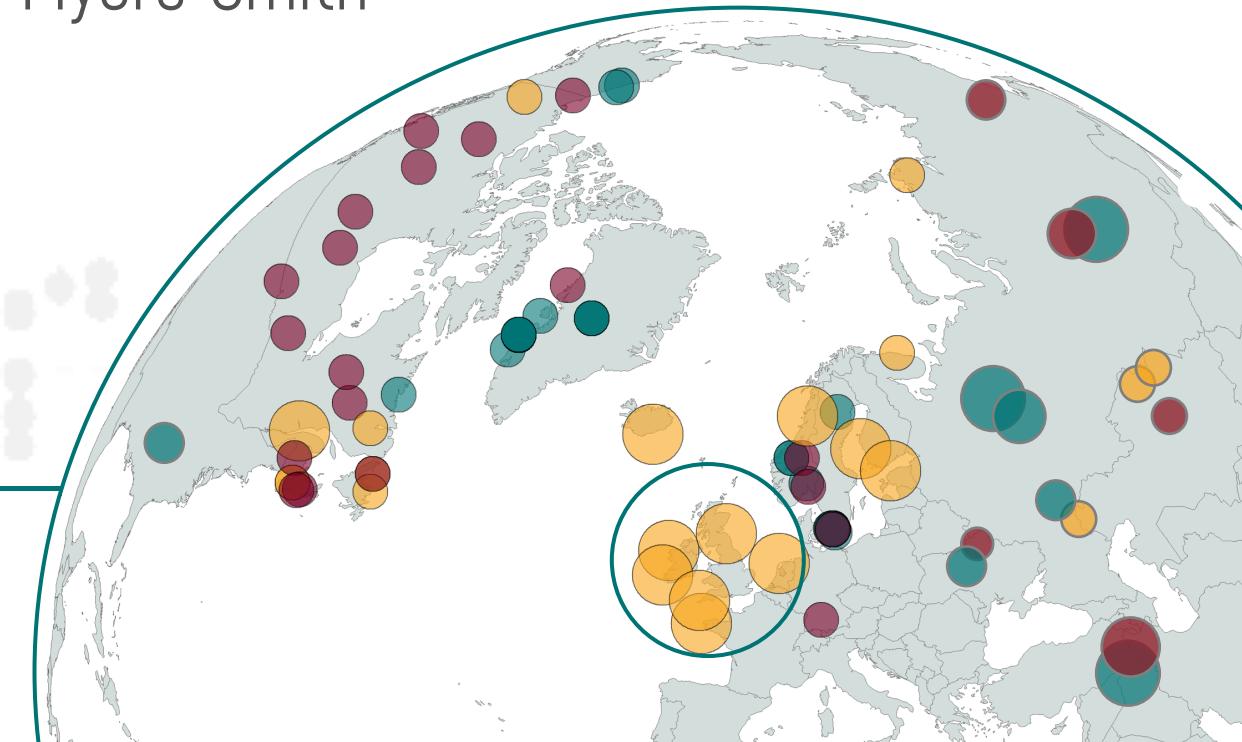


Does rarity influence population trends in the UK and across global biomes?

Gergana Daskalova,
John Godlee, Isla Myers-Smith



 @gndaskalova

 @TeamShrub



THE UNIVERSITY
of EDINBURGH



THE CARNEGIE TRUST
FOR THE UNIVERSITIES OF SCOTLAND



gndaskalova@gmail.com



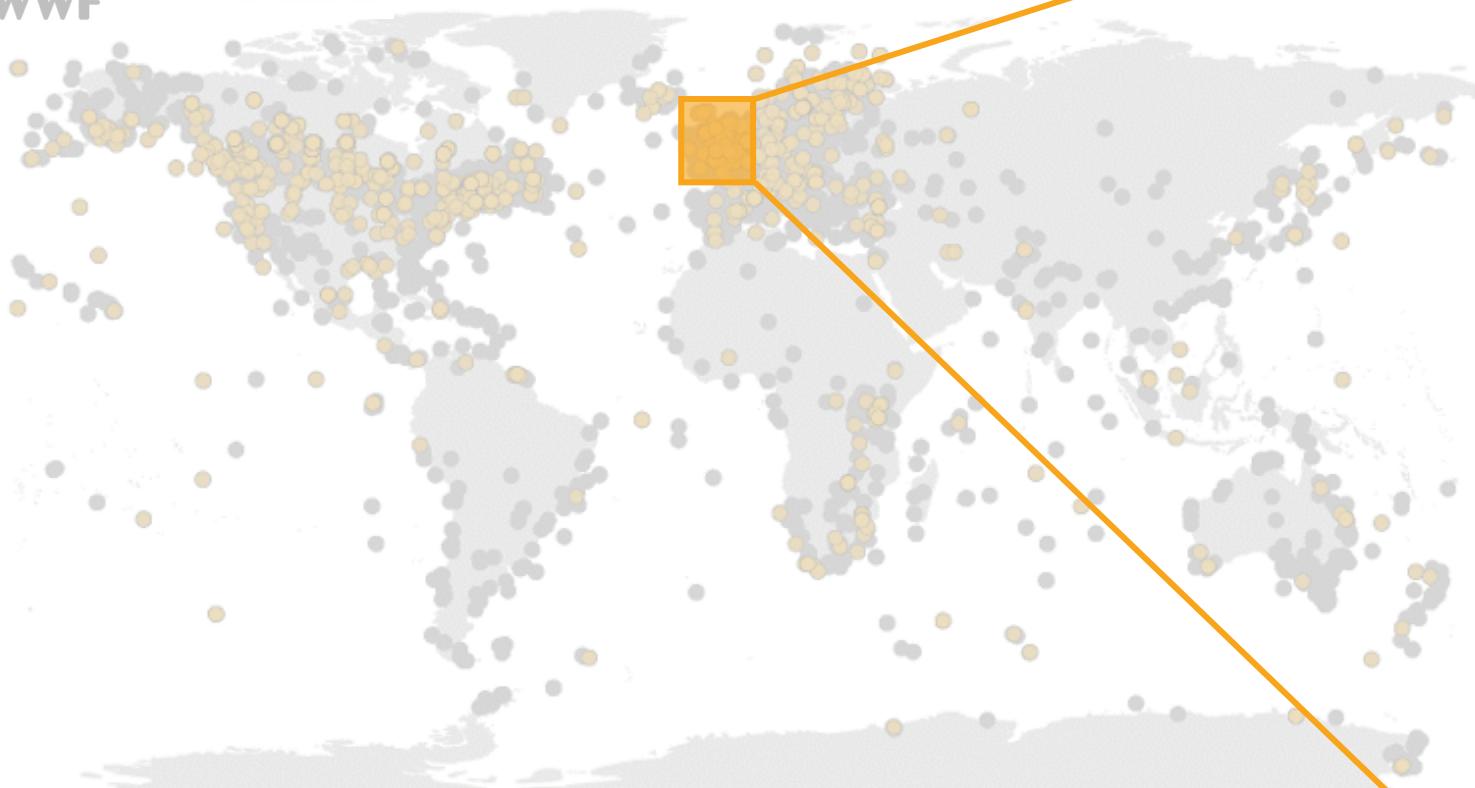
gndaskalova.com



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ZSL
LIVING CONSERVATION



1970

1970

Vertebrate populations through time (Living Planet Database)

Decrease

Increase

No change

Does rarity explain differences in population change in the UK?



