Biodiversity for the National Parks analyzed

Observation no 1: Endangered species

Data analyzed

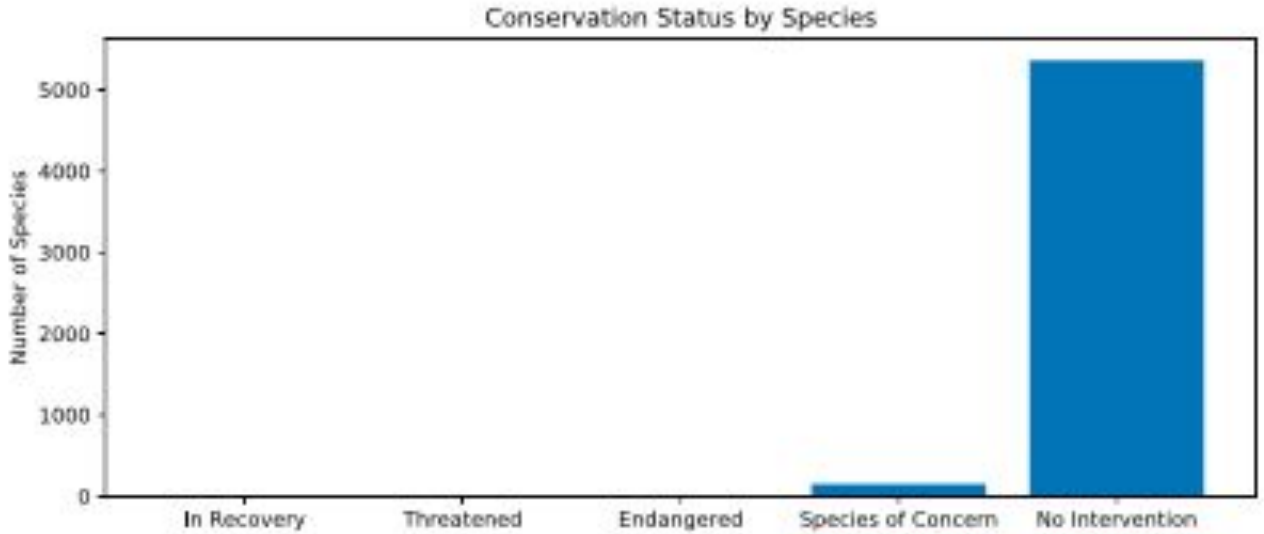
The analyzed data includes information about endangered species in the National Parks. It includes information such as:

- The scientific name of each species
- The common names of each species
- The species conservation status

Categories	7 (Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant, Nonvascular Plant)
Scientific names	5541
Common names	5504
Conservation status	4 (Species of Concern, Endangered, Threatened, In Recovery): • Species of Concern: declining population or appears to be in need of conservation. • Threatened: vulnerable to endangerment in the near future. • Endangered: seriously at risk of extinction. • In Recovery: formerly Endangered, but currently not in danger of extinction throughout all or a significant portion of its inhabitable range.

How many species fall under each conservation status?

Endangered	15
In Recovery	4
Species of Concern	151
Threatened	10
No Intervention	5363


Conservation Status by Species
Number of Species
5000
4000
3000
2000
1000
0
In Recovery
Threatened
Endangered
Species of Concern
No Intervention

Investigating endangered species

Amphibian	8,8%
Bird	15%
Fish	8,7%
Mammal	17%
Reptile	6,4%
Vascular Plant	15%
Nonvascular Plant	1%

Are certain types of species more likely to be endangered? - chi-squared test

Null hypothesis: difference between endangered Birds and Mammals is due to chance.

Since pval > 0.05, the difference is not significant.

Are certain types of species more likely to be endangered? - chi-squared test

Null hypothesis: difference between endangered Reptiles and Mammals is due to chance.

Since pval < 0.05, the difference is significant.

That indicates that Reptiles have less chance of becoming endangered than Mammals.

Recommendation

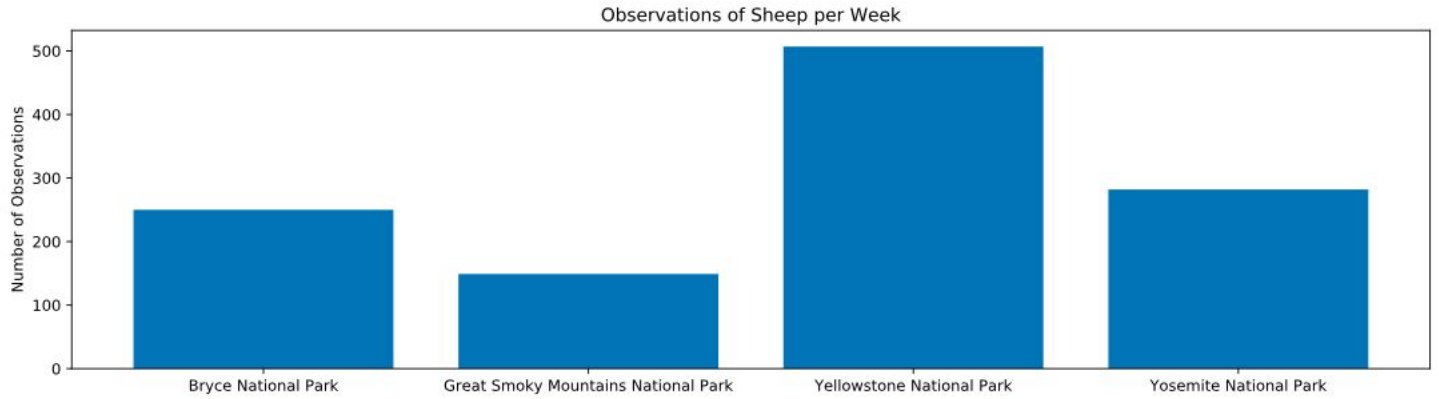
Scientists should introduce a programme that focuses on most endangered species. Since the difference is significant, scientist should focus on inventing means of protecting **Mammals.**

Observation no 2: Movement of sheep

The subject of the analysis is number and species that can be found in national parks.

	park_name	observations
0	Bryce National Park	250
1	Great Smoky Mountains National Park	149
2	Yellowstone National Park	507
3	Yosemite National Park	282

Observations of sheep in each park per week



Foot and mouth disease reduction

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.

Given a baseline of 15% occurrence of foot and mouth disease in sheep at Bryce National Park, if the scientists wanted to be sure that a >5% drop in observed cases of foot and mouth disease in the sheep at Yellowstone was significant they would have to observe **at least 870 sheep.**