

# Biodiversity Capstone Project

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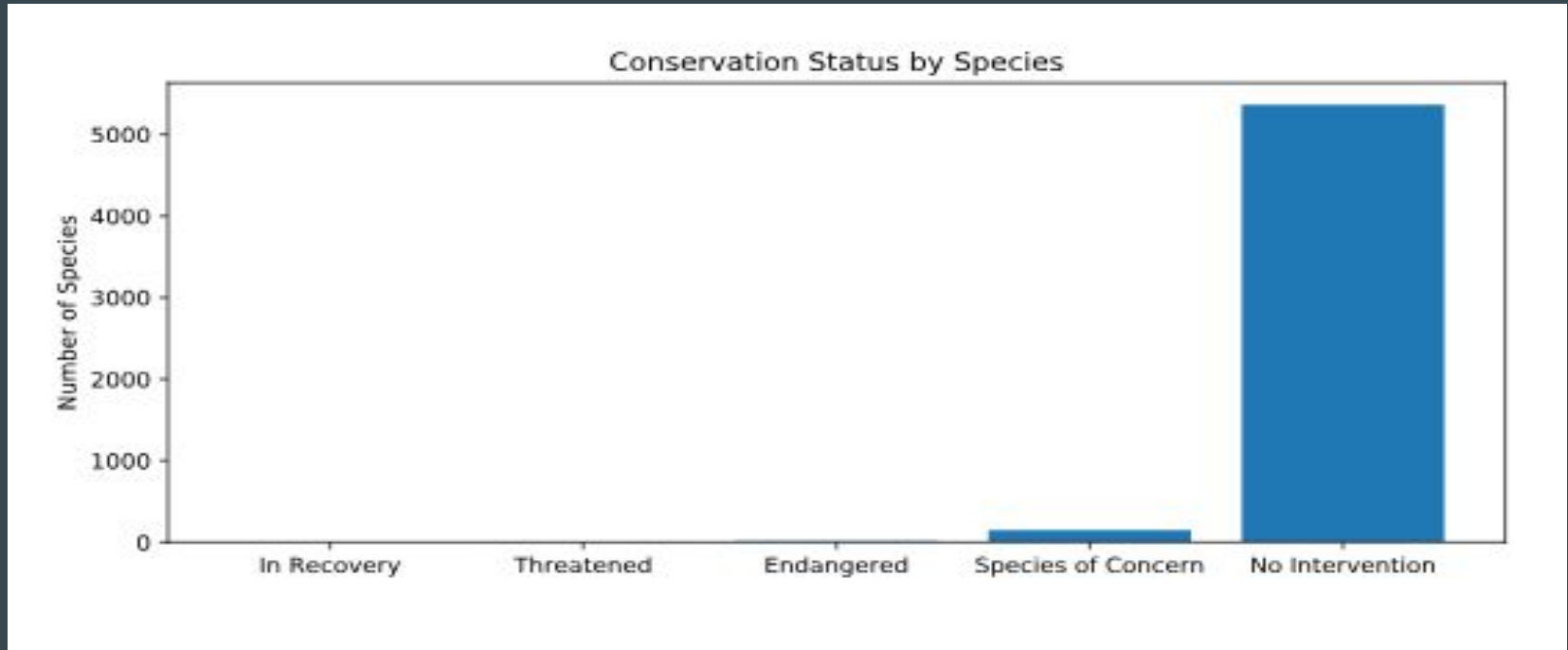
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# Species\_info.csv Overview

- Comma separated file containing 5 columns including the index
  - Animal Category: Containing 8 different animal types which include
    - Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant, and Nonvascular plants
  - Scientific Name: This is the scientific name of the animal. The CSV file contains 5541 different animals per scientific name.
  - Common name: Contains the all common names of the animal
    - E.g. Ovis Aries is known commonly as: Domestic Sheep, Mouflon, Red Sheep, Sheep (feral)
  - Conservation status: category of conservation.
    - Broken to No Intervention (5363), Species of Concern (151), Endangered (15), Threatened (10) and In recovery (4).

