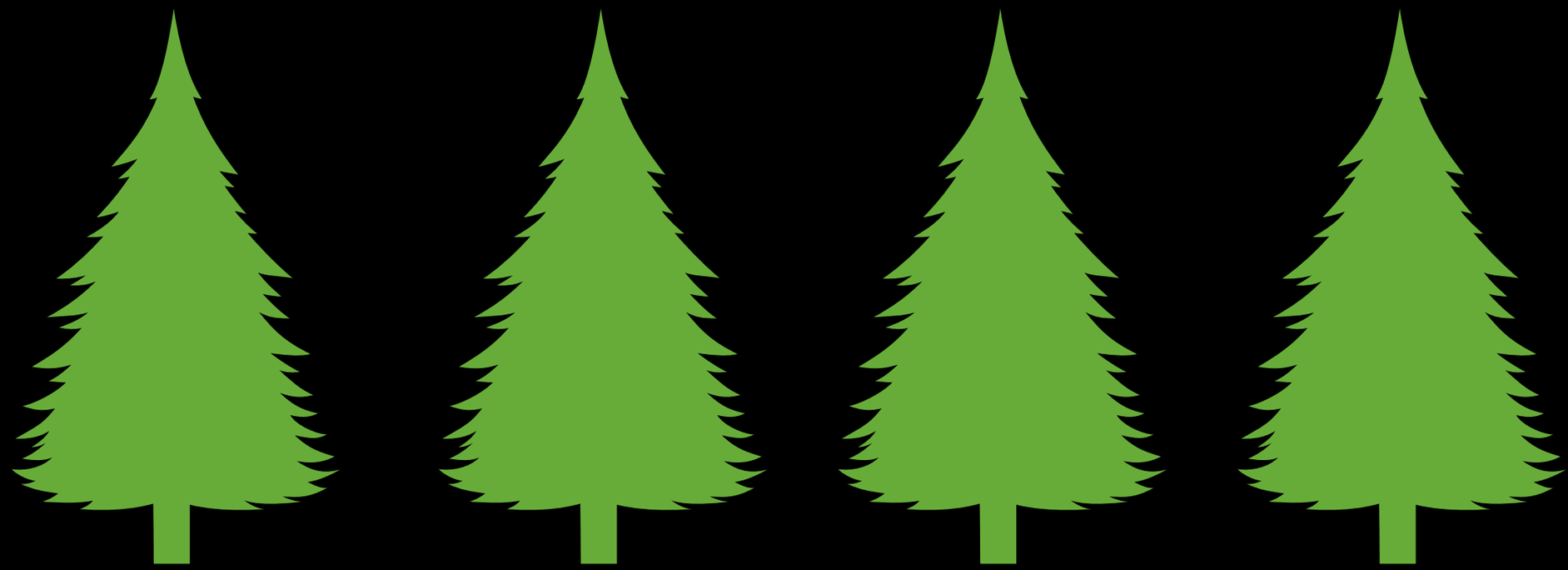
Biodiversity Analysis

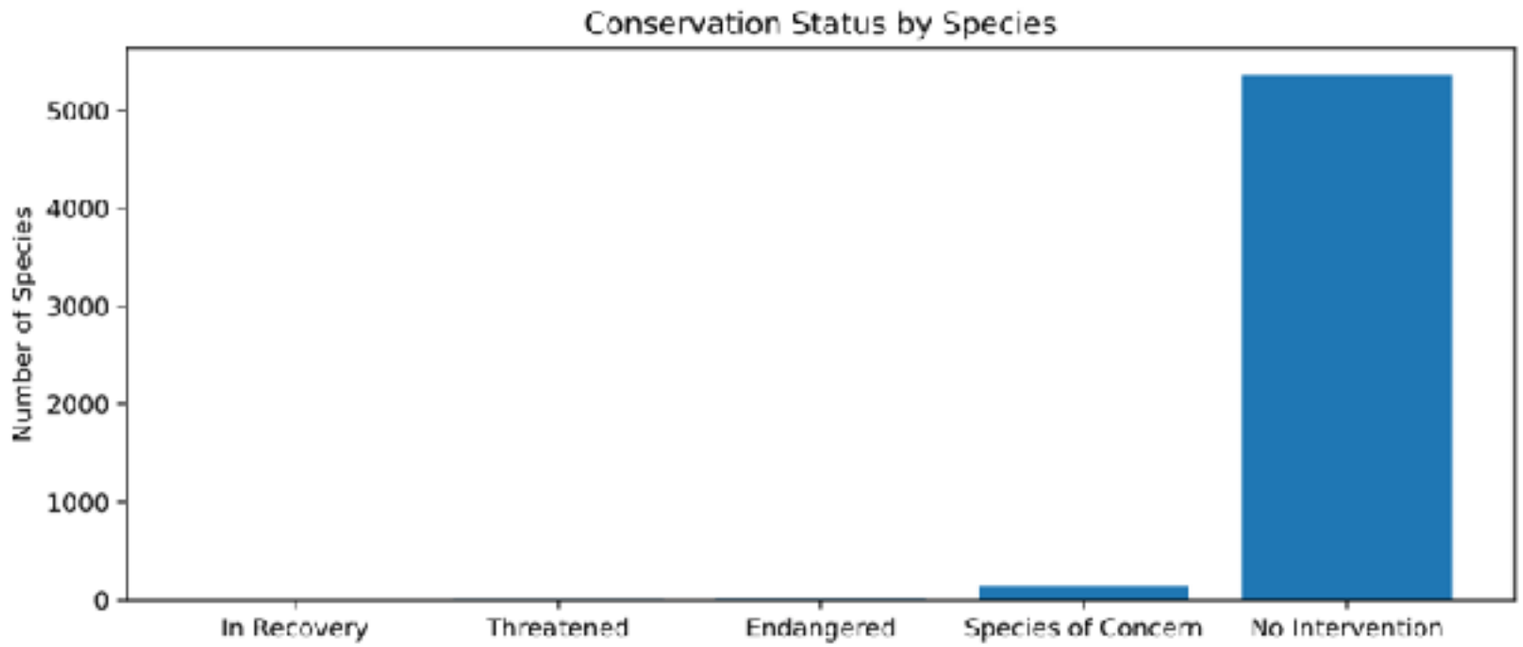
A Look Into Four National Parks



Species Snapshot

There are 5542 species contained in our National Parks. These can be categorised