@gndaskalova



@TeamShrub

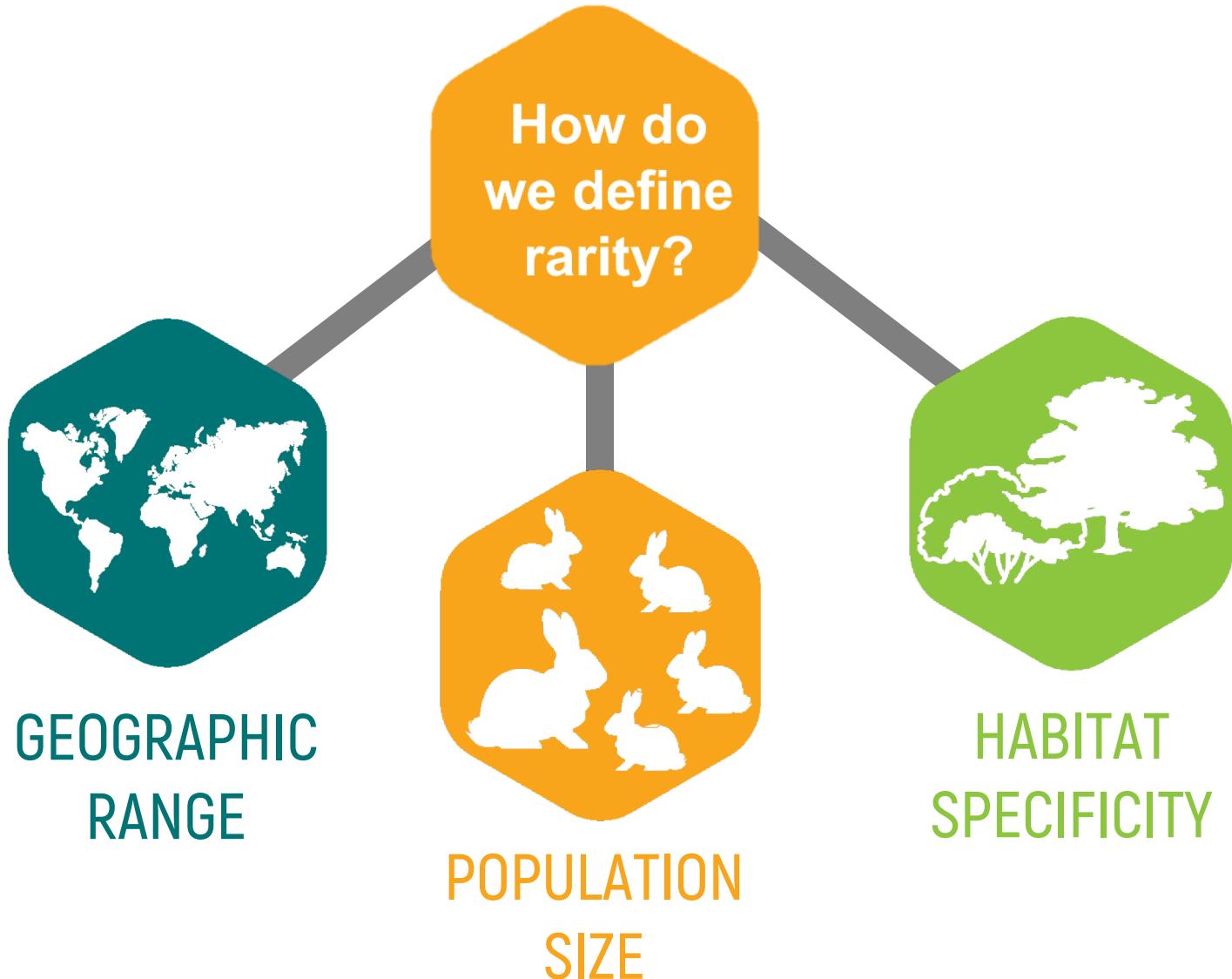


gndaskalova.com

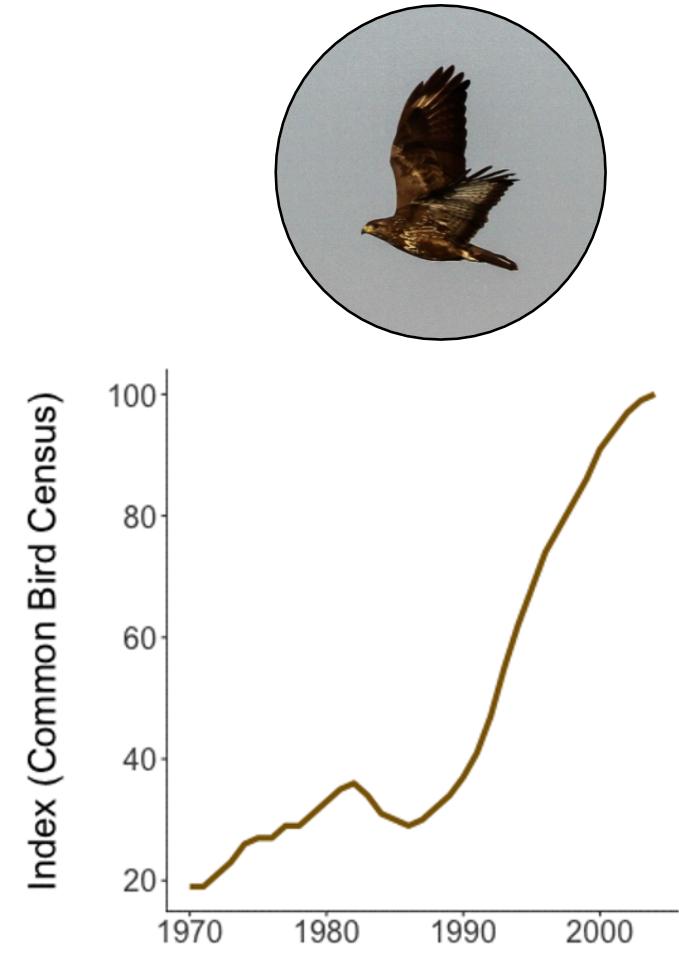
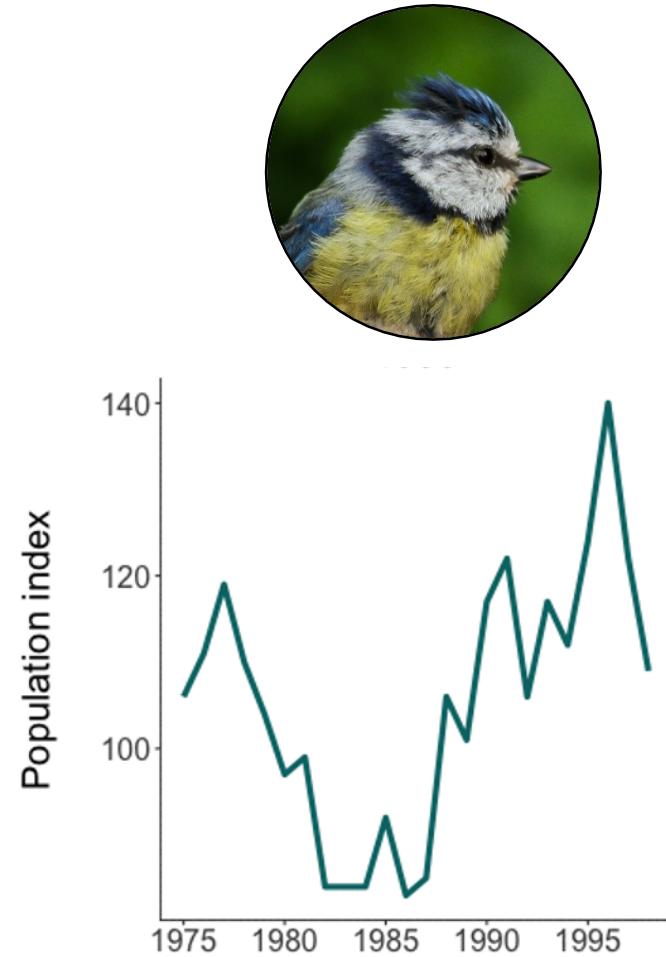
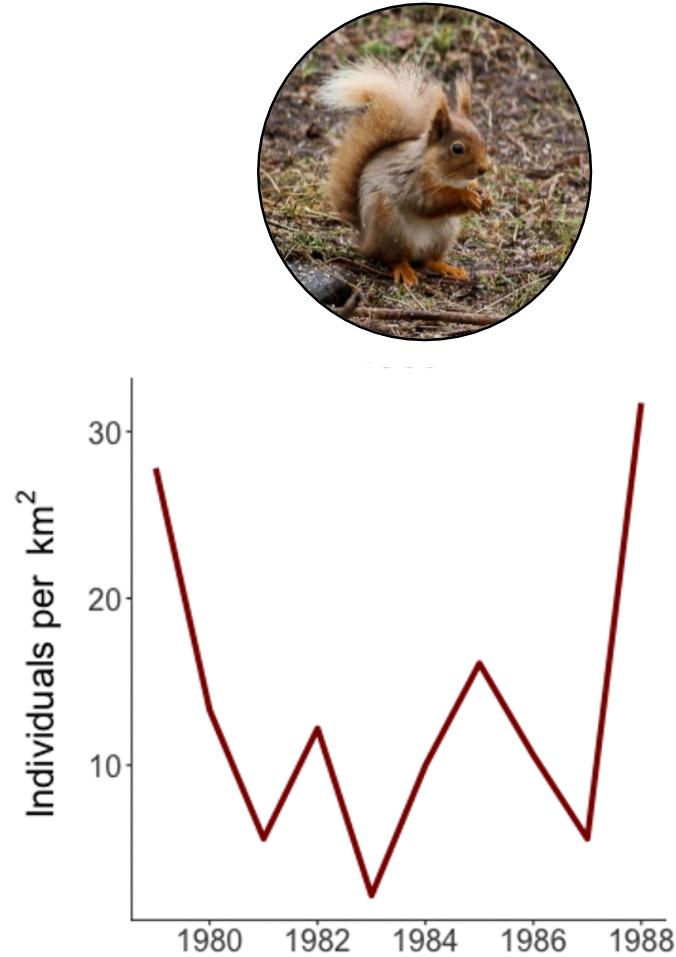


