnancy)
2. Mule deer nutrition and habitat use
3. Predation and predator densities

Mule Deer Demography

Place GPS collars on does

- ◇ Survival and cause specific mortality

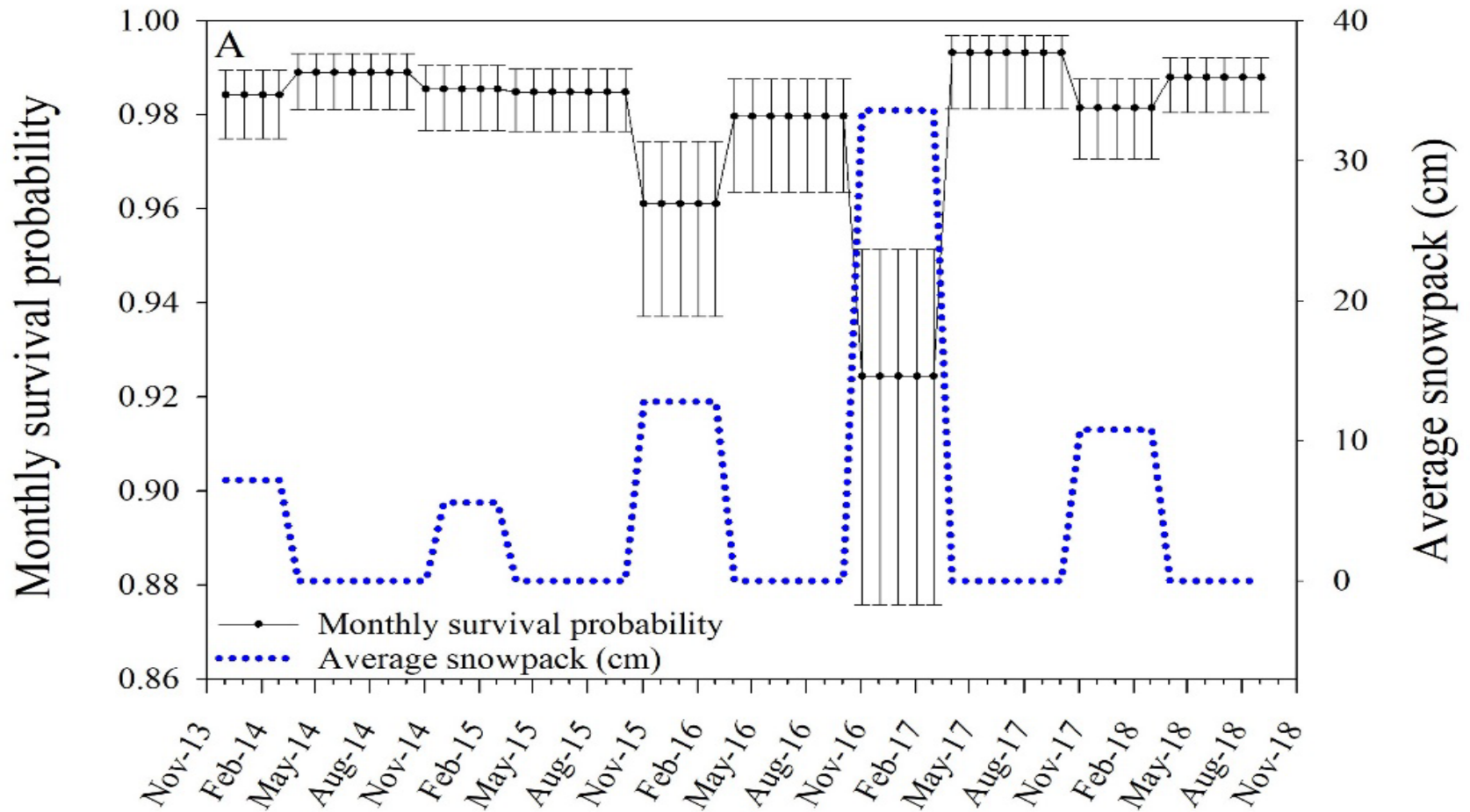
Pregnant does fitted with VIT

- ◇ Locate and collar fawns
- ◇ Survival and cause specific mortality



Doe survival

