Conservation

&

Observation

At

The National Parks

By

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Presentation Breakdown

- Species in the park
  - A ‘safari’ into the data
  - Species conservation status
- Making **Observations**
  - Counting Sheep
  - Detecting a Reduction in Foot and Mouth Disease

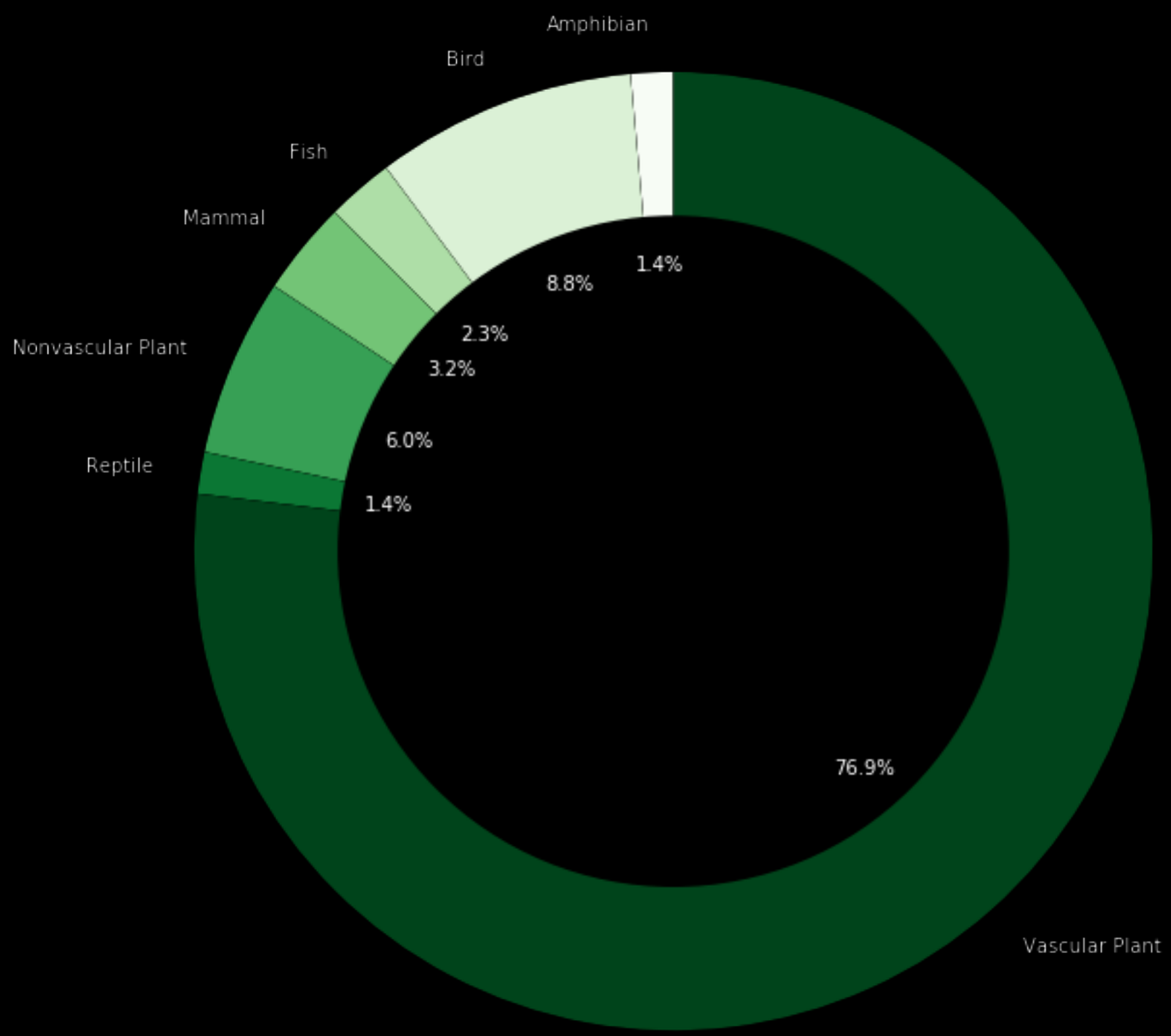
Species in the park