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Methods

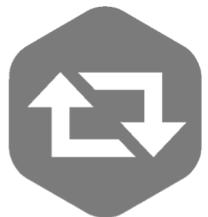


Methods



Methods

Living Planet Index



Slope of population change ~

1)

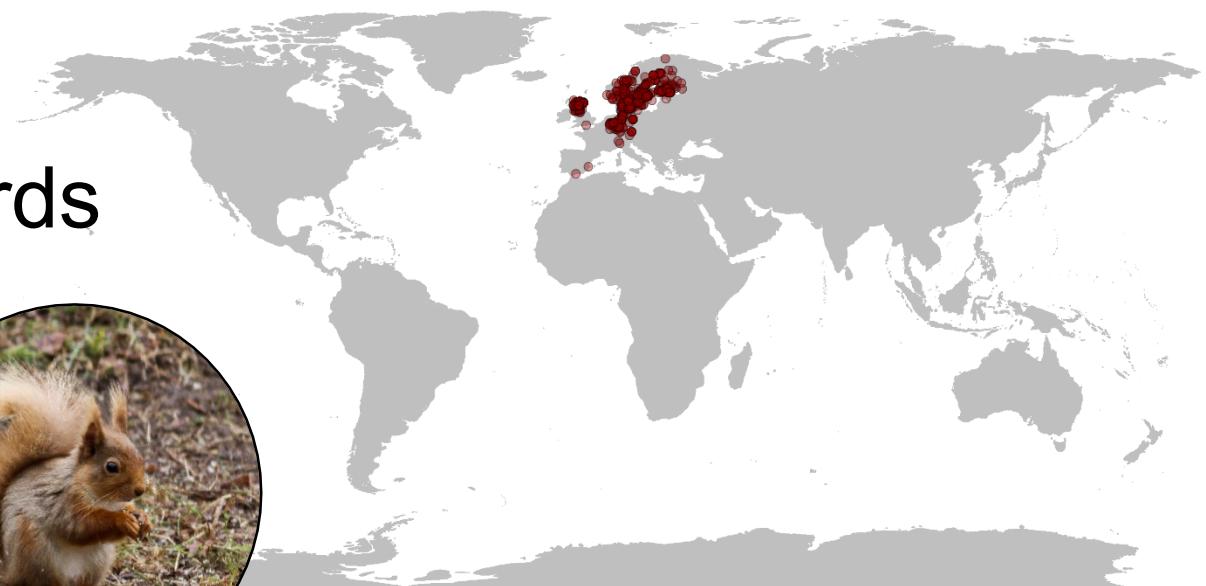


Occurrence records



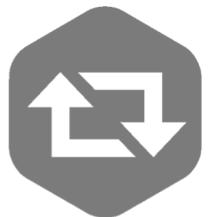
GBIF

Global Biodiversity
Information Facility



Methods

Living Planet Index

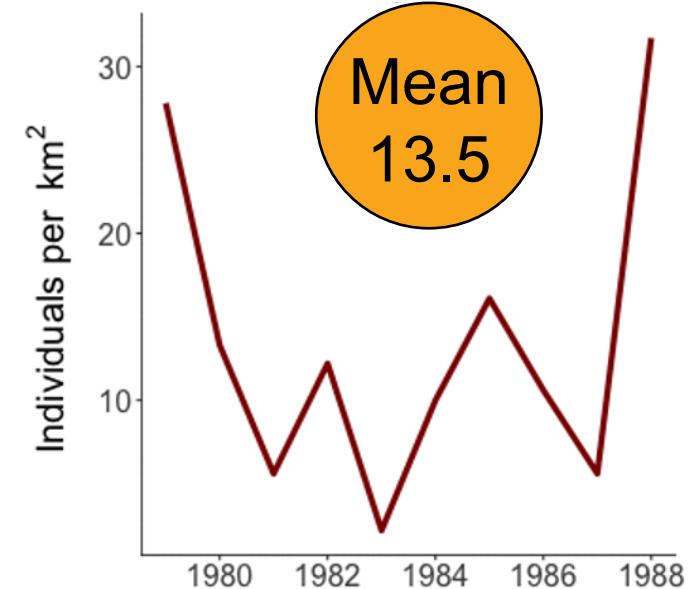


Slope of population change ~

2)

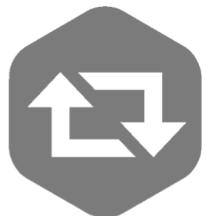


Mean population size



Methods

Living Planet Index



Slope of population change ~

3)



Number of different habitats



Habitat and Ecology [top]

Habitat and Ecology:

It is most abundant in large tracts of coniferous forest and also occurs in deciduous woods, mixed forest, parks, gardens, and small stands of conifers. It is found in lowland to subalpine forests. Its diet is mainly vegetarian, consisting of seeds, acorns, fungus, bark, and sapwood, although it occasionally takes animal prey (young birds and eggs). They are an important species for the reforestation process.

