NATIONAL PARK SERVICE

Species Conservation Status

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**Code Academy Data Intensive Capstone Project*

National Parks Species Info

**Note: The data for this was provided by Code Academy and is *inspired* by real data, but is mostly fictional.*

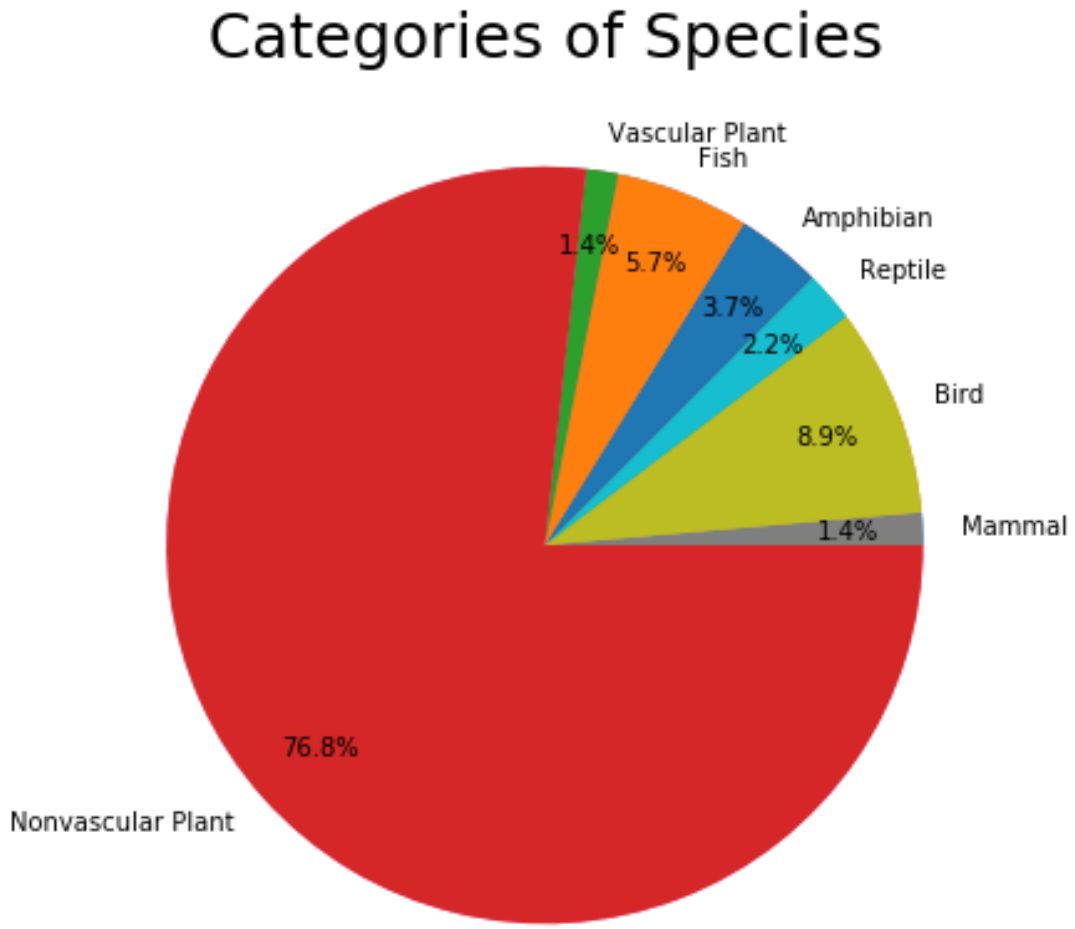
National Park Dataset - species_info.csv

This dataset includes a list of know species in the National Park.

- The scientific name of each species
- The common names of each species
- The species conservation status

