Biodiversity Project

NATIONAL PARKS SERVICE

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Overview

- A field survey was made in order to determine the amount of species sighted at the National Parks.
- The species were classified according to the following categories:
  - Mammal
  - Bird
  - Reptile
  - Amphibia
  - Fish
  - Vascular Plant
  - Non vascular Plant
- The information of each species include:
  - Scientific name
  - Common name
  - Conservation status
  - Category

- A total of **5541** diferent species were found.

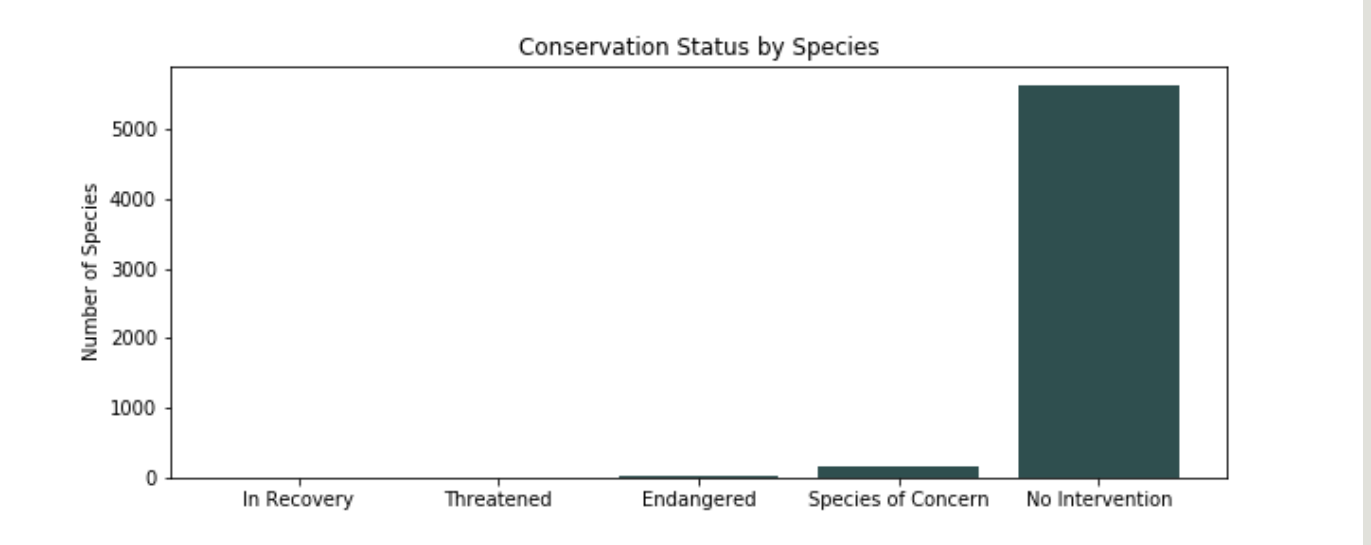
Category	Observations
Amphibian	79
Bird	488
Mammal	176
Reptile	78
Fish	125
Vascular plant	4262
Non vascular plant	333

Conservation status

Levels:

- **Species of concern**: declining or appear to be in need of conservation.
- **Threatened:** vulnerable to endangerement in the near future.
- **Endangered**: seriously at risk of extinction.
- **In recovery:** formerly endangered, but currently neither in danger of extinction throughout all or a significant portion of its range.

Most of the species guarded by the National Park Service are out of danger.



Are certain types of species more likely to be in danger?

According to our data, mammal is the category with higher protected percent (17%), followed by birds (15.4%), but there is no significant difference between the status of mammals and birds (x2=0.16, p=0.68, df=1).

Reptiles are the animals with lesser protected percent, and the difference between reptiles and mammals is significant (x2=4.28, p=0.03, df=1).

Category	Protected percent
Amphibian	8.8%
Bird	15.4%
Fish	8.7%
Mammal	17.0%
Reptile	6.4%
Vascular plant	1.0%
Non vascular plant	1.5%

Recommendations

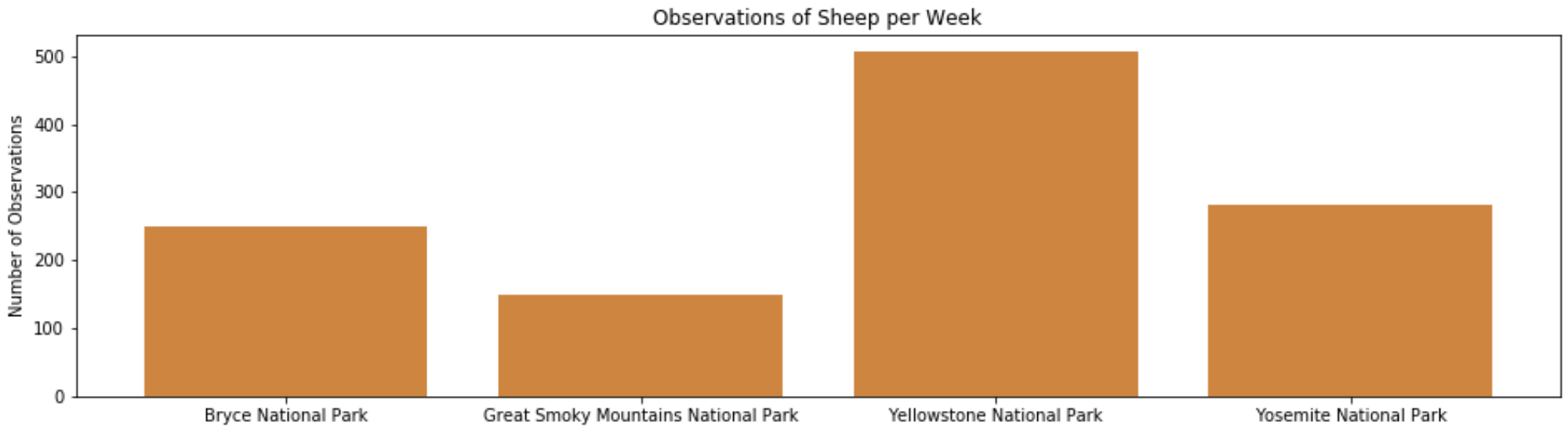
Reptile species require improvement of conservation efforts.

Other species of concern are: non vascular plants and vascular plants, with the lesser protected percent.

Sheeps status

- Conservationists have been recording sightings of different species at several national parks for the past 7 days.
- Three different sheep species have been sight at the parks:
  - Ovis aeries (domestic sheep)
  - Ovis canadensis (Bighorn sheep)
  - Ovis canadensis sierra (Sierra Nevada Bighorn sheep)

How many total sheep observations were made at each national park?



Sheep Mouth disease

15% of sheep at Bryce National Park have foot and mouth disease.

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.

Sample size determination

Key questions:

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

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

For sample size determination, the following parameters were used:

Baseline = 15

Statistical significance=90

Minimum Detectable Effect=33.33

The needed sample size is **870**.

Approximately 3 weeks of observations at Bryce Park and 2 weeks at Yellowstone Park