Systems:

Terrestrial

Methods

Living Planet Index

**381 populations
from 167 vertebrate
species in the UK**

Living Planet Index



Slope of population change ~

3)



Number of species



Habitat and Ecology:

Habitat and
Ecology:

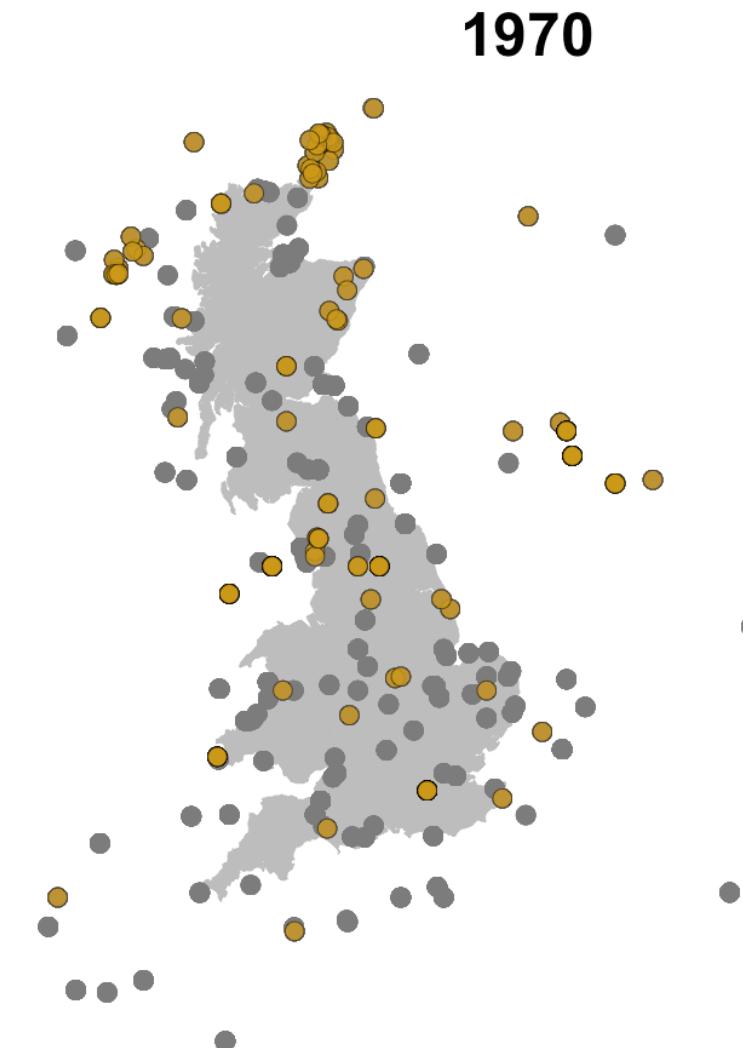
Systems:

It is found in mixed forests, woodlands, and small stands of conifers. It is found in lowland to subalpine forests. Its diet is mainly vegetarian, consisting of seeds, acorns, fungus, bark, and sapwood, although it occasionally takes animal prey (young birds and eggs). They are an important species for the reforestation process.

Terrestrial

Limitations

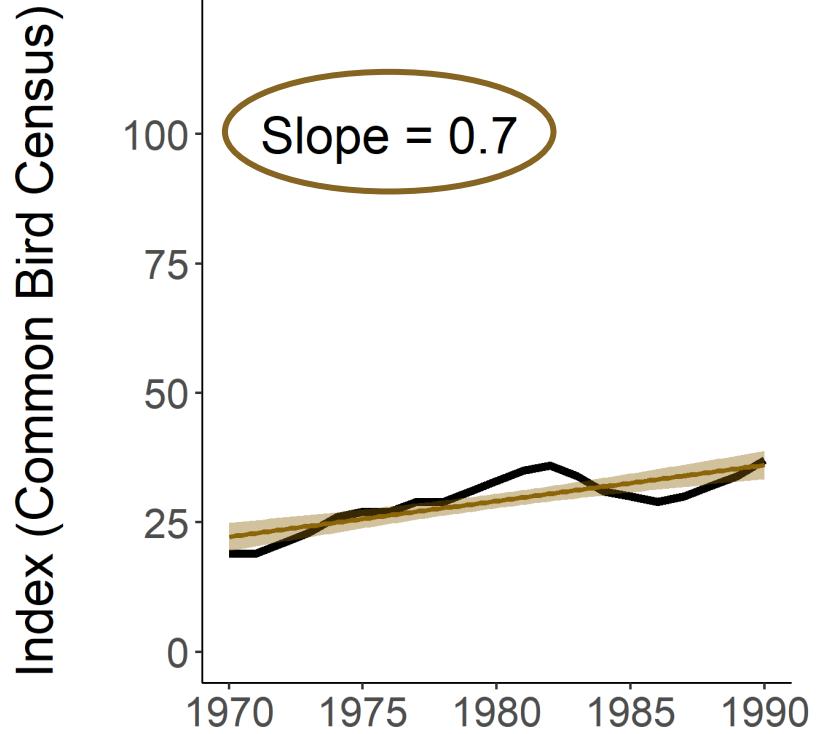
- Bias in data collection
- Quality of data
- Length of monitoring



