

# Mapping the Study of Biodiversity and Taxonomy

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# Outline

1. Introduction to the project and our tools
2. What do we study? (taxa)
3. Where do we look? (geography)
4. How do we understand it? (concepts)

**The take-home:** Lots more work to do, and lots more challenges to surmount! Plus: help us think about more exciting applications!

We know that biodiversity is measured  
in a variety of different ways:

- Species richness ( $\pm$  measures of phylogenetic diversity)
- Community diversity
- Niche diversity
- Genetic diversity

A classic philosophical question:

Are these actually **different concepts**, or are they really  
**different ways to measure the same concept?**



And another of philosophers' favorite questions:

How do **differences in species concepts** influence taxonomic and conservation practice? (Or do they?)

Or does the concept do more harm than good?

Put bluntly, the position that this paper will argue for is that biodiversity is to be (implicitly) defined as what is being conserved by the practice of conservation biology.  
(Sarkar, 132)

Biol Philos  
DOI 10.1007/s10539-014-9426-2

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## **Save the planet: eliminate biodiversity**

**Carlos Santana**



An application designed to perform textual analyses on  
scientific journal articles

Do you want to know...

- ...what terms authors working in a given discipline often use?
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An analysis of occurrence of 'evolutionary \_\_\_' bigrams

Journals in Corpus	Size
ZooKeys, PhytoKeys, Zoosystematics and Evolution, MycoKeys (Pensoft, for short; through 2020) Conservation Biology (through 2012) Zootaxa	6,610 5,549 (coming soon)
American Naturalist, Ecology, Proceedings R Soc. B (and assorted others)	

Questions we want to ask:

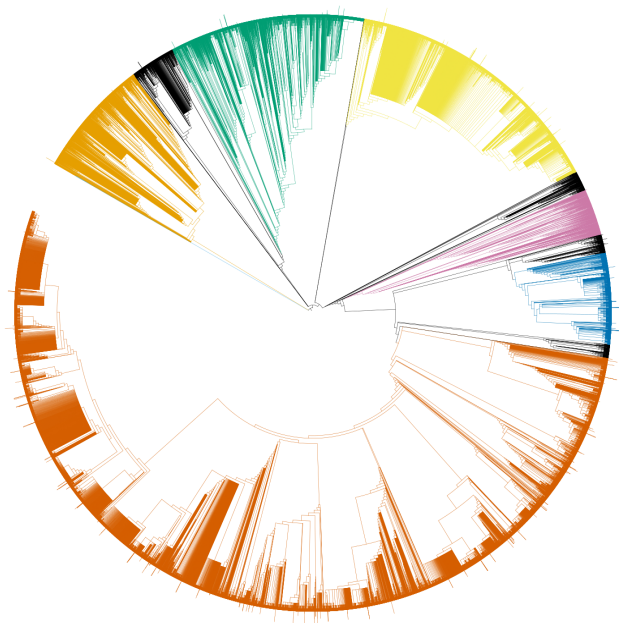
- 1.** How do taxonomists and conservation biologists distribute their effort? Toward which taxa? Toward which geographic regions?
- 2.** How do differences in taxonomic or biodiversity concepts affect practice?

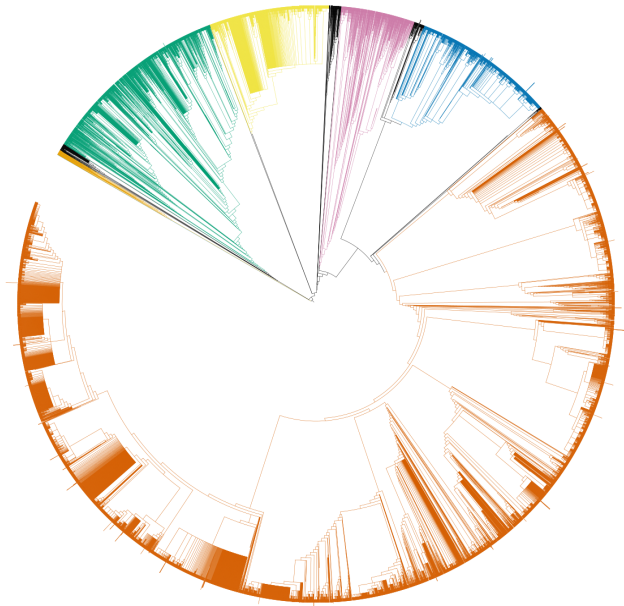
Longer term: Methodology (molecular vs. morphological)?  
Professional vs. amateur status? Economic or cultural value of species?

