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] , Walter Jetz[1]

[1]Yale University, [2]University of California Berkeley

80NSSC22K1535

"Directly quantifying human mobility is necessary to fully capture the impact of human activity on wildlife“

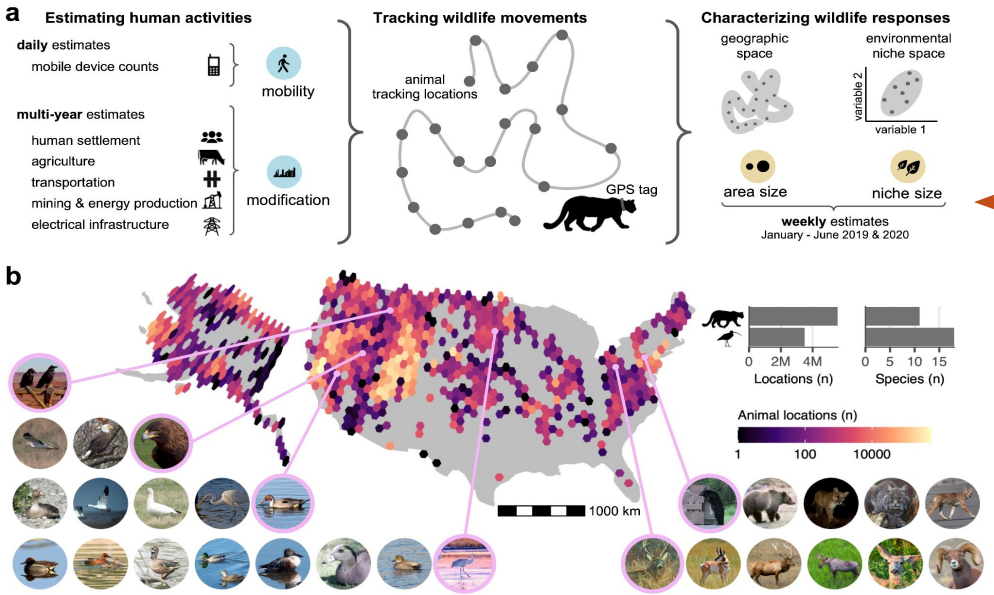

FIG 1: WILDLIFE RESPONSES TO HUMAN ACTIVITIES ACROSS THE USA

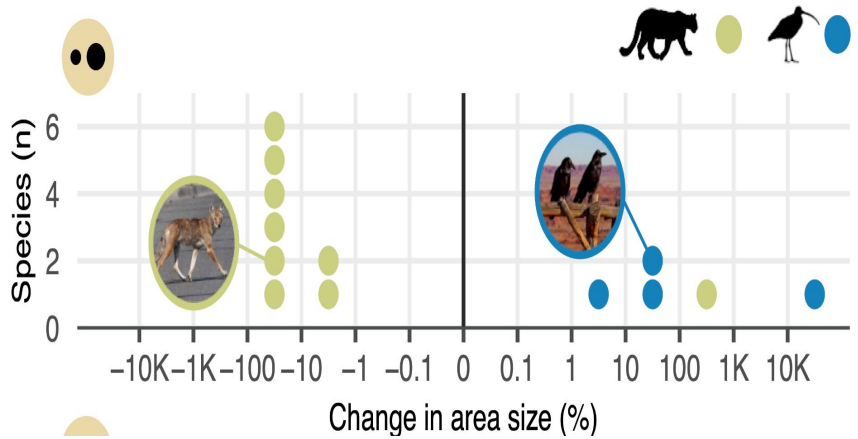

FIG. 2A: COMBINED IMPACT OF HUMAN ACTIVITIES ON WILDLIFE SPACE USE

Methods:
Data mobilization by the COVID-19 Biologging Initiative: 42 species, ~12 mill locations, 4000+ individuals

Human mobility, infrastructure & remotely sensed environmental variables

Modeled weekly space use of wildlife using anthropogenic and environmental predictors

Results:
We documented interacting effects of human mobility & land-use modification on wildlife

Human mobility was associated with changes in area for 82% of mammal species & 44% of birds
(Fig. 2A)

The majority of species were affected by both human mobility & landscape modification (Fig. 2B)

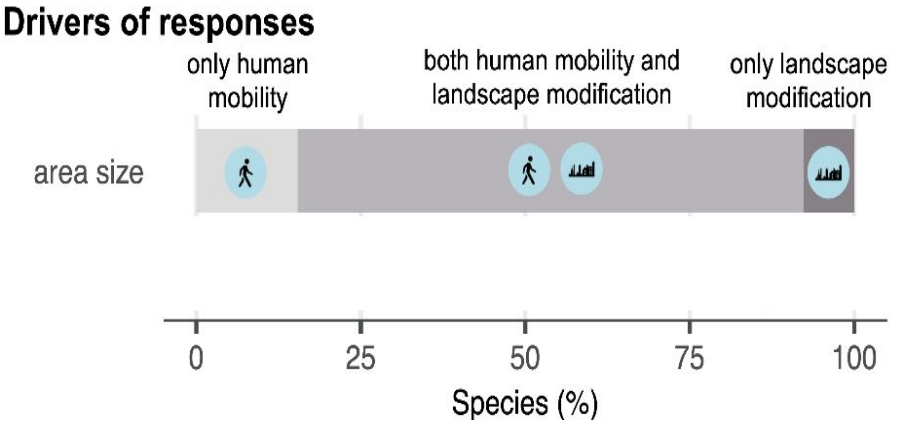

FIG. 2B: INTERACTING EFFECTS OF HUMAN MOBILITY & INFRASTRUCTURE

Special thanks to Ruth Oliver, Scott Yanco, Christian Rutz, data contributors & co-authors

Oliver R, Yanco, Ellis-Soto et al., Science, in review