Biodiversity in National Parks

Roadmap

1. Introduction

2. Endangered status of different species

3. Foot and mouth disease study

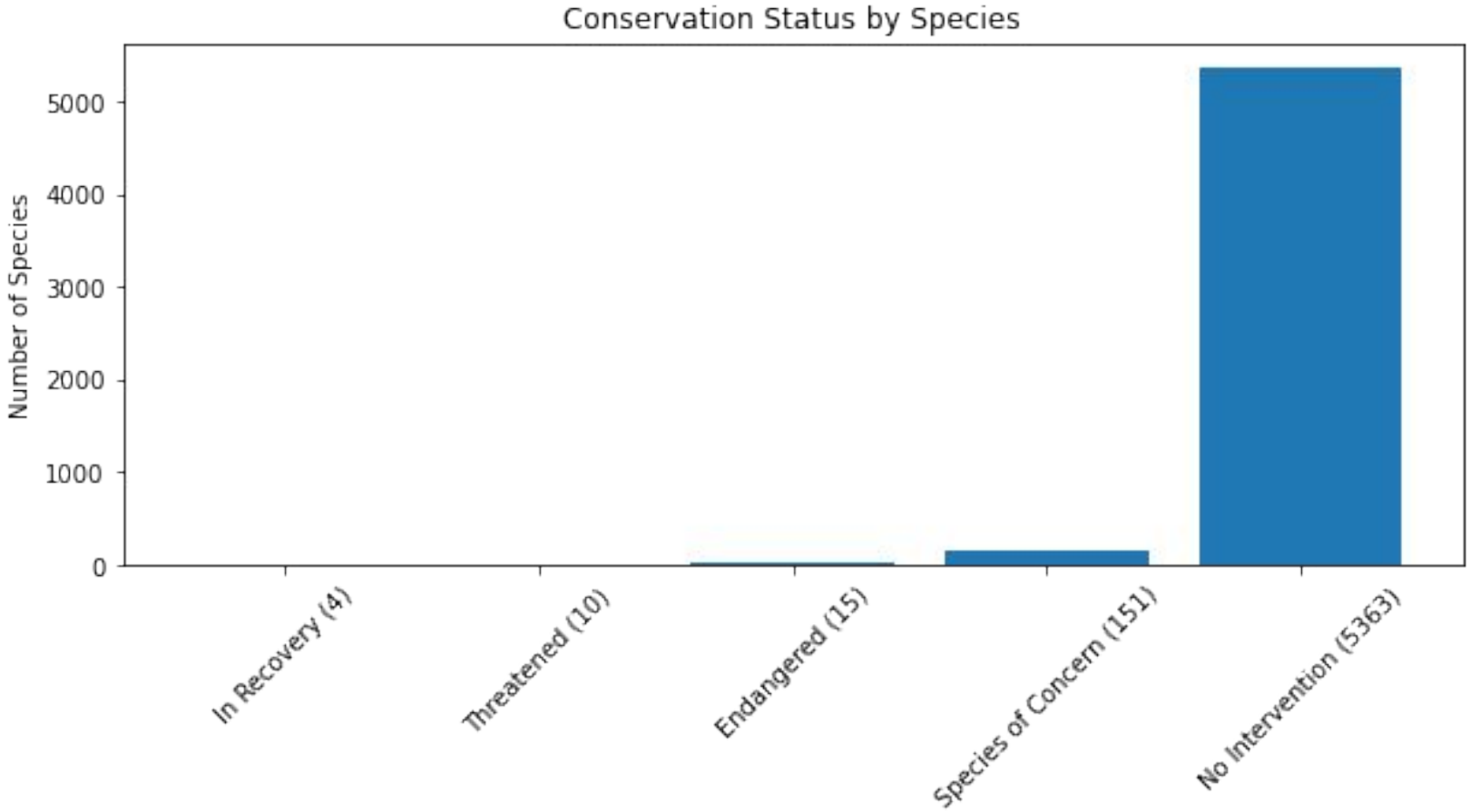
4. Conclusions (recommendations for conservationists)