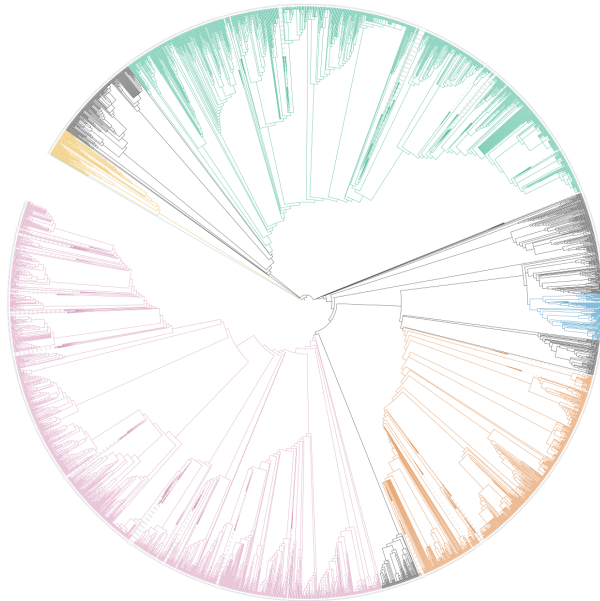
Also, though not my subject here: How does the concept of biodiversity change when it's used **outside the scientific community?**

