

# Endangered Species in National Parks

By Jen

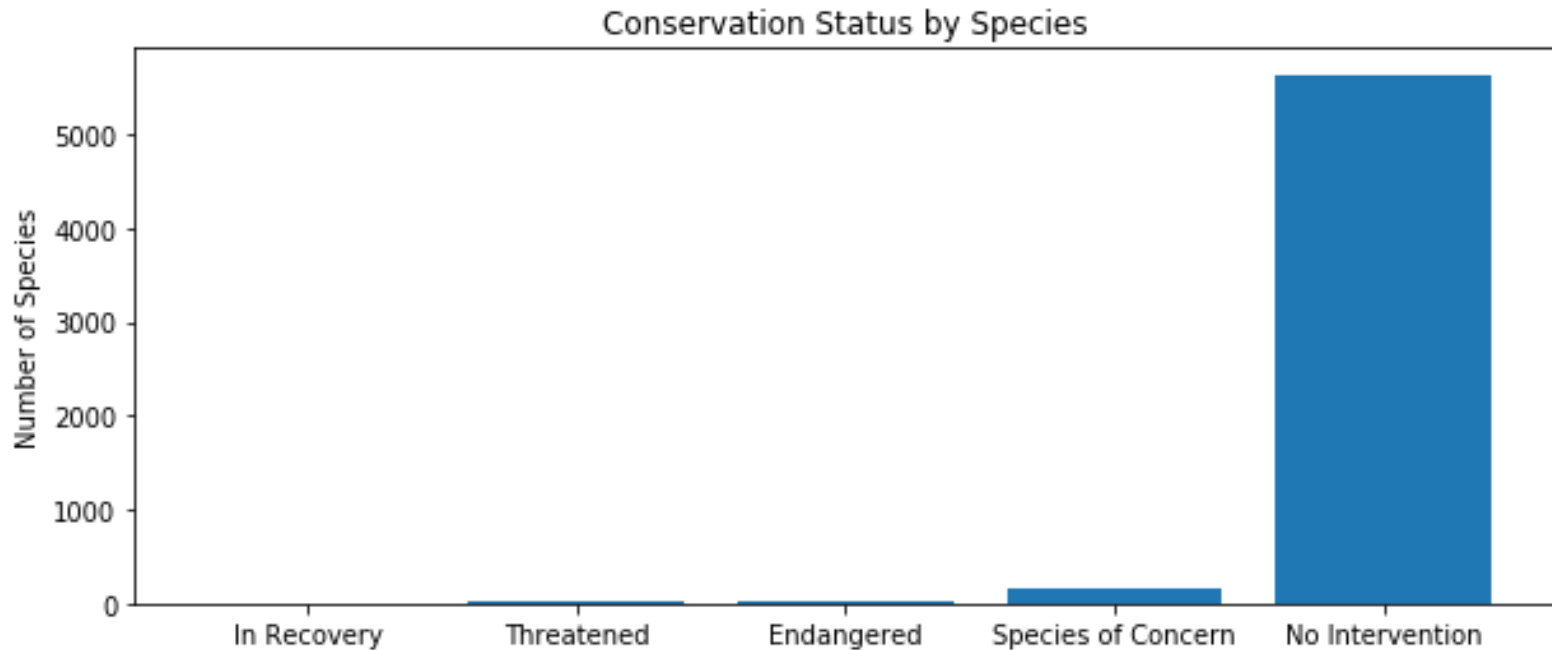
# Species in National Parks

- **5,541** species have been observed in U.S. National Parks.
- The categories of species include **mammals, birds, reptiles, amphibians, fish, vascular plants and nonvascular plants.**

# Endangered Status of Species

- The vast majority of species in the parks are not protected in any way.
- Of the species that are protected:
  - 151 are “species of concern”
  - 15 are endangered
  - 10 are threatened
  - 4 are in recovery

# Endangered Status of Species



# Most Protected Types of Species

- Percent of each category of species that is protected:
  - 17.8 percent of mammals
  - 15.2 percent of birds
  - 8.8 percent of amphibians
  - 8.7 percent of fish
  - 6.3 percent of reptiles
  - Less than 2 percent of nonvascular and vascular plants

# Most Protected Types of Species

- While it might appear that mammals are more likely than birds to be protected, the difference is not statistically significant.
  - The null hypothesis is that there is no significant difference between mammals protected and birds protected.
  - I ran a significance test that compared the percent of mammals that were protected to the percent of birds that were protected.
  - The test found a p-value of .446, which means that there was about a 45 percent chance that the null hypothesis is true.
  - The difference in protection is not statistically significant because there is more than 5 percent chance that the null hypothesis is true.

