



LOUISIANA STATE UNIVERSITY

What is ecology?

LSU – Biol 4253

Ecology

The study of interactions between biological organisms and their environment

Species interactions!

With other species:

- Competition
- Predator – prey
- Plant – pollinator
- Host – parasite

Species interactions!

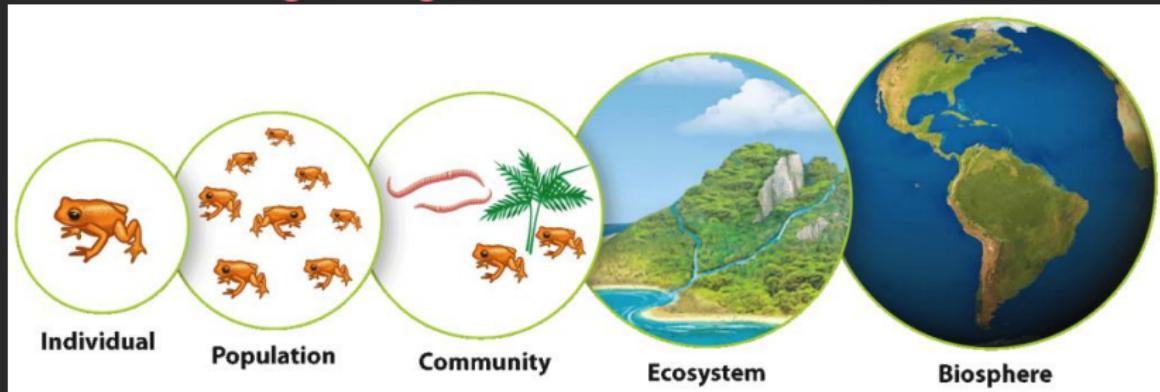
With the environment:

- Abiotic variables
- Dispersal limitation
- Ecosystem respiration
- Ecosystem engineering

What is not ecology?

Environmentalism
Biomedicine
Natural history
Evolution

Levels of biological organization



Individual

A single individual of a species.
e.g., a single trout in lake superior

Population

A collection of individuals that occupy a given geographic area and interact with one another.

e.g., trout in lake superior

Community

A set of interacting species that occupy a given geographic area.
e.g., fish communities in lake superior

Ecosystem

The set of interacting species (the community) and the interactions between these species and their physical environment.

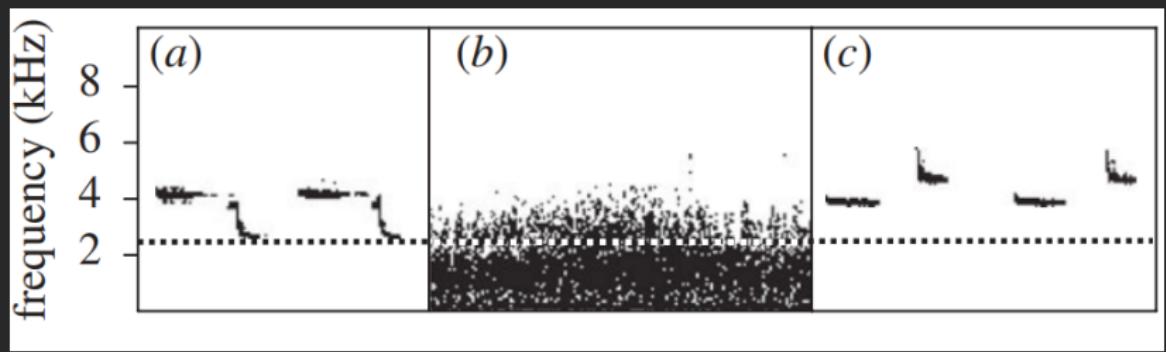
e.g., lake

Biosphere

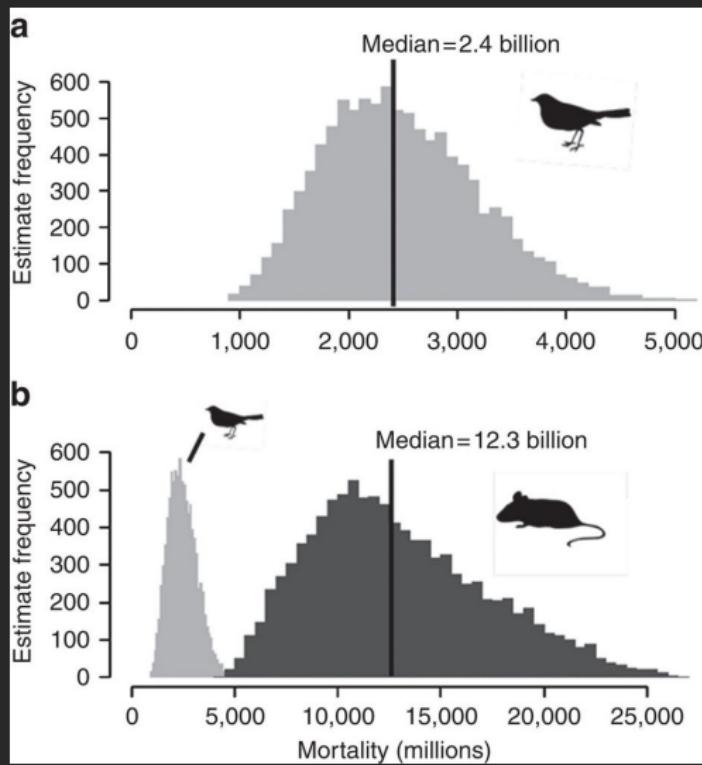
The global environment, consisting of all living things on the planet.