# Conservation Status breakdown



# Protection Status by Category

Category	# Not Protected	# Protected	Percent Protected
Amphibian	72	7	0.089
Bird	413	75	0.154
Fish	115	11	0.087
Mammal	146	30	0.170
Nonvascular Plant	328	5	0.015
Reptile	73	5	0.064
Vascular Plant	4216	46	0.011

# Chi-Squared Analysis of Protection Status

## Mammal vs Bird

A contingency table was created holding # of protected and Unprotected species

### Chi-Squared Revealed:

- P-Value: 0.688
- Can not reject the null hypothesis
- the difference between groups is most likely due to chance.

## Mammal vs Reptile

A contingency table was created holding # of protected and Unprotected species

### Chi-Squared Revealed:

- P-Value: 0.038
- Can reject the null hypothesis
- The difference between groups is most likely real and due to animal category.

# **Observation DataFrame:** **Conservationist Sightings at** **different Parks**

# Observation.csv Overview

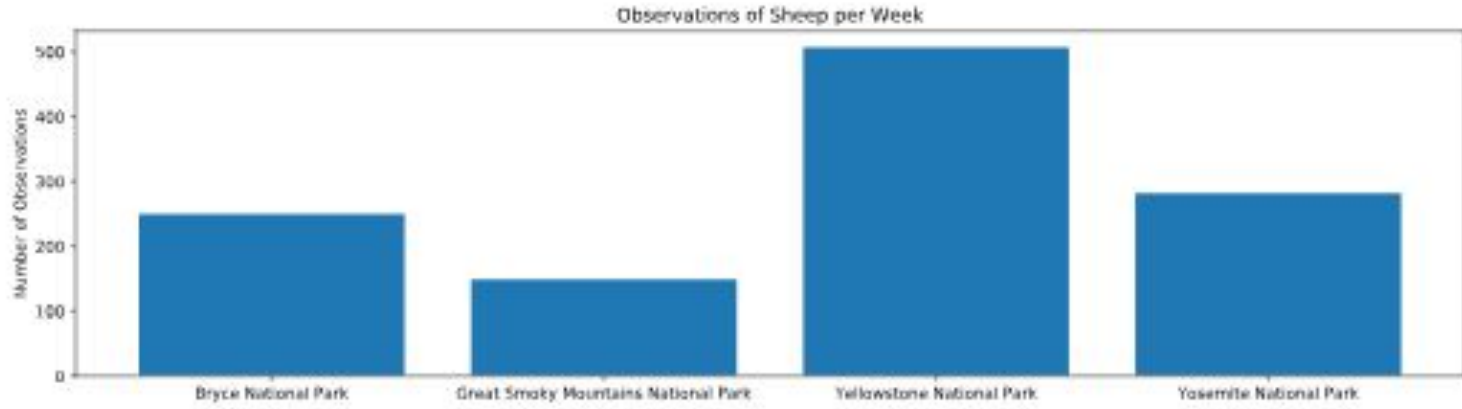
- Comma separated file containing 4 columns including the index
  - Scientific Name: This is the scientific name of the animal.
  - Park Name: Name of the park where the observation took place
  - Observations: Number of Observations Per week of the animal at the park.
- Sheep species in Species\_info where isolated based on appearance of “sheep” in the common name.
- All identified sheeps were further reduced to only include mammals.
  - Only *Ovis aries*, *Ovis canadensis*, and *Ovis Canadensis sierrae* remained.
- Observations and Sheep species were merged to identify sheep sighting per park each week.
- Observations were grouped to include all observations per each park.

# Observations of Sheeps per week in each park

Park Name	Observations
Bryce National Park	250
Great Smoky Mountains National Park	149
Yellowstone National Park	507
Yosemite National Park	282



# Observations of Sheep per Week



# Foot and Mouth Reduction Effort - Sample Size Determination

- Baseline conversion Rate: 15%
  - Minimum Detectable Effect:
    - $100 * ((15-5)/15) = 33\%$
  - Statistical Significance: 90%
  - Sample Size = 870
    - 2 weeks at Yellowstone
    - 4 weeks at Bryce
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