Biodiversity in our National Parks

Codecademy capstone project
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Different species in our National Parks

There are 5541 different species in the National Parks in this study.

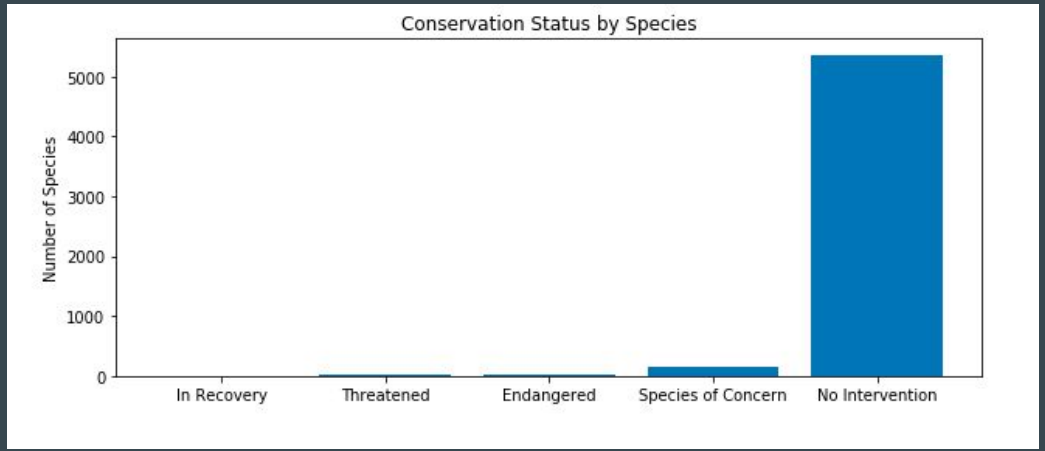
Each of these species fall into one of these categories ; Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant, Nonvascular Plant.

Each of these species have one of the following conservation status ; No Intervention, Species of Concern, Endangered, Threatened, In Recovery.

Conservation status

Below you see the proportions of each species in each of the categories.

Fg1



5363 (96.78%) of the species have No Intervention status - this is the the most populous category.

4 (0.07%) of the species are In Recovery - this is the least common. (Haliaeetus leucocephalus, Canis lupus, Falco peregrinus anatum, Pelecanus occidentalis)

Protection Breakdown

Protection data is broken down in Fg2, to highlight different protection statuses between categories.

Fg2

	category	not_protected	protected	percent_protected
0	Amphibian	72	7	8.860759
1	Bird	413	75	15.368852
2	Fish	115	11	8.730159
3	Mammal	146	30	17.045455
4	Nonvascular Plant	328	5	1.501502
5	Reptile	73	5	6.410256
6	Vascular Plant	4216	46	1.079305

Following this are some significance tests to see if some species are more likely to be protected than others.

Significance test 1

Null hypothesis : Mammals are not more likely to be protected than Birds.

We conducted a chi squared test on the data and were looking for a 95% confidence level.

The Pvalue - 0.6875948096661336

Result - We accept the null hypothesis.

Significance test 2

Null hypothesis : Mammals are not more likely to be protected than Reptiles.

We conducted a chi squared test on the data and were looking for a 95% confidence level.

The Pvalue - 0.03282938188202223

Result - We reject the null hypothesis - Mammals are more likely to be protected than Reptiles.

Recommendation

A recommendation for conservationists concerned about endangered species.

Mammals are more likely to be endangered than reptiles. More research needs to be done to find out why this is the case and measures need to be put in place to prevent this happening in the future.

Foot and Mouth Disease Study

Background - 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.

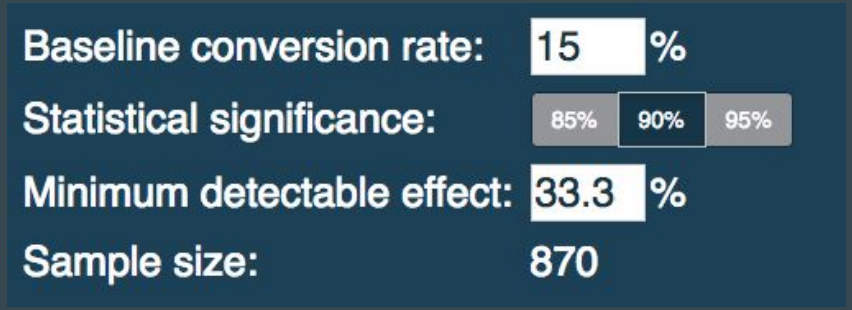
Sample size determination;

Baseline = 15% (based on what we know about sheep at Bryce National Park)

Minimum Detectable Effect = 33.33 ((0.05 * 100) / 0.15)

Confidence level = 90%

Therefore Sample size must be 870



Foot and mouth study completion

Based on sheep observations in the last 7 days (see Fg3) and new the foot and mouth study needing 870 samples, it's likely to take the scientists 4 weeks to gather enough results in Bryce National Park compared to 2 weeks in Yellowstone.

Fg3