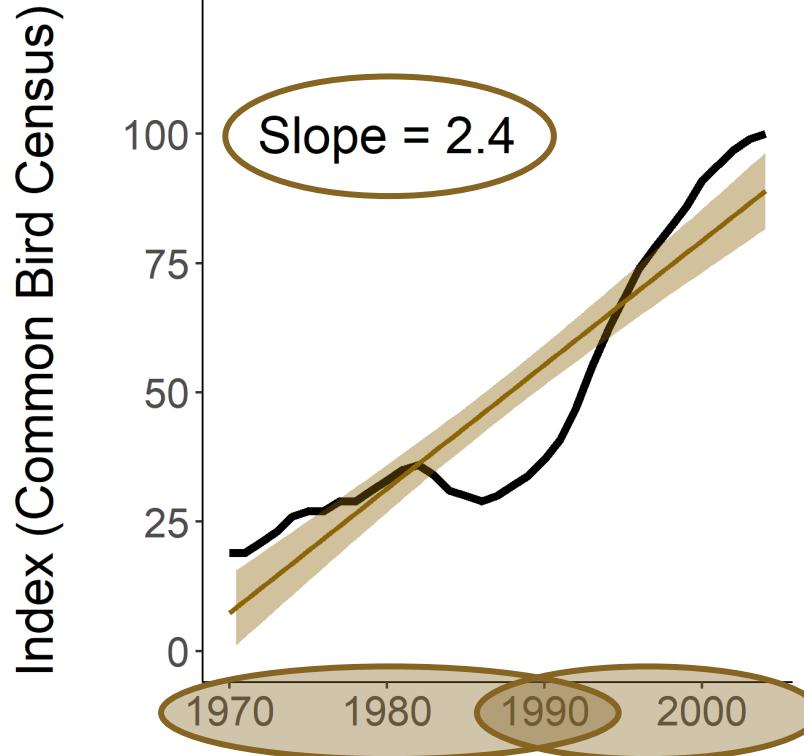
Limitations



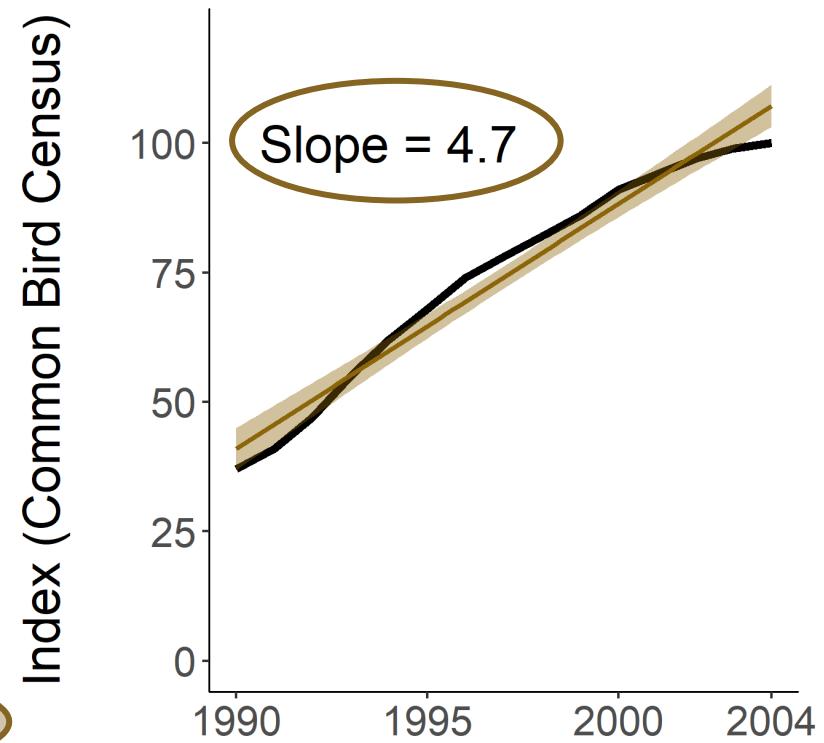
1970 - 1990



1970 - 2004



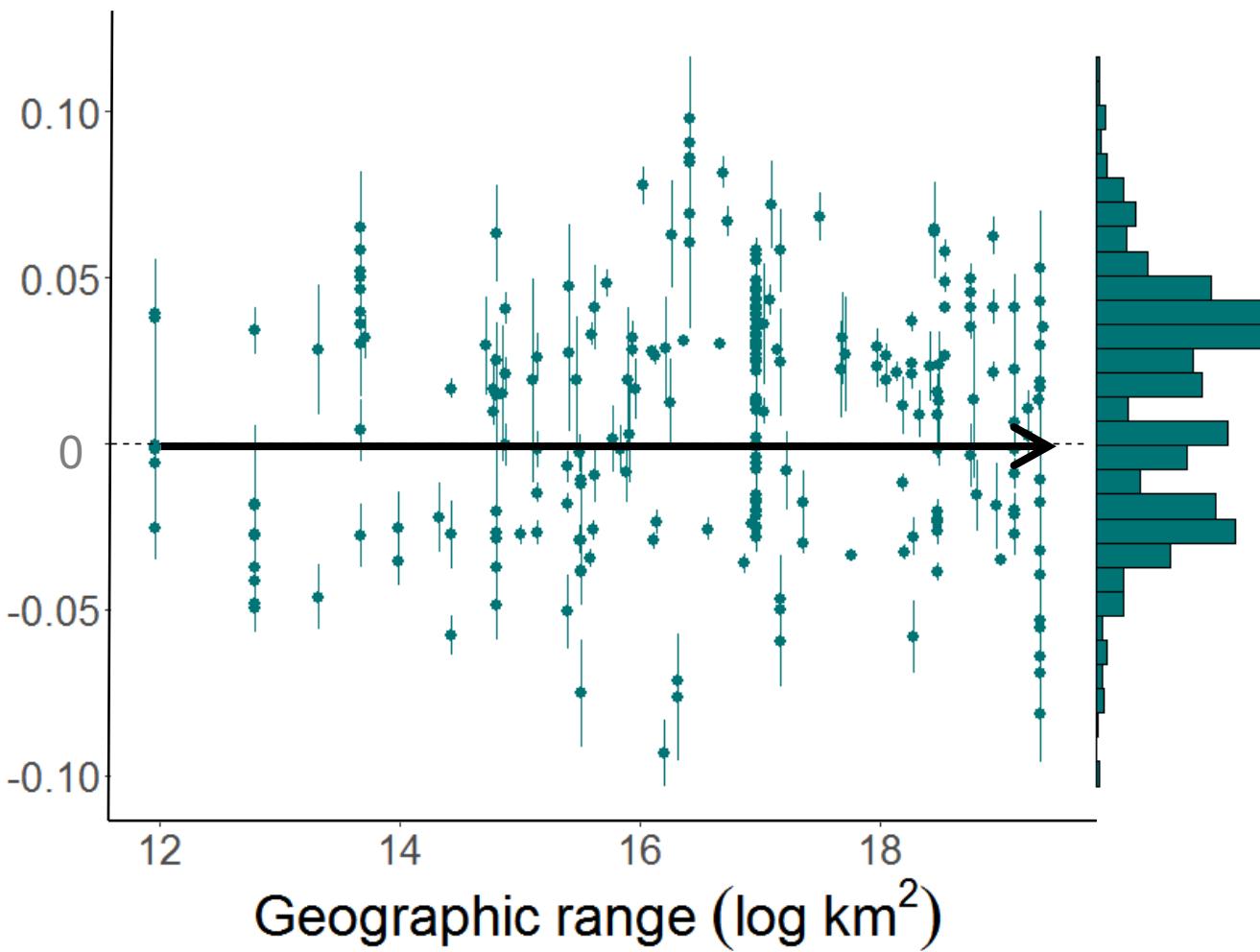
1990 - 2004



Results



Population change

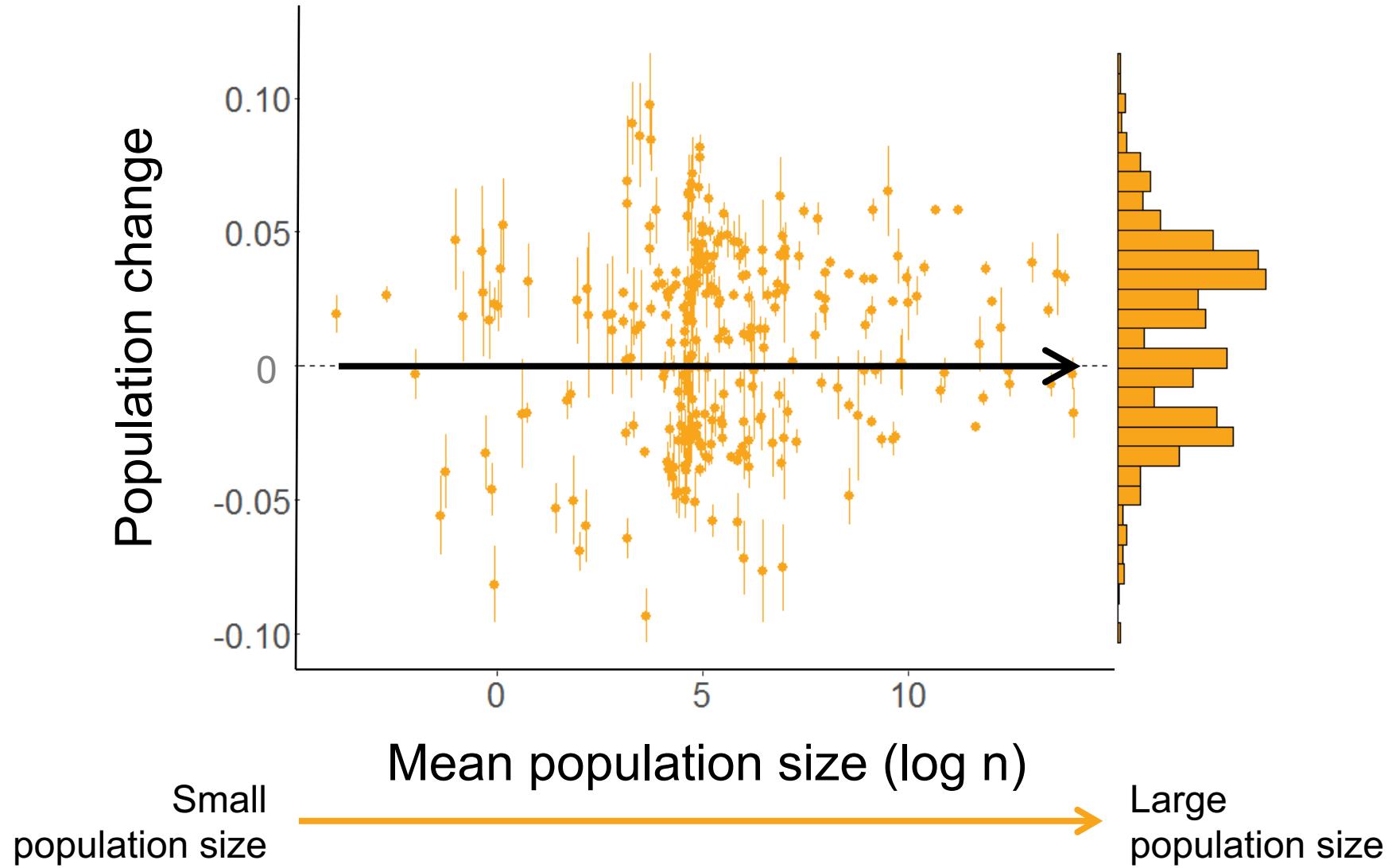


