Capstone Option 2 Biodiversity for the National Parks

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Species.csv Overview

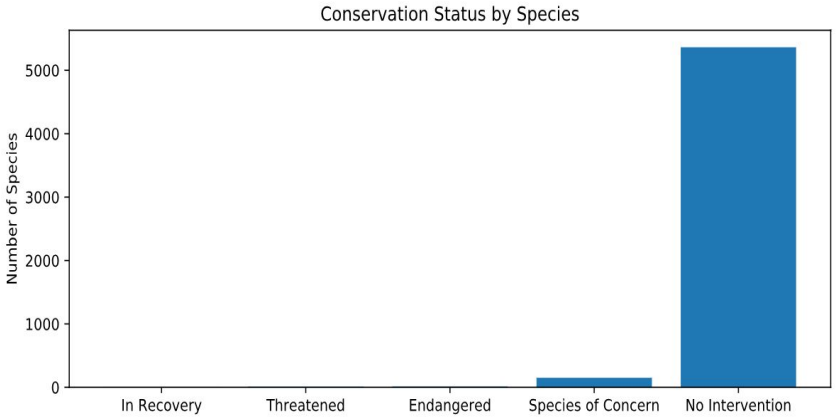
Encompasses data on scientific name of species, common name, 7 categories (Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant, Nonvascular Plant) and 5 conservational statuses (Species of Concern, Endangered, Threatened, In Recovery, No Intervention) on 5,541 unique species across various national parks

Conservation Status Overview

As data shows below 5363 species require no intervention and 4 are in recovery.

10 are threatened and 15 are endangered, and 151 are species of concern that will require an ongoing monitoring

	conservation_status	scientific_name
1	In Recovery	4
4	Threatened	10
0	Endangered	15
3	Species of Concern	151
2	No Intervention	5363



Endangered Status Overview

Below pivot table (grouped species by their categories and protection status) shows percent protected species where “not_protected” species require intervention and “protected” species do not require any intervention

Mammals are more likely to be endangered with only 17% being protected compared to 15% of Birds being protected calling to investigate if the difference is actually significant

	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

Is the difference between species significant?Recommendations for Conservationists

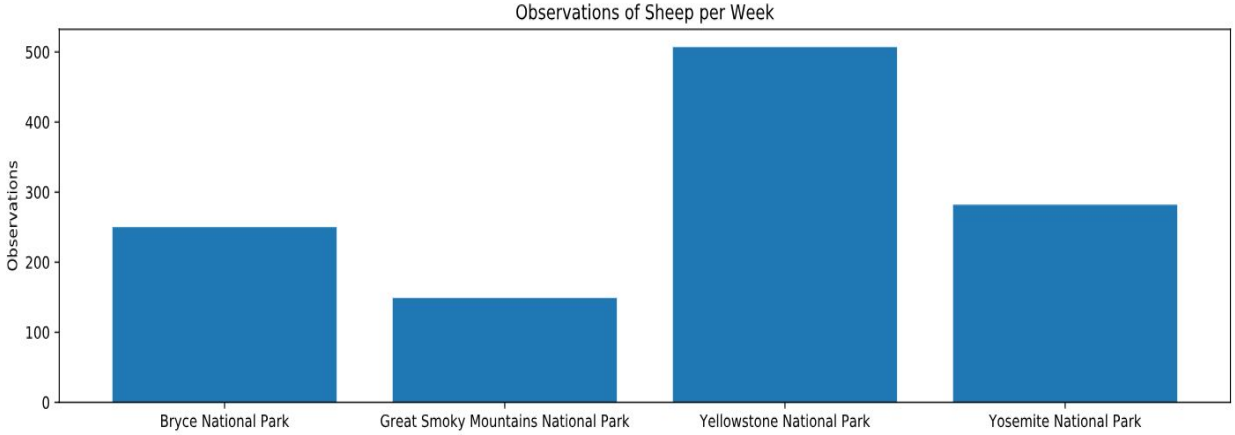
After conducting the Chi Squared Test, p-value of 0.686 revealed there is no significant difference between the Mammal and Bird species making them top two categories to become endangered in the future.

The difference between Mammal and Reptile species seem to be more significant as a result of Chi Squared Test showed p-value to be less than 0.05, returning as 0.038.

Plant species are least likely to become endangered.

Observations.csv Overview

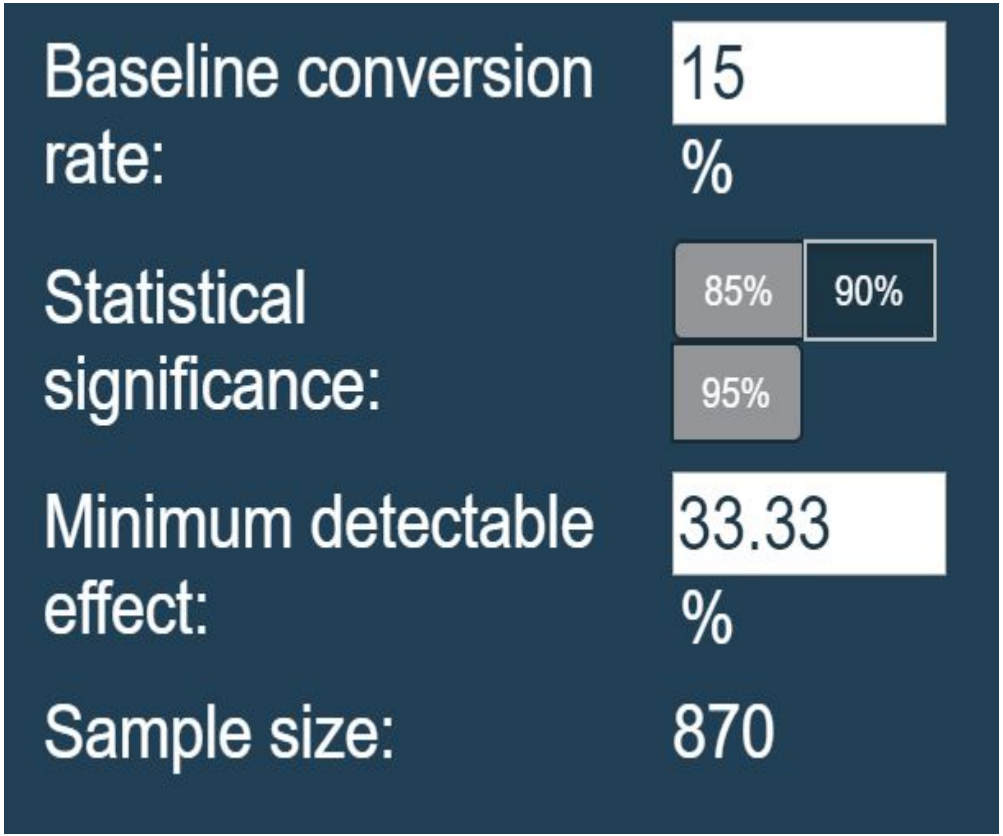
	park_name	observations
0	Bryce National Park	250
1	Great Smoky Mountains National Park	149
2	Yellowstone National Park	507
3	Yosemite National Park	282



Encompasses data on sightings of different species at several national parks for the past 7 days.

After combining Observations and Species data set, one can see total sheep sightings (across all three species) were made at each national park

Foot & Mouth Disease Study



Sample size of 870 is needed per variation.

One would need approximately 2 weeks (1.7) to observe sheep at the Yellowstone National Park and about 3.5 weeks (3.48) for Bryce National Park

Thank you!