Increased winter snowpack reduces survival



Mule Deer Habitat Use and Nutrition

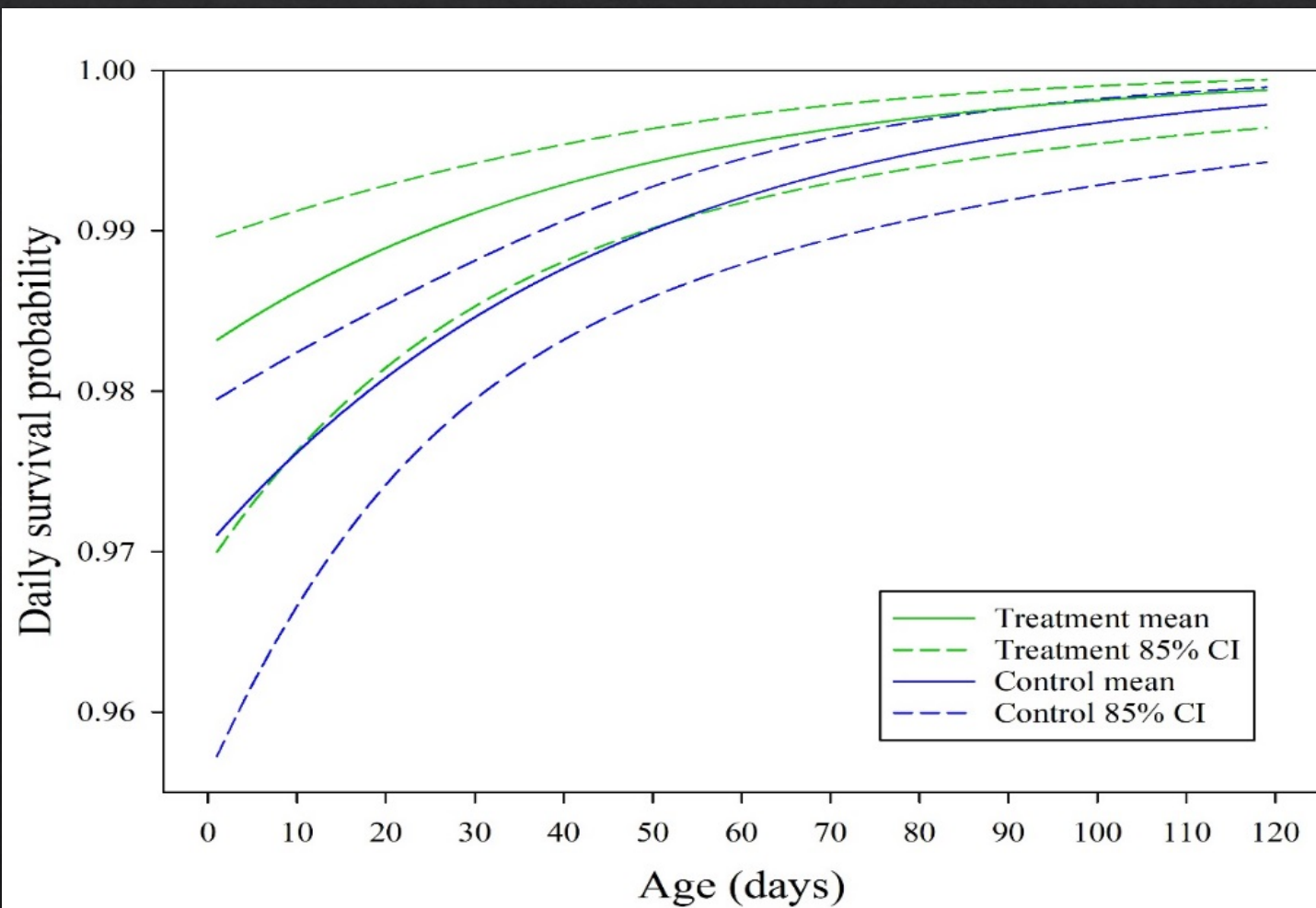
Winter Nutrition/Habitat

- ◆ Some deer receive supplemental feed during winter



- ◆ Compare pregnancy and survival rates of does and their fawns that are fed or not fed during winter
- ◆ If there is a difference, winter habitat may be limiting

