BIODIVERSITY ANALYSIS FOR THE NATIONAL PARKS

1. SPECIES CONSERVATION

Let's Investigate the Dataset

species_info.csv

- This dataset includes 5,541 unique species records
- species_info.csv also includes 4 distinct fields which are described on the next slide.

species_info.csv continued:

Category

There are seven unique species categories represented in the dataset. Examples are amphibian, reptile and bird which are all representative of the *class* level of animal kingdom taxonomy.

Scientific Name

This field represents the traditional latin naming convention for each species record.

Common Name

The scientific name is also presented in the layman's naming convention for easy discussion.

Conservation Status

Each species record is either indicated as NAN (not a number for species outside of conservation), ‘Species of Concern', 'Endangered', 'Threatened', or 'In Recovery.'

Figure 1.1

Conservation Status Analysis

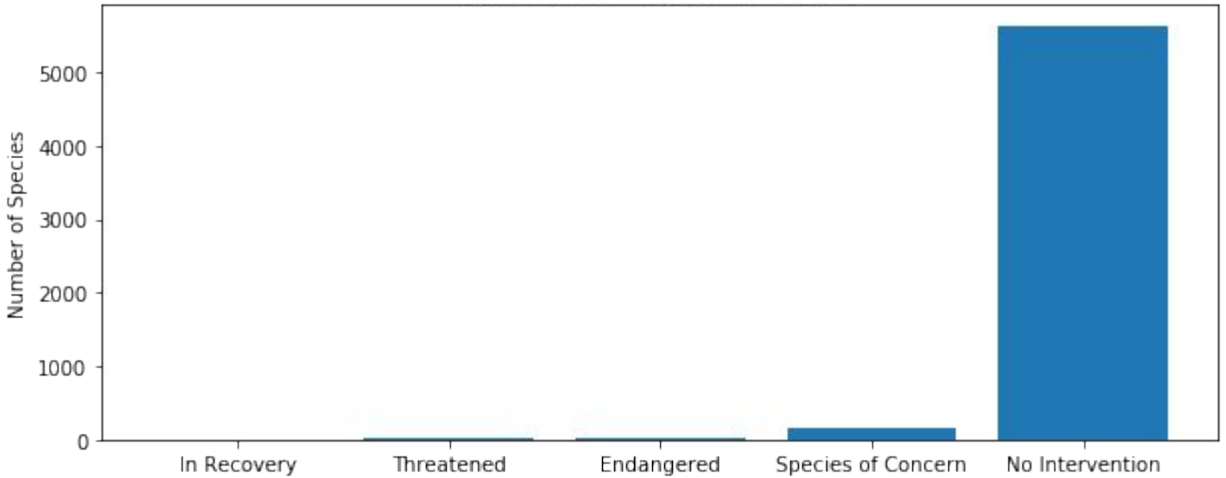
Conservation Status	Count
Endangered	16
In Recovery	4
Species of Concern	161
Threatened	10

5,633

species without direct conservation intervention

Figure 1.2

Conservation Status by Species



Summary

Figure 1.2 clearly shows that there is a disparity between the species that receive conservation classification and the overwhelming number of species that do not.

Figure 1.3

Conservation Status by Taxonomy Class

Taxonomy	Is Not Protected	Is Protected	Percent Protected
Amphibian	72	7	8.86 %
Bird	413	75	15.36 %
Fish	115	11	8.73 %
Mammal	146	30	17.04 %
Nonvascular Plant	328	5	1.50 %
Reptile	73	5	6.41 %
Vascular Plant	4216	46	1.07 %

Summary

Figure 1.3 is representative of species that had a missing value for conservation status (Is Not Protected) and all other records are presented as 'Is Protected' if they have 'Species of Concern', 'Endangered', 'Threatened', or 'In Recovery' for conservation status in species_info.csv.

Significance Test

- Are mammals more likely to be endangered than birds?

