Species Conservation

Biodiversity in America's National Parks

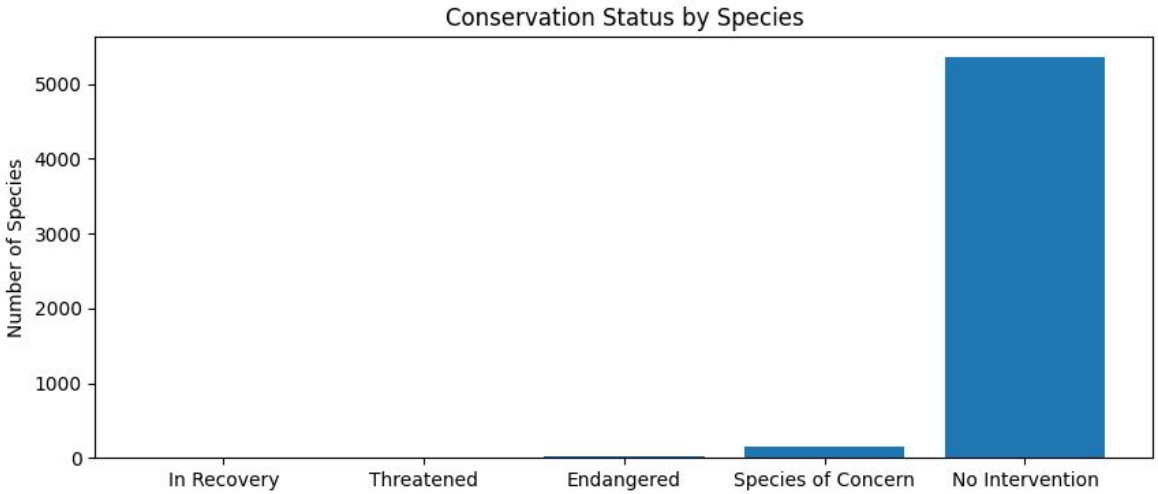
Introduction: Biodiversity

In the dataset provided, scientists have found that 5541 unique species live across the national parks system. This includes , but is not limited to, 4262 vascular plants, 521 birds and 176 mammals.

Species have been categorised by conservation status: No Intervention, Species of Concern, Threatened, Endangered, or In Recovery.

	conservation_status
0	Endangered
1	In Recovery
2	No Intervention
3	Species of Concern
4	Threatened

Conservation Status



The majority of species observed require no special attention. However, there are some Species of Concern and a few that are Endangered, Threatened or In Recovery.

Are certain types of species more likely to be endangered?

Before taking the percent protected as the final answer, I ran the chi squared test on a contingency table.

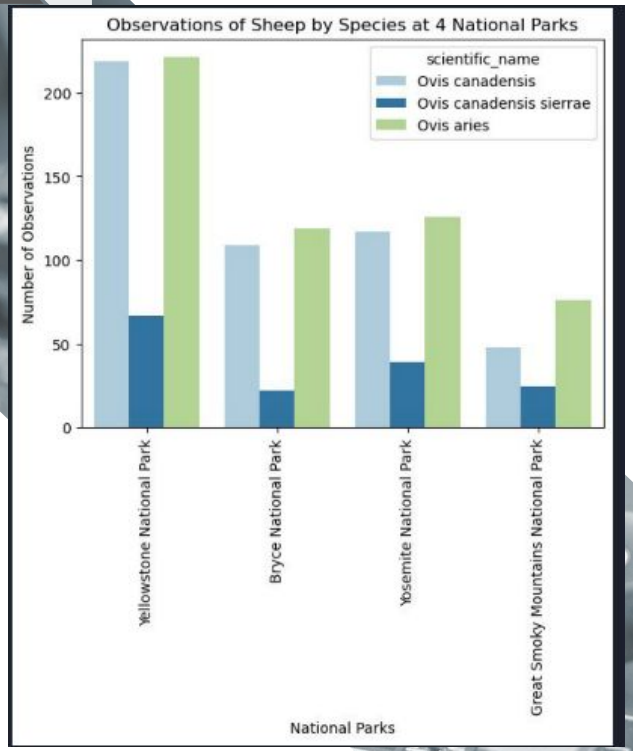
Mammals and birds do not have a statistically significant difference, but Reptile and Mammal do! See figure below:

```
array([[  24.2519685,  151.7480315],
       [  10.7480315,   67.2519685]]))
```

]:

	category	not_protected	protected	percent_protected
0	Amphibian	72	7	0.088608
1	Bird	413	75	0.153689
2	Fish	115	11	0.087302
3	Mammal	146	30	0.170455
4	Nonvascular Plant	328	5	0.015015
5	Reptile	73	5	0.064103
6	Vascular Plant	4216	46	0.010793

Project sheep

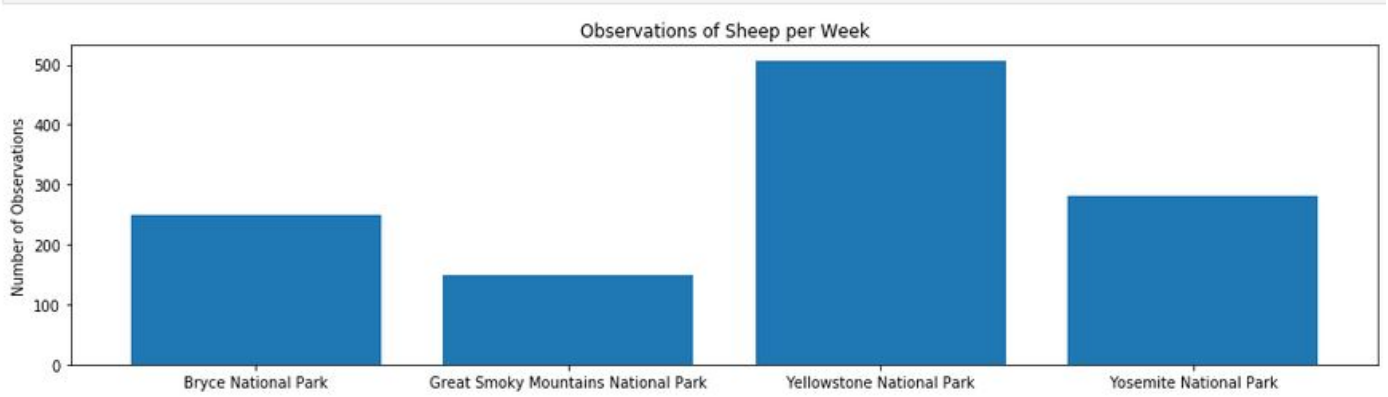


There have been three species of sheep observed: *Ovis aries, Ovis canadensis* and *Ovis canadensis sierrae*.

The figure to the left shows the number of sheep observations at four different National Parks. The most sheep were need at Yellowstone National Park.

The least seen sheep is the *Ovis canadensis sierrae*, which has the least sightings across the board. This aligns with the data before that the sheep is on the Endangered list.

Observations over Seven Days



Foot and Mouth disease

Our scientists know that 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.

```
minimum_detectable_effect = 100 * 0.05 / 0.15
minimum_detectable_effect
```

```
33.333333333333336
```

By using Codecademy sample size calculator, our sample size is 870. Therefore, we would need 3.5 weeks in Bryce National Park and 1.7 weeks in Yellowstone National Park to obtain enough samples.