Fawn survival



Mule Deer Habitat Use and Nutrition

Summer Nutrition

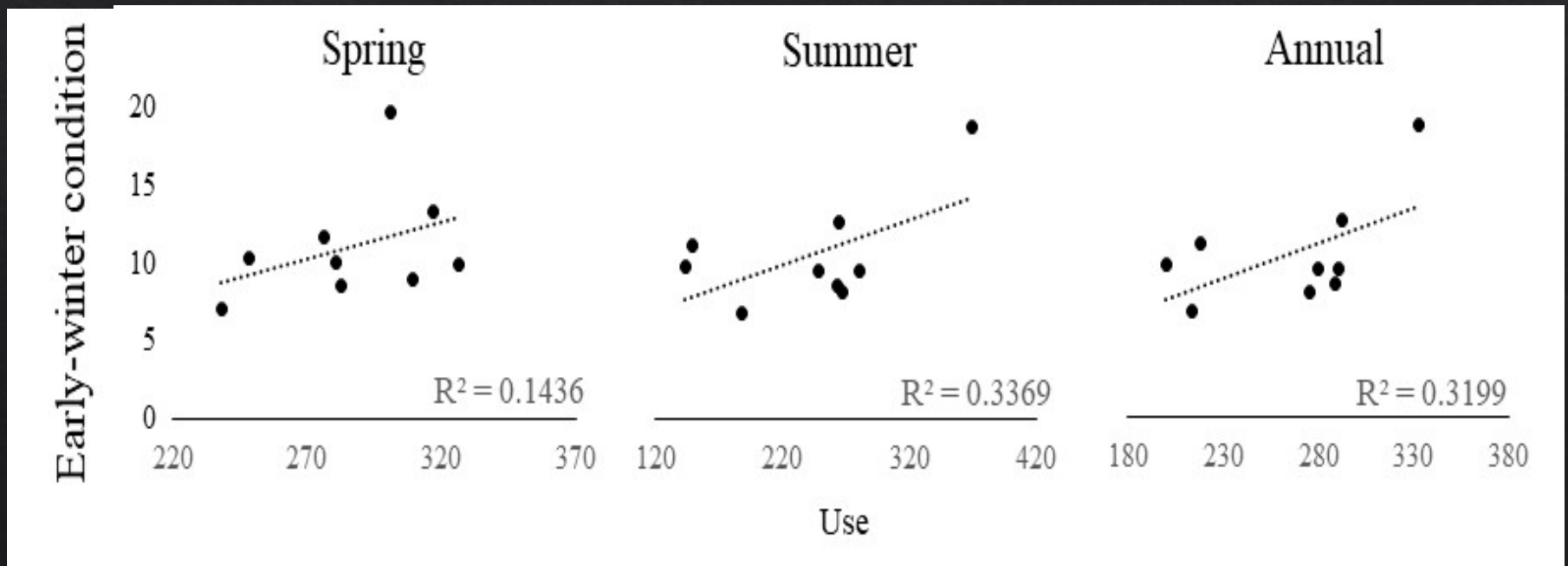
- ◇ Is body condition entering winter linked to use of areas with higher nutrition?
- ◇ Do deer change habitat use following elk population reduction?
- ◇ Do changes in habitat use increase mule deer populations?



