

Recreation and wildlife conservation in a fragmented urban landscape



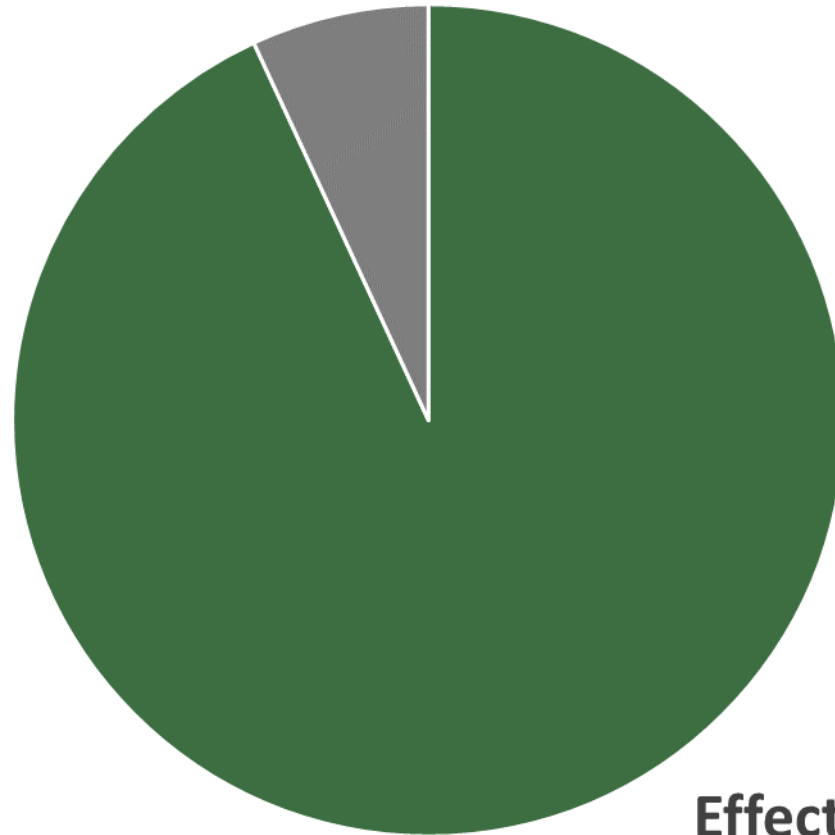
Courtney L. Larson **Colorado State University**
Sarah E. Reed **Wildlife Conservation Society**
Adina M. Merenlender **University of California, Berkeley**
Kevin R. Crooks **Colorado State University**



“To conserve... the **wild life** therein and to provide for the **enjoyment** of the same...” (1916)

