

# BioDiversity Capstone Analysis

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June 17, 2018

# Species\_info.csv Basic Information Part 1

- ❖ Species\_info.csv is organized by a few columns of data:
  - ❖ Category, scientific\_name, common\_names and conservation\_status
    - ❖ For the purposes of this project, we focused on category and conservation\_status
  - ❖ The category of column contains 7 endangered species types:
    - ❖ Mammal, Bird, Reptile, Amphibian, Fish, Vascular Plant and Non-Vascular Plant.

	category	scientific_name	common_names	conservation_status
0	Mammal	Clethrionomys gapperi gapperi	Gapper's Red-Backed Vole	nan
1	Mammal	Bos bison	American Bison, Bison	nan
2	Mammal	Bos taurus	Aurochs, Aurochs, Domestic Cattle (Feral), Domesticated Cattle	nan
3	Mammal	Ovis aries	Domestic Sheep, Mouflon, Red Sheep, Sheep (Feral)	nan
4	Mammal	Cervus elaphus	Wapiti Or Elk	nan

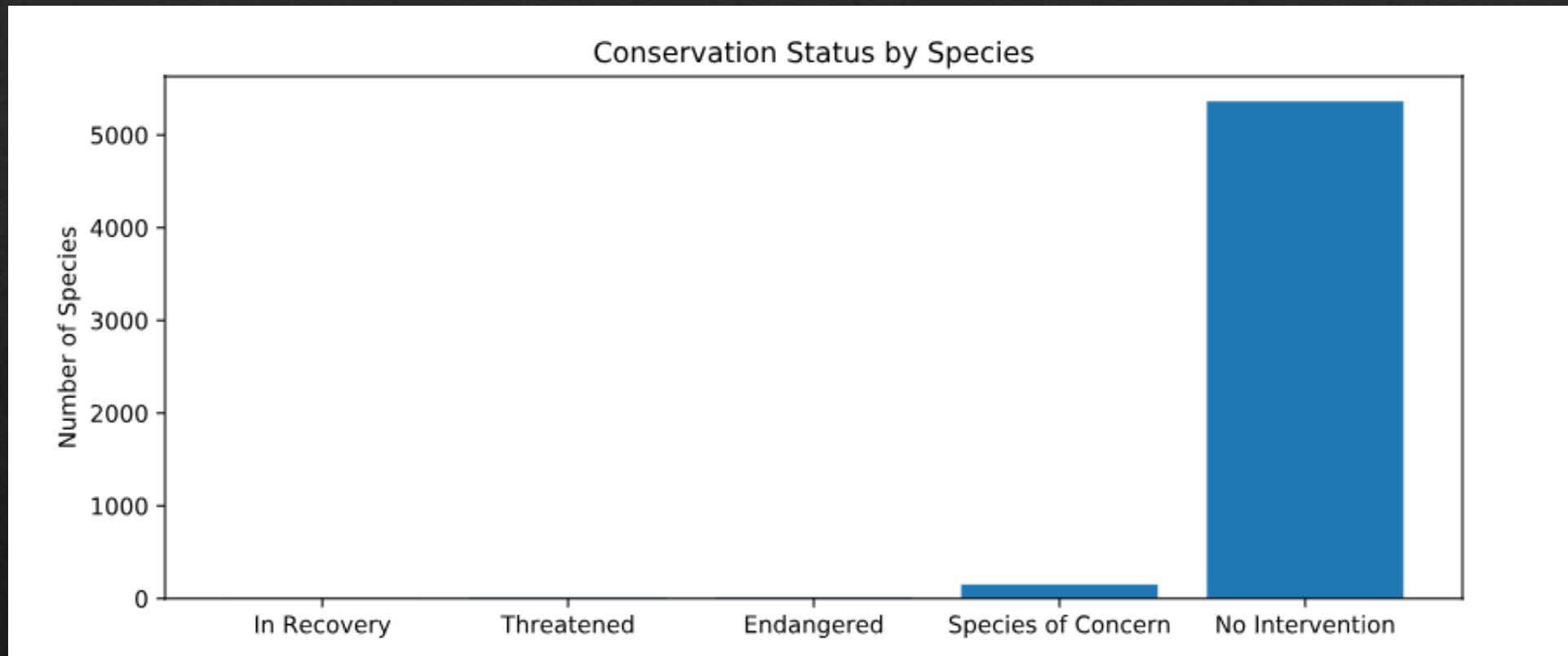
# Species\_info.csv Basic Information Part 2

- ❖ The conservation\_status column has 5 statuses:
  - ❖ Nan, Species of Concern, Endangered, Threatened and In Recovery
- ❖ Species\_info.csv contains 5541 unique species.

	conservation_status	scientific_name
0	Endangered	15
1	In Recovery	4
2	Species of Concern	151
3	Threatened	10

# Analysis of Species\_info.csv Part 1

- ❖ We changed the nan values in conservation status to No Intervention.
  - ❖ By changing the nan values, we learned that 5363 species do not require intervention at this time. We created the below bar graph to better show this data.



# Analysis of Species\_info.csv Part 2

- ❖ We created a new column called is\_protected that allowed us to find which species were currently protected and which ones were not.
- ❖ Using the is\_protected column, we wanted to find if some species were more protected than other species by calculating percentages of protected vs not protected of each species type.
  - ❖ In the course example, we compared mammals and birds vs mammals and reptiles to see if there was a significant difference in the amount of species that were protected by using a chi squared calculation.
  - ❖ Between mammals and birds, we found there wasn't a significant difference in protection.
  - ❖ However, between mammals and reptiles, we found reptiles were significantly under protected vs mammals.

# Conservation Recommendations for 2018

- ❖ We need to focus on conserving other species that are under conserved and are facing population extinction.
  - ❖ We should devote our efforts to species of concern since there are over a 100.
  - ❖ We should also focus our efforts on other species groups outside of mammals.
- ❖ We need to continue our efforts with the 15 species that are still endangered as well as focus on the 17 species are that threatened.
- ❖ We should work with Federal and state representatives to request additional funding for continued preservation efforts in 2019 and beyond.
- ❖ We should continue working with schools and community groups to educate the public regarding how these species are endangered and how they can help efforts to protect them.

# Observations.csv Basic Information

- ❖ The observations.csv is comprised of observations of different animal species in our national parks.
- ❖ We used this file to find observations of sheep by national parks per a week and created the below bar chart.



# Foot And Mouth Disease Reduction

- ❖ Observations of Sheep per Week Bar Chart, we examined how to best reduce Foot and Mouth disease amongst the sheep population in our national parks.
- ❖ In 2017, 15% of our sheep population at Bryce National Park were infected with Foot and Mouth disease.
  - ❖ If we want to reduce the infection rate by 5% in 2018, we need to continue observing the sheep in our parks.
  - ❖ We used the information regarding sheep observed in our national parks to calculate how many weeks of observation we would have to perform to get a significant population size for our Foot and Mouth disease calculations.
    - ❖ Yellowstone National Park – We would need to spend about 1.71 weeks observation.
    - ❖ Bryce National Park – We would need to spend 3.48 weeks of observation.