Taxonomy	Protected	Not Protected
Mammal	30	146
Bird	75	413

Figure 1.4

- Based on this contingency table, we ran a chi squared test which provided a p value of 0.68 (Analysis on next slide).

Chi Squared Test Results

With a p value of 0.68 we will accept the null hypothesis. Therefore, we find *no significant difference* between the endangered number of mammals and birds.

Significance Test

- Are mammals more likely to be endangered than reptiles?

Taxonomy	Protected	Not Protected
Mammal	30	146
Reptile	5	73

Figure 1.5

- Based on this contingency table, we ran a chi squared test which provided a p value of 0.03 (Analysis on next slide).

Chi Squared Test Results

With a p value of 0.03 we reject the null hypothesis. Therefore, we find *a significant difference* between the endangered number of mammals and reptiles.

CONSERVATION

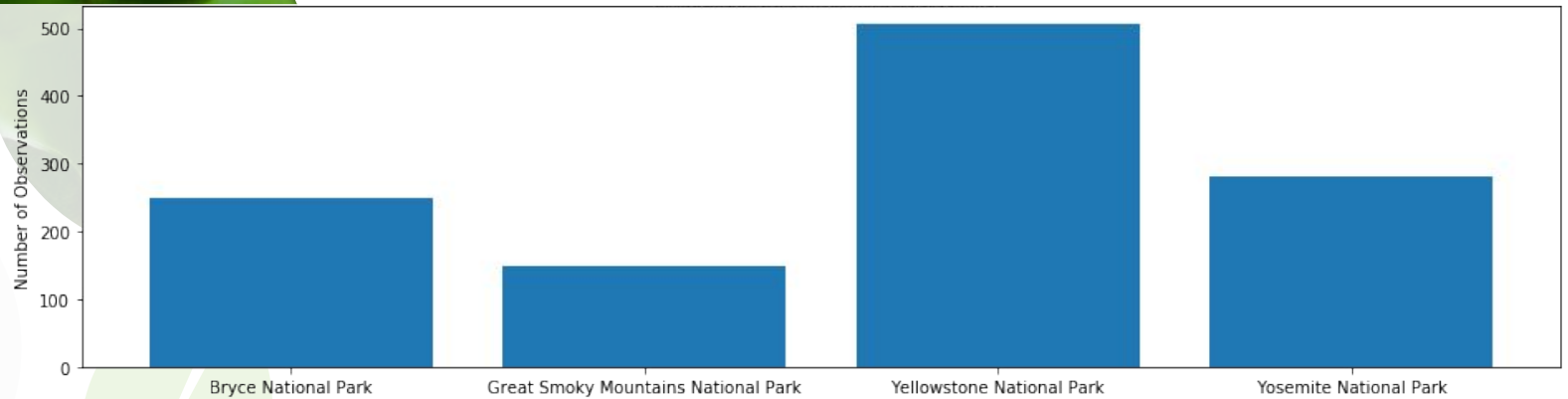
Additional reptile conservation will ensure that this species is not significantly underrepresented in our future efforts.

2.
FOOT AND MOUTH IN SHEEP

Let's Look at the Dataset

Figure 2.1

Observations of Sheep per Week



Summary

Figure 2.1 shows the differences in weekly sheep observations at four national parks; Bryce, Great Smoky Mountains, Yellowstone, and Yosemite.

SAMPLE SIZE DETERMINATION

33%

Minimum Detectable Effect

15%

Baseline

90%

Statistical Significance

520

Sample Size

Observation Periods

Bryce National Park

Based on the observation patterns represented in figure 2.1, we will need to observe sheep in Bryce National Park for slightly *over two weeks*.

Yellowstone National Park

Based on the observation patterns represented in figure 2.1, we will need to observe sheep in Yellowstone National Park for slightly *over one week*.

Thank You!

ANY QUESTIONS?

You can find me on Codecademy at

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