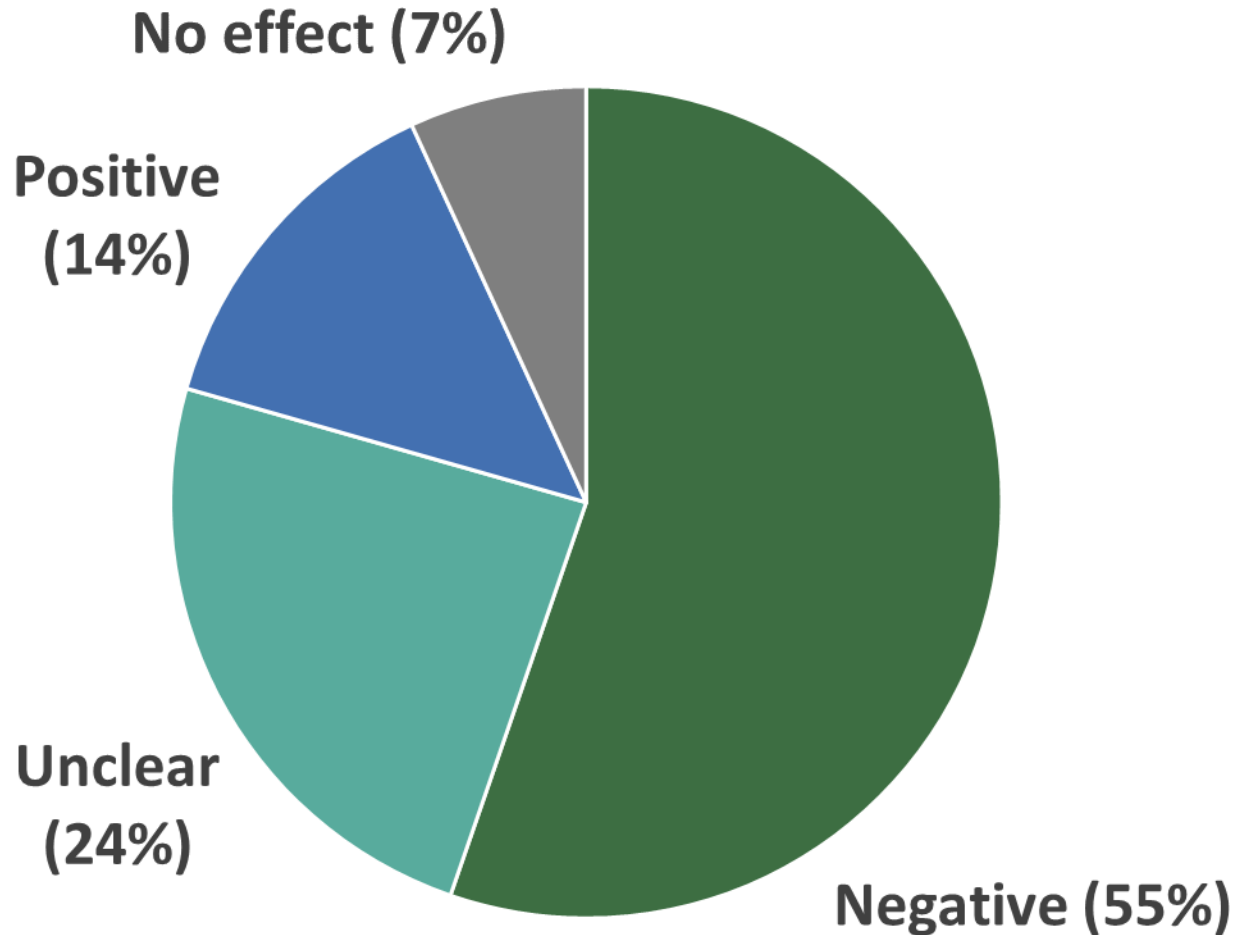
Effects of recreation on wildlife

No effect (7%)



Effect (93%)

