Biodiversity for the National Parks

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Species_Info.CSV

Dataset contains info about several different species in National Parks

Notably conservation status and species category

Conservation status breaks down into

- 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.

Species_Info.CSV

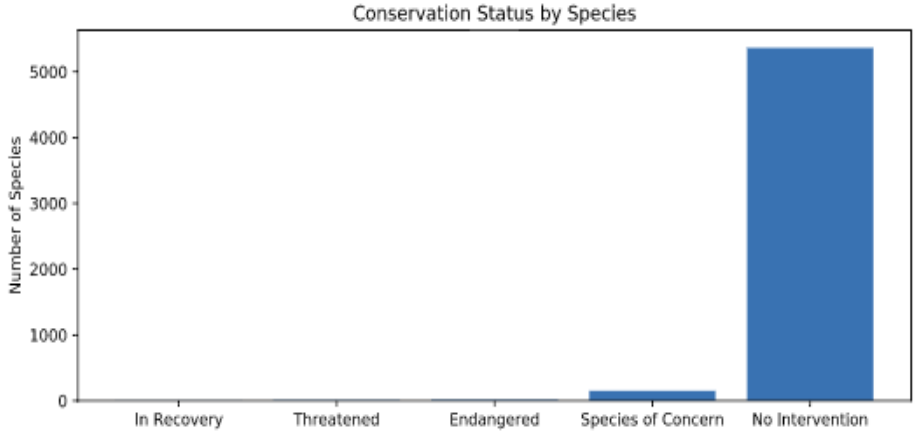
Category refers to the group of species.

- Amphibian
- Bird
- Fish
- Mammal
- Nonvascular Plant
- Reptile
- Vascular Plant

Should we be worried?

Thankfully, majority of Species in the data set require no intervention at any level. However a total of 180 species need to be monitored. The break down of severity is

Status	Number of species
• Endangered	15
• In Recovery	4
• Species of Concern	151
• Threatened	10



Is one species more likely to be endangered than another?

- Certain categories have more protected numbers to others.
- Birds are the Highest number of species that are protected, while Mammals have the highest % of protected
- Just because these two are more common in the data set, doesn't mean they are more *likley*

category	not_protected	protected	percent_protected
Amphibian	73	7	8.75%
Bird	442	79	15.16%
Fish	116	11	8.66%
Mammal	176	38	17.76%
Nonvascular	328	5	1.50%
Reptile	74	5	6.33%
Vascular	4424	46	1.03%

Are Mammals more likely to be protected than Birds?

A Chi Square test will tell us if there is a significant difference

(something worth looking into)

Null Hypothesis = is that this difference is due to chance

Pvalue = 0.688 which is greater than 0.05

Therefore Mammals are not more likely protected that Birds and is due to chance

What about between reptiles and mammals

Null Hypothesis = is that this difference is due to chance

Pvalue = 0.038 which is less than 0.05

Therefore we reject the Null Hypothesis (this is significant)

Therefore some species are more likely to be protected!

Recommendations

Next steps would be to ask which animals are more likely and why?

Look for trends such as if conservation status changes at certain parks than others?

Investigate what are reasons for one species to be more endangered?

- Are they hunted more?
- Are they not able to to adapt to the current planet as well?
- Are they a result of their main prey being endangered?

Foot and Mouth Reduction Effort - Sample Size Determination

Determine a sample size to test if a program is working or not

Minimum detectable effect :detect reductions of at least 5 percentage point

Baseline :15% of sheep at Bryce National Park have foot and mouth disease

Using a 90% significance we determine we need a sample size of 510 sheep to check if they have Foot and Mouth.

Given the current sighting rates, it would take 1 full week at yellowstone or 2 weeks at Bryce to obtain enough samples

Note

- Code was written in the learning environment on codecademy.com