A safari into the data

- **5541** unique species in the parks
- **7** unique species categories

So how do they break down…

Species by Categories



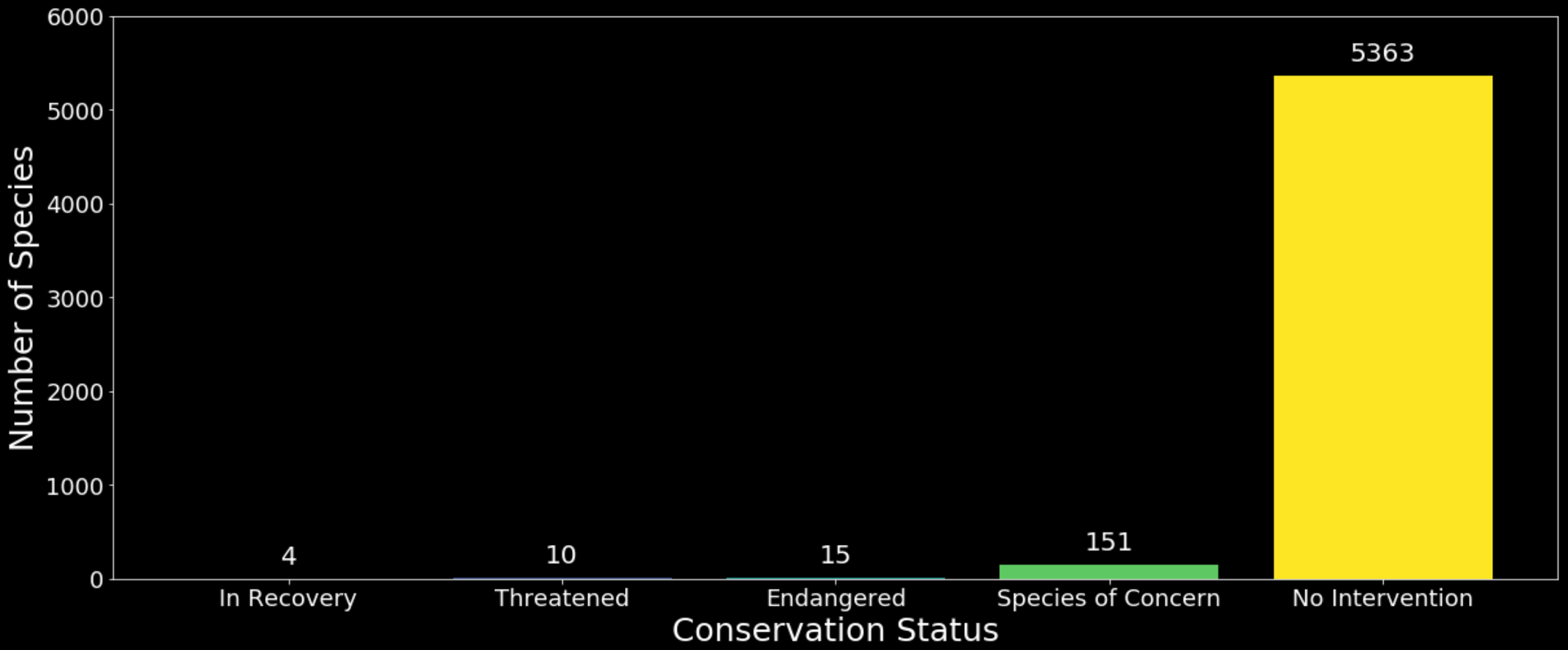
Species in the park

Species conservation status

- **5** conservation categories:
  - Endangered
  - Species of Concern
  - No Intervention
  - Threatened
  - In Recovery