Small geographic range

Large geographic range

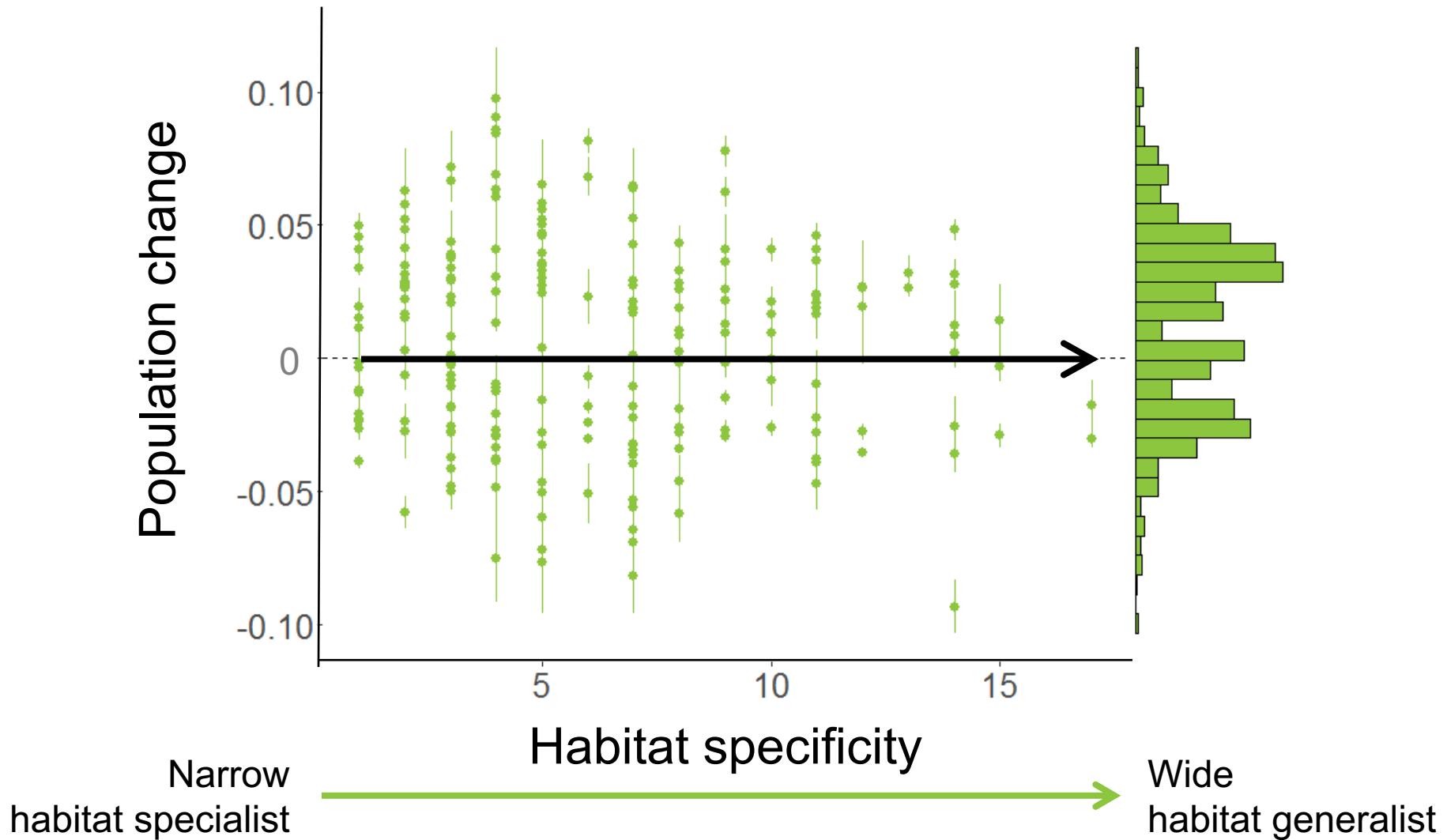


Results

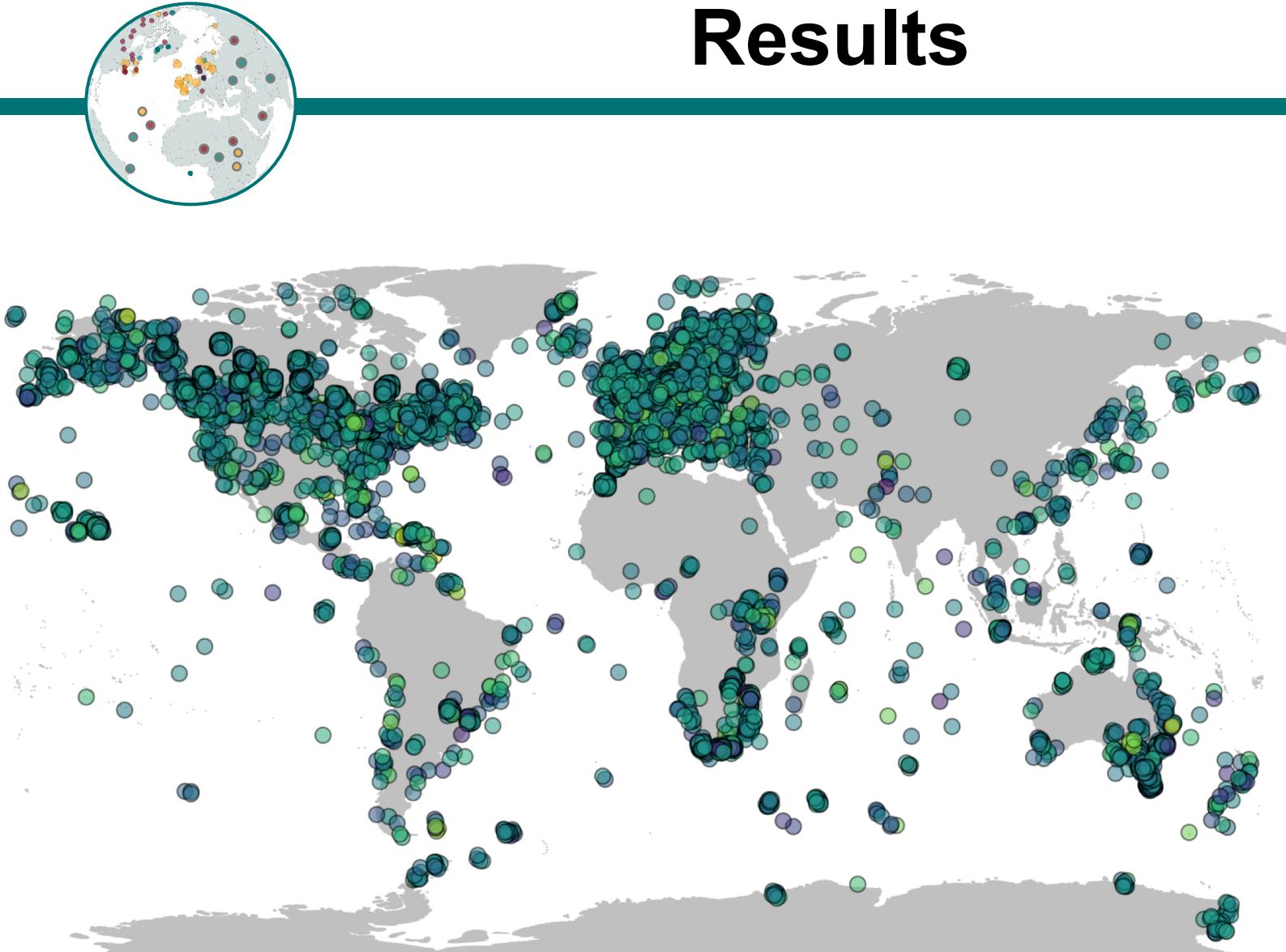




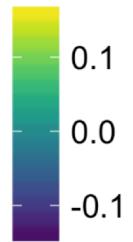
Results



Results

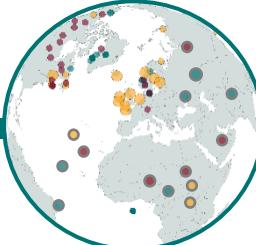


Slope



8293
populations
