Biodiversity in National Parks

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Introduction to this Project

The United States has 62 National Parks. Data on 56 of these parks has been provided by the National Park Service. Because of the varying geography of the U.S., the parks vary greatly in terms of their biodiversity. Biodiversity refers to the variety and variability of species in an ecosystem. Biodiversity is important for maintaining healthy ecosystems.

In this project, we will ????

Number of Unique Species by Latitude

The U.S. National Parks are home to a variety of different species of mammals, birds, reptiles, fish, plants and other types of organisms. Since these parks are located all over the U.S. the parks will vary in terms of what species and how many they are home to.

If we consider the number of unique species for different ranges of latitude, we can see how many species live in each range of latitude.

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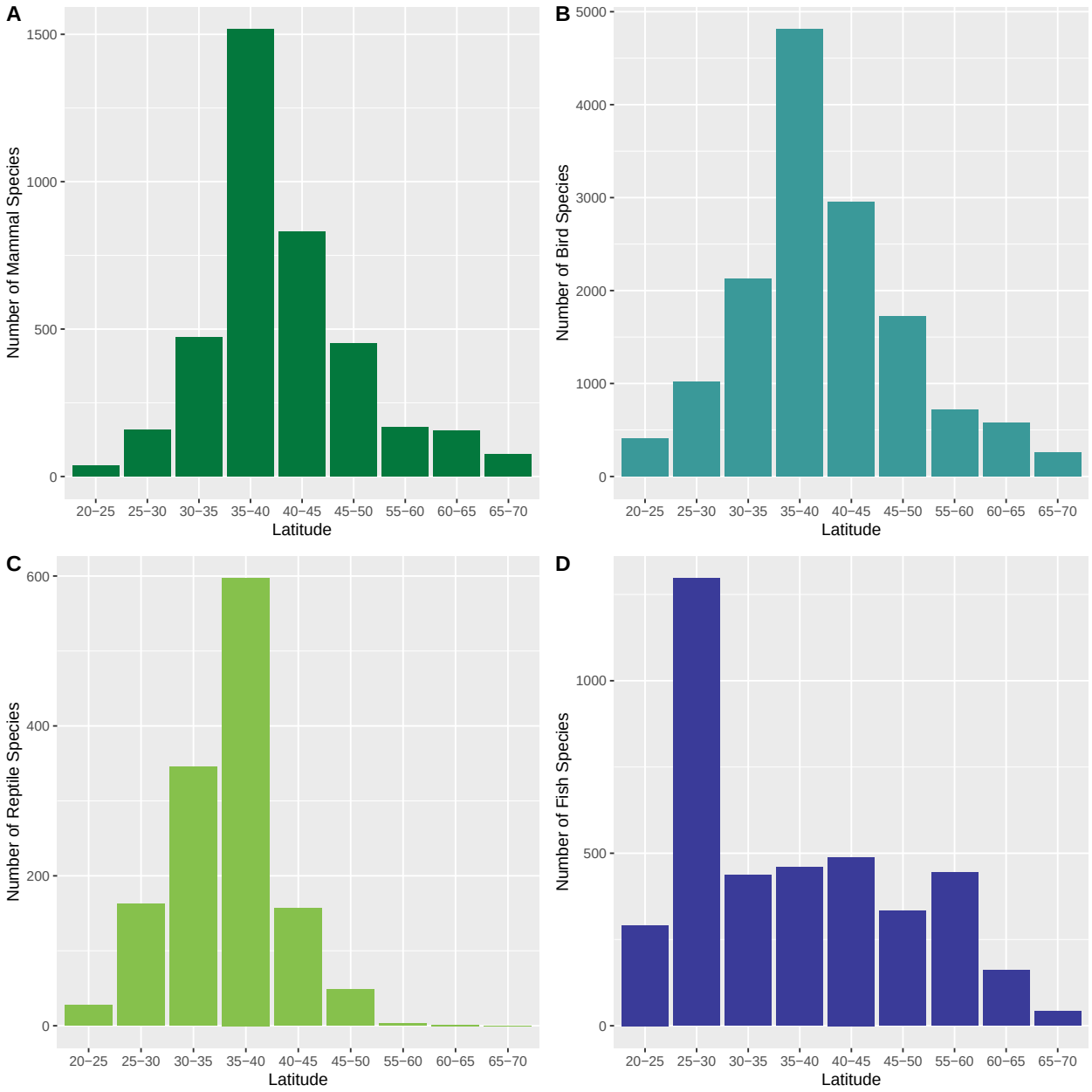
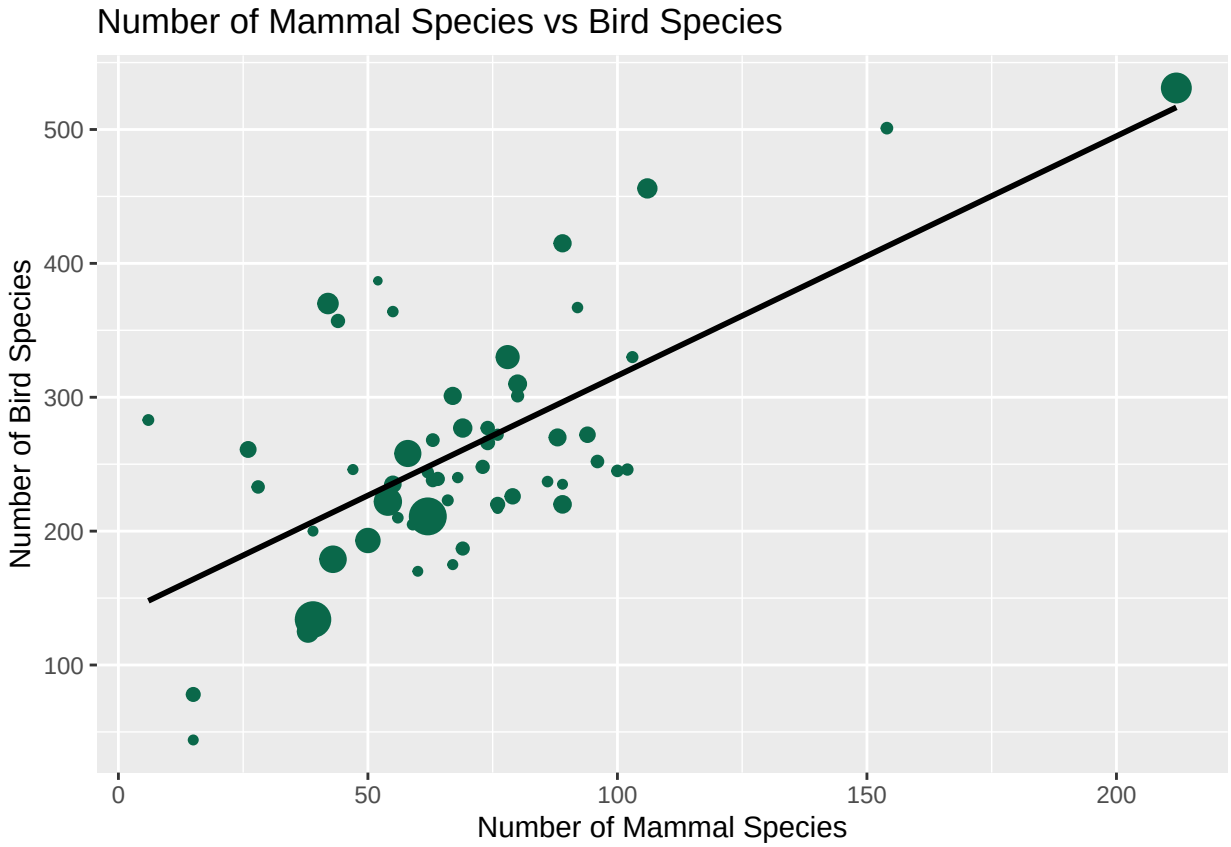