e.g., the planet

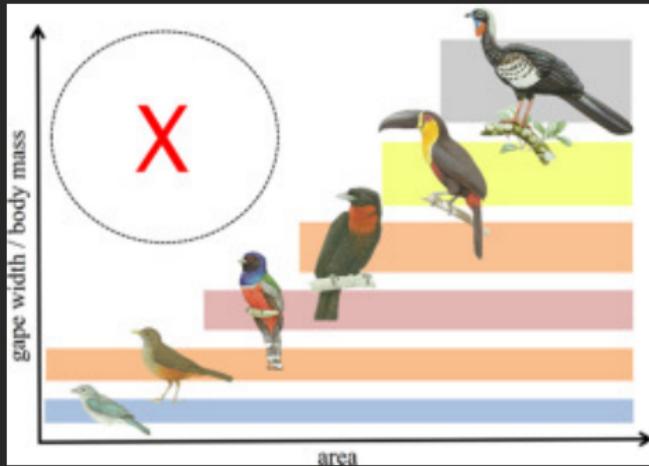
Individual



Population



Community



Size reduction of the forest fragments narrows the distribution of important avian traits. Large-bodied and large-gaped birds are most affected and the loss of these species can have important implications for seed dispersal of trees with large fruits.

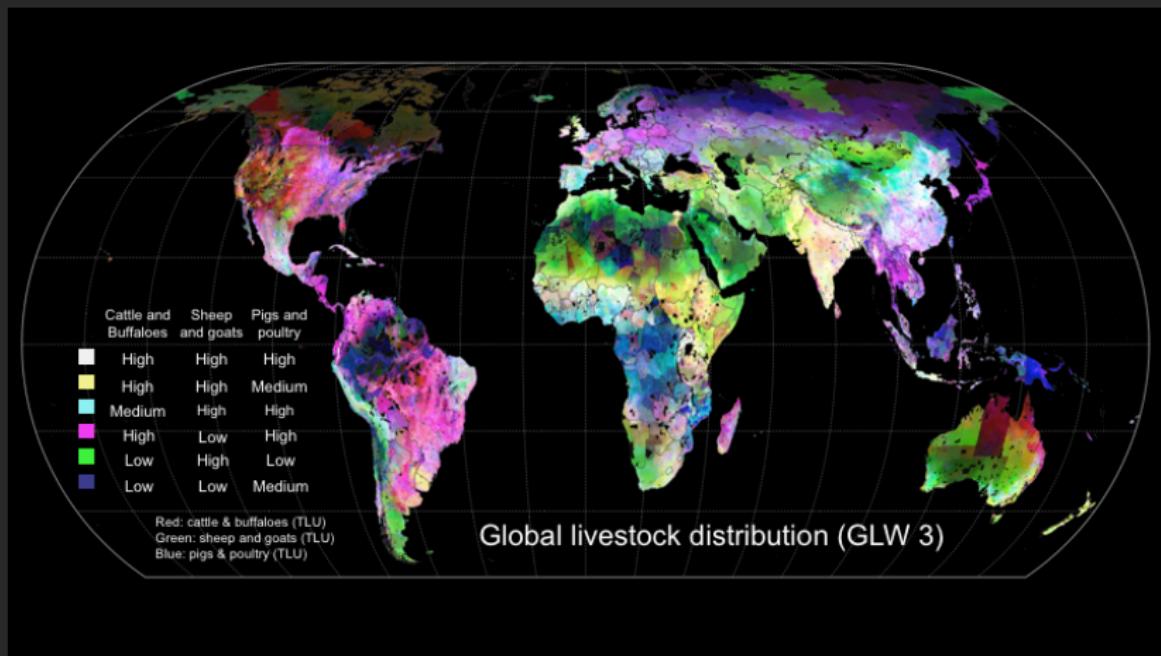
Bird pictures from: Ridgely, R.S., Gwynne, J.A., Tudor, G., Argel, M., 2015. Aves do Brasil. vol. 2. Mata Atlântica do Sudeste. Editora Horizonte.

Ecosystem



Alexandr Trubetskoy

Biosphere



How do we do ecology?

Observations



Field experiments

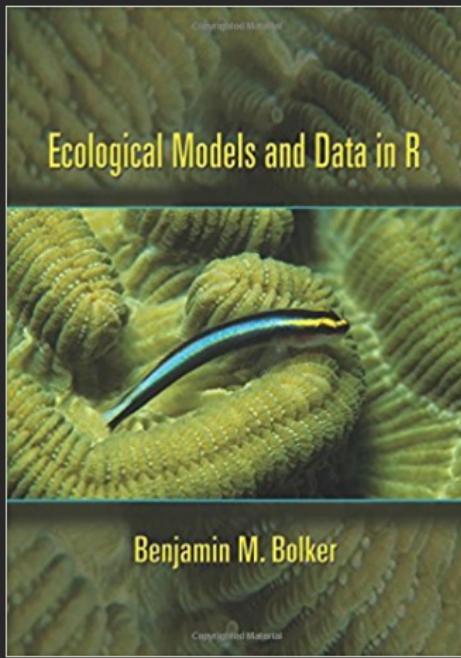


Laboratory experiments



Tad Dallas

Ecological modeling



Ben Bolker

Reading for next week

Purugganan, Mary, and Jan Hewitt. "How to read a scientific article." Rice University (2004). <https://www.owlnet.rice.edu/~cainproj/courses/HowToReadSciArticle.pdf>
Ecological Society of America. What does ecology have to do with me? <https://www.esa.org/about/what-does-ecology-have-to-do-with-me/>

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