Mule Deer Habitat Use and Nutrition

Summer Nutrition

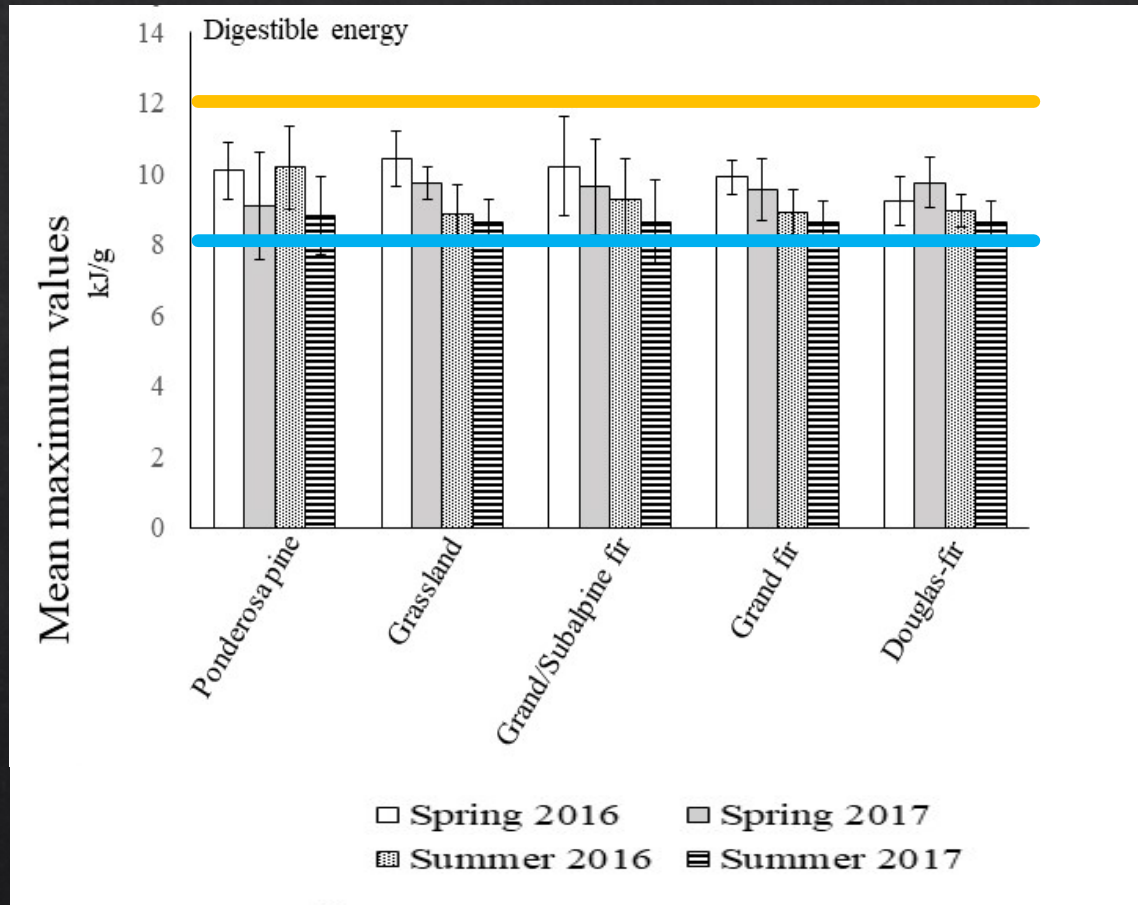
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Mule Deer Habitat Use and Nutrition

Summer Nutrition

- ◇ Insufficient to support a lactating female.
- ◇ Sufficient to support energetic demands of a non-lactating female.
- ◇ Better forage required on summer range.



Effects of Predation

- ◇ How many carnivores are on the landscape?
- ◇ Is deer survival linked to varying carnivore densities?
- ◇ Which carnivores are most likely to eat mule deer?
- ◇ Does predation affect mule deer populations?