# What Do We Study?





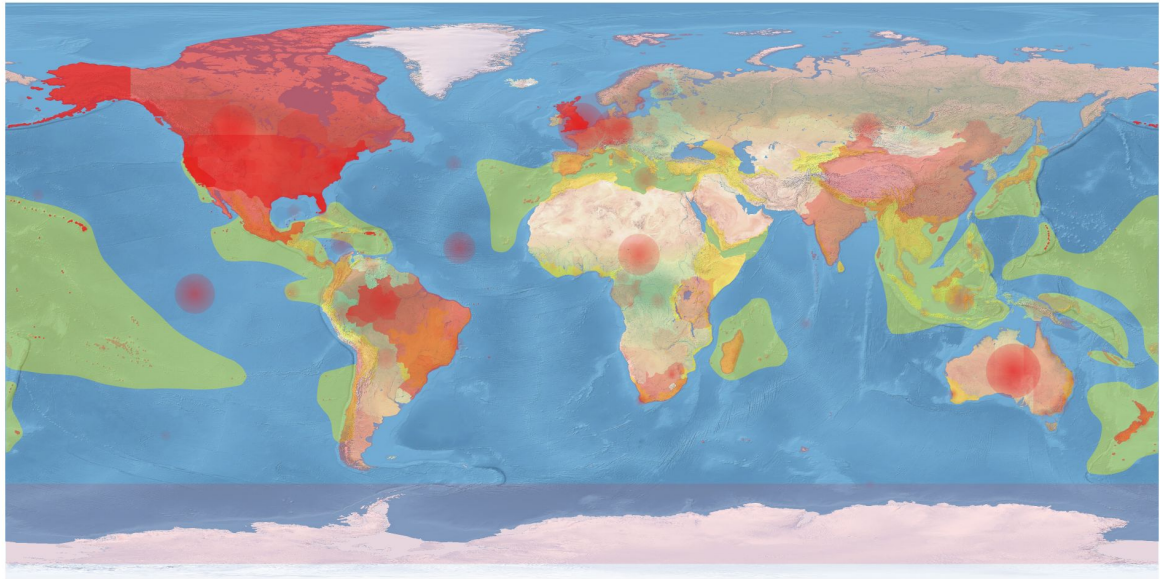


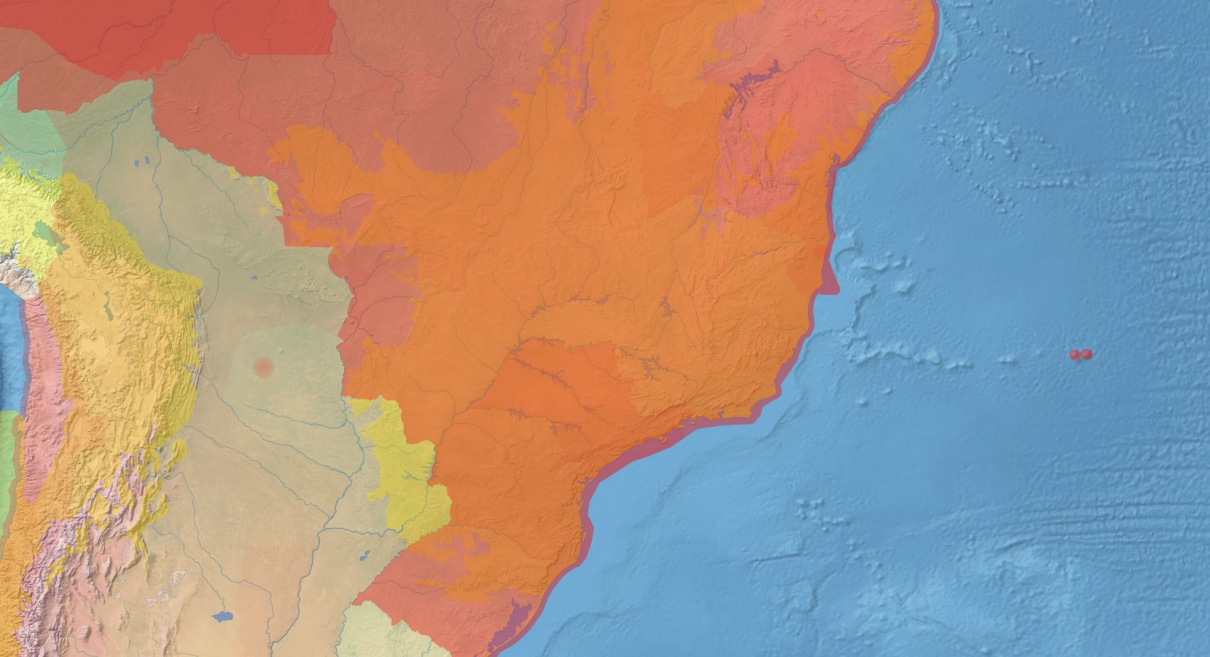


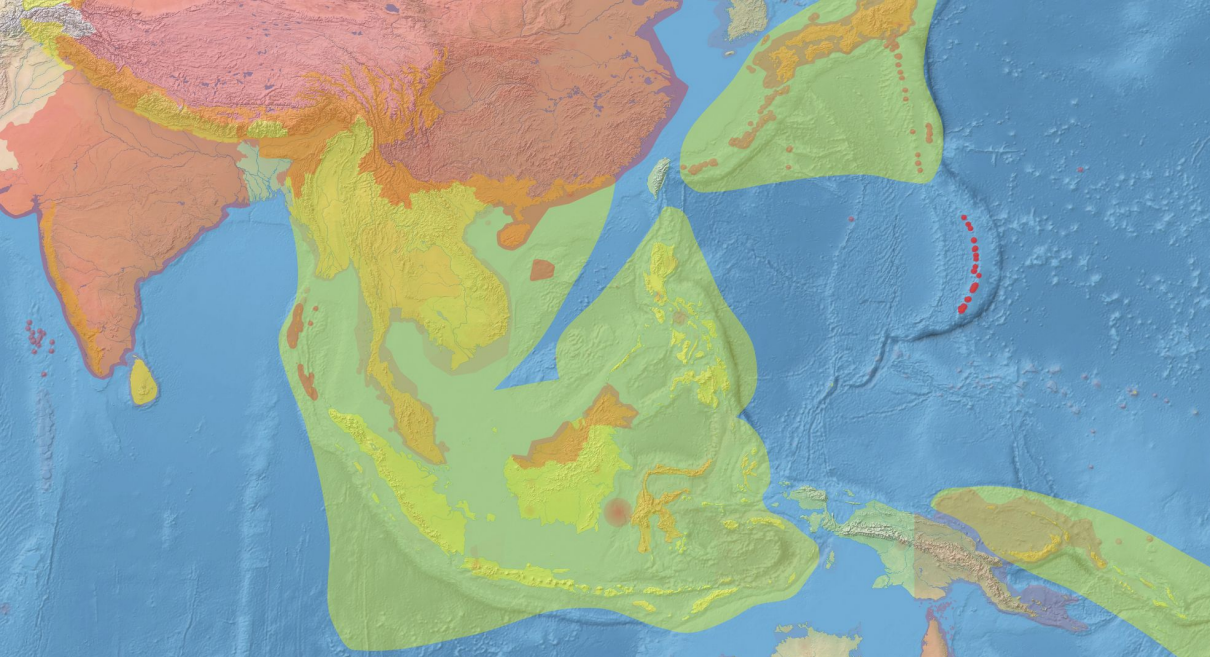
But how to properly estimate **taxonomic or conservation attention?**