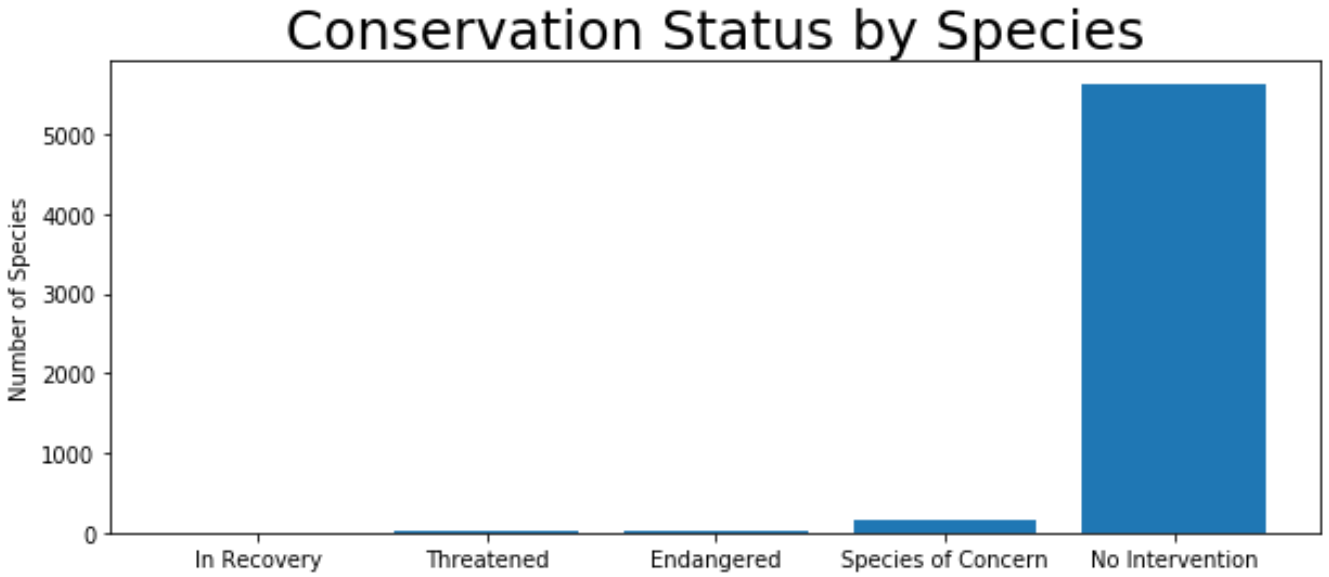
How many different species are found in the national parks dataset?

- ✓ There are **5824 species** in the dataset.
- ✓ Only **5541 of these have unique scientific names**. This means that some of the species may be duplicated in the dataset.
- ✓ There are **7 unique categories**;
  - ✓ Mammal
  - ✓ Bird
  - ✓ Reptile
  - ✓ Amphibian
  - ✓ Fish
  - ✓ Vascular Plant