Bushnell

ODFW15

42 F5 °C

09-03-2016

Bushnell

CameraName

37 F2 °C

10-23-2016 07:43:09



Bushnell

CameraName

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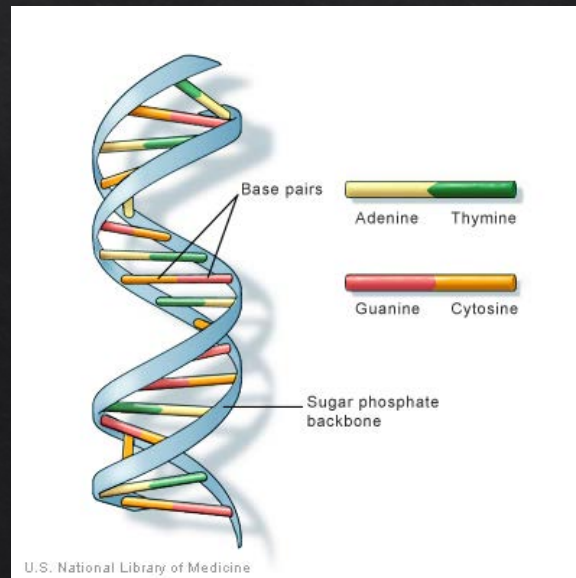
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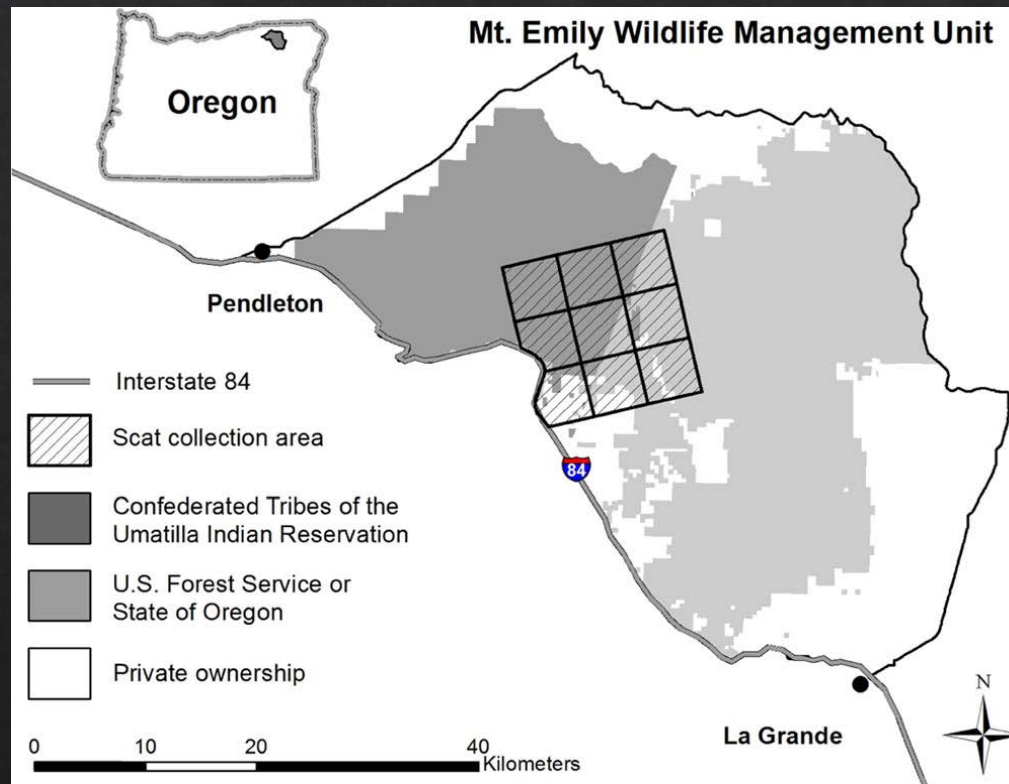
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Estimation From Genetics

