Biodiversity for the National Parks

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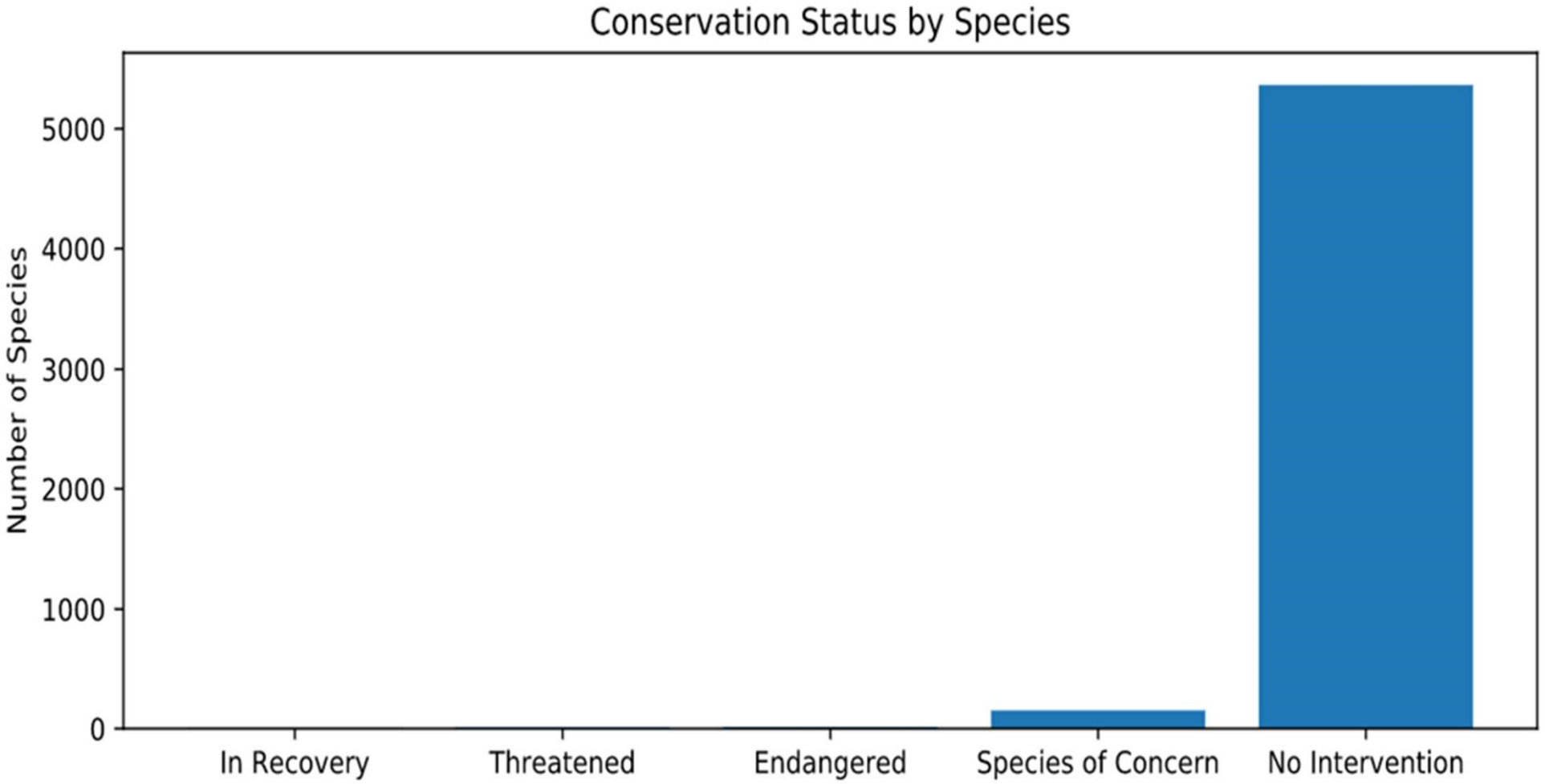
Introduction to Data Analysis

