

Social Dominance Increases Pelleted Feed Consumption by White-tailed Deer in South Texas

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Supplemental Feed

Benefits

- Within age-class body weights
- Antler growth
- Parturition and lactation
- Fawn survival

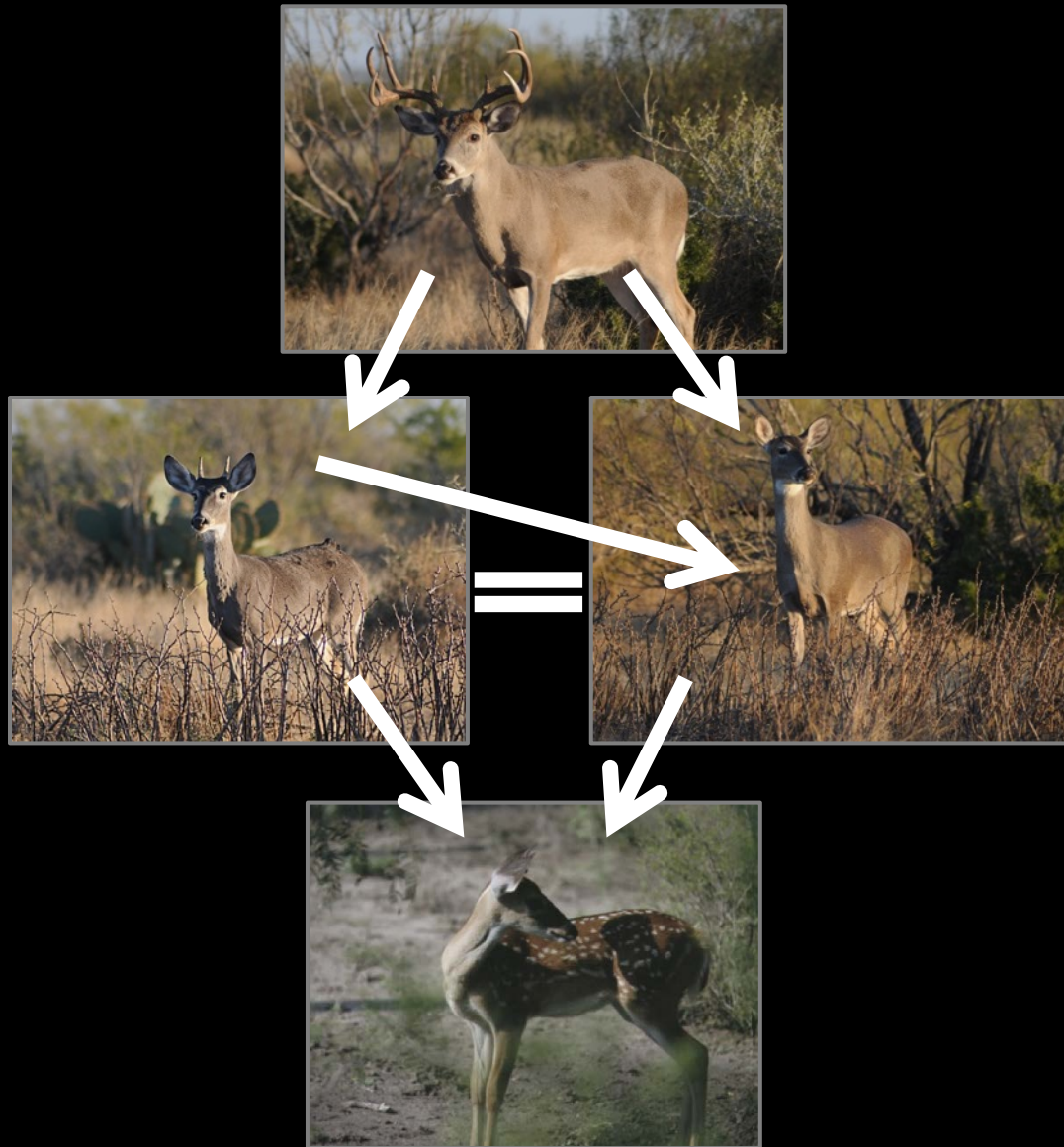


Concerns

- Pathogens and parasites
- Loss to non-targets
- Aggressive interactions
 - Could limit access to feed for subordinate deer