Introduction

5541 different species

- **7** categories
  - Mammal
  - Bird
  - Reptile
  - Amphibian
  - Fish
  - Vascular plant
  - Nonvascular plant
- **5** types of conservation status
  - Species of concern
  - Threatened
  - Endangered
  - In recovery
  - No intervention

Introduction



Endangered status of different species

category	not_protected	protected	percent_protected
Amphibian	72	7	0.088608
Bird	413	75	0.153689
Fish	115	11	0.087302
Mammal	146	30	0.170455
Nonvascular Plant	328	5	0.015015
Reptile	73	5	0.064103
Vascular Plant	4216	46	0.010793

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Chi squared test

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Chi squared test

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P-value: ~ 0.69

Not significant !

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Chi squared test

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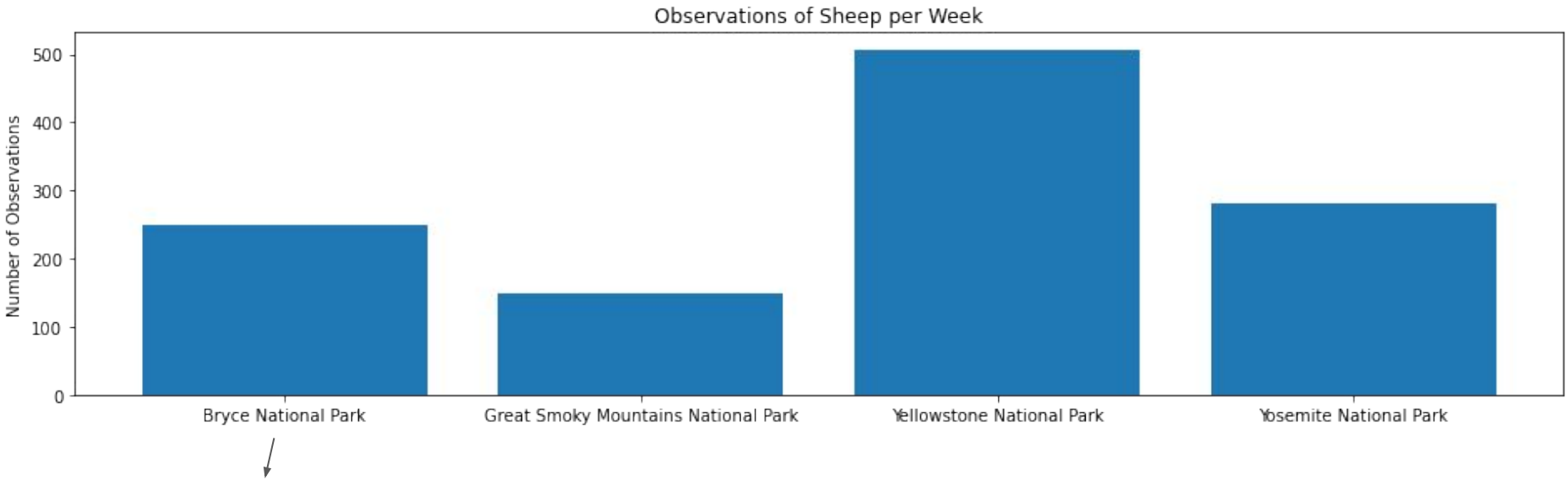
P-value: ~ 0.038

