Biodiversity for the National Parks

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Reviewable project

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1. Description and analysis of the data base

Description of the data base :
The quantitative analysis was base on « species_info.csv » which contains 5 541species classified into 7 categories in the National Parks.

category	Species
Reptile	78
Amphibian	79
Fish	125
Mammal	176
Nonvascular Plant	333
Bird	488
Vascular Plant	4262
Total	5541

1. Description and analysis of data base

The number of species that fall into each level of conservation status:

Conservation status	Species
In Recovery	4
Threatened	10
Endangered	15
Species of Concern	151
No Intervention	5363
Total	5541

2. Significance calculations in endangered status

The Investigating Endangered Species : the percentage of protected species

Category	Not protected	Protected	% 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%
Vascular Plant	4216	46	1,08%
Total	5541		

Are certain types of species more likely to be endangered?
The **Chi-Squared** Test for Significance :
Between the percentages of protected birds and mammals :
p-value = 0.688 < 0.05 : the difference is **not significant**
Between the percentages of protected reptiles and mammals :
p-value = 0.038 > 0.05 : the difference is **significant**

3. Conclusion for endangered species

According to the significance calculations, we can conclude that certain types of species are more likely to be endangered than others.

Every endangered species need our care, we accord especially more attention to the most endangered species. There are two recommendations for conservationists :

1. Protecting the endangered species's habitat to help them survival and expansion by respecting the Endangered Species Act;
2. All measures for endangered species should based on scientific evidence, communicate necessary informations to researchers in order to make effective plan

4. Investigating Foot and mouth disease in sheep

Description of the data base :
The investigating was base on species_info.csv + observations.csv »
recorded 1188 sheeps at 4 national parks for the past 7 days

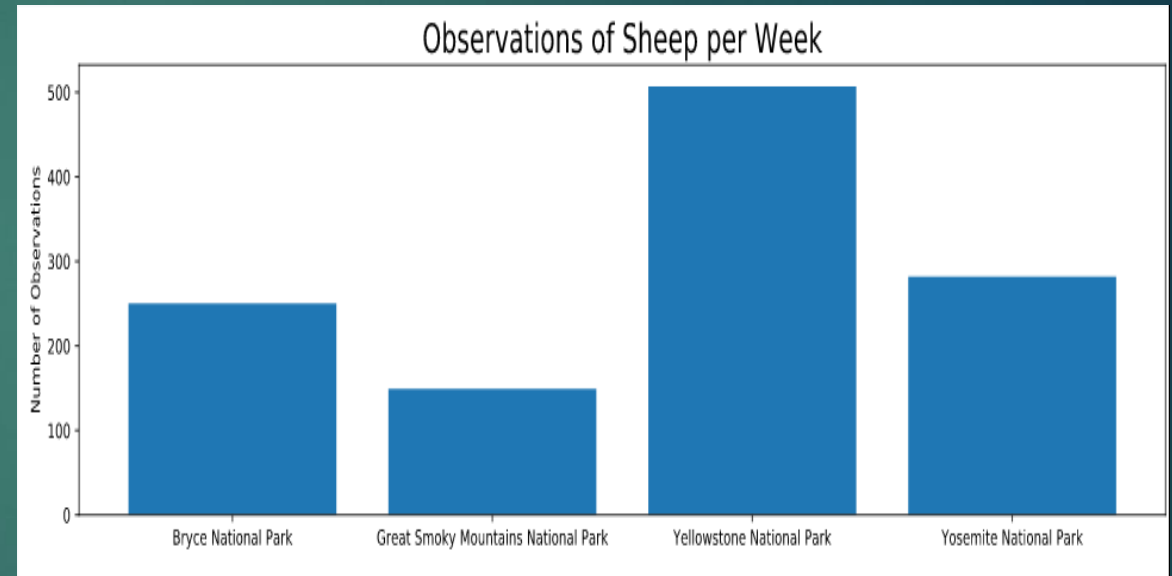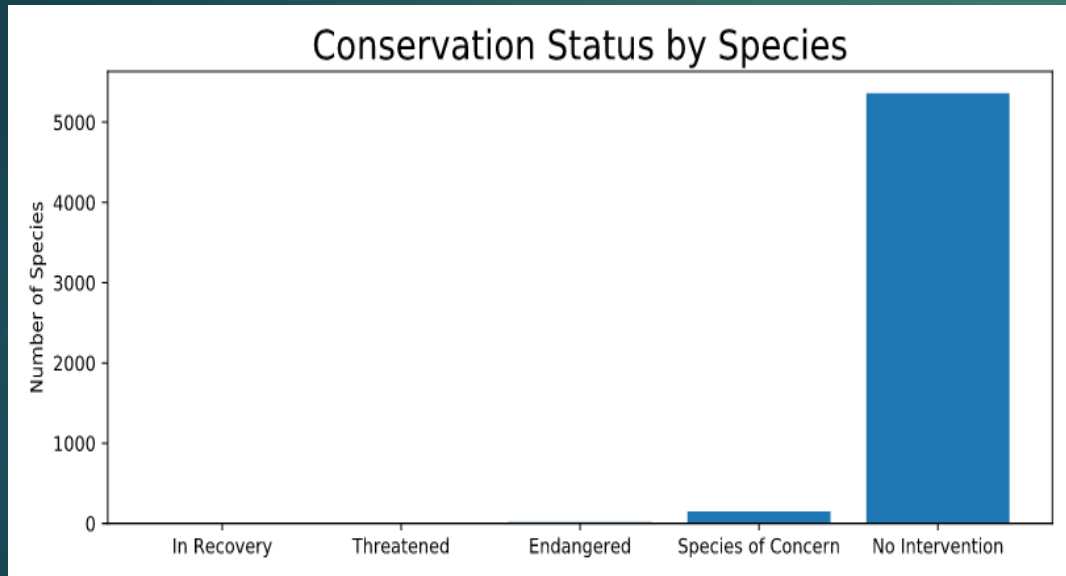| Park name	observations
Bryce National Park	250
Great Smoky Mountains National Park	149
Yellowstone National Park	507
Yosemite National Park	282
	1188

4. Investigating Foot and mouth disease in sheep

To determine the sample size necessary for confident measurements:

Given a **baseline** of **15%** occurrence of foot and mouth disease in sheep at **Bryce National Park**, if the scientists wanted to be sure that a >5% drop (means15%→10%) in observed cases of foot and mouth disease in the sheep at **Yellowstone** was significant they would have to observe at least 510 sheep. To calculate the **Minimum detectable effect = (10 − 15)/15 * 100 = 33%**

It would take approximately **one week** of observing in **Yellowstone** to see that many sheep, or approximately **two weeks** (250/ 510 = 2.04) in **Bryce** to check 510 sheep.

5. Graphs

Thank you, Codecademy !