Effects of recreation on wildlife



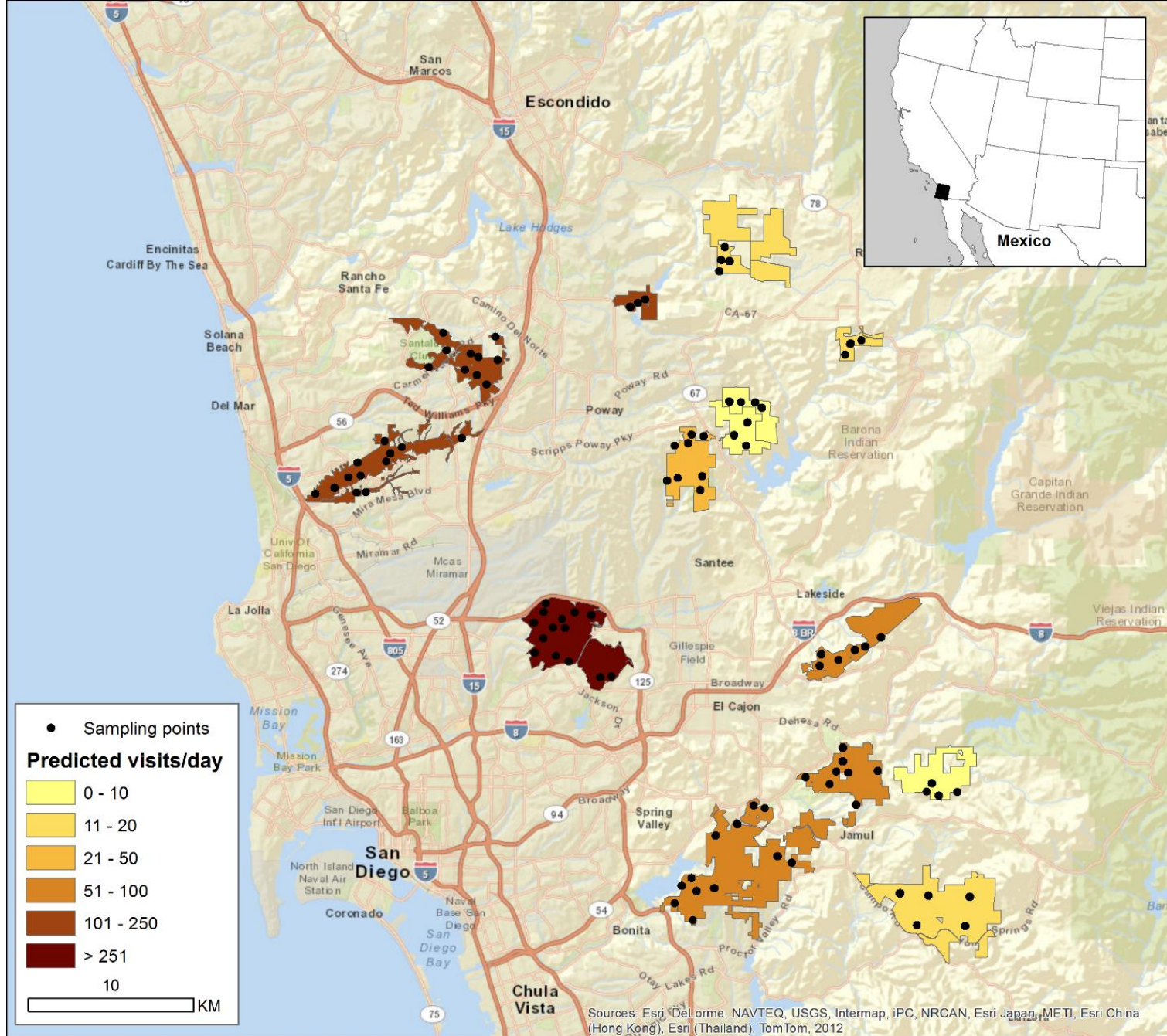
Research questions

How does non-motorized, non-consumptive recreation affect mammals and reptiles in the San Diego area?

- Occurrence of species (reptiles, mammals)
- Relative activity/habitat use (mammals)
- Species richness (reptiles)
- Community composition/traits (reptiles)

Study locations

- Barnett Ranch
- Black Mountain Open Space
- Blue Sky ER
- Boulder Oaks
- Crestridge ER
- Hollenbeck Canyon
- Los Penasquitos Canyon
- McGinty Mtn (SDNWR)
- Mission Trails
- Ramona Grasslands
- San Diego NWR
- San Vicente Highlands ER
- Sycamore Canyon
- Sycuan Peak





