DATA ANALYSIS ON CONSERVATION STATUS OF SPECIES AT NATIONAL PARK

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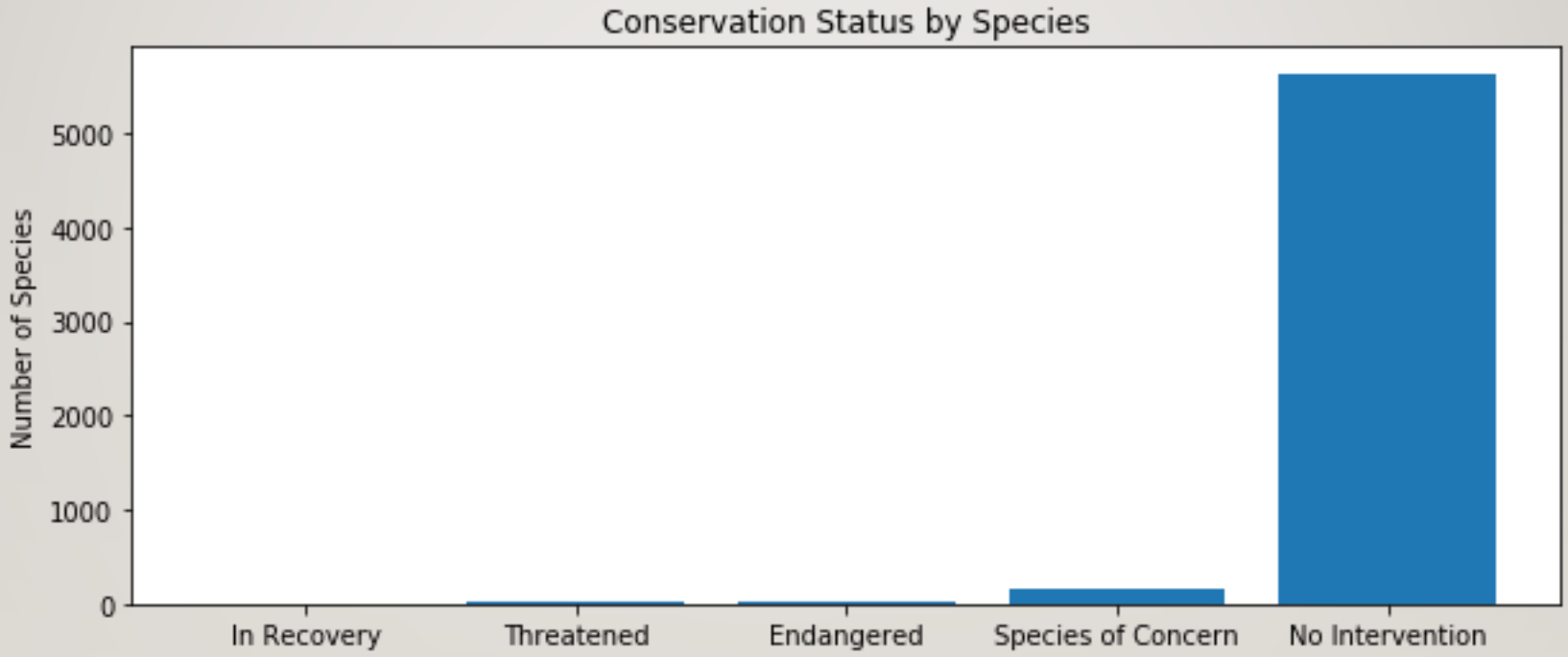
3 DESCRIPTION OF SPECIES AT NATIONAL PARK

- There are 7 different species at the National Park namely : Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant and Nonvascular Plant
- The conservation status of each of these species are either of the following :
  - Species of Concern: declining or appear 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 neither in danger of extinction throughout all or a significant portion of its range
- Out of the 5824 species at the park, only about 3.3% of them need some sort of preservation.

4 BAR CHART OF CONSERVATION STATUS BY NUMBER OF SPECIES



5 SIGNIFICANCE CALCULATIONS ABOUT ENDANGERED SPECIES

- Table below shows the categories of species at the Park with the associated number of species that require protection under each category.