from 1887
vertebrate
species

Vertebrate populations through time (Living Planet Database)



Results

FRESHWATER



Posterior mean = 0.01

MARINE

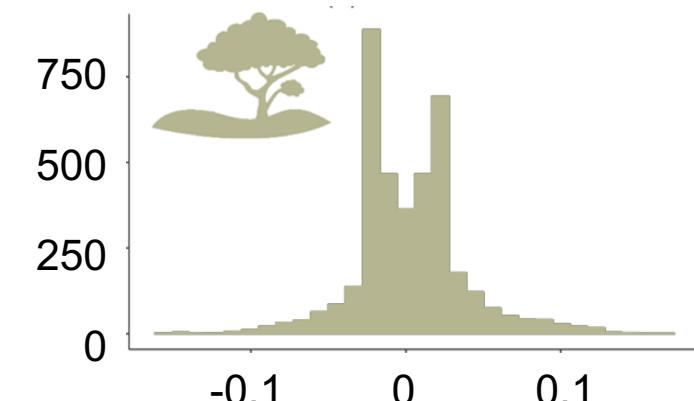
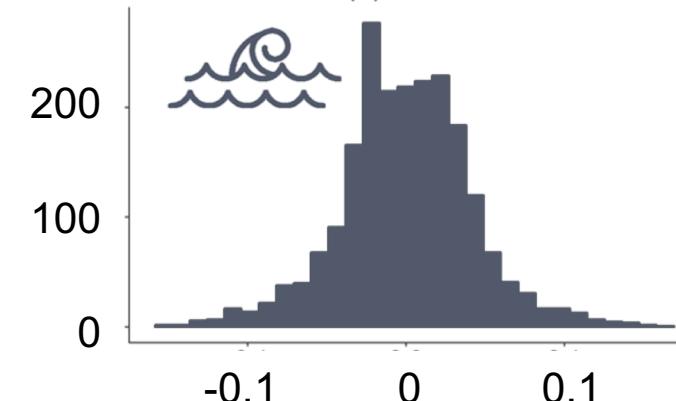
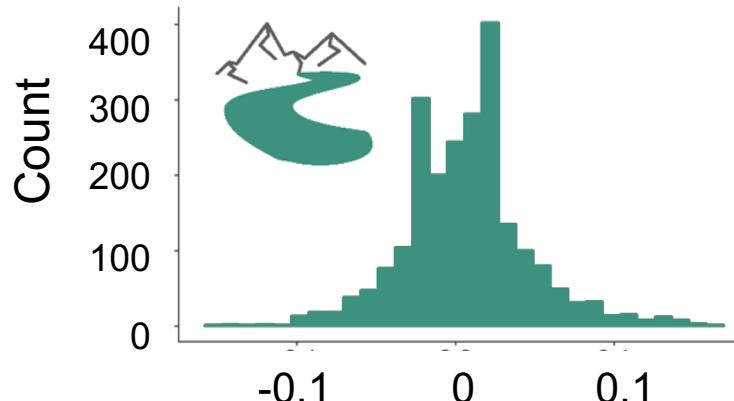


