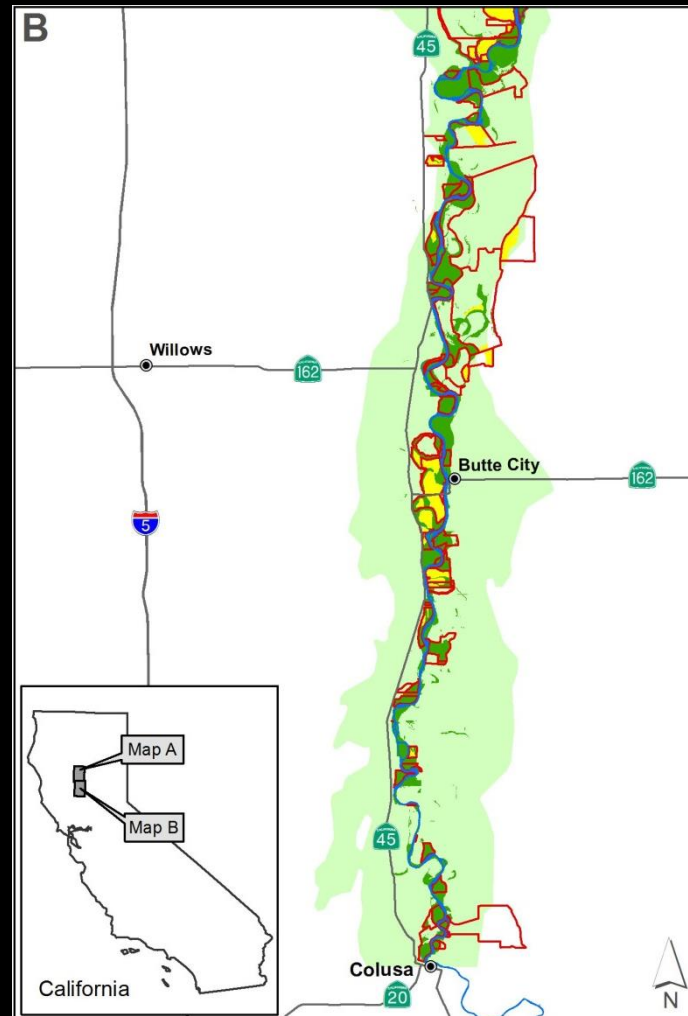
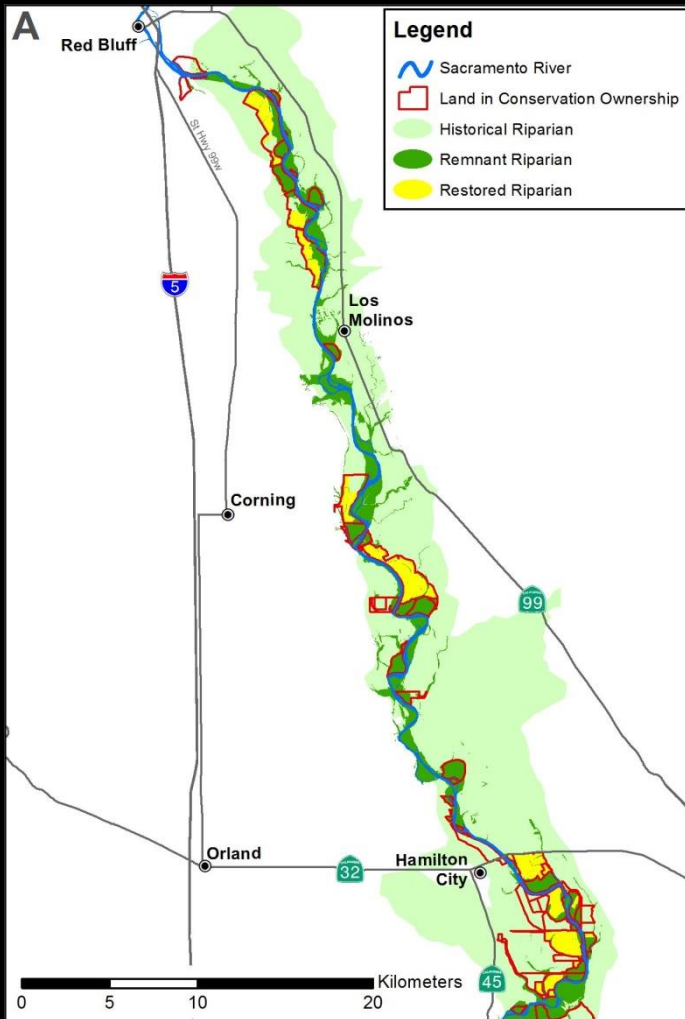


