

Protect them

When they leave – it's forever.

The dataset

We'll present the data analysis from the conservation status of different species and categories with data from the National Park Service.

With Python, Pandas, Matplot and Chi-Squared test we'll understand this information presented as .csv including:

- The category of each specie
- The scientific name of each species
- The common names of each species
- The species conservation status

Inspired on real data.

SitRep

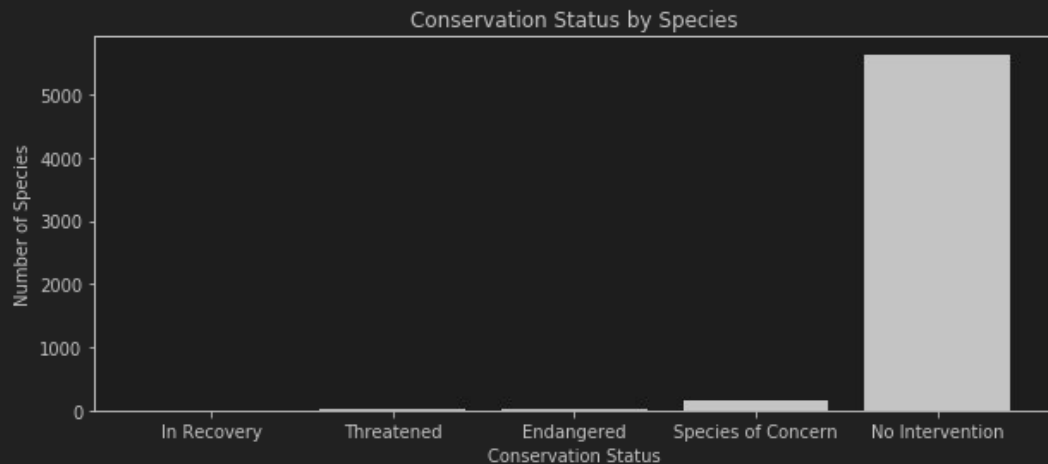
For every **1** specie in **recovery**:

There are **2.5 Threatened**

About **4 Endangered**

More than **37** Species of concern

... and over **1340** without intervention.



Some don't need intervention...

Cold blooded

Reptiles need care too.



Some of the species in most danger belong to category you are not even thinking about.

Protection by category

	Category	Unprotected	Protected	Protection ratio
0	Amphibian	72	7	0.088608
1	Bird	413	75	0.153689
2	Fish	115	11	0.087302
3	Mammal	146	30	0.170455
4	Nonvascular plant	328	5	0.015015
5	Reptile	73	5	0.064103
6	Vascular Plant	4216	46	0.010793

Mammals & birds

Mammals is the category more protected, by 17%.

Followed by birds with 15% making the categories more protected.

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Mammals & birds

The 2% difference seems irrelevant as a Chi-Squared test show:

Value $P \approx 0.6875 > 0.05$



90%

Bird's protection compared to mammals protection.

30%

Is as much protection reptile get compared to mammals.

Reptile's protection

A Chi-Squared test will reveal that difference of intervened species between reptile and mammal is not only enormous but also significant.

It's one of the most meaningful differences between the groups.

Value $P \approx 0.0383 < 0.05$



Suggestions

Taking care of endangered
species.

Prioritize the need for protection.

Look for strategies and
collaboration between parks.

Conscientization with seasonal
hunters.

Optimization of protection spaces

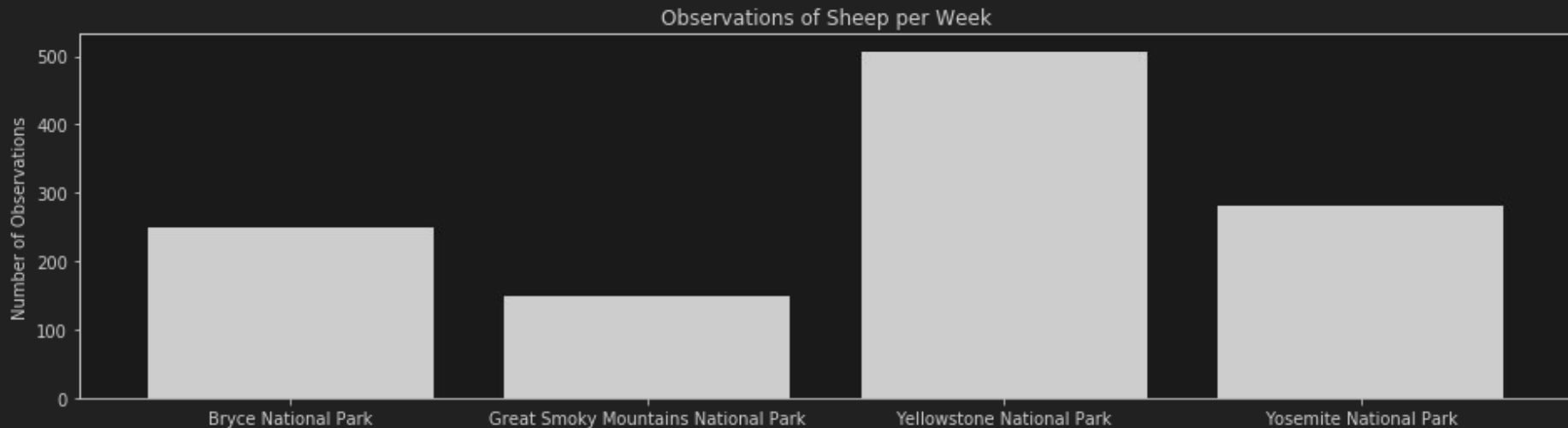
Sheeps: Feet and mouth disease

From the 1188 sheep's observations at our 4 National Parks.

15%

Have food and mouth disease.

Sheep's observations per week by park



Working program

Park rangers at Yellowstone N.P. started running a program to reduce the rate of foot and mouth disease.

Reduction of 5 percentage points is detectable goal.

Calculate the duration of the test:

Total sheep	870
Sheep with disease	15% –baseline
Reduction points	5%

Then: Sample = 870 observations

Duration

Bryce	3 weeks, 4 days
$= 870 / 250 = 3.48 \text{ weeks}$	

Yellowstone	1 week, 5 days
$= 810 / 507 = 1.59 \text{ weeks}$	

33.3% minimum detectable effect