

Biodiversity in National Parks

by Tanya McAdam

Summary of species_info.csv

This data frame included four columns:

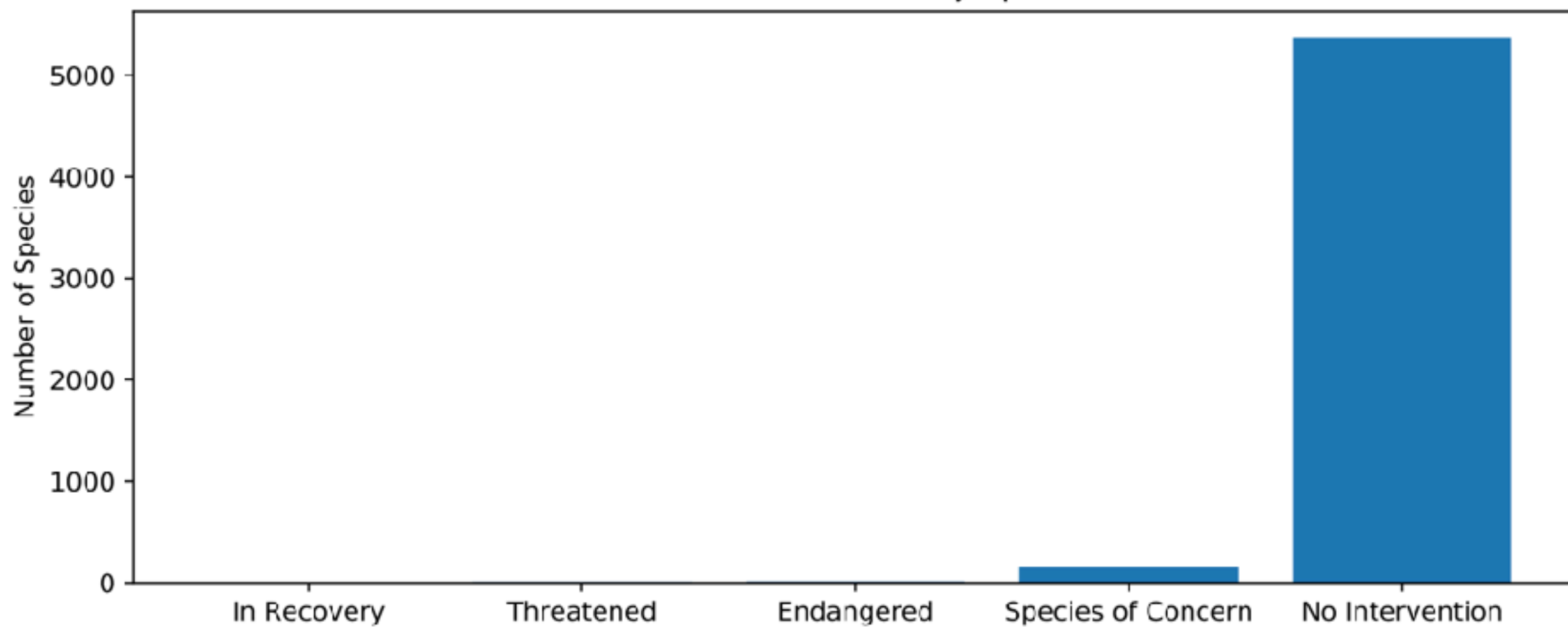
- category (mammal, bird, reptile, amphibian, fish or vascular plant)
- scientific name
- common name
- conservation status (species of concern, endangered, threatened, in recovery, or no intervention)

Conservation status

Of the 5541 species represented in the data, there were a small percentage actually in conservation. The total species in each category are:

Conservation Status	Total	Percentage
Endangered	15	0.27%
In recovery	4	0.07%
Species of concern	151	2.72%
Threatened	10	0.18%
No Intervention	5361	96.75%

Conservation Status by Species



Investigating Endangered Species

Category	Not Protected	Protected	Percent Protected
Amphibians	72	7	9%
Birds	413	75	15%
Fish	115	11	9%
Mammal	146	30	17%
Nonvascular Plant	328	5	2%
Reptile	73	5	6%
Vascular Plant	4216	46	1%

Are certain types of species more likely to be endangered?