Response of mammalian predators to riparian corridor restoration in SRNWR



Vasilissa Derugin
Gretchen LeBuhn
Joseph Silveira
Gregory Golet
Edward Connor

Sacramento River Project



Study Question

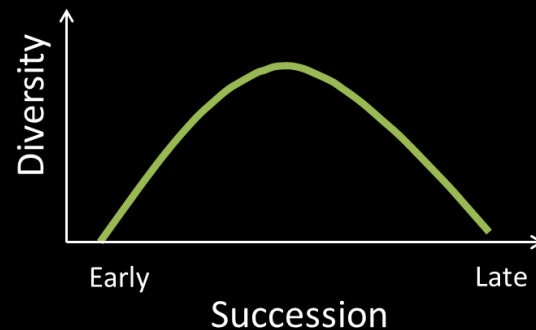
Do predators show a preference between habitats that vary in restoration age?

- “Preference” indicators:
 - Community diversity (species richness)
 - Community activity levels (visitation frequency)
- “Habitat age”:
 - Young forest ($n = 6$): 2003-2007
 - Old forest ($n = 6$): 1991-2000
 - Remnant forest ($n = 5$)

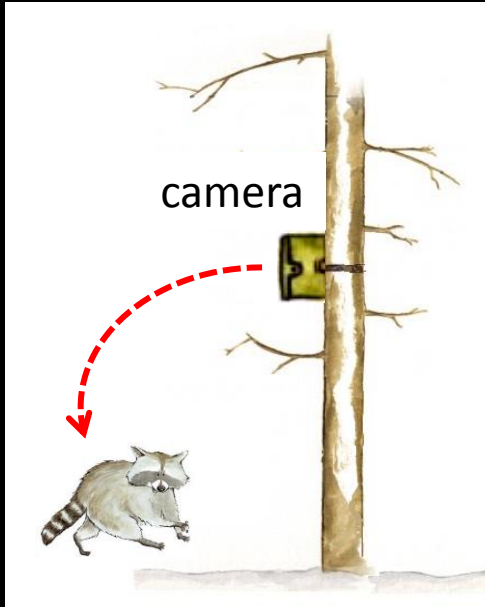
Predictions

- H_o : Equal predator diversity in all forest age groups.
- H_a : Highest predator diversity in old restored forest.

