Biodiversity for the National Parks

Capstone Option 2

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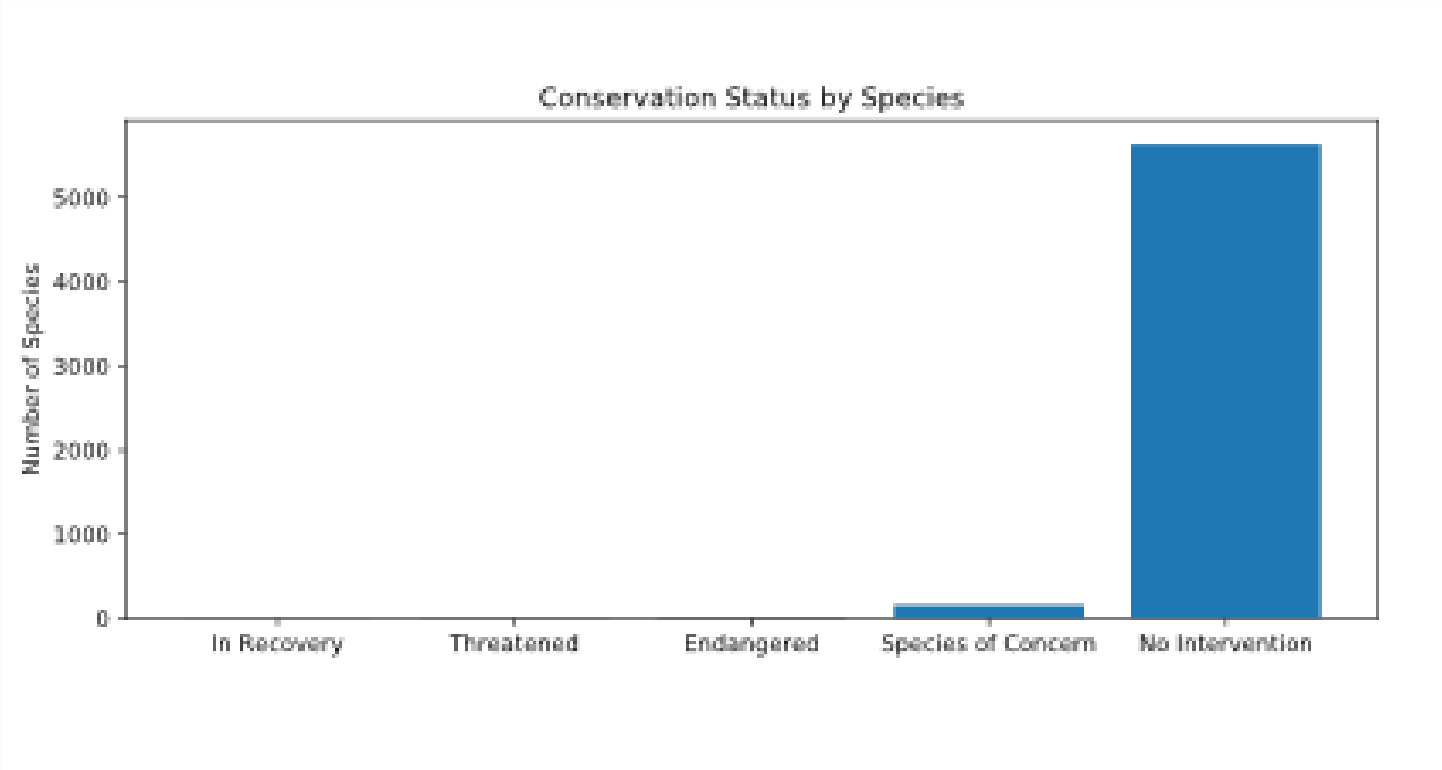
Species_info.csv

