

Chiropterans at Georgia Tech

Literature review and future goals in local bat conservation

Overview & Importance

- Extremely understudied
- Around 20% of mammals
 - ~1,400 species
 - Carnivora < 300
- Live three times as long as mammals of similar size
- Most species only have one pup per litter
- Over a third of species are threatened or data deficient
- 80% need conservation measures or scientific attention of some form
- Agricultural pest removal and pollination
 - Economic arguments double-edged sword

Wind turbines

- Barotrauma
 - Tissue damage from drop in pressure
- Widespread implications of migratory bat deaths
 - Canadian wind turbines may affect Mexican ecosystems
- Must consider placement, operation, and speed of turbines

Objective 5.2: Move to align investment portfolio with our goals for climate action and climate justice principles.

▼ Strategies

Strategy 5.2.1: Establish a formal Committee on Investor Responsibility by May 2022 that explores and makes recommendations toward this alignment of principles by August, 2022

Strategy 5.2.2: Establish ESG standards for the investment portfolio

Strategy 5.2.3: Develop a plan toward fossil fuel divestment by 2025

Records

- Bats come with the bugs
 - Hibernation or migration
- *Lasiurus* sp!
 - Eastern red or seminole
 - April 21st, 2022 and April 17th, 2023
- Software old and requires practice

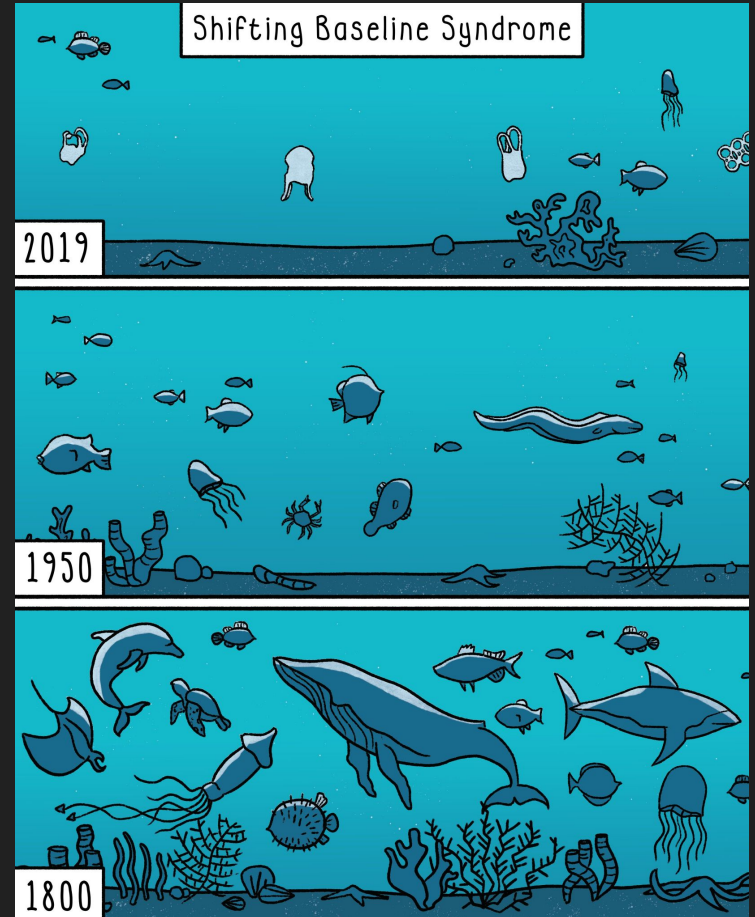


General Methodology

- Current Assessment
 - Pettersson M500 & BatSound Touch
 - Survey at dawn and dusk for an hour in intervals
 - 0-5 mins, 20-25 mins, 40-45 mins
 - Target individuals and record any species which is observed
 - Match with ornithological trends and local insect surveys
- Historical Assessment
 - Interviews of older Georgians
 - Archival research of naturalist correspondence, field logs, etc.

