Code Academy

Biodiversity for the National Parks

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“species_info.csv”

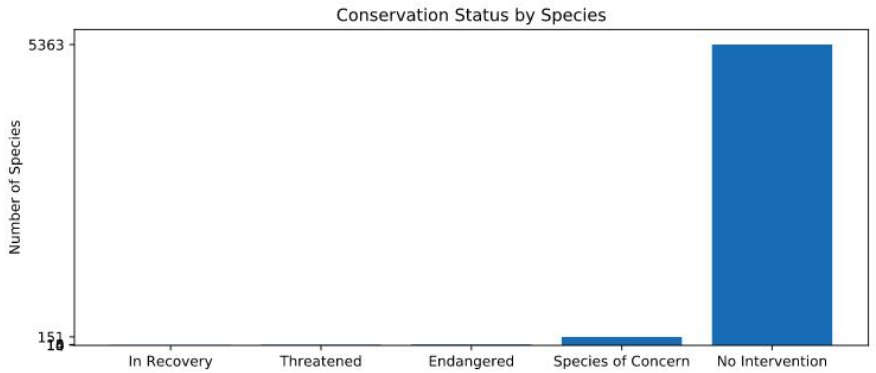
This csv file contains thousands of species in the different National Parks, representing their scientific and common name, plus their conservation status.
This data helps us to analyze the different statuses of these species, below you can see the meaning of the categories:

- **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.
- **No Intervention:** Species that don’t require protection.

Distribution of species regarding the conservation status

The below table and charts represent the significant difference between the amount of species in the conservation statuses:

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



Endangered Species

From the previous analysis we could see that the majority of the species (5363) do not require protection. However, there are 180 species endangered. The below table gives us a deeper understanding how many species are protected on animal category level, moreover how much percent of species are protected in the categories:

category	not_protected	protected	percent_protected
Amphibian	72	7	8,86%
Bird	413	75	15,37%
Fish	115	11	8,73%
Mammal	146	30	17,05%
Nonvascular Plant	328	5	1,50%
Reptile	73	5	6,41%

We can see that the majority of the endangered species are birds, and 15% species of all bird species are protected. However, it can be also seen that 17% of mammal species are endangered in mammal category, which means that mammals are altogether more threatened than birds.

Conclusion

After running some more checks with Chi-Squared Test to see if there are significant differences between endangered categories, we can confidentially say that there is no significant difference between birds and mammals.

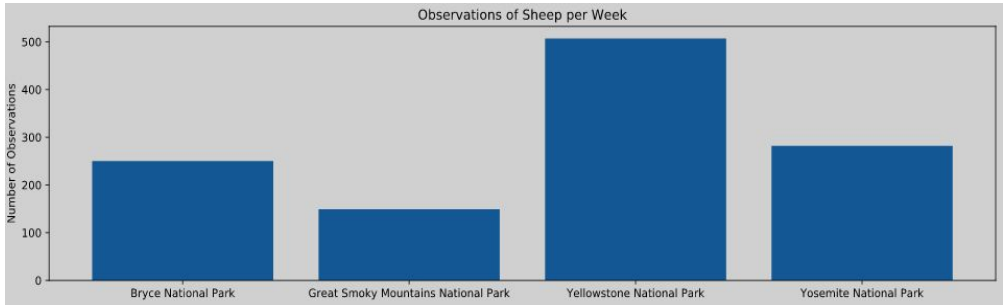
However, since these two percentage of categories are highly above of plants and reptiles, there is significant difference between them.

My recommendation - based on these analysis - is to pay more attention on birds and mammals, since they are in bigger danger than reptiles, for instance.

Observations on sheeps

With the help of “species.csv” and “observation.csv” (that contains observed species in 4 National Parks) we can see from the below table and chart how many sheep species are observed per week in each 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



Foot and mouth disease study

Given a baseline of 15% occurrence of foot and mouth disease in sheep at Bryce National Park, we could find out that 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 520 sheep.

Based on the observation data from the previous slide, we can say that this would take approximately one week of observing in Yellowstone and approximately two weeks in Bryce to observe 520 sheeps.