Biodiversity for the National Parks

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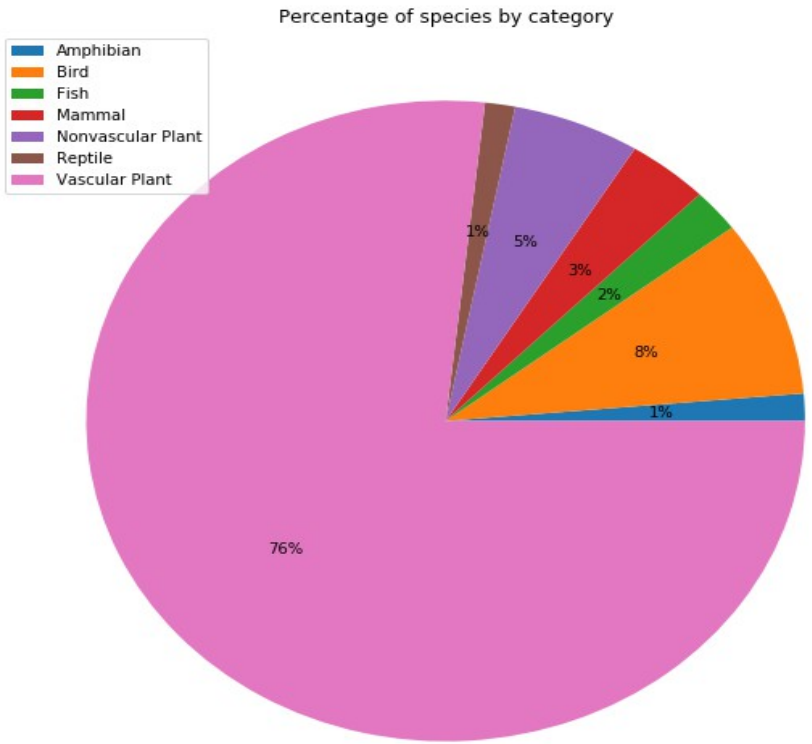
National Parks Service