M04

71 F 21 °C

02-08-2017 10:12:08



M39

50 F 10 °C

02-19-2017 10:04:12



M04

64 F 17 °C

01-14-2018 09:19:12



M36

71 F 21 °C

11-01-2017 12:22:41



Bushnell M20

60 F 15 C ☉

10-05-2017 07:56:19



Bushnell M48

71 F 21 C ☉

03-06-2017 11:37:21



Bushnell M39

64 F 17 C ☉

05-05-2017 17:24:42



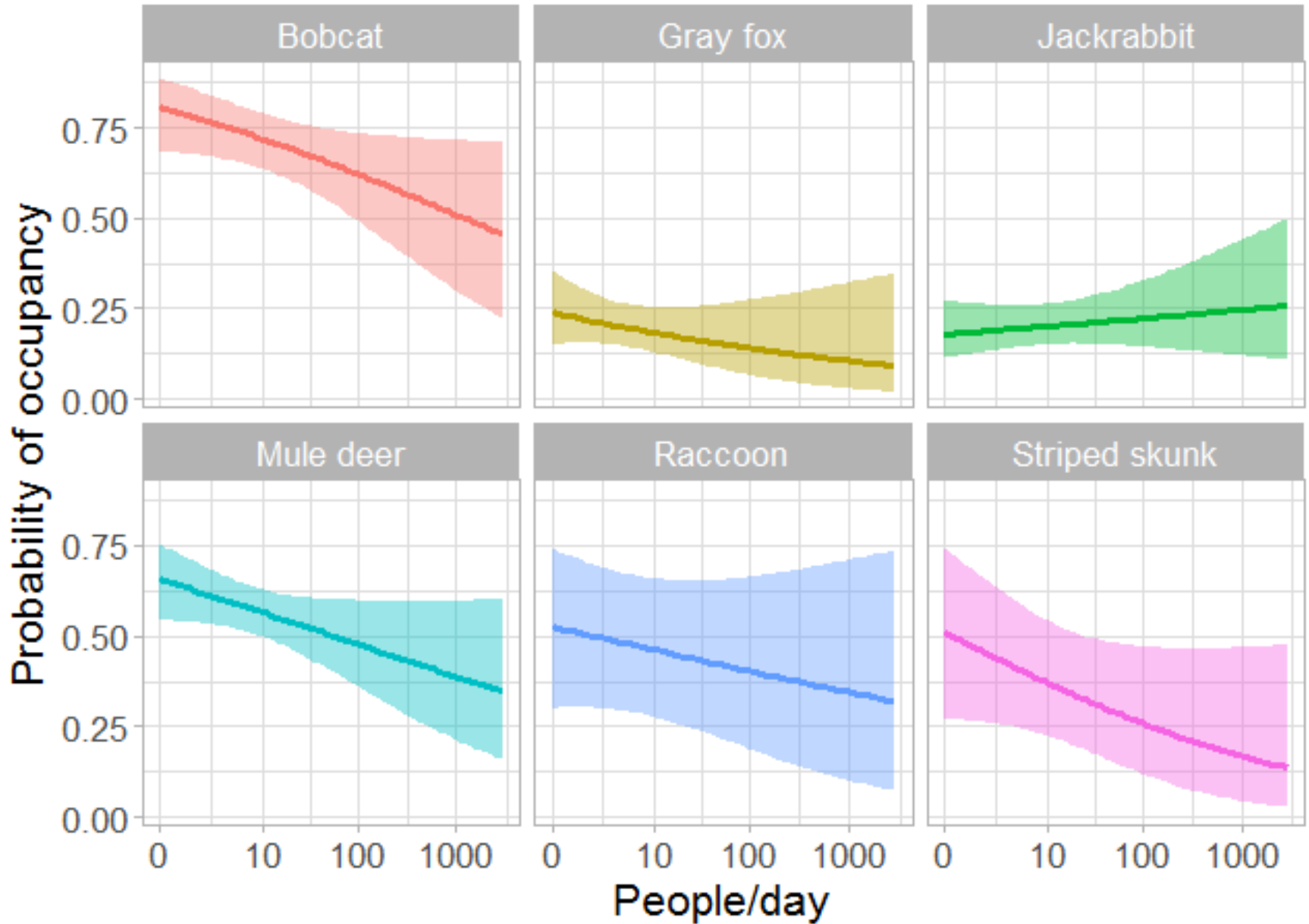
Bushnell M21

50 F 10 C ●

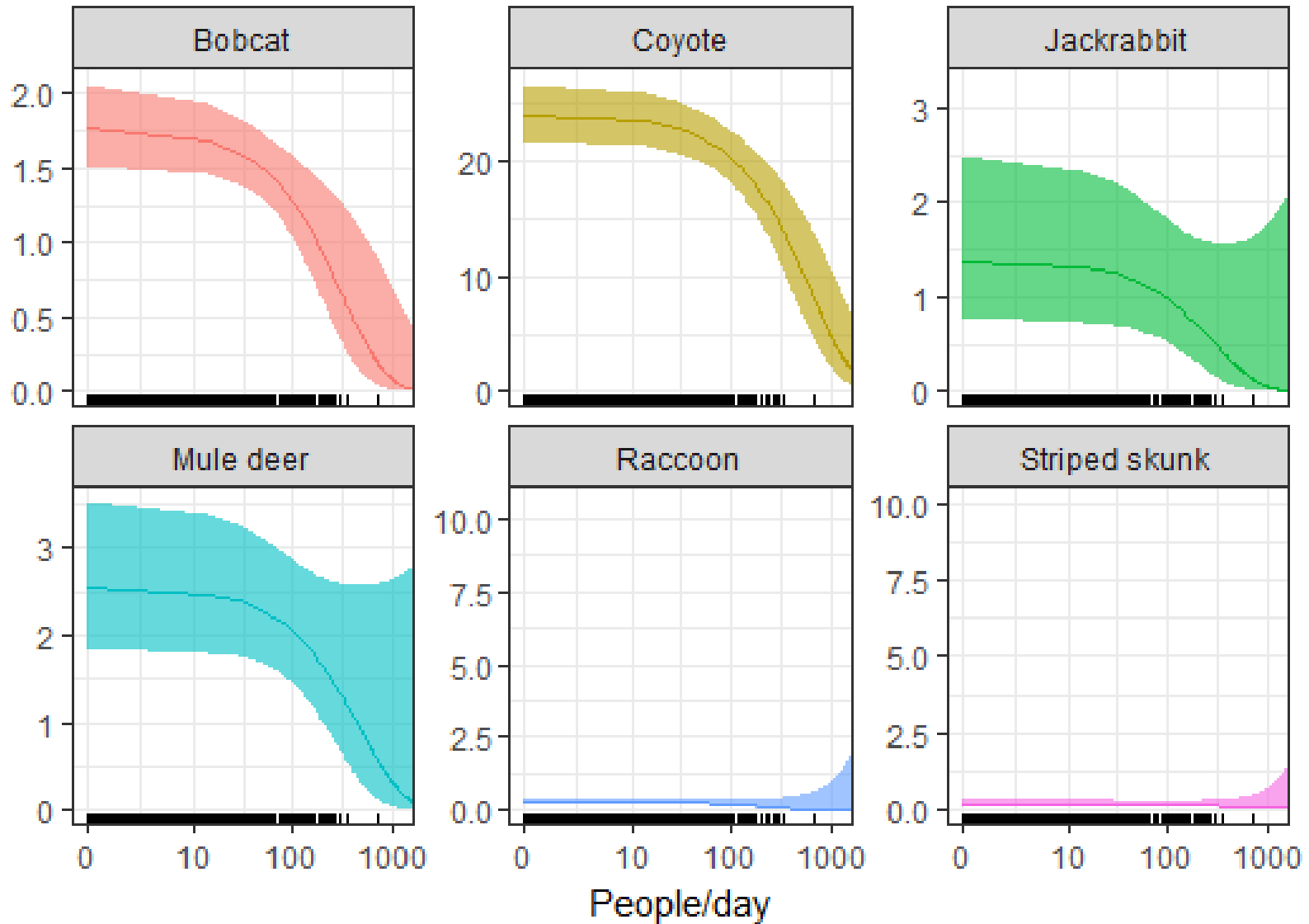
01-28-2017 07:40:22



Mammal occupancy



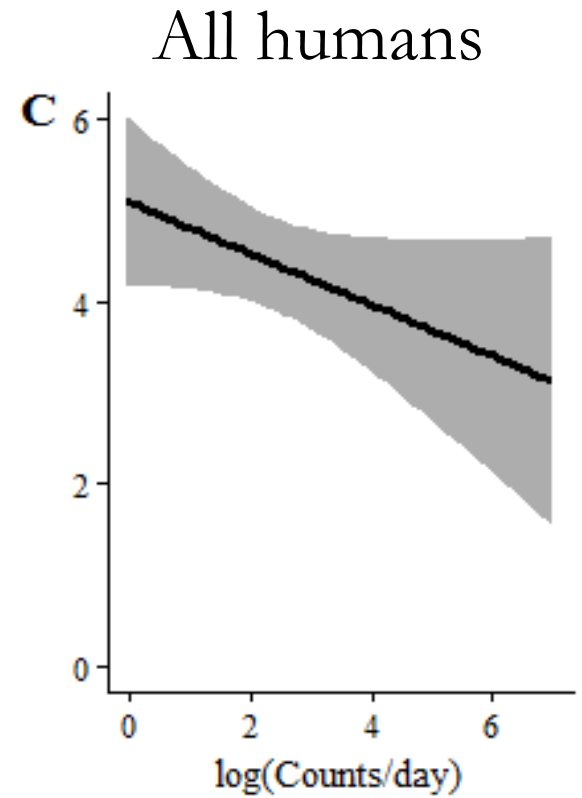
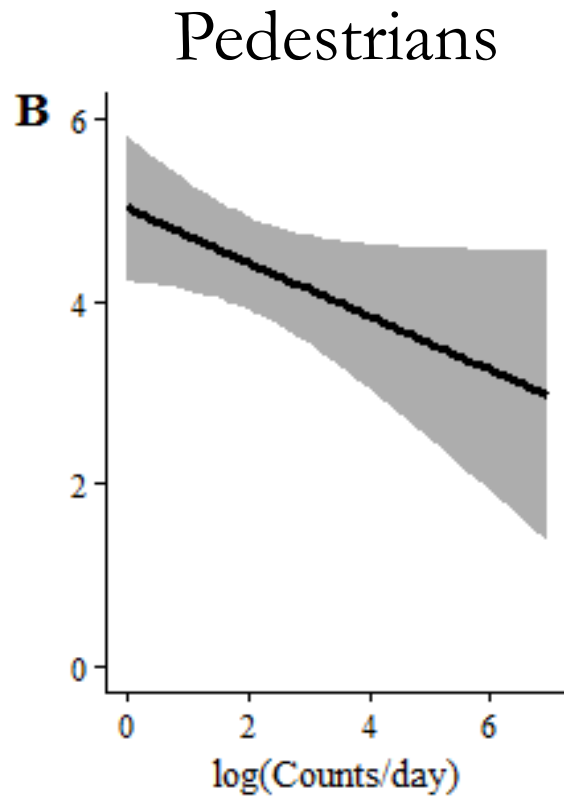
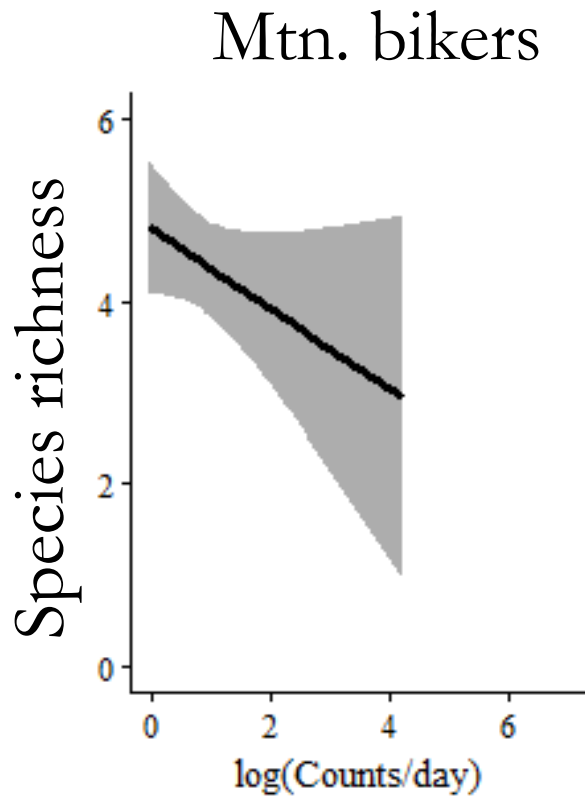