Social Hierarchy





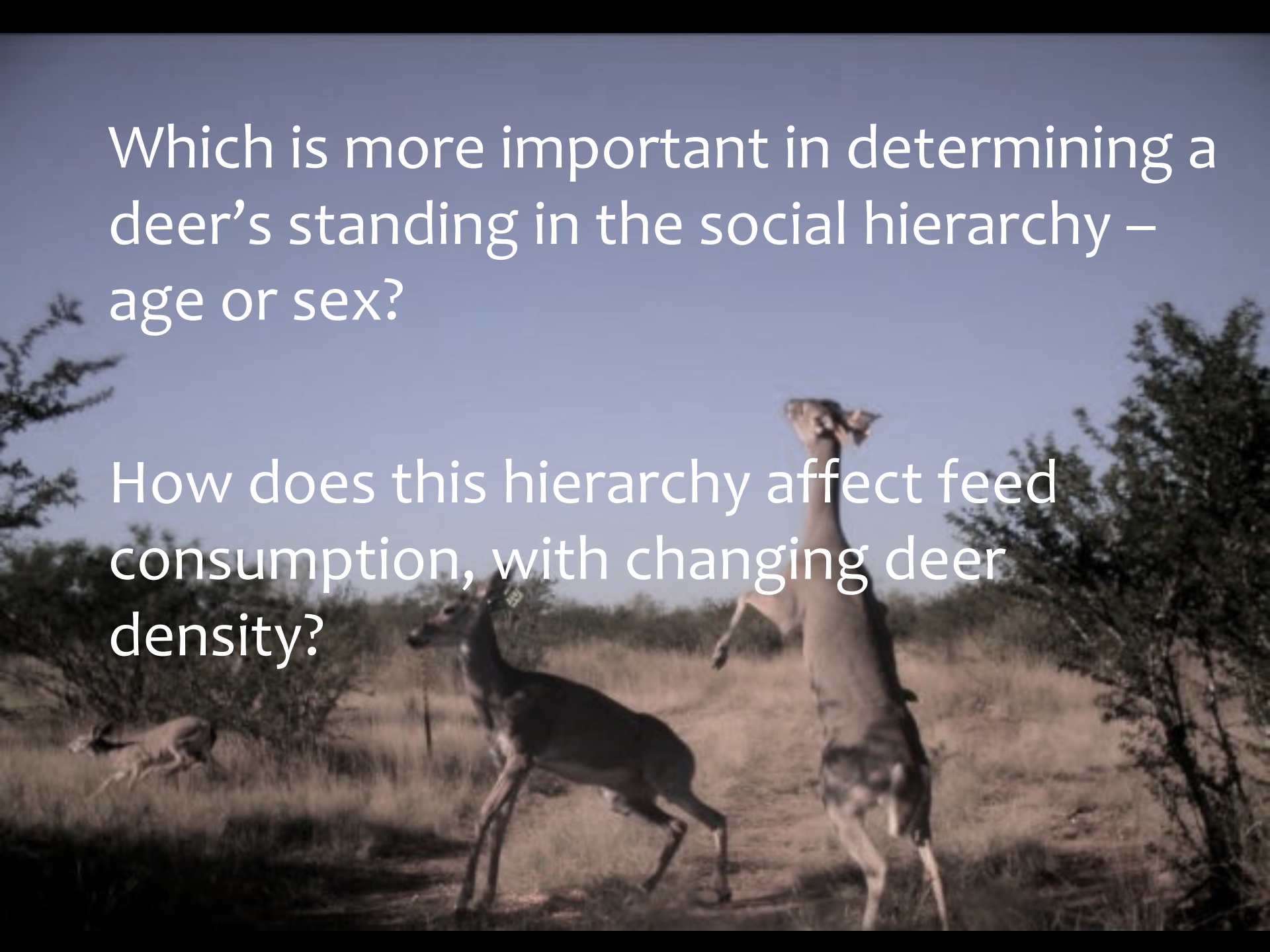
Supplemental Feed Consumption

Higher deer density = higher feed consumption per individual