Species

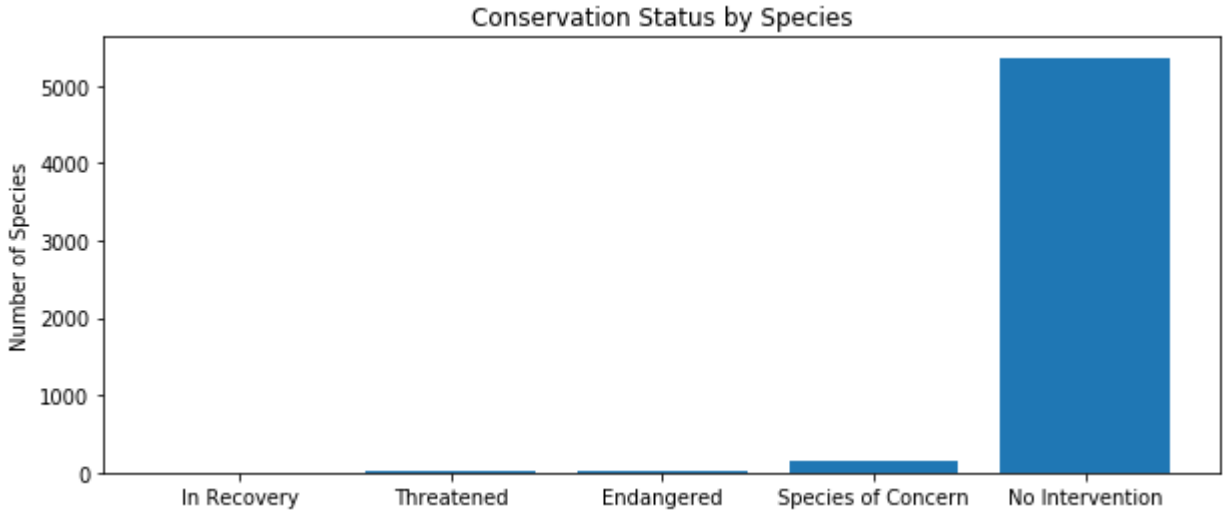
Total species studied : 5541



→ **Which are the species conservation status ?**

Conservation status

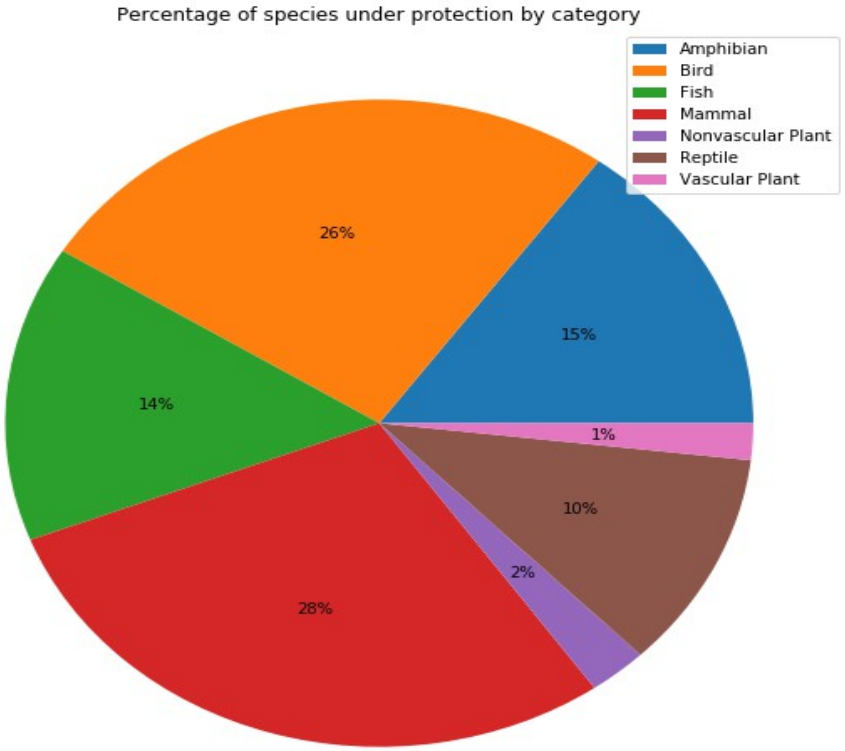
	conservation_status	scientific_name
1	In Recovery	4
4	Threatened	10
0	Endangered	15
3	Species of Concern	151
2	No Intervention	5363



→ **What are the species category the more at risk ?**

Are certain types of species more likely to be endangered?

	category	not_protected	protected	percent_protected
0	Amphibian	72	7	8.860759
1	Bird	413	75	15.368852
2	Fish	115	11	8.730159
3	Mammal	146	30	17.045455
4	Nonvascular Plant	328	5	1.501502
5	Reptile	73	5	6.410256
6	Vascular Plant	4216	46	1.079305



Mammal and birds represent 11% of the species studied but **54%** of the one protected

→ Mammal and bird are the two categories the more at risk but are they significantly more at risk than others ?

Are certain types of species more likely to be endangered?

Test chosen for the comparison : Chi2

Null hypothesis : Mammal and birds are equally endangered

P-value to reject null hypothesis : <=0,05

Mammal vs birds : p-value = 0,68

→ acceptation of the null hypethosis : mammal are not likely to be more endangered than birds

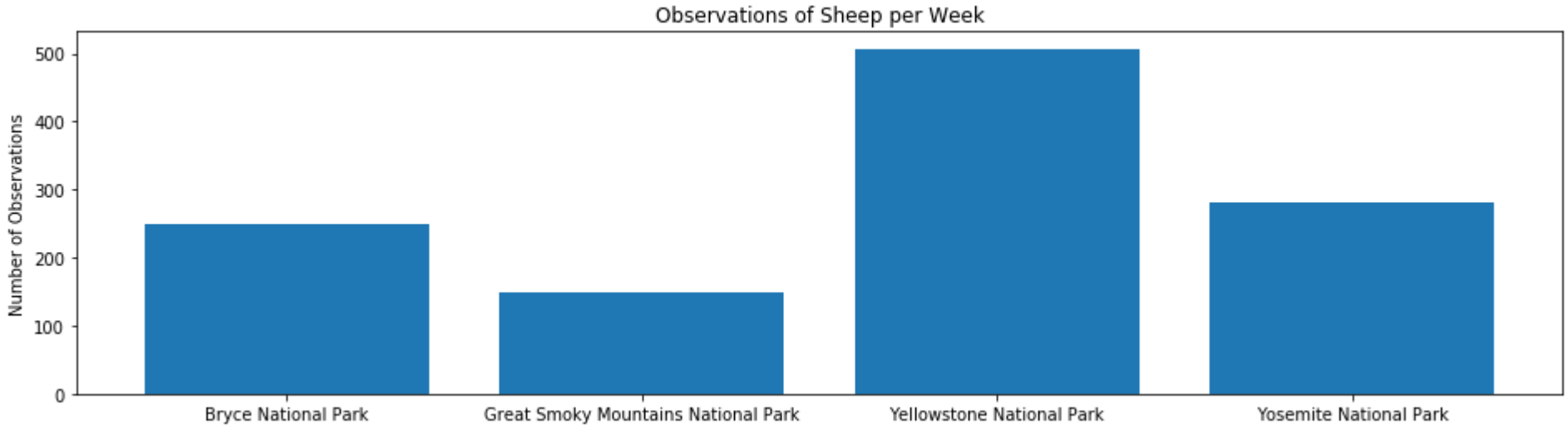
Mammal vs reptiles : p-value = 0,038

→ rejection of the null hypethosis : mammal are signigicantly more endangered than reptiles

Sheeps sightings

	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

Sheeps observation in one week for each national park



Foot and mouth disease

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

→ we want to detect a reduction of 5 percentage point after a program

A/B test parameters :

-baseline : 15%

-Minimum Detectable Effect : 33,3%

-Level of confidence : 90%

→ **Sample size : 510 sheeps**

Conclusion : The scientists should study at least 510 sheeps to be able to say is the program can decrease the disease by 5%.

→ According to the number of weekly observation that would represent **2 weeks** of study at Bryce National Park and only **1 week** at Yellowstone National Park