



Biodiversity in National Parks

AnniRo



Goals

- ❖ investigate the conservation status of different species from four national parks
- ❖ find patterns to the types of species that become endangered

Datasets

observations:

- ❖ *scientific_name* - the scientific name of each species
- ❖ *park_name* - park where species were found
- ❖ *observations* - the number of times each species was observed at park in the last 7 days

species:

- ❖ *category* - class of animal
- ❖ *scientific_name* - the scientific name of each species
- ❖ *common_name* - the common names of each species
- ❖ *conservation_status* - each species' current conservation status

Conservation Status

- ❖ **Species of Concern** - species at low risk, conserved to prevent being threatened.
- ❖ **Endangered** - species facing high risk of extinction.
- ❖ **Threatened** - species that are likely to become endangered in the foreseeable future.
- ❖ **In Recovery** - formerly endangered species that have shown an increase in population.

U.S. National Parks

- ❖ Yosemite National Park
- ❖ Great Smoky Mountains National Park
- ❖ Yellowstone National Park
- ❖ Bryce National Park

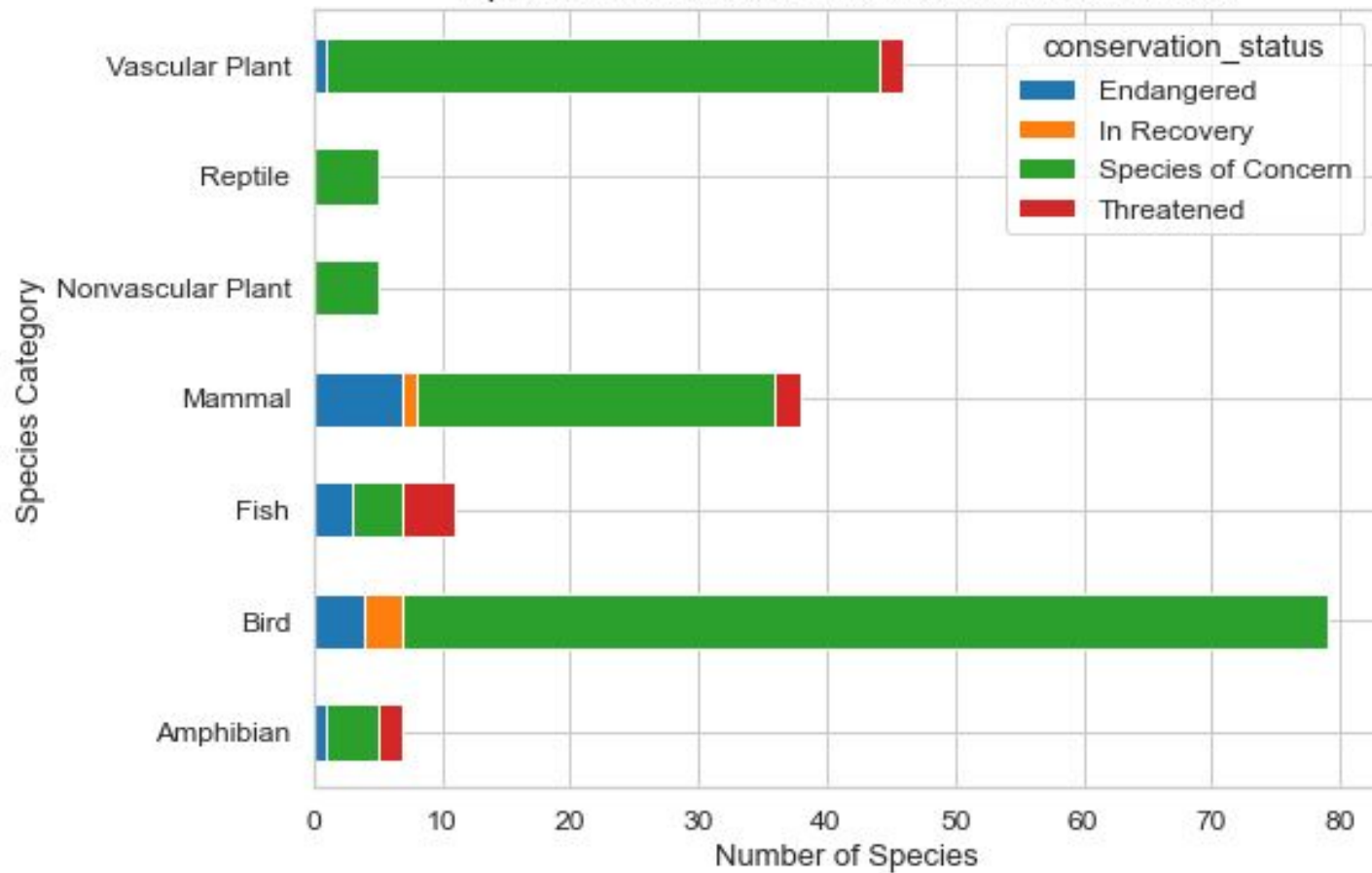
Species Categories

- ❖ Mammal
- ❖ Bird
- ❖ Fish
- ❖ Amphibian
- ❖ Vascular Plant
- ❖ Nonvascular plant

