Using detailed human activity and remote sensing data to assess wildlife responses to altered human behavior during the COVID-19 pandemic

Diego Ellis Soto[1,2], Ruth Y. Oliver[1,2], Scott Yanco[1,2], Walter Jetz[1,2]

1 Department of Ecology & Evolutionary Biology, Yale University

2 Max Planck-Yale Center for Biodiversity Movement and Global Change

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Diego_EllisSoto

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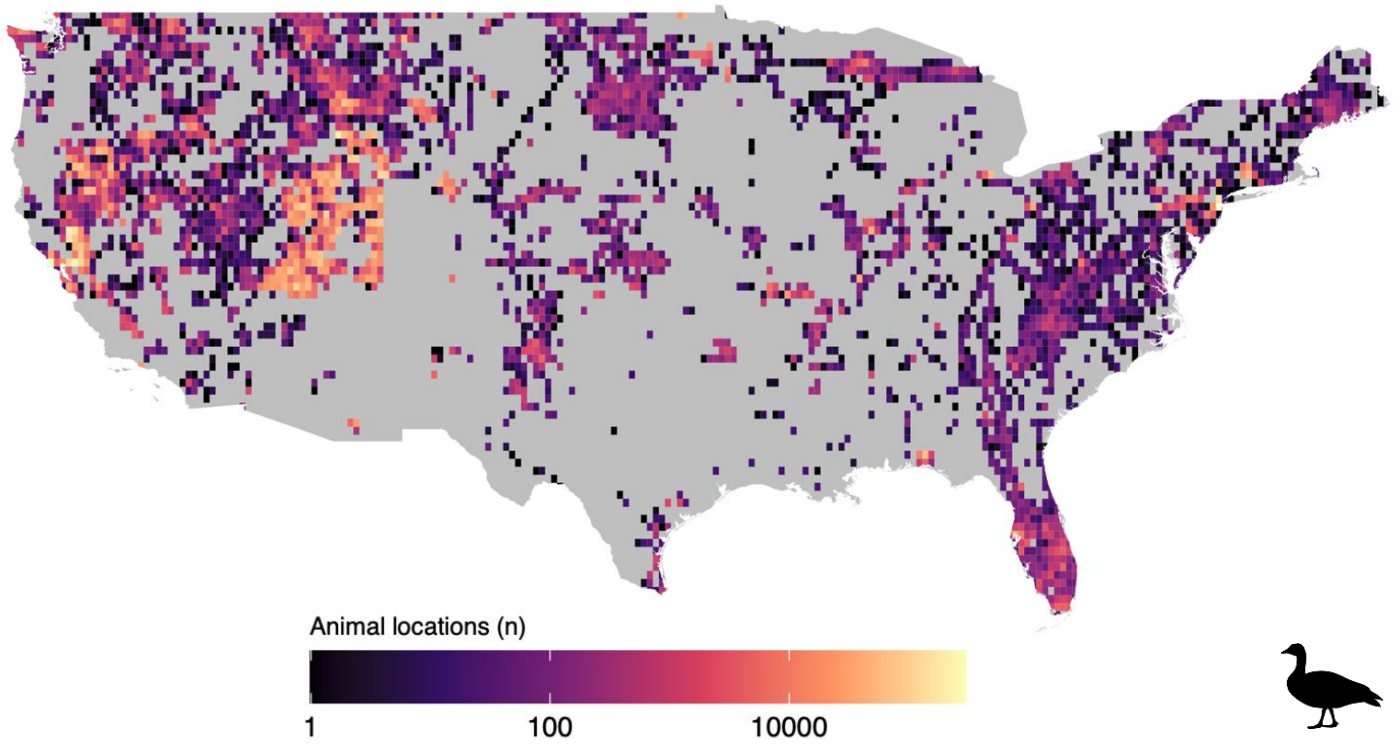
COVID-19 lockdown allows researchers to quantify the effects of human activity on wildlife

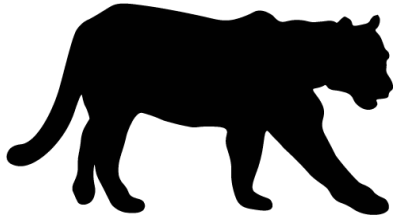
Reduced human mobility during the pandemic will reveal critical aspects of our impact on animals, providing important guidance on how best to share space on this crowded planet.