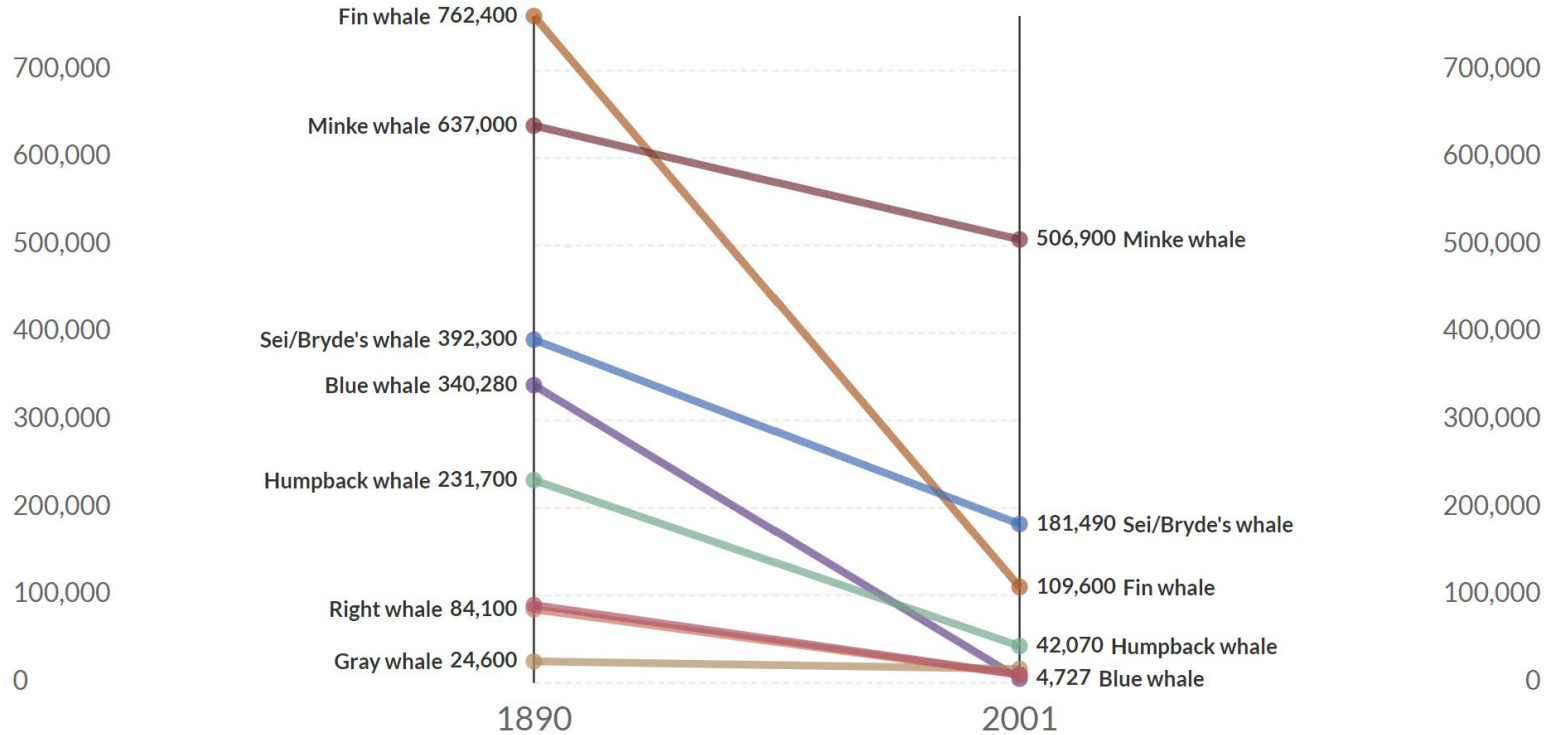
Shifting baselines

- Introduced by Daniel Pauly
- Idea that the way the environment exists is the way it always has
- Phenomenon studied amongst fishers
 - Older generations report several times more species and sites
 - Knowledge lost in younger generations



The decline of global whale populations

Shown are estimates of global whale populations in pre-whaling periods versus the year 2001.



Source: Pershing et al. (2010); Christensen (2006)

OurWorldInData.org/biodiversity • CC BY

Note: Estimates – particularly for the distant past – are crude, and come with significant uncertainty. Pre-whaling dates depend on the whale species and region (most are in the late 19th and early 20th century) but have all been coded as the year 1890 for consistency.

IUCN Assessments for Georgia Bats

- 2018
 - Eastern small-footed
 - Evening
 - Little brown
 - Northern myotis
 - Seminole
 - Silver-haired
 - Tri-colored
- 2017
 - Gray
- 2016
 - Indiana
- 2015
 - Big brown
 - Brazilian free-tailed
 - Eastern red
 - Hoary
 - Northern yellow
 - Rafinesque's big-eared
 - Southeastern

Relative to what?

Waves of migratory birds at Ohio banding station

TOTAL BIRDS
BANDED AT BSBO
SINCE 1992