Conservation status distribution

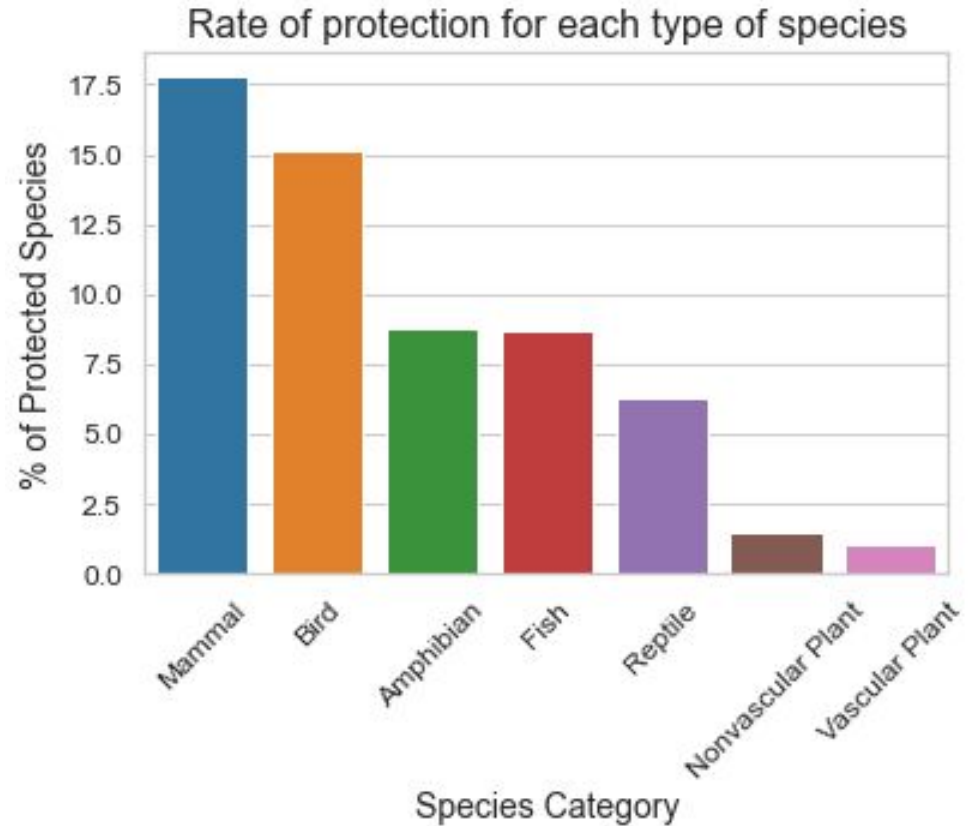
Conservation Status	Number of Species
Not at Risk	5333
Species of Concern	161
Endangered	16
Threatened	10
In Recovery	4

Species distribution in a state of conservation



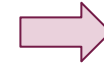
Rate of protection

- ❖ Species from the Mammal category have the highest rate of protection about 17.8%.
- ❖ Species from the Bird category follow with a rate of about 15%.
- ❖ Species from the Amphibian and Fish categories have similar rates of about 8.7%.



Chi-Square Test

category	protected	unprotected
Mammal	38	176
Bird	79	442



P-value: 0.45
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Not Significant

P-value: $9 * 10^{-84}$
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Significant



category	protected	unprotected
Bird	79	442
Vascular Plant	46	4424

Most spotted species

The 'Little Brown Bat' listed as 'Species of Concern' was the mammal most found in all national parks in the last 7 days.

Least spotted species

- ❖ At Yosemite National Park the endangered fish 'Smoky Madtom'.
- ❖ At Great Smoky Mountains National Park the endangered amphibian 'Sierra Nevada Yellow-Legged Frog'.
- ❖ At Yellowstone National Park the endangered bird 'Whooping Crane'.
- ❖ At Bryce National Park the endangered bird 'Bachman's Warbler'.

Conclusions

- ❖ The majority of species listed as 'Species of Concern' and 'In Recovery' are birds. Most endangered species are in the 'Mammal' category, while the most threatened are fishes.
- ❖ Species in the 'Mammal' and the 'Bird' category are more likely to be endangered.
- ❖ The differences between mammals and birds and their conservations status are not significant, but they are between birds and vascular plants.
- ❖ The 'Little Brown Bat' listed as 'Species of Concern' was the mammal most found in all national parks in the last 7 days.