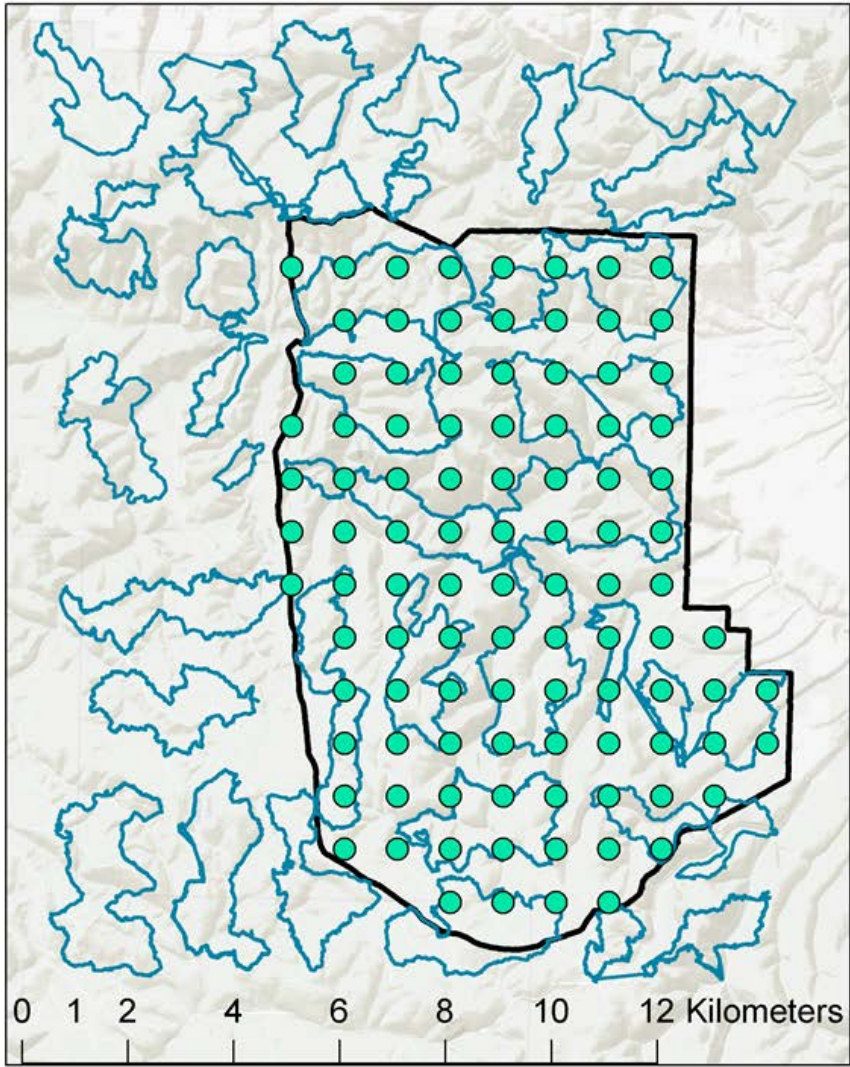


Estimation From Genetics

- ◇ 0.8-2.0 cougars/10 mi² -> 70-90 cougars in the Mt. Emily WMU
- ◇ Similar estimates obtained in two years of surveys



- ◇ Fairly expensive and hard to conduct at large spatial extents
- ◇ Are better methods available?



- Camera locations
- Detection dog tracks
- ▭ Starkey Experimental Forest boundary