Mammals have a 17% chance of being endangered. Birds have a 15% chance of being endangered. Is this difference significant?

I ran a chi-contingency test and concluded that the difference is not significant and is due to chance. This means that both mammals and birds have the same chance of being endangered. I also compared mammals and reptiles and found the difference to be significant. Thus, birds and mammals are more likely to be endangered than other species in the parks.

Recommendations

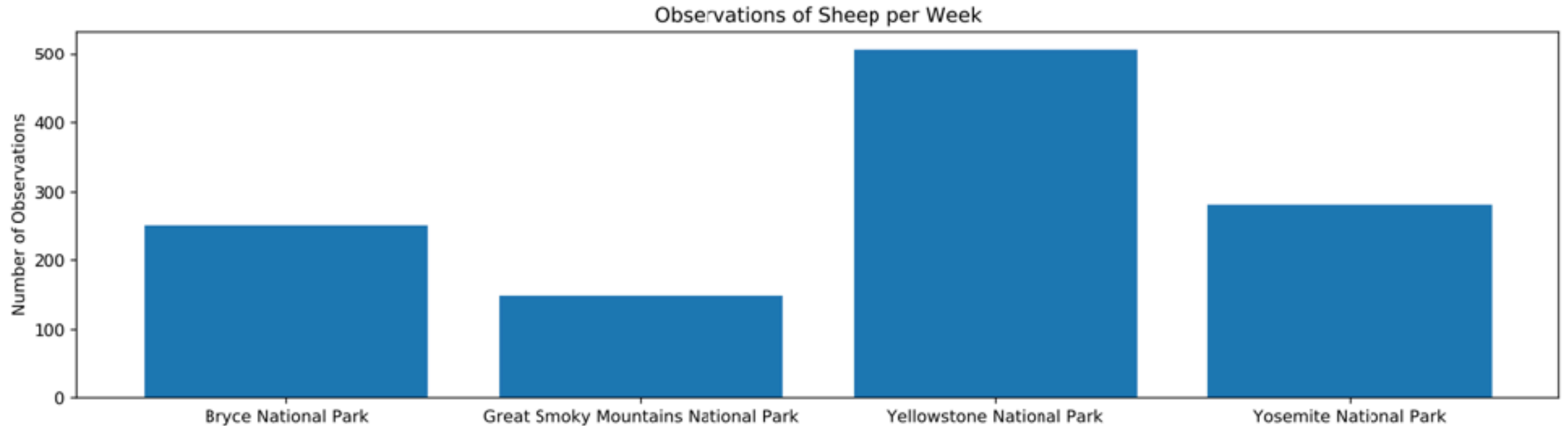
Based on my analysis, we know that birds and mammals in the parks are the most vulnerable. We need to collect more data to be able to find why this is the case and what can be done to help.

- Where are the endangered species found in the park?
- Where are the other species found in the park?
- What has caused the deaths of the endangered species?
- Is there any common denominators between the endangered species? (Proximity to humans, influx of natural predators, living underground versus trees or on the ground, etc.)
- What steps have been taken to help some species recover and how effective have they been?

Finding the answers to these questions will help us to protect more wildlife more effectively.

Sheep Hand Foot and Mouth

In the four parks are many sheep, based on this observation data.



Hand Foot and Mouth Sample Size

To test if the program to reduce Hand Foot and Mouth disease in sheep across the parks, first I had to determine the sample size.

The data from last year came only from Bryce Canyon Park, where there was a 15% infection rate. I extrapolated that to Yosemite with 90% significance and found that 510 sheep would need to be observed for the minimum detectable effect to be met. This could be done in one week in Yosemite.