

Biodiversity for the National Parks

Conservation Status

Surveying Conservation Status

- We begin with a list of 5,543 species along with their conservation status:
 - **Endangered:** seriously at risk of extinction
 - **Threatened:** vulnerable to endangerment in the near future
 - **Species of Concern:** declining population or appears to be in need of conservation
 - **In Recovery:** formerly endangered, but currently no longer in danger of extinction throughout all or a significant portion of its inhabitable range
 - **No Intervention**

Conservation Status	Number of Species	%
Endangered	15	0.27
Threatened	10	0.18
Species of Concern	151	2.72
In Recovery	4	0.07
No Intervention	5,363	96.75

Species Categories

Surveying Conservation Status

- By pivoting across categories, we can gain more insight
- Conservation status differs across specie categories

	Not Protected	Protected	% Protected
Amphibian	72	7	8.86
Bird	413	75	15.37
Fish	115	11	8.73
Mammal	146	30	17.05
Reptile	73	5	6.41
Nonvascular Plant	328	5	1.50
Vascular Plant	4216	46	1.08

Is there a difference between categories?

- Running a Chi-Squared Test shows significant differences in conservation status between some categories
- The most pronounced is between plants and animals
- There also does not seem to be a significant relationship between reptiles and birds/mammals

P Values	Amphibian	Bird	Fish	Mammal	Reptile	Nonvascular Plant	Vascular Plant
Amphibian							
Bird	0.176						
Fish	0.017	0.077					
Mammal	0.128	0.688	0.056				
Reptile	0.781	0.046	0.741	0.038			
Nonvascular Plant	0.002	0.000	0.000	0.00	0.034		
Vascular Plant	0.000	0.000	0.000	0.00	0.000	0.662	

Recomendation

Observations

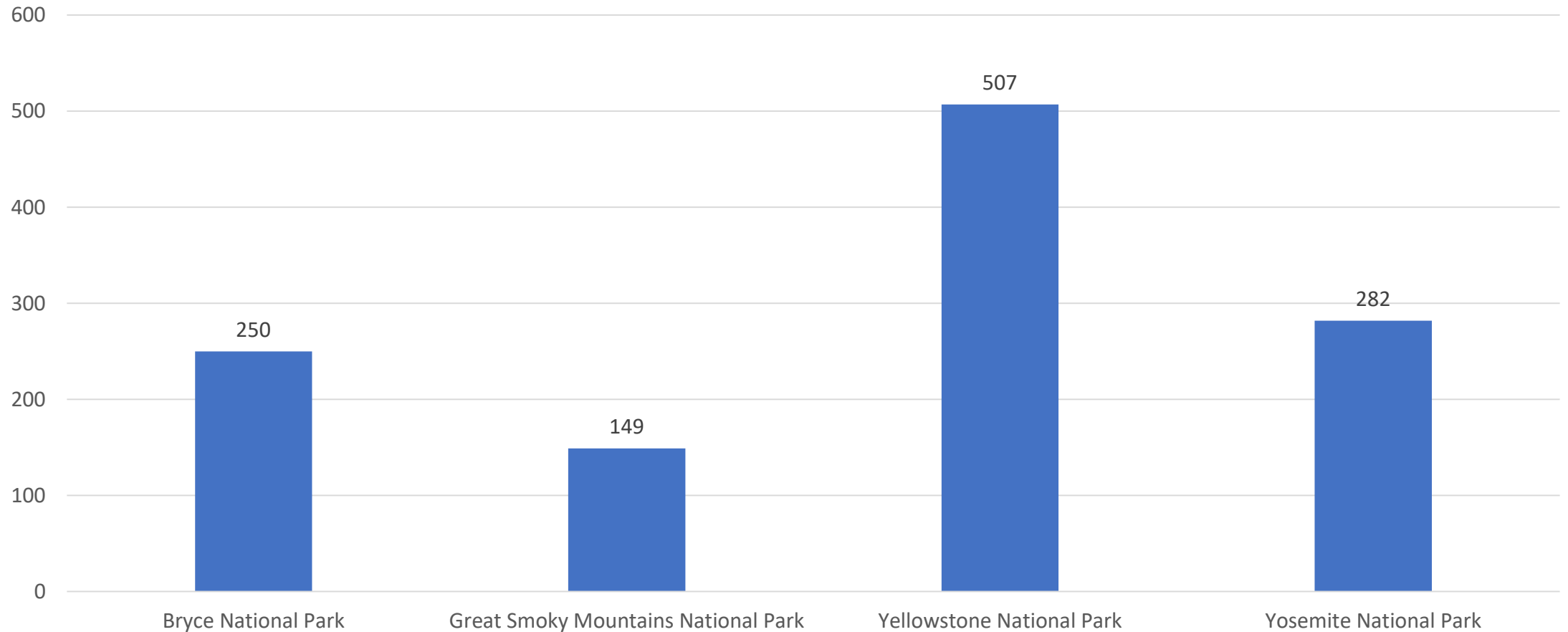
- Mammals and birds exhibit no significant differences in conservation status
- Mammals and birds cover 59% of protected species
- Vascular and Nonvascular Plants exhibit no significant differences in conservation status
- Vascular and Nonvascular Plants cover 28% of protected species
- Amphibians and Reptiles exhibit no significant differences in conservation status
- Amphibians and Reptiles cover 7% of protected species

Plan of Action

1. Focus conservation efforts on actions generally beneficial to mammal and bird habitats
2. Follow this up with efforts to protect plant habitats
3. Then focus on amphibian and reptile habitats
4. Finally, expend effort on protected fish species

Foot and Mouth Disease

Observations of Sheep per Week Across Various National Parks



Foot and Mouth Reduction Effort

Determining the right sample size

- Last year it was recorded that 15% of sheep at Bryce national Park have foot and mouth disease
- We want to be able to determine reductions of at least 5%
- The minimum detectable effect is therefore 5%/15%
- Using 15% as our baseline and the minimum detectable effect, we are able to determine a necessary sample size of 870 across each park to observe potential reduction in the prevalence of foot and mouth disease with 90% confidence.