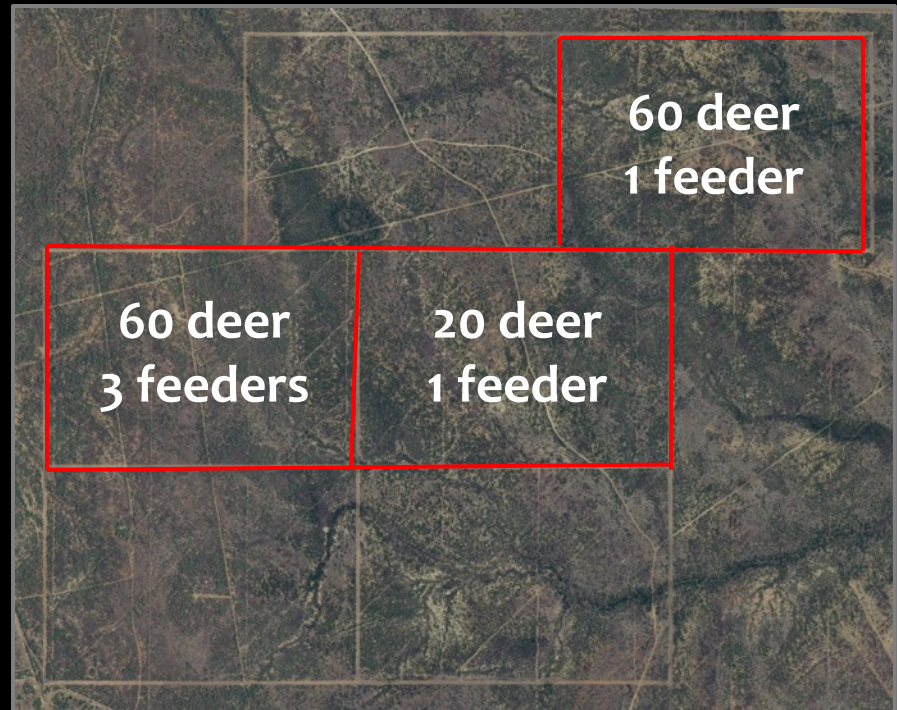
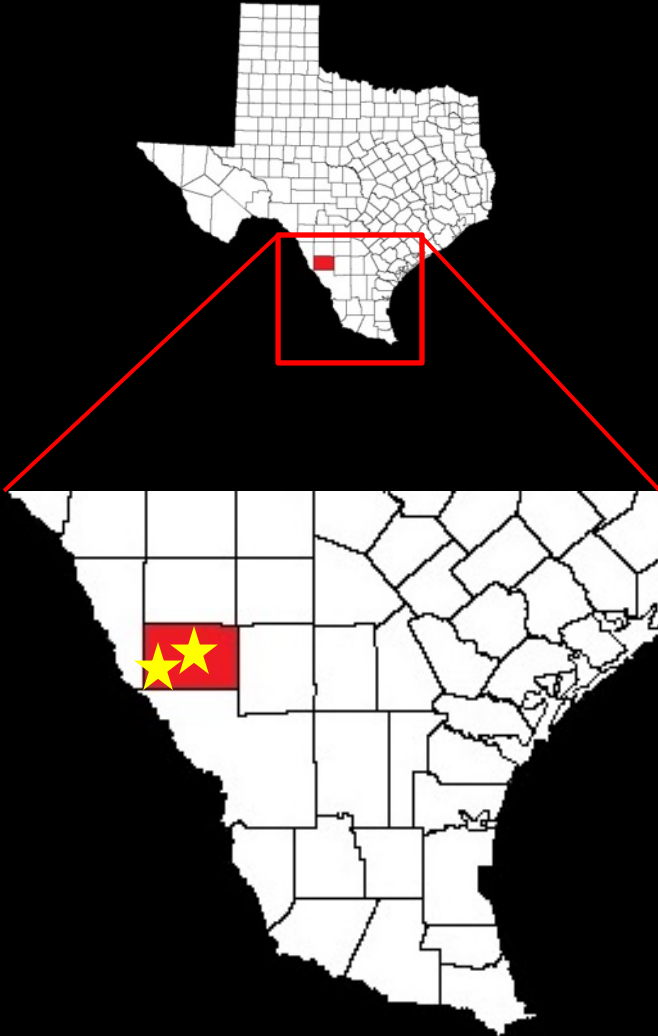
Which is more important in determining a deer's standing in the social hierarchy – age or sex?