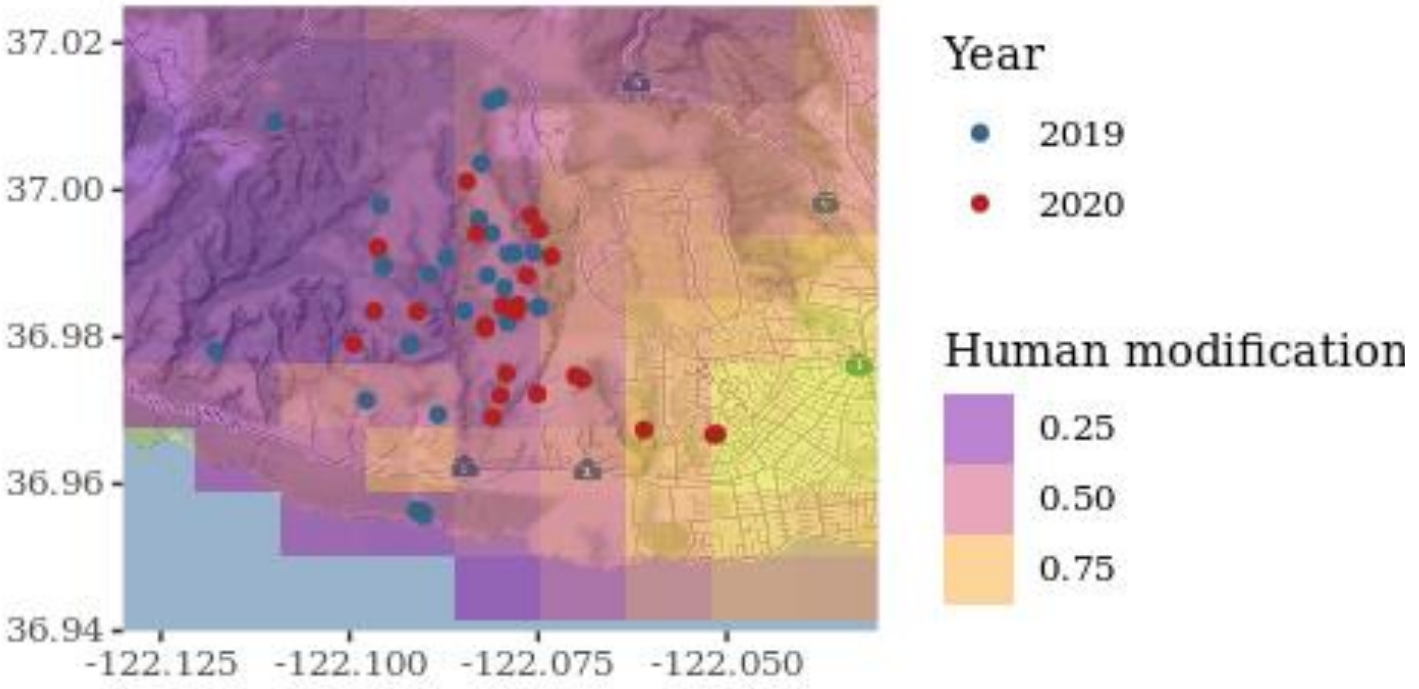
Christian Rutz, Matthias-Claudio Loretto, Amanda E. Bates, Sarah C. Davidson, Carlos M. Duarte, Walter Jetz, Mark Johnson, Akiko Kato, Roland Kays, Thomas Mueller, Richard B. Primack, Yan Ropert-Coudert, Marlee A. Tucker, Martin Wikelski and Francesca Cagnacci