Best Estimates



Suitable
Estimates

Unreliable



Highest Quality



Known home range size is sufficient



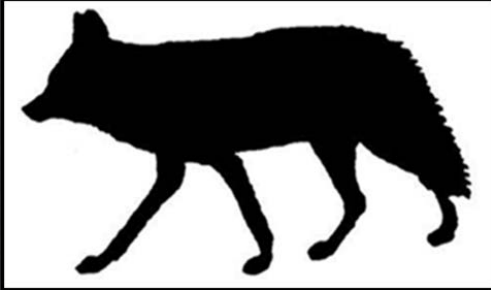
Suitable



Unreliable



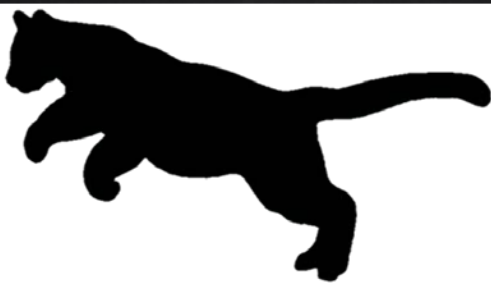
Estimated carnivore densities



◆ 6-8.5 coyotes/10 mi²



◆ 1.4-2.8 bears/10 mi²



◆ 0.25-0.80 cougars/10 mi²

Starkey Mule Deer Research

Carnivores

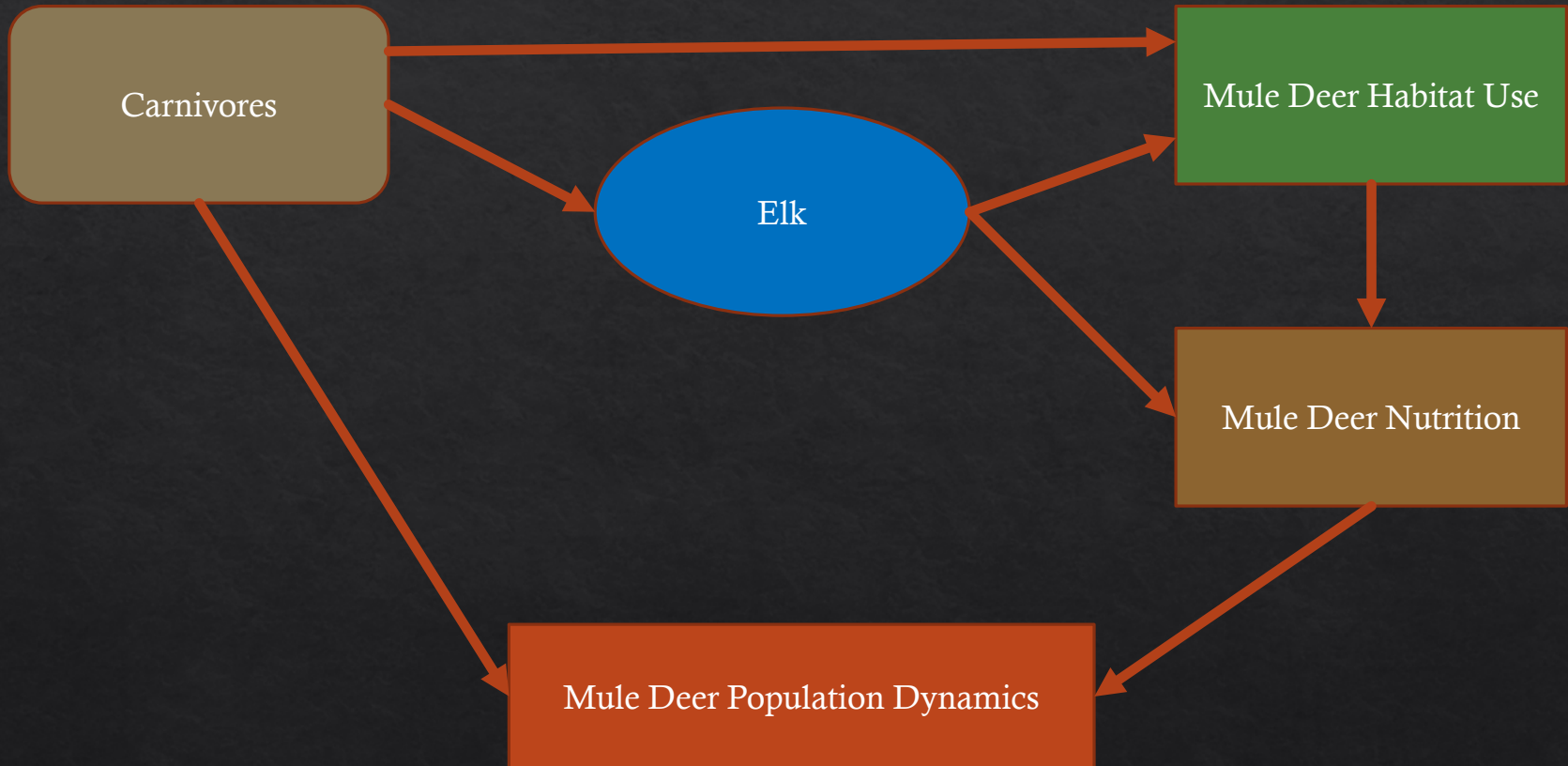
Elk

Mule Deer Habitat Use

Mule Deer Nutrition

Mule Deer Population Dynamics

Starkey Mule Deer Research



Questions?