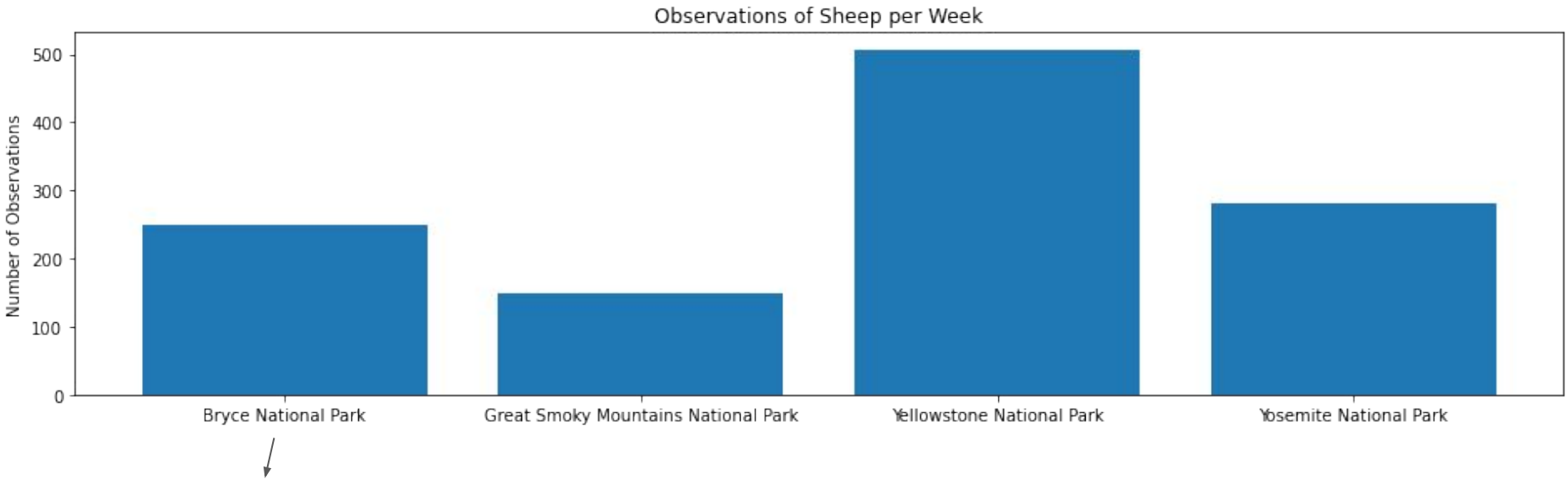
Significant !

Foot and mouth disease study



15 %
have foot and mouth disease

Foot and mouth disease study



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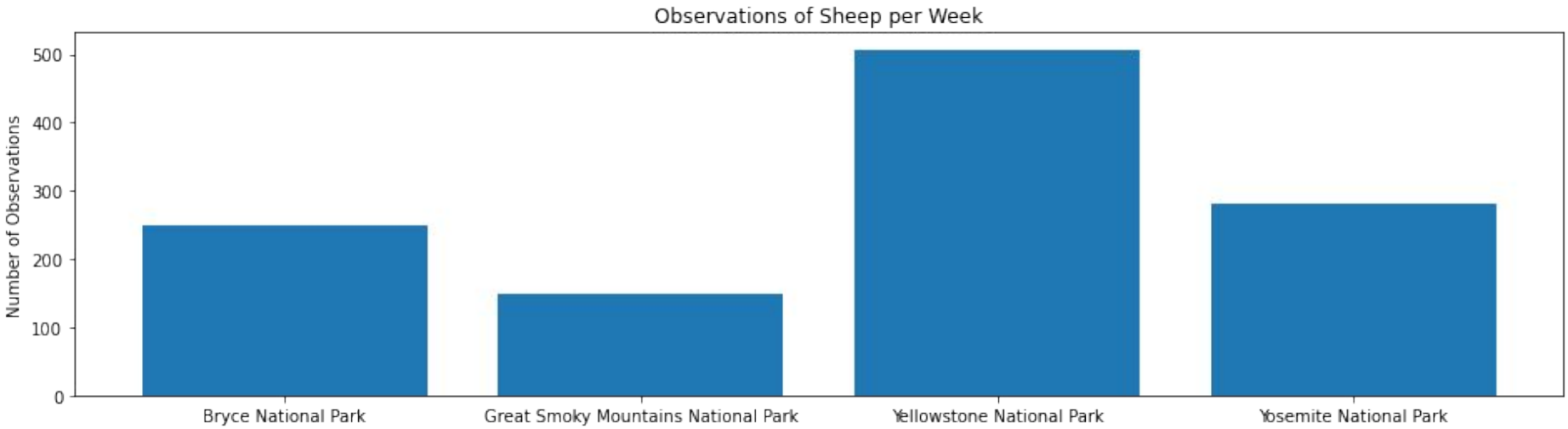
have foot and mouth disease

Program to reduce foot and mouth disease:

Is it working?