» 5541 Unique Species are found in the National Parks Dataset

Conservation Status by Species

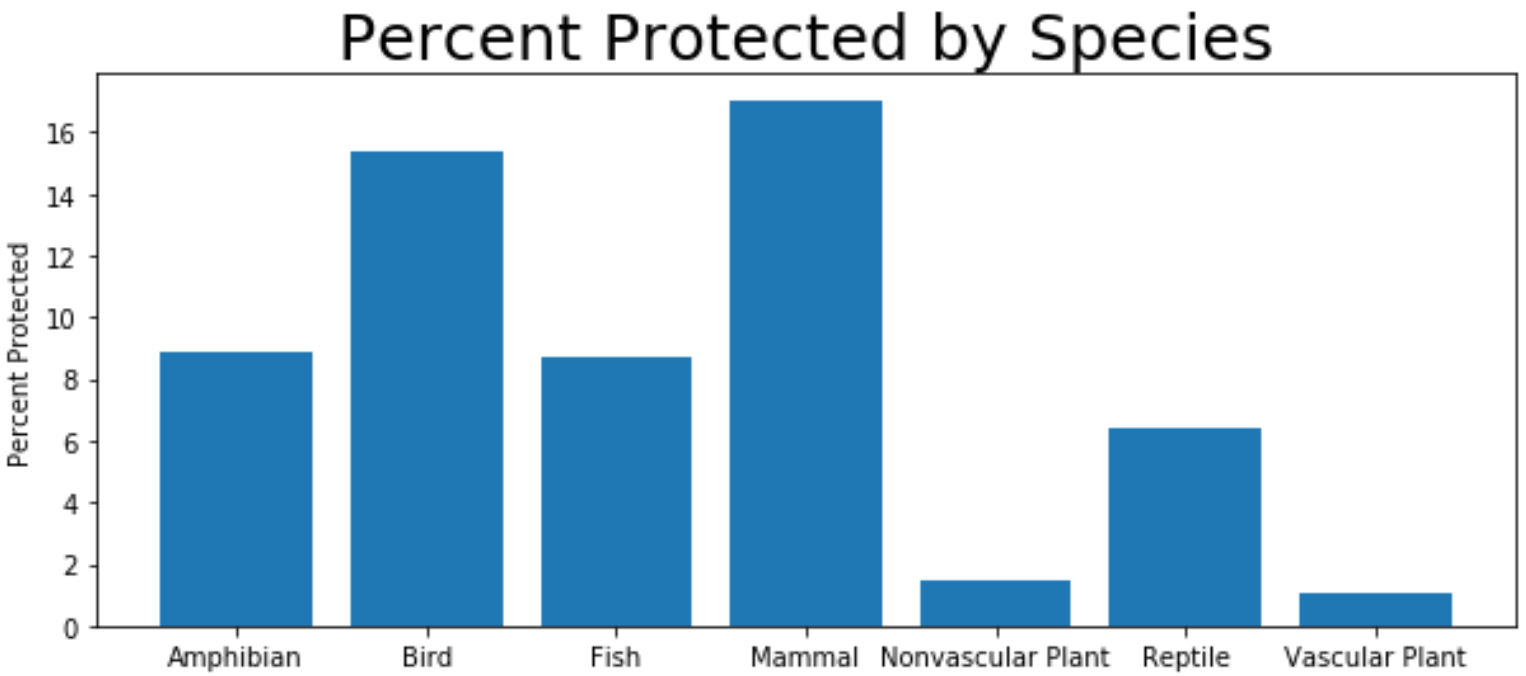


Conservation Status	Number of Species
In Recovery	4
Threatened	10
Endangered	16
Species of Concern	161
No Intervention	5633

There are 5 different conservation status. Most species fall in the "No Intervention" category.

Are certain types of species more likely to be endangered?

Difference in Species Endangerment



Based on a Chi-Squared Test;

- Birds and Mammals are equally likely to be protected.
- Mammals are statistically more likely to be protected than Reptiles.

Notice: While vascular plants make up the largest percentage of our National Park Species, they have the lowest percent protection of all of the species. There may be some disparity in the balance of analysis for considering endangerment.

Some species are more likely to be protected than others.

Endangerment of Ecosystems - Recommendations

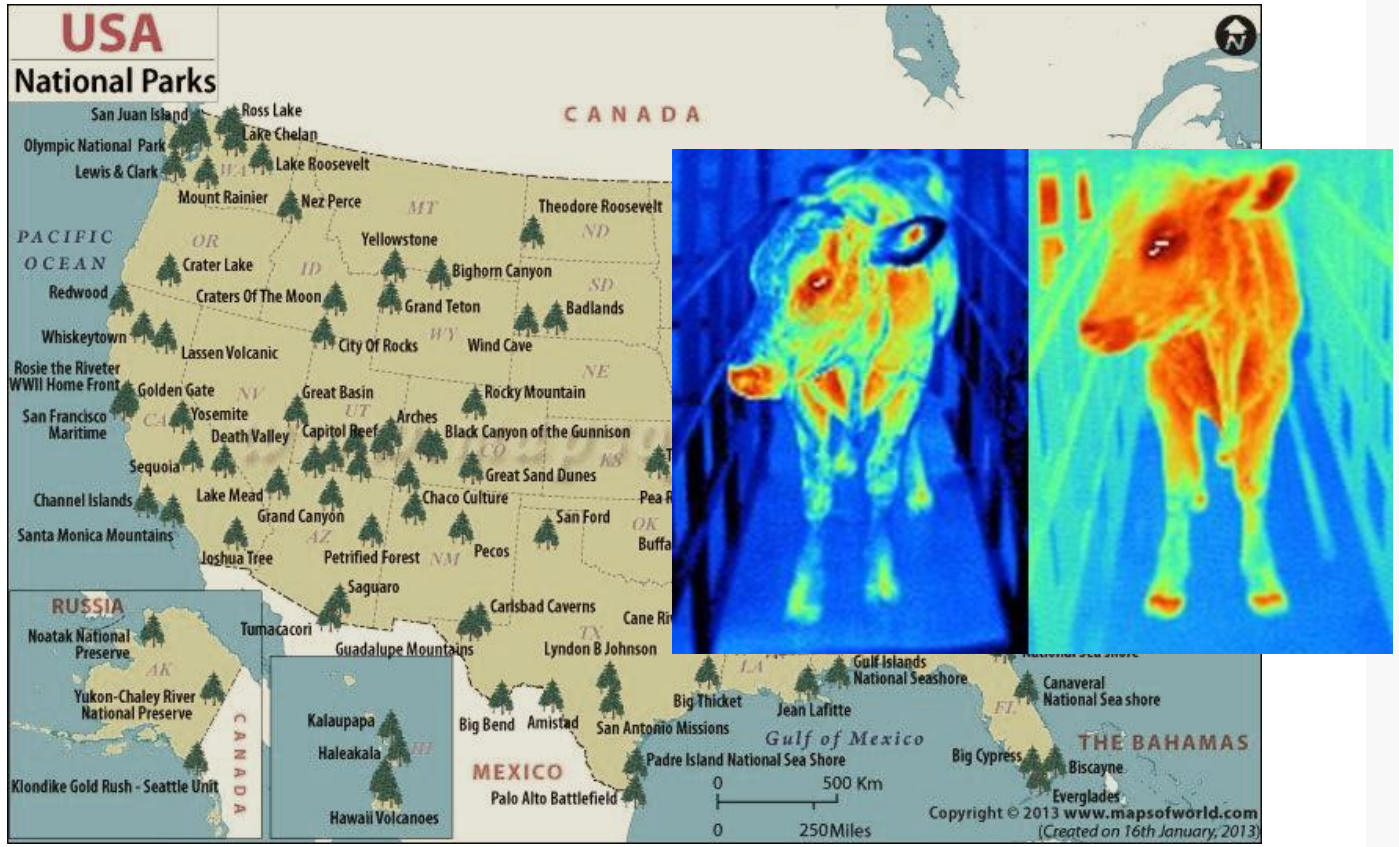
Analyze the species that are less likely to be protected.