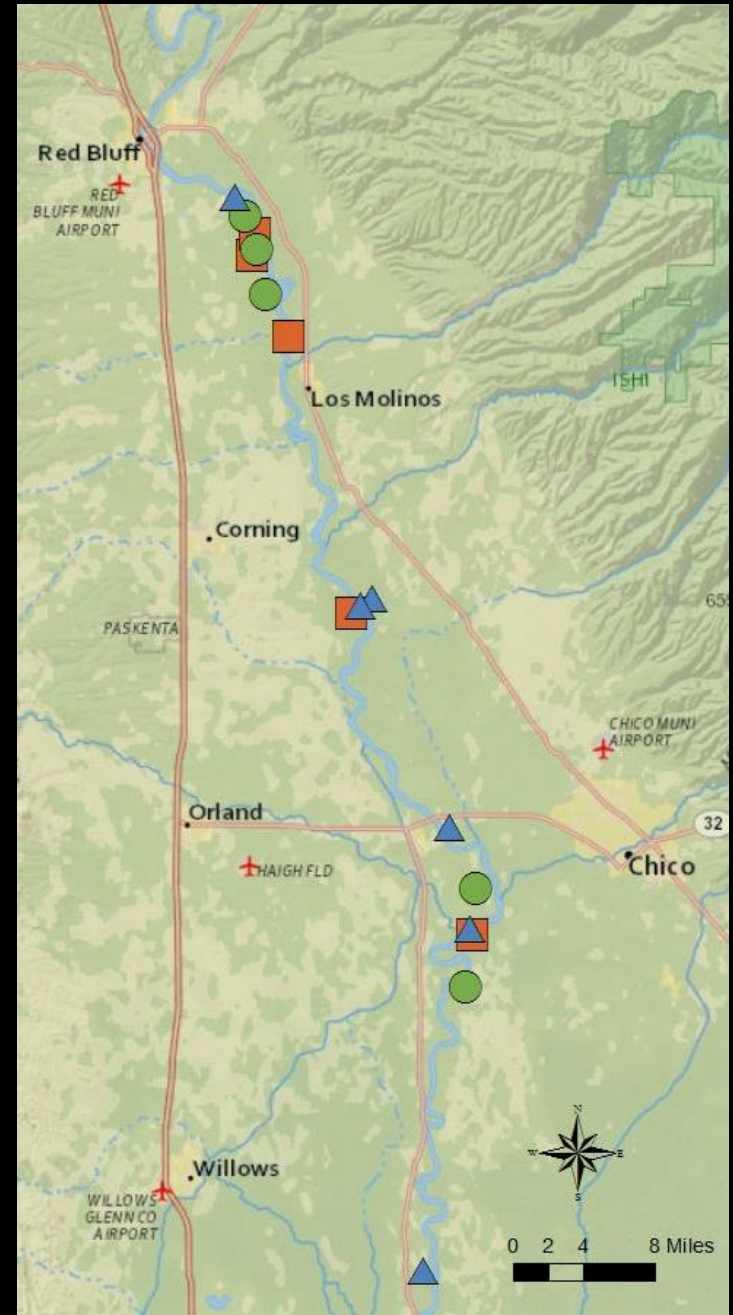
- based on Intermediate Richness Hypothesis



Sampling:



- Remnant
- ▲ Old
- Young

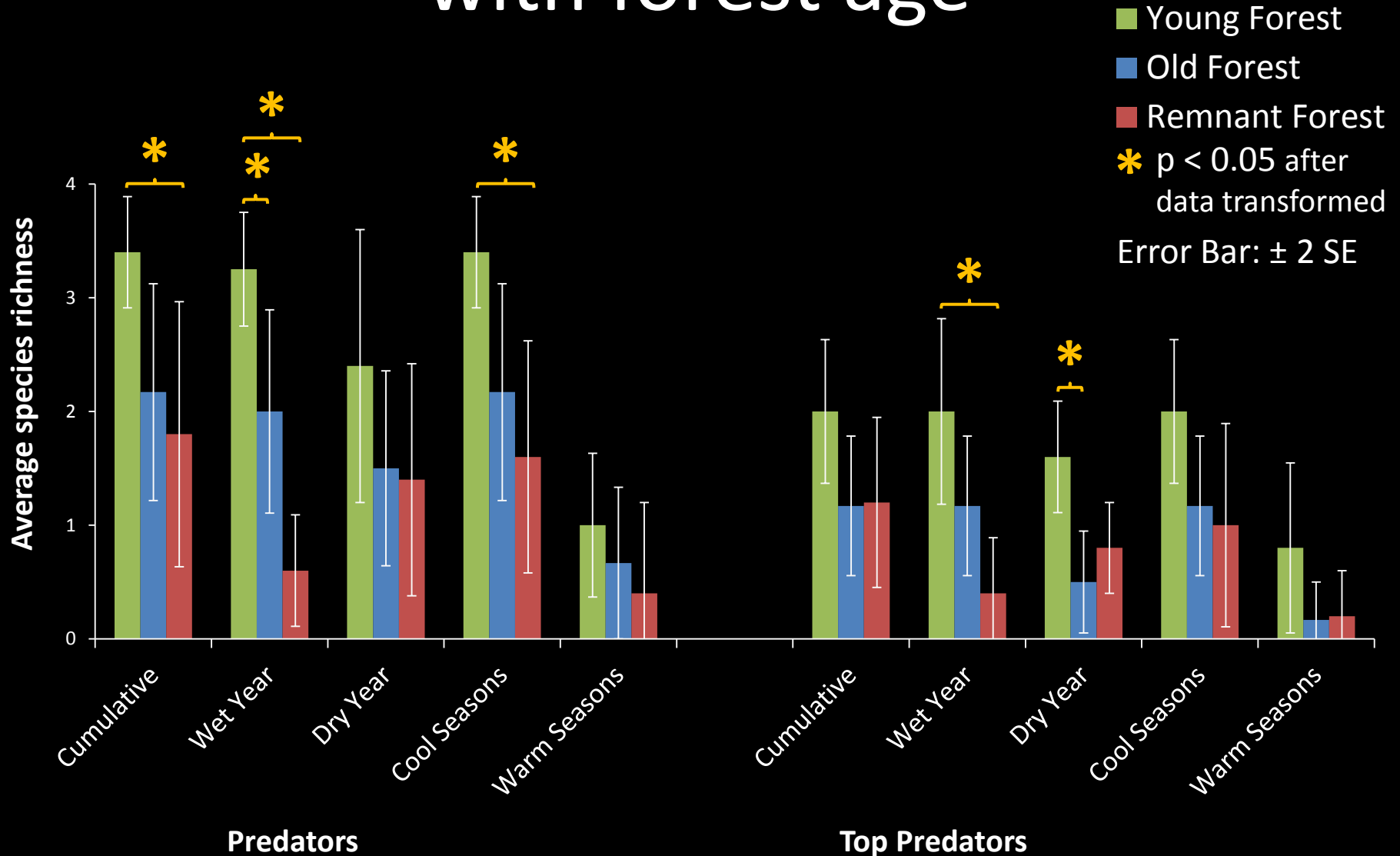


Data