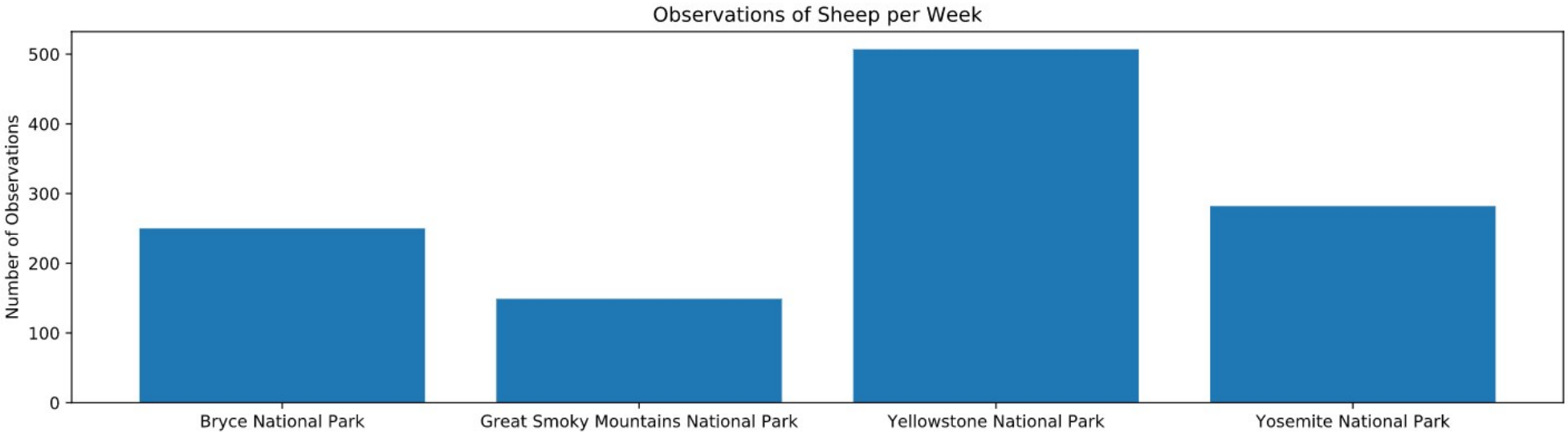
2018

Data set

- Data set name : species_info.csv
- Type: Data frame
- Length: 5824 entries
- First 5 entries displayed on right

Index	Category	Scientific Name	Common Names	Conservation Status
0	Mammal	Clethrionomys gapperi gapperi	Gapper's Red-Backed Vole	No Intervention
1	Mammal	Bos bison	American Bison, Bison	No Intervention
2	Mammal	Bos taurus	Aurochs, Aurochs, Domestic Cattle (Feral), Domesticated Cattle	No Intervention
3	Mammal	Ovis aries	Domestic Sheep, Mouflon, Red Sheep, Sheep (Feral)	No Intervention
4	Mammal	Cervus elaphus	Wapiti Or Elk	No Intervention


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


Observations of Sheep per Week
Number of Observations
0
100
200
300
400
500
Bryce National Park
Great Smoky Mountains National Park
Yellowstone National Park
Yosemite National Park

Calculations

After organizing the data in a way to best analyze the protection status of different groups of species, significance tests were done to determine the significance of the difference in protected statuses.
A chi^2 test was conducted on mammals and birds, returning a p-value of 0.688 meaning that the difference in protection statuses between mammals and birds is not significant.
Another chi^2 test was done to mammals and reptiles, returning a p-value of 0.038 indicating there is a significant difference in the protection between mammals and reptiles.

Based on these tests, conservation efforts may want to be shifted to increase protections for reptiles.

	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

Foot and mouth disease

- Baseline = 15%
- Min detectable effect = 33%
- Confidence = 90%
- Sample size per variant = 520 observations
- Yellow stone would need to observe for 1.026 weeks
- Bryce National Park would need to observe for 2.08 weeks