- Should more of these be protected to maintain the health of the ecosystems?

- Do we balance the analysis of species for protection?

- Could restoration of some of the unevaluated species help improve the effectiveness of the efforts on other endangered species?

Biodiversity is paramount for species survival



The left is a cow not infected with FMD; on the right is a cow infected with FMD. Note that the hooves are red in the infected cow, which indicates heat. Photo courtesy of USDA.

National Parks

Sheep Population

Foot and Mouth Disease Study

Sample Size Calculations

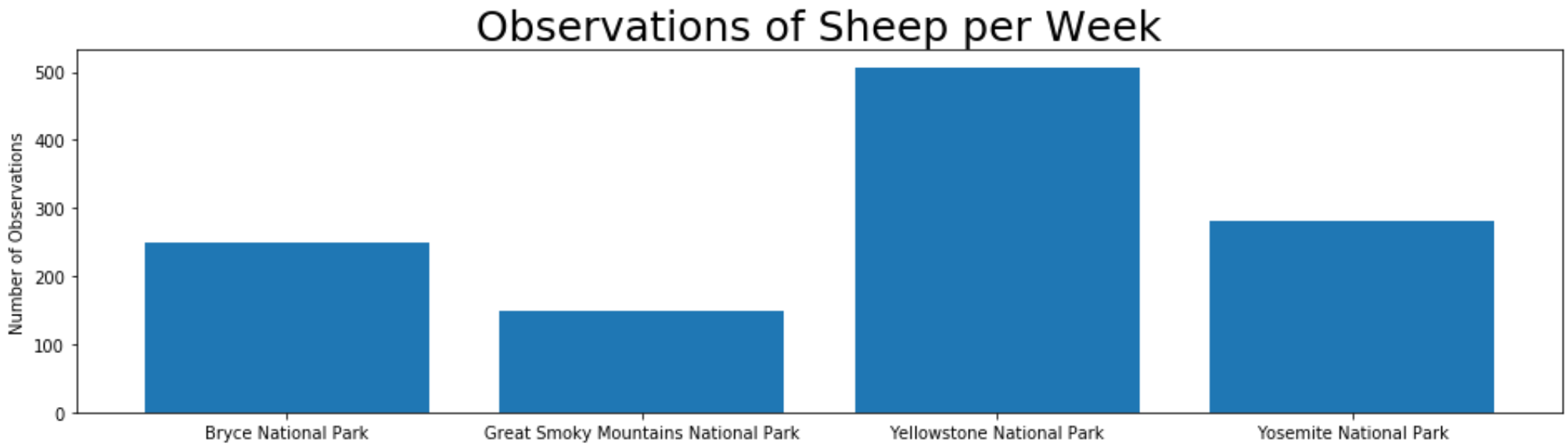
National Park Dataset - observations.csv

This dataset includes sightings recorder of different species at several national parks for the past 7 days

- The scientific name of each species
- The park name observed
- The number of observations

Park Name	Observations
Bryce National Park	250
Great Smoky Mountains National Park	149
Yellowstone National Park	507
Yosemite National Park	282
TOTAL OBSERVATIONS	**1188**

How many sheep were observed at the National Parks?



» 1188 Sheep observations in the national parks last week.

Foot and Mouth Study - Sample Size Recommendations

Park rangers at Yellowstone National Park have been running a program to reduce the rate of foot and mouth disease at that park. The scientists want to test whether or not this program is working. They want to be able to detect reductions of at least 5 percentage points. For instance, if 10% of sheep in Yellowstone have foot and mouth disease, they'd like to be able to know this, with confidence.

Park Name	Observations
Bryce National Park	250
Great Smoky Mountains National Park	149
Yellowstone National Park	507
Yosemite National Park	282
TOTAL OBSERVATIONS	**1188**

How many weeks would you need to observe sheep at Bryce National Park in order to observe enough sheep? How many weeks at Yellowstone?

Weeks of Observations Required:

- Bryce National Park = 520 / 250 = 2.08 weeks
- Yellowstone National Park = 520 / 507 = 1.02 weeks

Assumptions:

Baseline Rate of Infection = 15%
Minimum Detectible Effect = 33%
90% Statistical Significance

Sample Size Required = 520