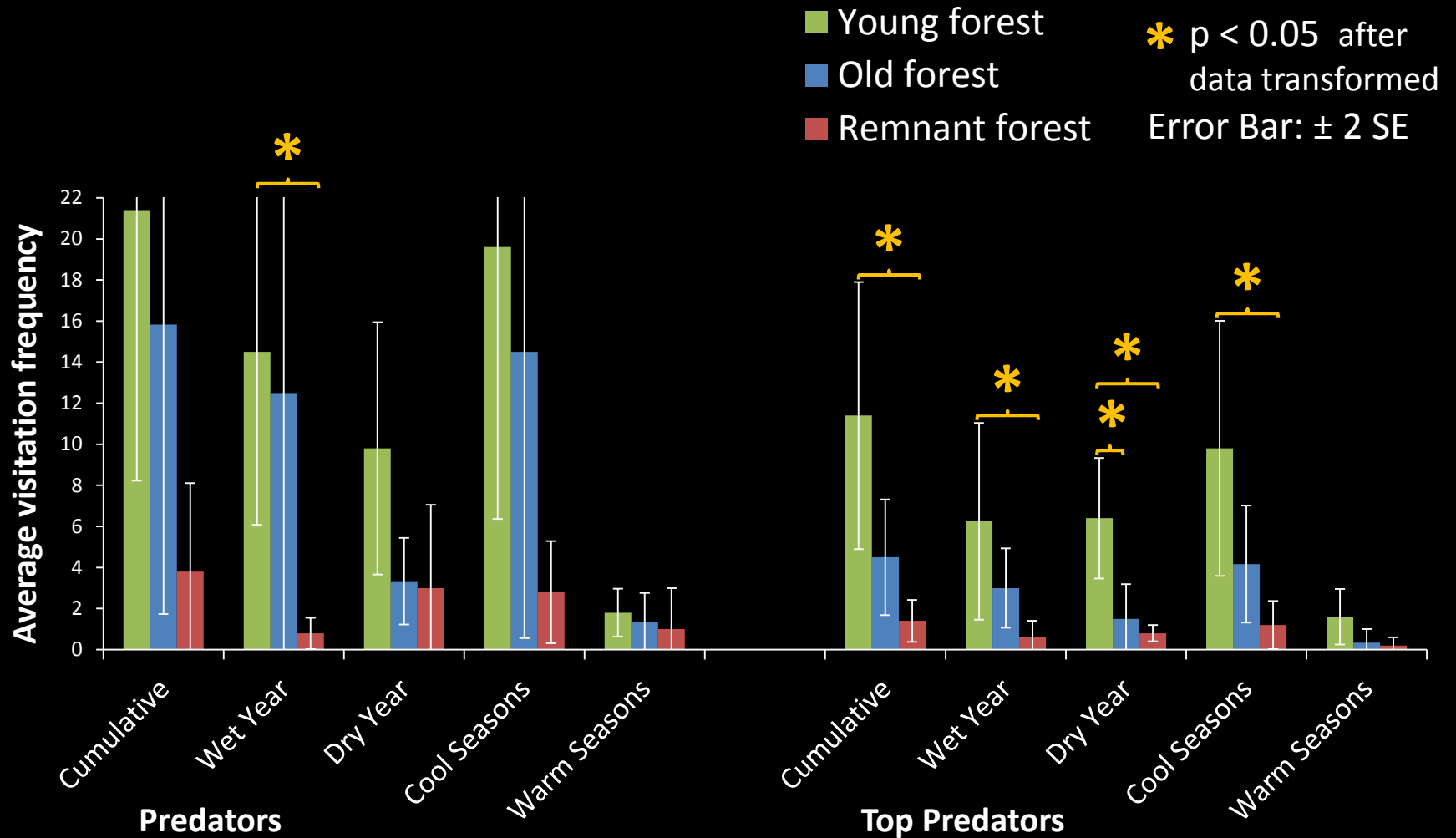
- Coyote
- Bobcat
- Cougar
- Stray cat
- Raccoon
- Skunk