How does this hierarchy affect feed consumption, with changing deer density?



Study Design

- Comanche Ranch and Faith Ranch
- 200-ac enclosures



Deer Density Adjustments



- Helicopter/net-gun capture
- March/April and December
- Obtained hair and blood samples for stable isotope analysis



Stable Isotopes

The $\delta^{13}\text{C}$ value of an animal closely represents the $\delta^{13}\text{C}$ value of the animal's diet



Social Hierarchy Data Collection



- Reconyx trail cameras with video technology
- 30-s videos, no delay
- Cameras deployed March 2015

Social Hierarchy Data Collection



F1



Social Hierarchy Data Collection



F1



Social Hierarchy Data Collection



F1



Social Hierarchy Data Collection



F1



Social Hierarchy Data Collection



F1



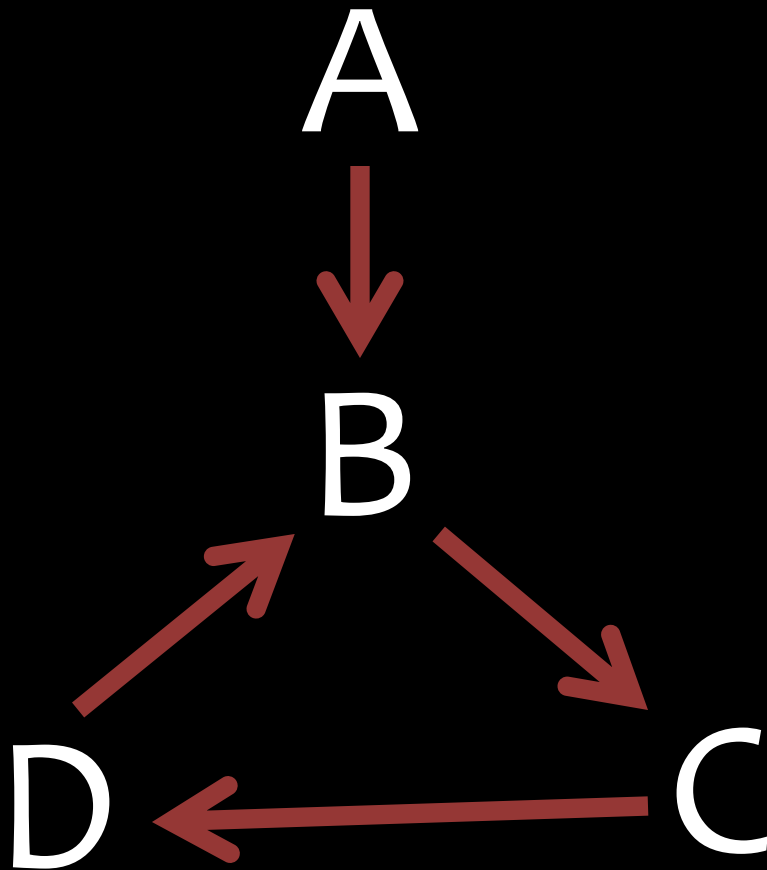
Social Hierarchy Data Collection



F1



Data Analysis (Elo-rating)



Does sex or age affect social
hierarchical standing?