into Mammals(176), Birds(488), Reptiles(78), Amphibians(79), Fish(126), Vascular Plants(4262), and Nonvascular Plants(333).

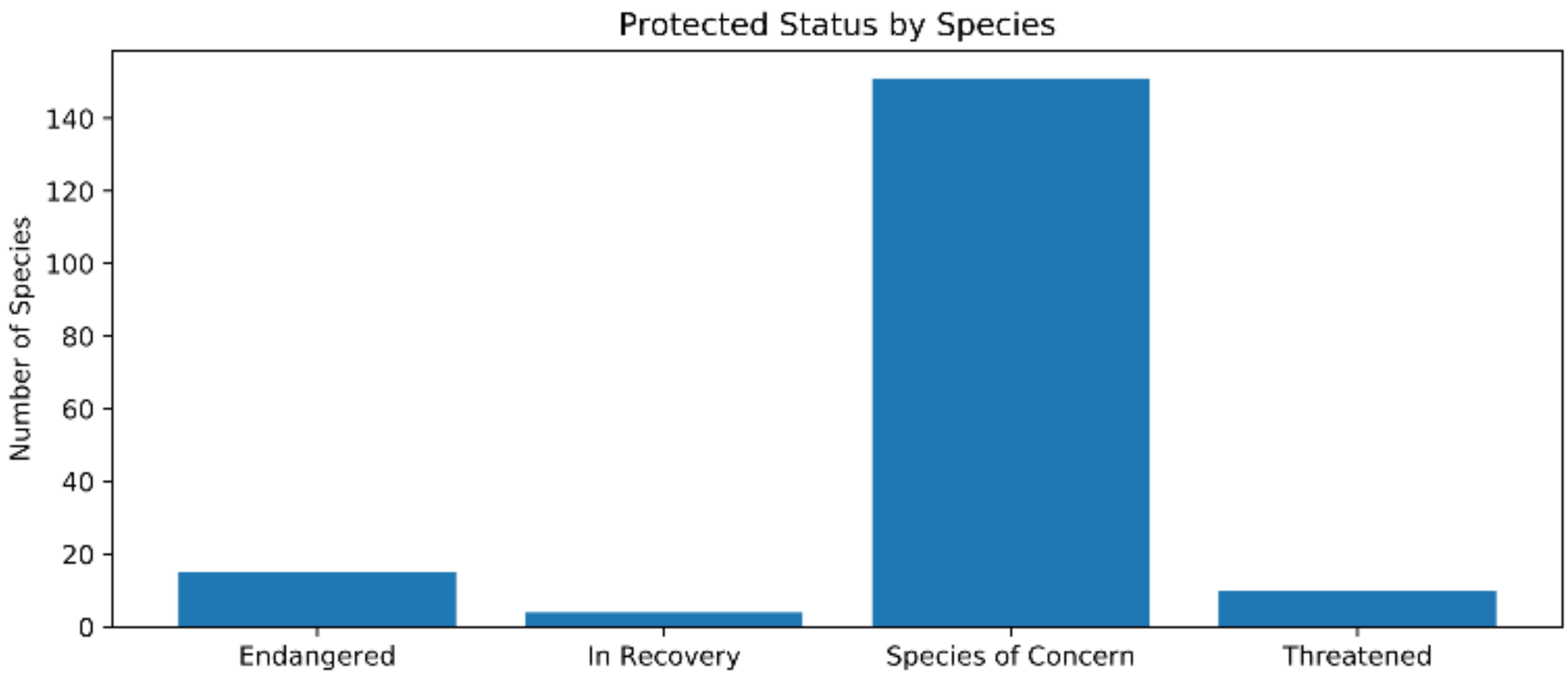
The below graph indicates the conservation status per species:



Most species in the National Parks are in no need of conservation with 5363 having no intervention status. It is also worthy to note that 4 species are now in recovery status.

It has been identified that there are still species that require monitoring with 151 species of concern, 10 species threatened to be endangered, and 15 species are endangered.

The following graph compares the number of species in protection statuses:



Investigating Endangered Species

Are certain types of species more likely to be endangered?

To answer this question we tested the null hypothesis that there is no significant difference between protected species.

Using a chi-squared test comparing protected birds and mammals, a p-value of ~0.688 resulted, this indicates that the difference between the percentages of protected birds and mammals is not significant and may be a result of chance.

When we compare protected reptiles to amphibians, a p-value of ~0.781 results, which is also not significant and supports our null hypothesis.

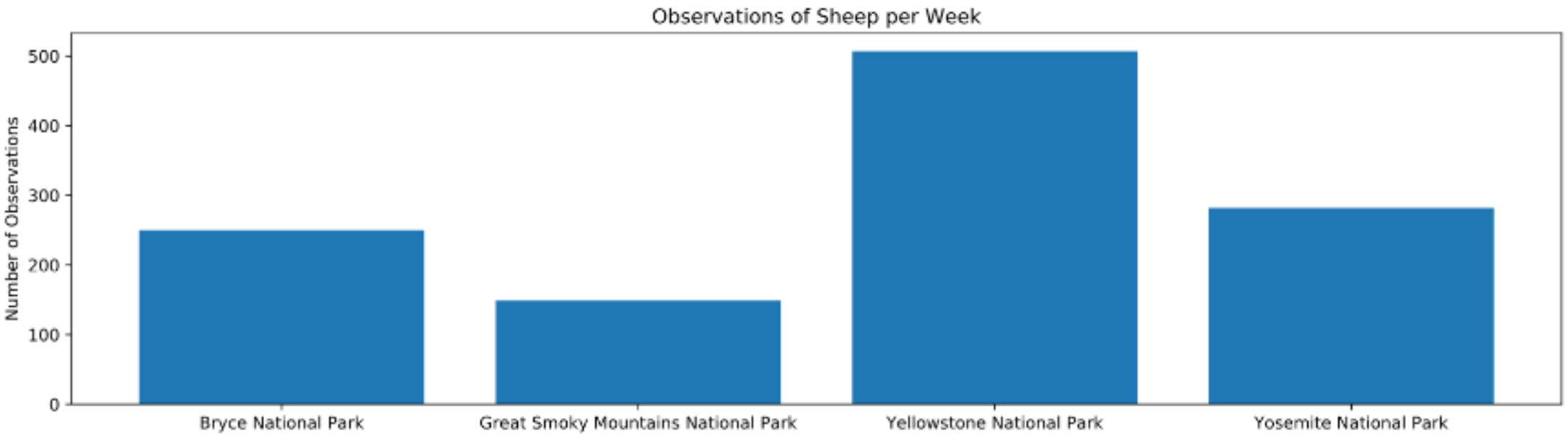
However, when the percentages of protected reptiles and mammals are compared using the same chi-squared test, a p-value of ~0.038 results, which is significant.

<u>Conclusion</u>
The null hypothesis is rejected and it can be concluded that certain types of species are more likely to be endangered than others as seen with comparing protected reptiles and mammals.

It is recommended that conservationists look to monitor mammals and birds as these species are more likely to be endangered than other species.

Foot and Mouth Reduction Efforts

Sheep sightings have been recorded over the last 7 days and the results are as follows:



Key things to note:

- Yellowstone National Park had the highest sheep sighting at 507
- Great Smoky Mountains National Park had the lowest sheep sightings at 149

Recommendations

Last year’s records show a 15% occurrence of foot and mouth disease in sheep at Bryce National Park. If we want to be sure that a >5% drop in observed cases of foot and mouth disease in the sheep at Yellowstone was significant then we would have to observe at least 870 sheep. This will take approximately 1-2 weeks of observing in Yellowstone National Park.

If this was to be replicated at Bryce National Park, then the program is recommended to be run for approximately 3-4 weeks to reach at least 870 sheep as only 250 sheep have been sighted in the last 7 days.