# Most Protected Types of Species

- Mammals are more likely than reptiles to be protected.
  - The null hypothesis is that there is no significant difference between mammals protected and reptiles protected.
  - I ran a significance test that compared the percent of mammals that were protected to the percent of reptiles that were protected.
  - The test found a p-value of .023, which means that there was about a 2.3 percent chance that the null hypothesis is true.
  - The difference in protection is statistically significant because there is a less than 5 percent chance that the null hypothesis is true.

## Recommendation for Conservationists

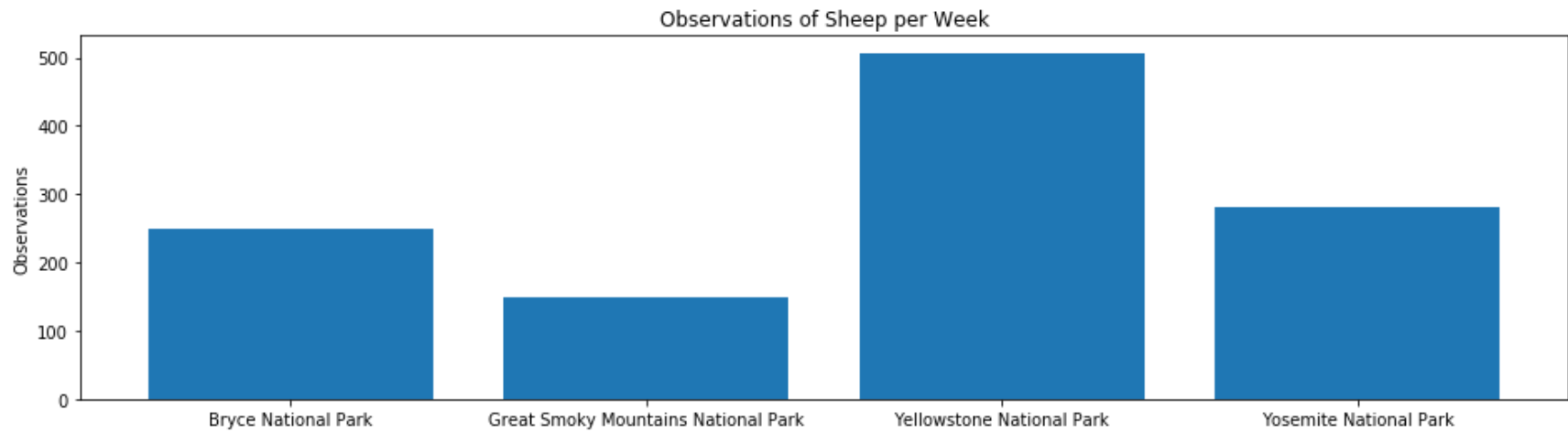
- Of all categories of species, mammals and birds are most likely to be protected.
- This finding might mean that it might be more important to watch populations of mammals and birds more carefully than other species to see if their populations are falling and whether they need protecting.



# Counting Sheep

- Sheep are most likely to be observed at Yellowstone National Park:
  - Yellowstone: 507 sightings per week
  - Yosemite: 282 sightings per week
  - Bryce: 250 sightings per week
  - Great Smoky Mountains: 149 sightings per week

# Counting Sheep



# Sheep with Foot and Mouth Disease

- The following calculation was performed to determine the number of sheep that need to be observed in order to tell whether the percent of sheep with foot and mouth disease is being successfully reduced:
  - 15 percent: baseline rate
  - 5 percent: minimum detectable effect
  - 90 percent: statistical significance
- The number of sheep that need to be observed: 35,000 sheep
  - At Bryce, that would take 140 weeks.
  - At Yellowstone, that would take about 69 weeks.