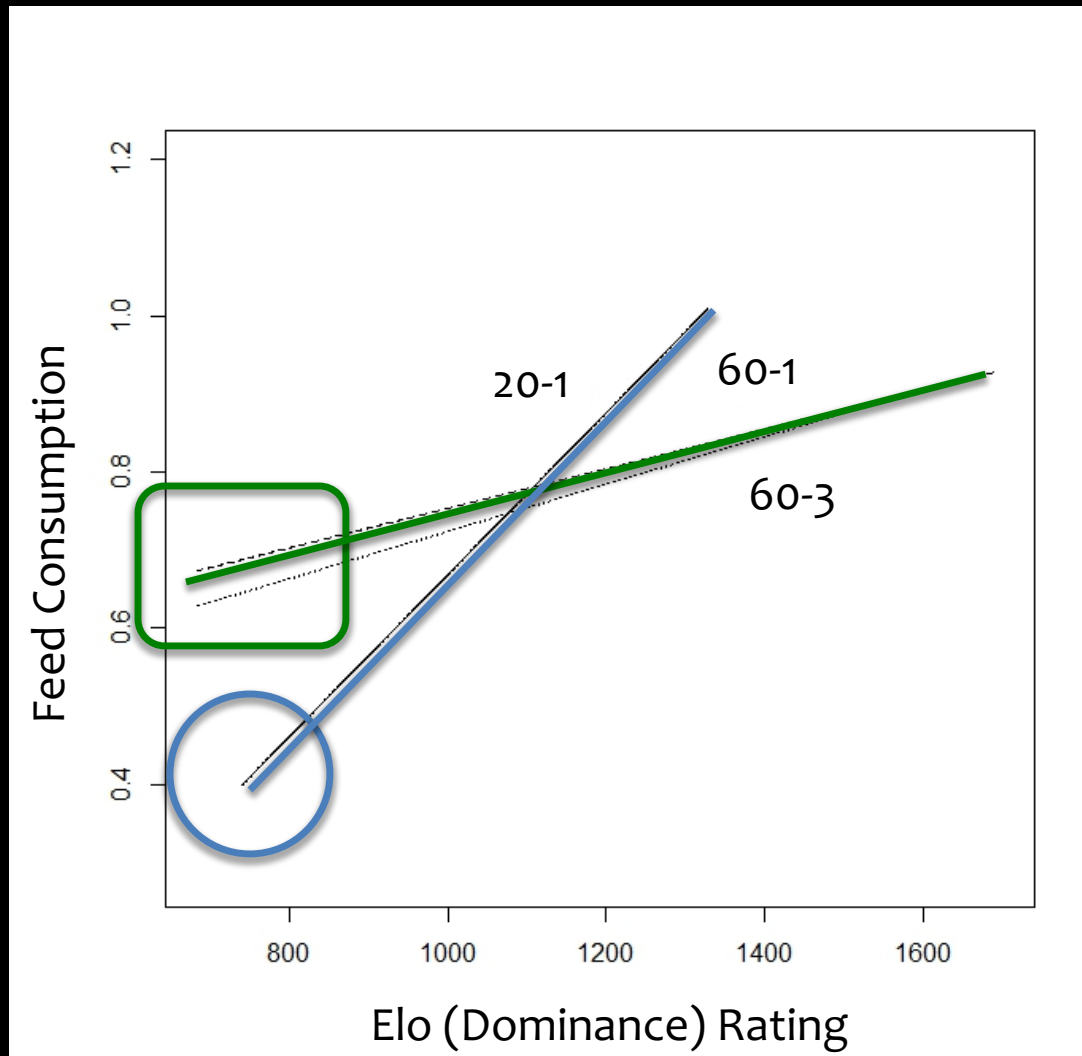
Results: Age or Sex?

Model	AICc	Δ
age	3475.1	0.0
sex	3803.2	328.1

Does dominance affect feed consumption, and does this change with changing deer densities?