Mammal relative activity



Reptile occupancy



Reptile species richness



Takeaways

As human activity increases:

- Slight declines in occupancy for many mammals, but stronger responses in terms of activity levels
- Decline in occupancy for 2/3 lizard species, strong decline for side-blotched lizard
- Decline in reptile species richness

*These models account for other factors such as habitat characteristics

PROPERTY

OF THE *Citizens*

~~STATE~~ OF CALIFORNIA

~~DEPARTMENT OF FISH AND GAME~~

NO TRESPASSING

OF

NON TAX-PAYER



STATE OF
The Res.
DEPARTMENT

CALIFORNIA
Fish Agency
FISH AND GAME



Acknowledgements

Contact info:

courtneyllarson@gmail.com



@LarsonCourtney

Reed and Crooks labs
FWCB graduate students
Jeff Carroll

Funding & institutional support

Advisors & committee members
Dr. Kevin Crooks
Dr. Sarah Reed
Dr. Adina Merenlender
Dr. Rick Knight
Dr. Larissa Bailey

Warner College of Natural Resources (CSU)
Graduate Degree Program in Ecology (CSU)
Wildlife Conservation Society
California Department of Fish & Wildlife

Kai Atkinson
Reserve managers & rangers
USGS & SDMMP
Photo sorting volunteers and assistants