So how do they break down…

Species by Conservation Status

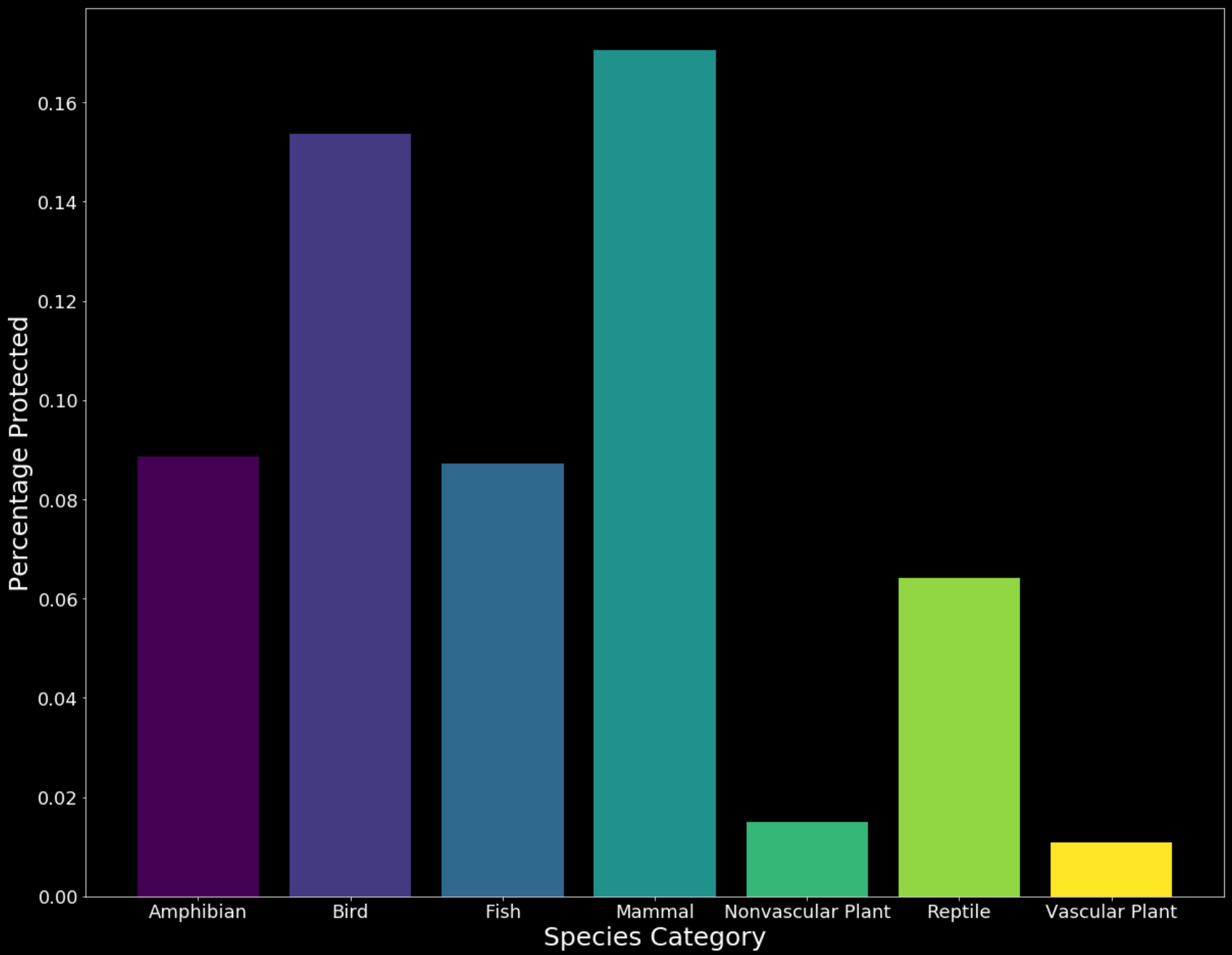


Species in the park

Species conservation status

- **96.4%** of all species require no intervention
- Of the **3.6%** that do, are some species categories more likely to be Protected than others?

Species Protected Percentage by Species Category



Species in the park

Species conservation status

- It looks as if **Mammals** and **Birds** have the highest percentage of protected species
- A chi2 test revealed there were no statistically significant differences between these two categories.
- Significant differences are present between other categories however (e.g mammals and reptiles)

Species in the park

Conclusions

- **5541 unique species -** Our parks are extremely diverse!
- **3.6% are endangered -** Some species need protection!
  - **Mammals** and **Birds** - These species categories are especially vulnerable.

Whilst most species are presently doing well, conservation efforts should focus on the reasons why certain species categories are more endangered than others.