Predator diversity declines with forest age

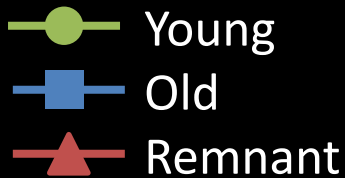


Activity declines with forest age



Predators

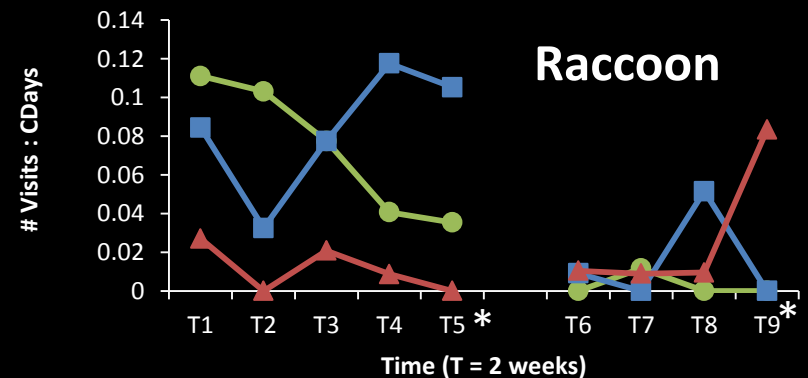
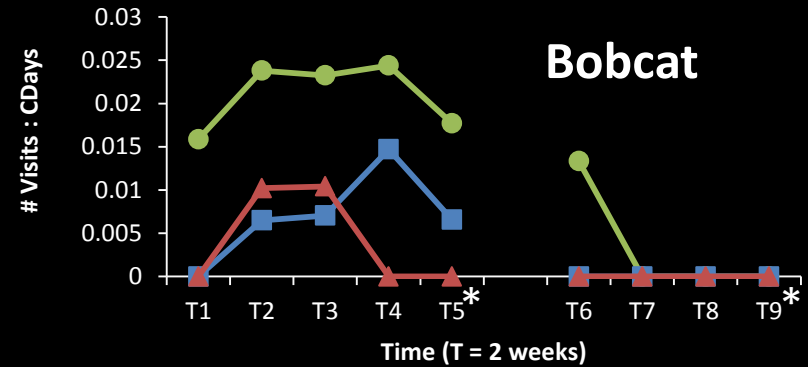
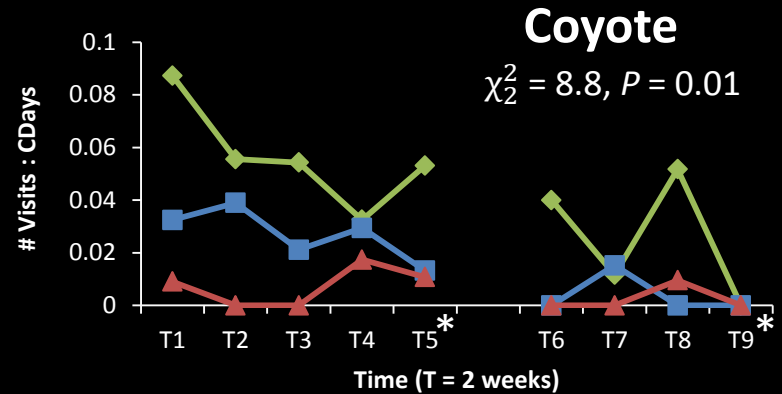
Species-specific visitation trends:



T1 – 5: Cool period

T6 – 9: Warm period

* T < 2 weeks



Summary

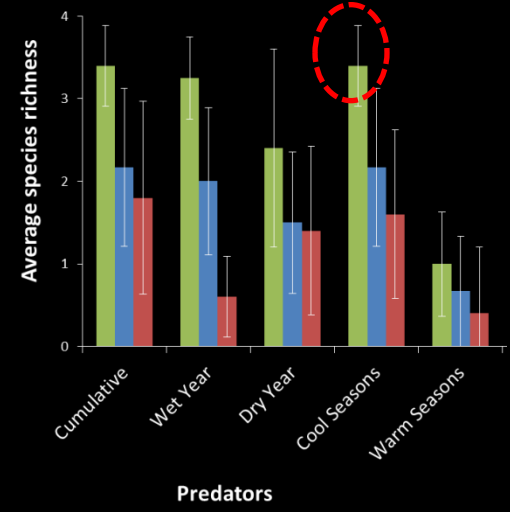
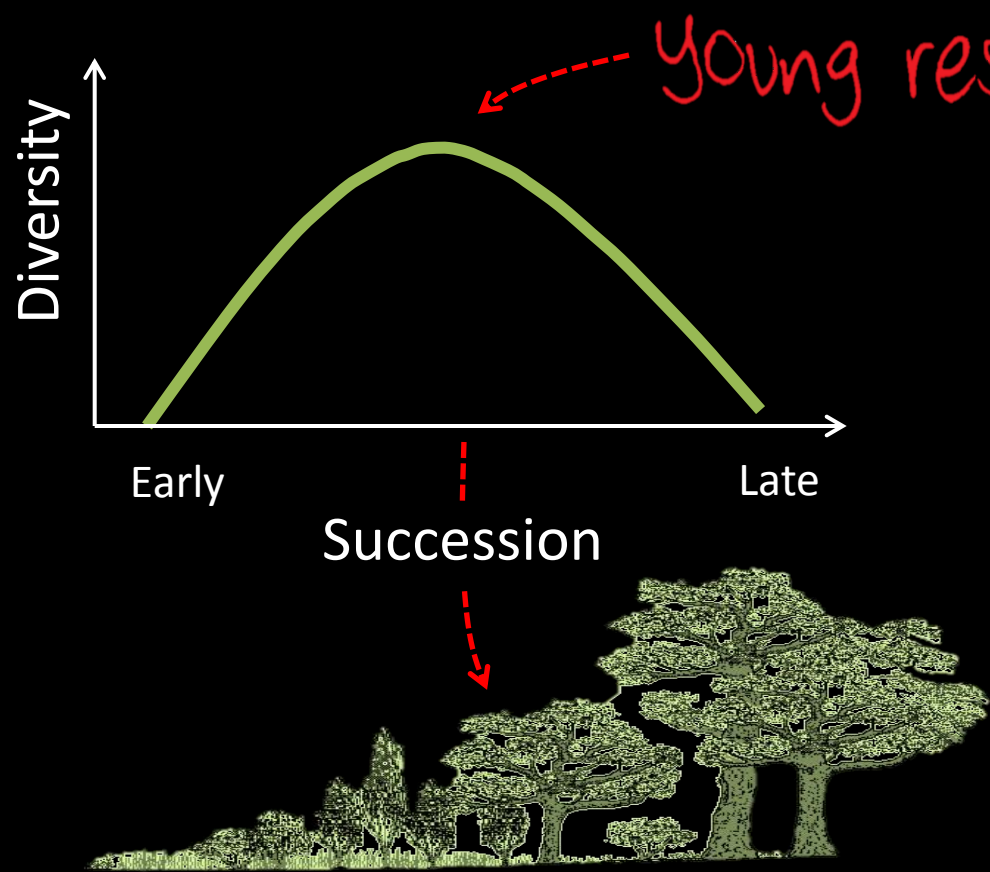
Do predators show a preference in habitat age?

Predicted: Predators prefer old restoration

Found: Predators prefer young restoration



Intermediate richness hypothesis



↑ Herbivores ↓ Herbivores
 ↑ Predators ↓ Predators

Results match predators' known habitat preferences

- Native mammalian predators prefer:
 - Edge, complex vegetation structure



Young Site



Remnant Site

Behavioral response race model

- Immobile prey

- ➔ Positive spatial correlation between predator and prey



E.g. California vole
(*Microtus californicus*)

- Mobile prey

- ➔ Negative spatial correlation between predator and prey



E.g. Deer
(*Odocoileus spp.*)

Bottom Line

- Predators prefer young restored forest
 - Intermediate succession
 - Habitat preferences
 - Predator-prey interaction
- Older (remnant!) sites have less predators, yet are important for prey.



Management: riparian corridors



- Positive results of planting early successional vegetation.
- Remnant conditions should be part of diverse landscape.



- Restore river processes that promote heterogeneity, early successional growth.

Thank you

Thesis Committee: Gretchen Lebuhn, Joe Silveira, Greg Golet, Ed Connor

SRNWR personnel: Kelly Moroney, others

Volunteers: Audrey Nickles, Rachel Coombs, Olivia Pham, others

Folks who helped with advice: Tom Parker, Jon Stern

San Francisco State University

National Science Foundation

Society of Wetland Scientists

The Wildlife Society

US Fish and Wildlife Service

The Nature Conservancy

Minnesota Trapline Products

Parents!!!!