S/N	CATEGORY	PROTECTION NOT REQUIRED	PROTECTION REQUIRED	% REQUIRING PROTECTION
1	Amphibian	73	7	8.750000
2	Bird	442	79	15.163148
3	Fish	116	11	8.661417
4	Mammal	176	38	17.757009
5	Non Vascular Plant	328	5	1.501502
6	Reptile	74	5	6.329114
7	Vascular Plant	4424	46	1.029083

6 SIGNIFICANCE CALCULATIONS ABOUT ENDANGERED SPECIES (CONTD)

- In above table, the mammals appears to be the most endangered specie followed by the bird.
- A significant test was performed to test the hypothesis that mammals are more likely to be endangered than birds.
- A chi square hypothesis test was selected as we have 2 categorical dataset to compare.
- In this case, our null hypothesis is that there is no significant difference between mammals and birds in terms of the specie that is more endangered.
- Our chi square test produced a p-value of 0.44 which is greater than 0.05, therefore, we accept this null hypothesis and state that there is no significant difference between Mammals and Birds in terms of the specie that is more endangered.

7 SIGNIFICANCE CALCULATIONS ABOUT ENDANGERED SPECIES (CONTD)

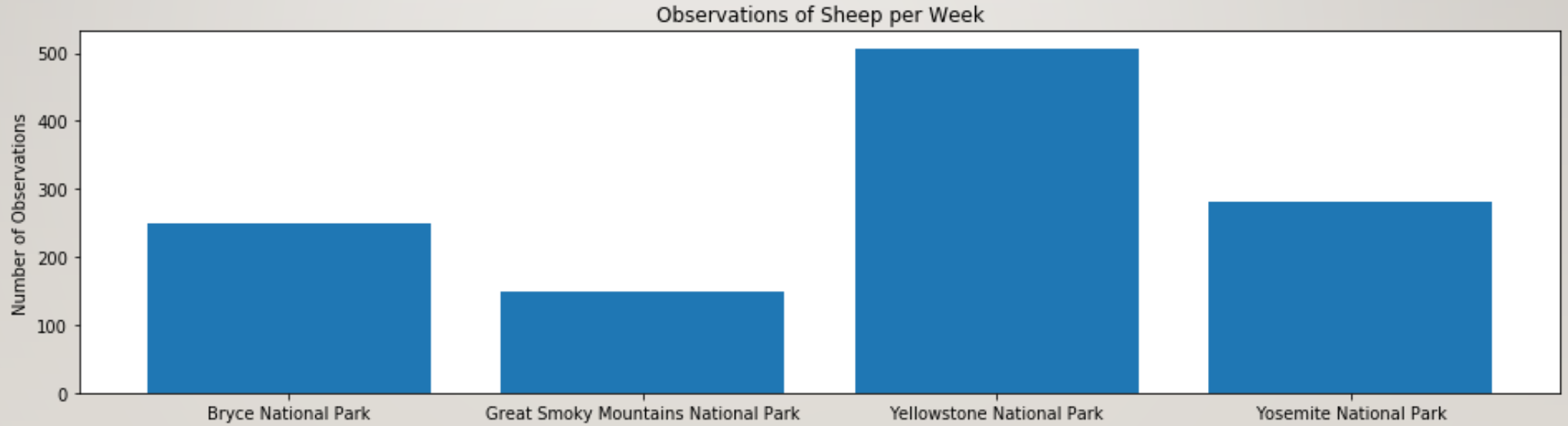
- A 2nd significant test was carried out to test the hypothesis that mammals are more likely to be endangered than reptiles.
- In this case, our null hypothesis is that there is no significant difference between mammals and reptiles in terms of the specie that is more endangered.
- Our chi square test produced a p-value of 0.02 which is less than 0.05, therefore, we reject this null hypothesis and state that there is significant difference between Mammals and Reptiles in terms of the specie that is more endangered.

8 RECOMMENDATION ABOUT ENDANGERED SPECIES

- Based on our significance calculations, Mammals and Birds are the most endangered species.
- We recommend that an action plan to prevent extinction of both species be initiated ASAP.

9 SAMPLE SIZE DETERMINATION FOR FOOT AND MOUTH DISEASE STUDY FOR SHEEP AT NATIONAL PARKS

- The graph below shows the Number of Sheep Observations at each of the 4 National Parks in the last 7 days



SAMPLE SIZE DETERMINATION FOR FOOT AND MOUTH DISEASE STUDY FOR SHEEP AT NATIONAL PARKS (CONTD)

- In order to determine the sample size necessary for this study, we must calculate the following which are inputs to our sample size calculator :
  - The Baseline conversion rate = 15%
  - The Minimum detectable effect = (5%/15%)* 100 = 33.33%
  - The Statistical significance = 90%
  - Sample size per pack = 870 sheep
- Approximately, 3.5 weeks and 2 weeks of study will be respectively required at Bryce and Yellowstone National Parks to observe enough sheep for our study.