Making Observations

Counting Sheep

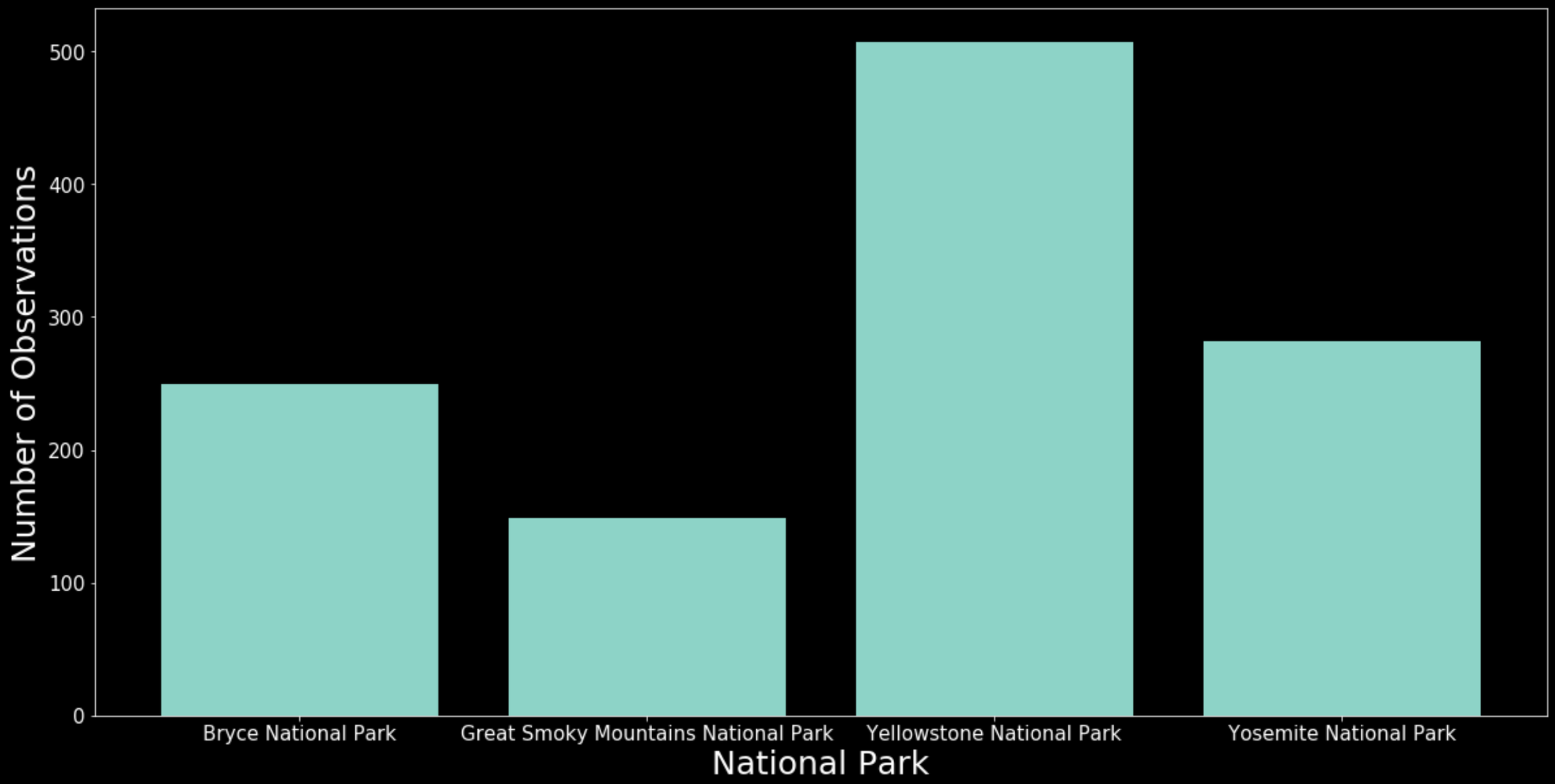
- **4 National Parks**

  Bryce *Great Smoky Mountains*
  Yellowstone *Yosemite*

- **3 Types of Sheep**

  Ovis aries *Ovis Canadensis*
  Ovis Canadensis Sierrae

Sheep Observed at each National Park



Making Observations

Detecting a Reduction in Foot and Mouth Disease

- **Yellowstone National Park** had the most sheep sightings.
- At this park rangers have been running a programme to reduce the rates of **foot and mouth disease**.
- They wanted to know whether they were observing enough sheep to able to detect a 5% reduction in disease rate.

Making Observations

Detecting a Reduction in Foot and Mouth Disease

- We performed a power calculation by taking the baseline rate of foot and mouth disease (15%) and using it to calculate the **minimum detectable effect** (100*5./15 = **33.33**).

- By entering this into the magic power calculator we found that we'd need a **sample size of 807** to detect this effect.

- Given that rangers were observing 250 sheep per week, this means that rangers need **1.7 weeks** of observation to get the required sample size.

Thank you for reading