

Global determinants and conservation of evolutionary and geographic rarity in land vertebrates

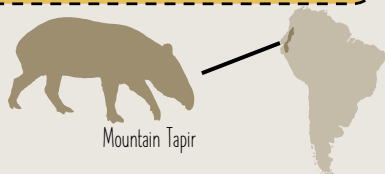


Gharial

Plains-wanderer

What is phylogenetic endemism?

A biodiversity measure that highlights areas rich in evolutionarily unique lineages that are found nowhere else on the planet



Mountain Tapir

Why is phylogenetic endemism important?

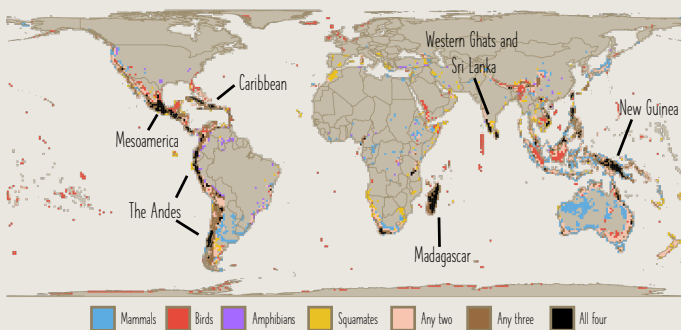
Understanding phylogenetic endemism patterns can provide novel insights about evolutionary processes shaping biodiversity and potentially relevant for conservation



Hula painted frog

What did we find?

Where are the hotspots of phylogenetic endemism?



*Regions of high phylogenetic endemism congruence across all tetrapod classes (All four) are named

Phylogenetic endemism hotspots need better protection



70% of hotspots have <10% protected area coverage

Phylogenetic endemism hotspots have similar coverage by protected areas than non-hotspots for mammals, amphibians, and reptiles

Phylogenetic endemism hotspots are threatened by human activities



Human footprint index is

1.75

times higher in hotspots than non-hotspot regions

Phylogenetic endemism hotspots are threatened by climate change



Rate of climate change is

160

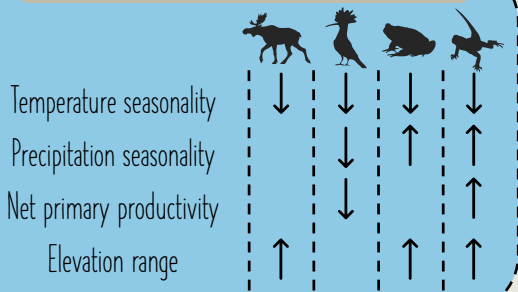
times higher in hotspots than those same areas experienced historically, and will experience



~1.18

times greater rate of climate change than non-hotspot regions

Phylogenetic endemism is high in regions with



*Geo-climatic variables weakly associated with phylogenetic endemism are not shown

What does this mean for conservation?

Most phylogenetic endemism hotspots face a greater risk from both current threats and projected climate change, emphasizing the urgent need for strategic conservation to safeguard these regions