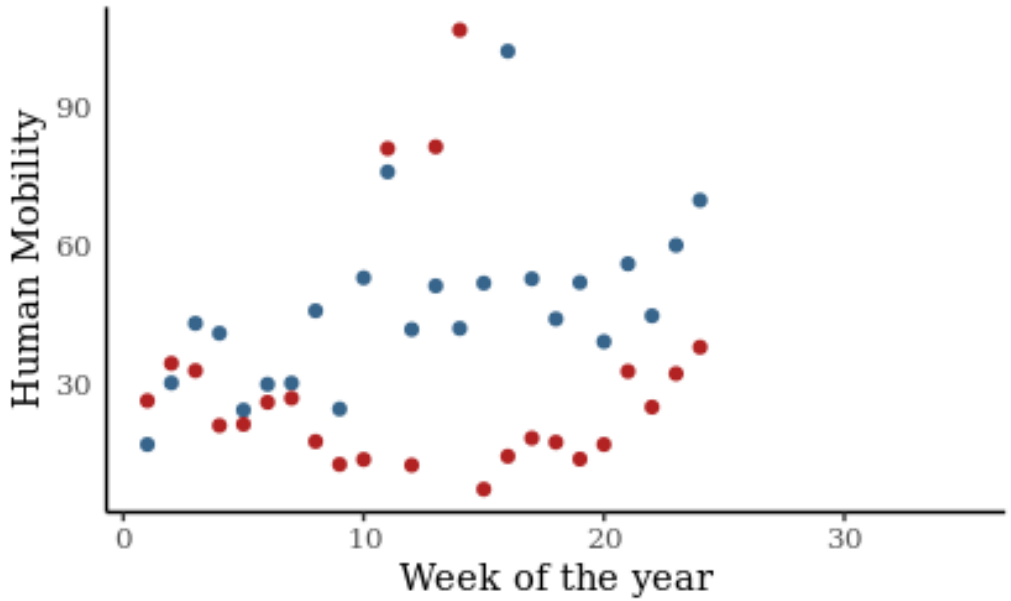


- ~12 million GPS locations
- 4040 individuals
- 42 species

Puma concolor

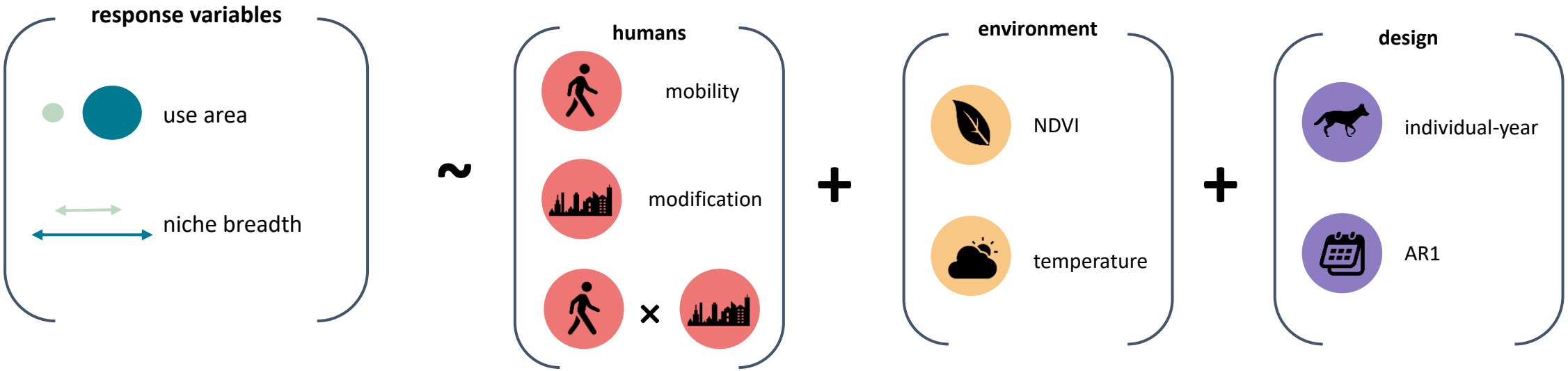


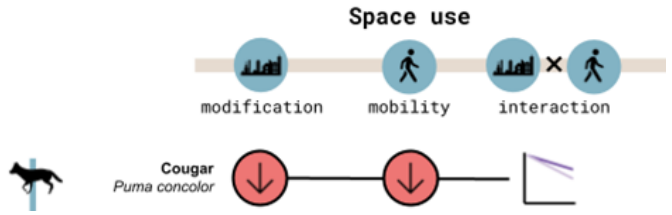




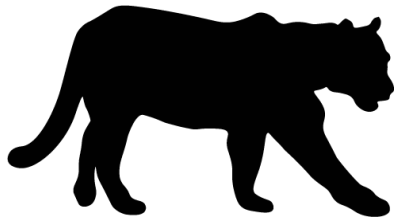
GPS data from Wilmers et al. 2021

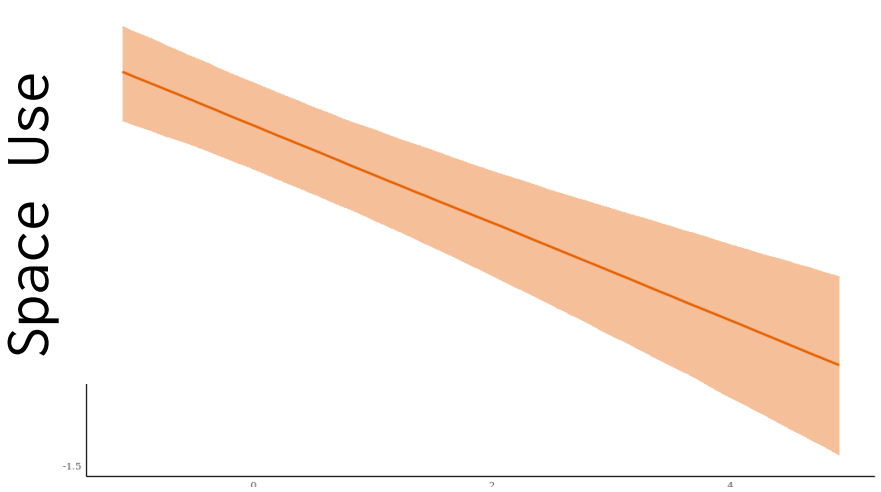
Characterizing wildlife responses



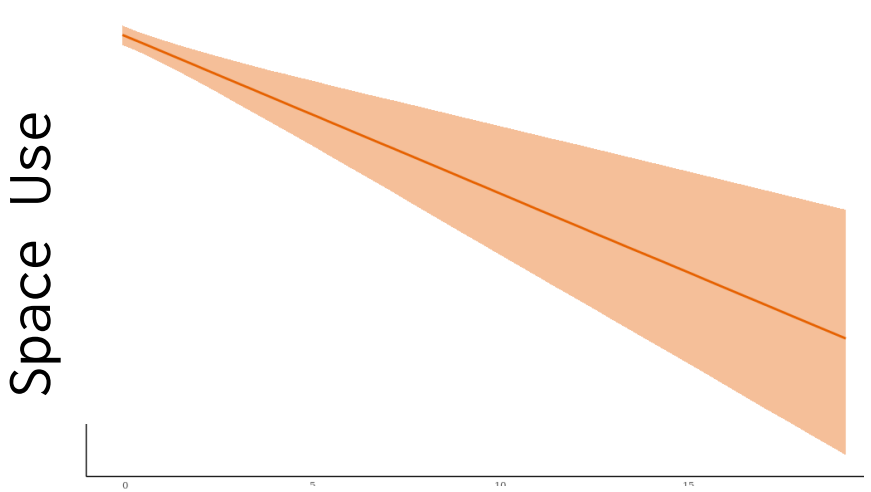


Puma concolor

