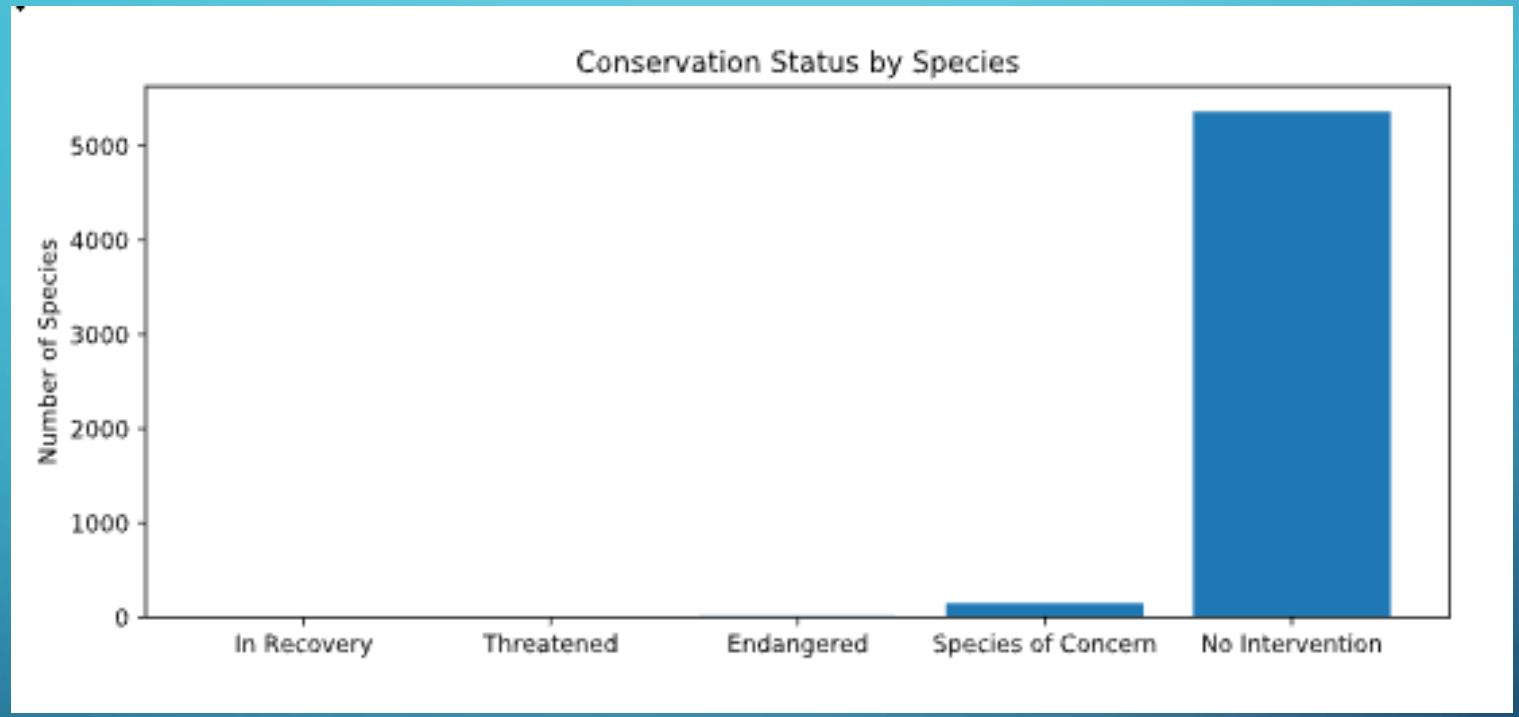
BIODIVERSITY

A LOOK INTO SPECIES CONSERVATION AND DISEASE

CONSERVATION DATA

Out of 5,543 recorded species:

- 2.72% are species of concern
  - declining population or appears to be in need of conservation
- 0.2% are threatened
  - vulnerable to endangerment in the near future
- 0.3% are endangered
  - seriously at risk of extinction
- 0.07% are in stages of recovery
  - formerly Endangered, but currently not in danger of extinction throughout all or a significant portion of its inhabitable range


Conservation Status by Species
Number of Species
5000
4000
3000
2000
1000
0
In Recovery
Threatened
Endangered
Species of Concern
No Intervention

ENDANGERMENT BY SPECIES

- 30 of 146 Mammals (17.05%)
- 75 of 413 Birds (15.37%)
- 7 of 72 Amphibians (8.86%)
- 11 of 115 Fish (8.73%)
- 5 of 73 Reptiles (6.41%)
- 5 of 328 Nonvascular Plants (1.50%)
- 46 of 4,216 Vascular Plants (1.08%)

INITIAL CONCLUSIONS

- Animals are more endangered than plants
- While a larger percentage of Mammals are endangered, Birds are the most at-risk
- Despite the numbers, are the differences significant or possibly due to chance?

CHI SQUARE TEST

- Is there really a significant difference between species endangerment?
- If the p-value is greater than 0.05, there is no significant difference and any difference shown is due to chance (null hypothesis)
- If the p-value is less than 0.05, there is a significant difference

RESULTS

- Mammal-Bird comparison
  - P-value = 0.0688
  - Conclusion: No significant difference
- Mammal-Reptile comparison
  - P-value = 0.0384
  - Conclusion: There is a significant difference!
- Overall Conclusion
  - Certain types of species are more likely to be endangered than others
  - If resources are limited, conservationists should focus their efforts on Mammals and Birds as they are the most likely to be endangered!

FOOT AND MOUTH DISEASE REDUCTION

- Testing is being conducted in Yellowstone National Park, and being duplicated in Bryce National Park
- Testing last year resulted in 15% of sheep being afflicted by Foot and Mouth disease at Bryce National Park
  - Minimum of 5% shift required to detect significant results

FOOT AND MOUTH DISEASE TESTING METHODOLOGY

- 15% baseline conversion
  - This is the baseline observed in last year's testing of Bryce National Park
- 90% statistical significance
  - Default level
- 33.33% minimum detectable effect
  - In order to test for 5% change, 15% baseline conversion needs to show an increase or decrease by this amount

FOOT AND MOUTH DISEASE TESTING REQUIREMENTS

- Based on the methodology:
  - 870 samples need to be observed
    - 507 sheep have been sighted at Yellowstone a week
      - 1.72 weeks of observation required to see 870 samples
    - 250 sheep have been sighted at Bryce a week
      - 3.48 weeks of observation required to see 870 samples