Results: Dominance and Feed Consumption



Management Implications

Age is driving hierarchy dominance, which affects access to supplemental feed



Management Implications

Dominant animals eat more supplemental feed



Management Implications

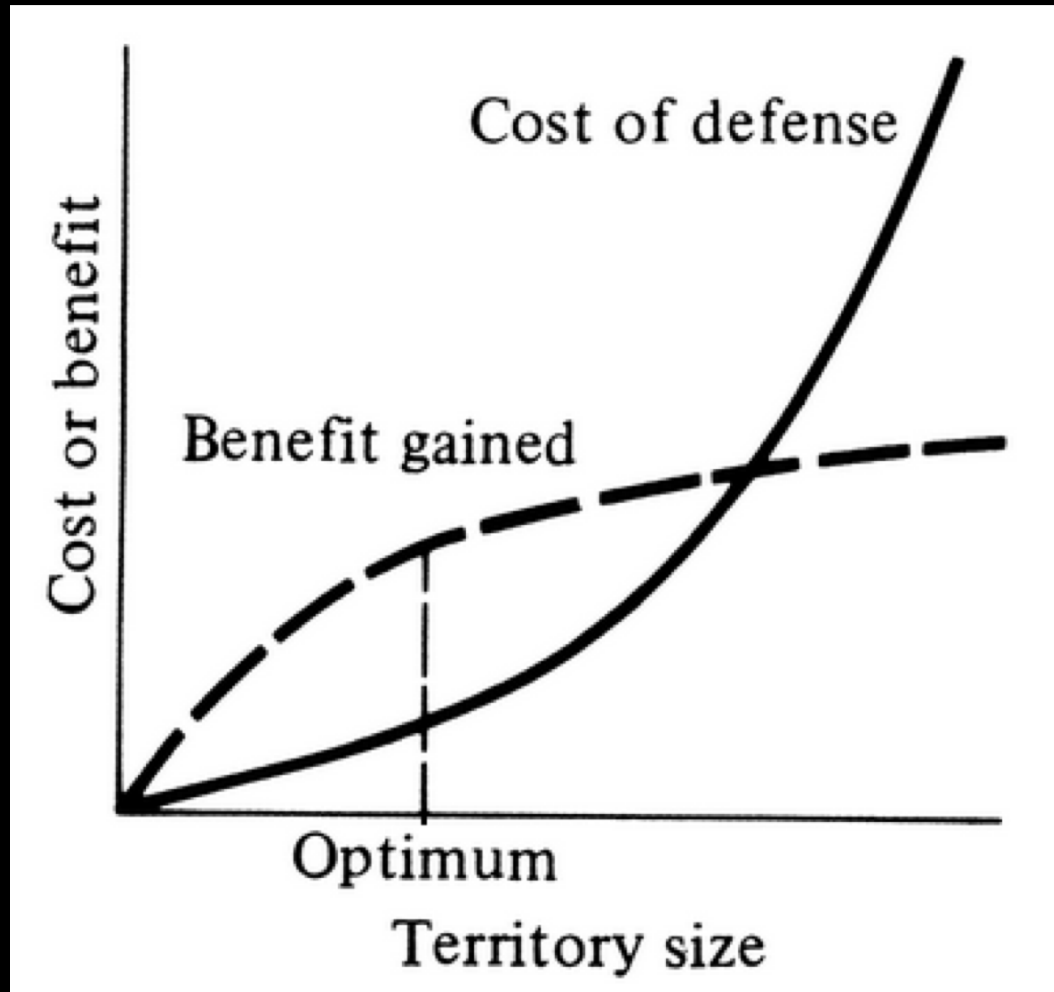
For subordinate animals, feed consumption is greater in the higher density enclosures



VS.

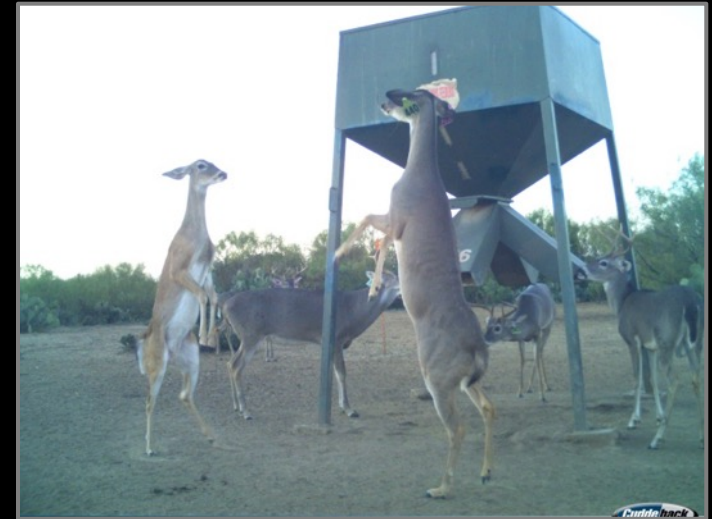


Economic Defendability



Take Home Message

- Young, subordinate deer have less access to the supplemental feed
- Effect of social dominance is greater in low deer densities
- Use of feeders in sub-quality habitat
- Deer densities



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