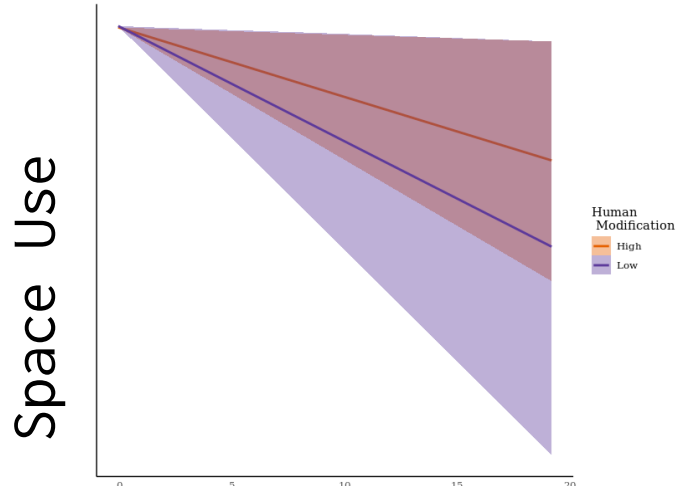




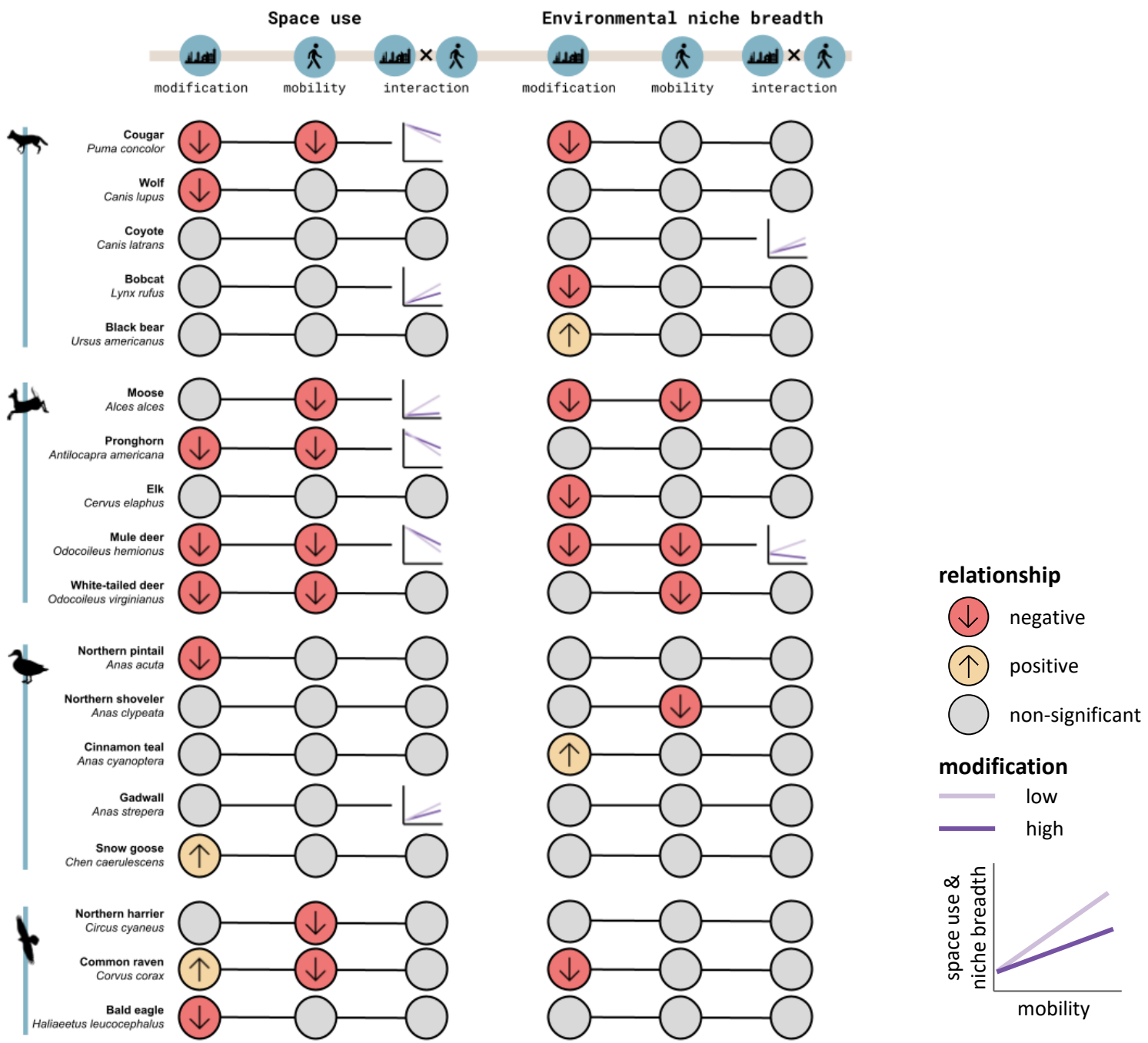
Human Modification



Human Mobility



Human Mobility


Space use
Environmental niche breadth
modification
mobility
interaction
modification
mobility
interaction
Cougar
Puma concolor
Wolf
Canis lupus
Coyote
Canis latrans
Bobcat
Lynx rufus
Black bear
Ursus americanus
Moose
Alces alces
Pronghorn
Antilocapra americana
Elk
Cervus elaphus
Mule deer
Odocoileus hemionus
White-tailed deer
Odocoileus virginianus
Northern pintail
Anas acuta
Northern shoveler
Anas clypeata
Cinnamon teal
Anas cyanoptera
Gadwall
Anas strepera
Snow goose
Chen caerulescens
Northern harrier
Circus cyaneus
Common raven
Corvus corax
Bald eagle
Haliaeetus leucocephalus
relationship
negative
positive
non-significant
modification
low
high
space use & niche breadth
mobility