Posterior mean = -0.01

TERRESTRIAL

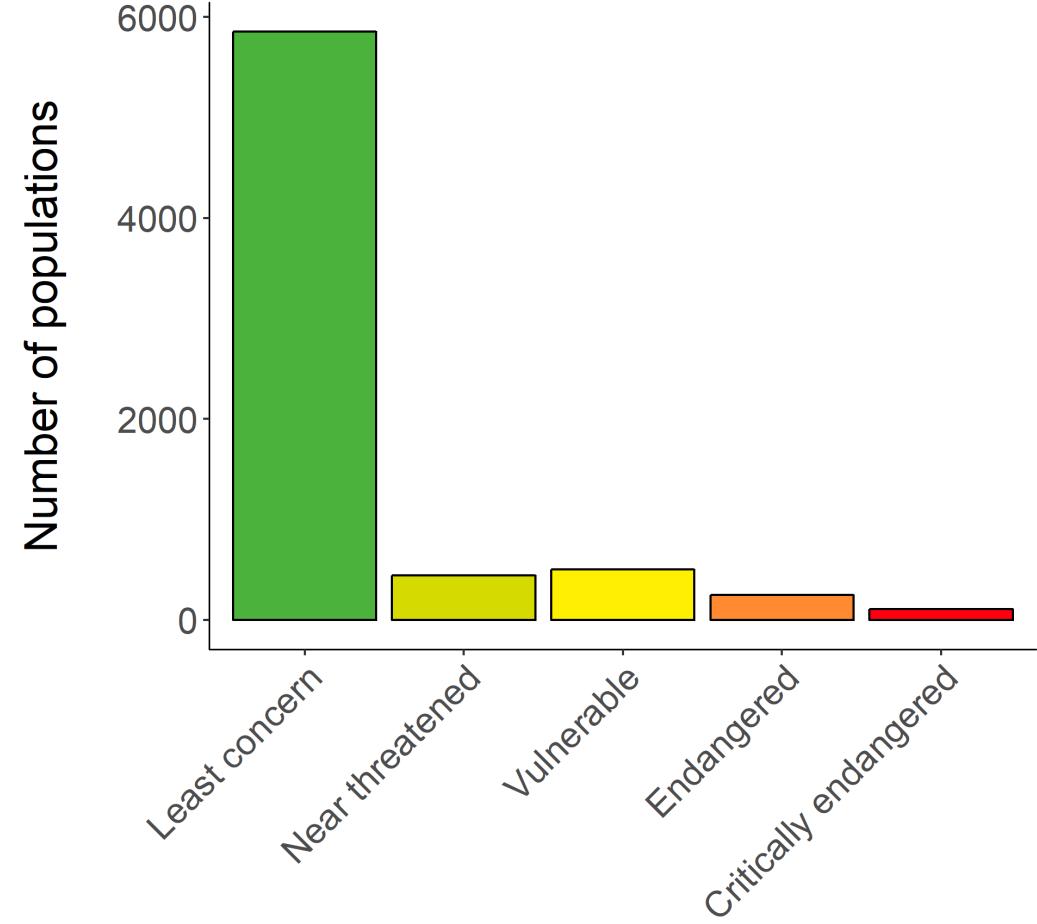
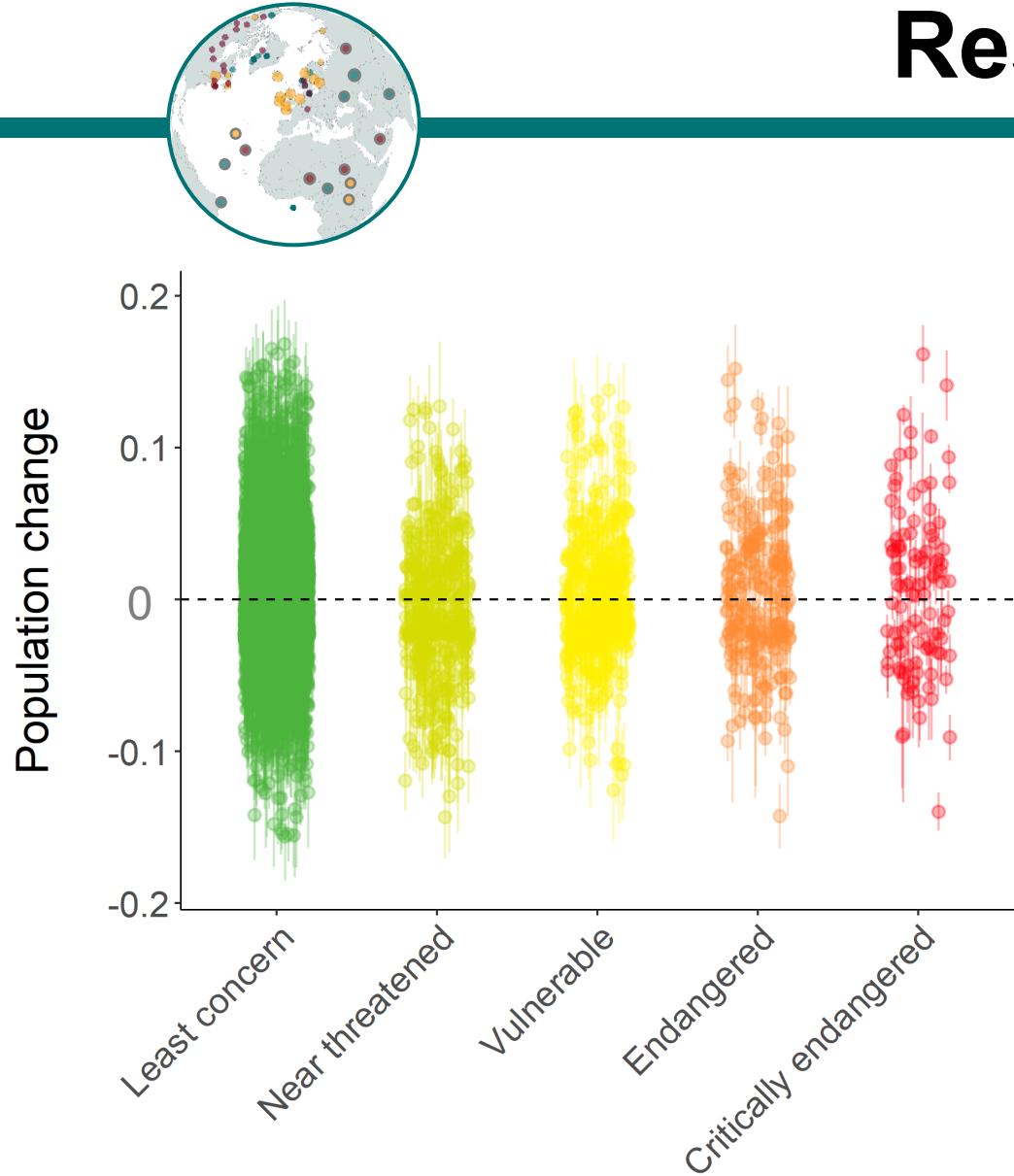


Posterior mean = -0.004



Population change (slope estimates for overall population change)

Results



There are increasing, decreasing and stable populations across all IUCN categories.

Discussion



McKinney 1997, Purvis *et al.* 2000, Manne and Pimm 2001, Ripple *et al.* 2017, Leung *et al.* 2017

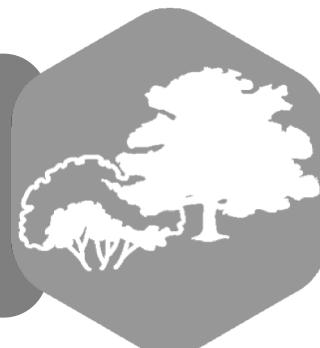
Discussion



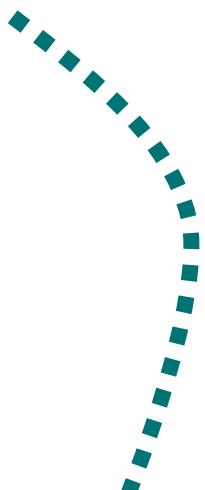
Change



Rare species are not more prone to change than common species.



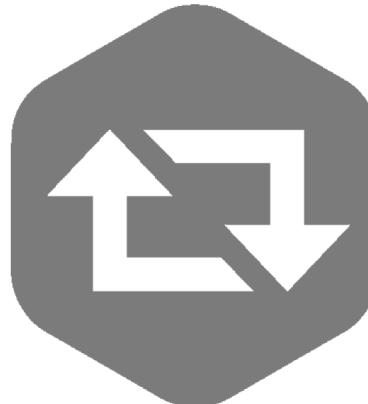
Rarity metrics
sub-optimal predictors of
population change



Future directions



BIODIVERSITY CHANGE



LAND USE
CHANGE



Attribution
analysis



INTERACTION



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Conclusion



Intrinsic factors less important in human-dominated landscapes



Variation across biomes



All photos by G Daskalova

Icons by the Noun Project and G Daskalova



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Global change
drivers