Estimates of “true” species numbers are impossibly divergent, but extant trees just *are* the result of taxonomic attention...

# Where Do We Look?





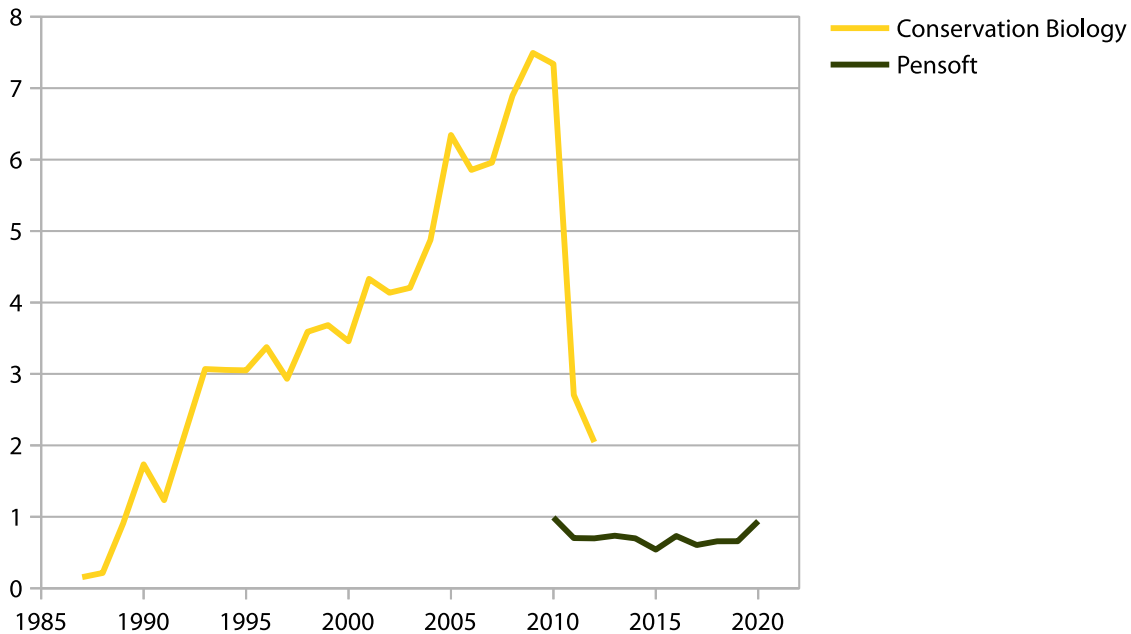




Challenges: How can we get around these biases in North America and Western Europe?

# How Do We Understand It?

# Who talks about biodiversity?



What other concepts are associated  
with discussions of biodiversity?

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*Conservation Biology*    *Pensoft*

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bioresources	planetary
offsets	<a href="http://www.gbif.org">httpwwwgbiforg</a>
bioenergy	hotspots
hotspots	informatics
macroeconomic	crisis
blueprint	heritage
agroecosystem	toolkit
precious	ipt
deepsea	nbc
environmentalist	gbif
biofuel	eol
indicators	sustainable
surrogates	initiatives
legacy	policy

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Future challenges: Can we actually trace concepts of taxonomy or biodiversity across the literature using these tools? Or will they be drowned out by differences in methodology and approach across taxa?

# Questions?

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