- Data frame „species“ contains category, scientific name, common name and conservation status of all species living in our National Parks
- The data contains 5.541 different species
- The categories the data frame contains are: Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant, Nonvascular Plant
- The possible conservation statuses in the data frame are:
  nan, Species of Concern, Endangered, Threatened, In recovery

endangered status between different categories of species

- 15 species that are seriously at risk of extinction
- Formerly endangered, but currently not in danger of extinction is applicable for 4 species
- Species with a declining population of 151
- 10 species are vulnerable to endangerment in the near future



recommendation for conservationists

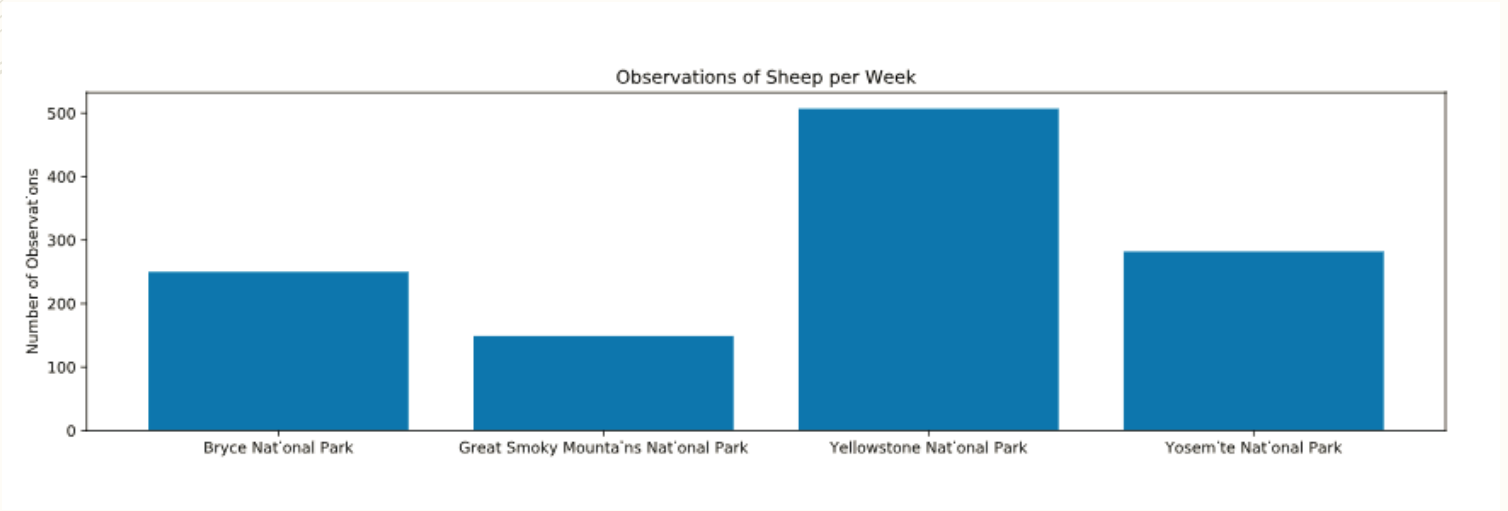
Recommendations:

- Certain types of species are more likely to be endangered than others, therefore it should be ensured that those species are protected even more
- as for example birds and mammals are significantly more protected than reptiles

category	Not_protected	protected	Percent protected
Amphibian	72	7	8,86 %
Bird	413	75	15,37 %
Fish	115	11	8,7302 %
Mammal	146	30	17,05 %
Nonvascular Plant	328	5	1,50 %
Reptile	73	5	6,41 %
Vascular Plant	4216	46	1,08 %

- Difference between Bird and Mammal isn‘t significant and a result of chance because of a p-value of ~0.688 of our chi-squared test
- The difference of protected reptiles and mammals in comparison, with a p-value of ~0.038, is significant

Observations of sheep per week and National park



	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

sample size determination for foot and mouth disease study

Sample size determination:

- baseline = 15%
- Minimum detectable effect = 100*5/15
- Sample size per variant = 870
- Yellowstone weeks observing = 870 / 507
- Bryce weeks observing = 870 / 250

Conclusion:

- Baseline of occurence of foot and mouth disease in sheep at Bryce National Park: 15%
- To be sure that more than 5% drop in observed cases of foot and mouth disease in sheep at Yellowstone was significant => have to observe 510 sheep