➔ detect reductions of at least 5 percentage points

Foot and mouth disease study



15 %
have foot and mouth disease

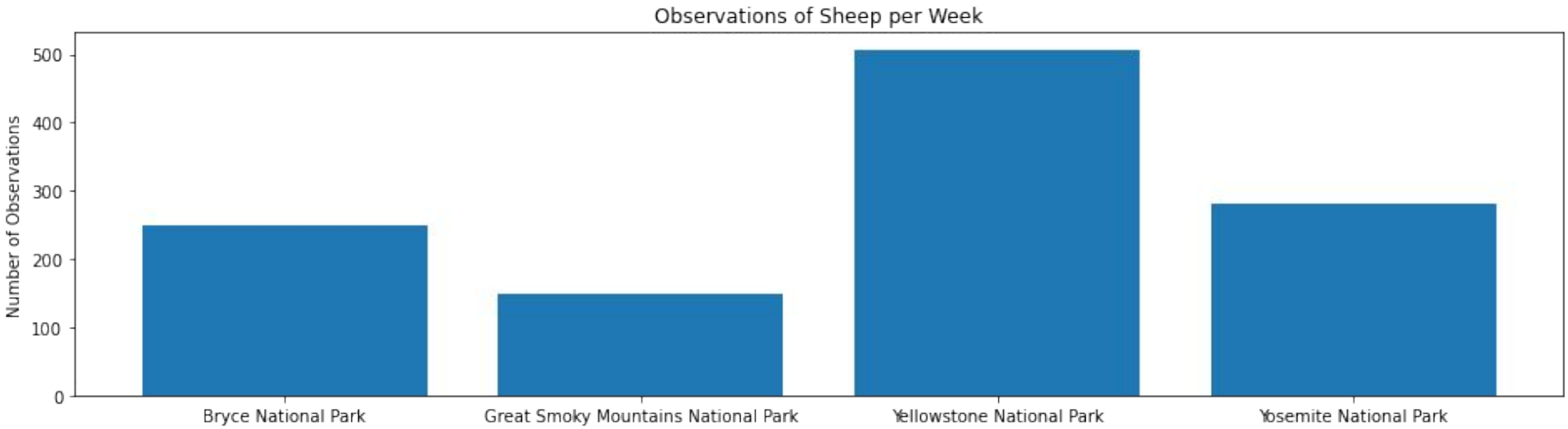
Calculation of the number of sheep that we would need to observe from each park (using a significance level of 90 %):

➔ "Minimum Detectable Effect" is a percent of the baseline.

The "Minimum Detectable Effect" for Bryce is: (100 x 0.05) / 0.15 ~ 33

The "Minimum Detectable Effect" for Yellowstone is: (100 x 0.05) / 0.10 = 50

Foot and mouth disease study



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Calculation of the number of sheep that we would need to observe from each park (using a significance level of 90 %):

➔ "Minimum Detectable Effect" is a percent of the baseline.

The "Minimum Detectable Effect" for Bryce is: (100 x 0.05) / 0.15 ~ 33 % ⇨ 2 weeks

The "Minimum Detectable Effect" for Yellowstone is: (100 x 0.05) / 0.10 = 50 % ⇨ 3.5 weeks

Conclusions

1. Some species are more likely to be endangered.
   Therefore we recommend conservationists to follow the scheme below:

   ➔ Mammal and Bird are the most endangered categories, they require **maximum attention.**

   ➔ Fish, Amphibian and Reptile require **intermediate attention.**

   ➔ Vascular Plant and Nonvascular Plant require **minimal attention.**

2. To analyse the results of the foot and mouth disease program sheep should be observed for 2 weeks in the Yellowstone National Park and for 3.5 weeks in the Bryce National Park.