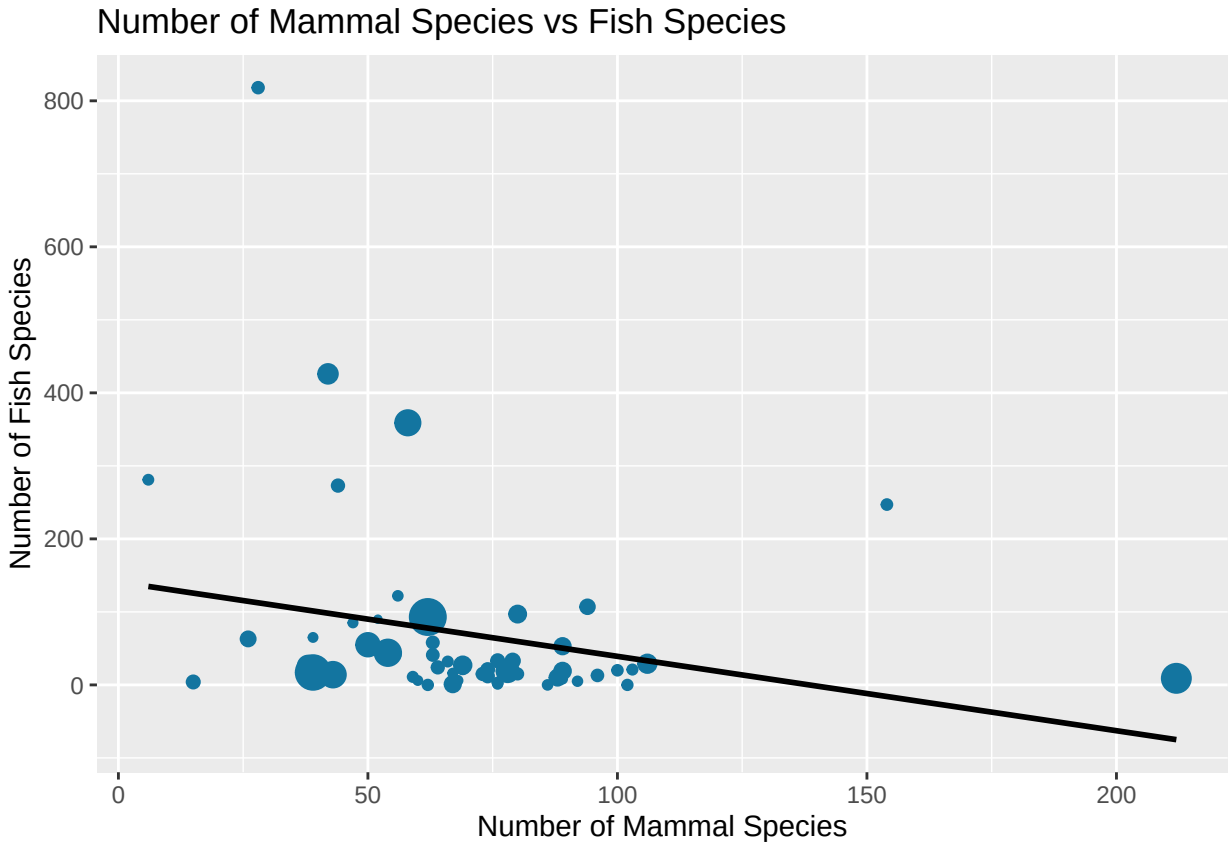
By looking at these bar charts, we can see that there are greater numbers of unique mammal, bird and reptile species that live in latitudes in the middle latitudes. Very few mammal, bird and reptile species live in low latitudes or high latitudes. The climate conditions at the low and high latitudes are more extreme than climates in the middle latitudes. Therefore, this data suggests that middle latitudes provide a better climate for mammals, birds and reptiles to live. The number of unique fish species, however, does not follow this same pattern. While more fish species live in low latitudes than middle or high latitudes, the distribution is more even across all latitudes than the distribution of the other species.

In general, from these figures we can see that parks at middle latitudes have a great number of unique species and thus greater biodiversity than parks at low and high latitudes.

Relationships Between Species

In many ecosystems, the number of birds and mammals are positively correlated (cite).





These scatterplots demonstrate correlations between mammals and other species in the parks.The different

size of the points represents the acreage of the park (larger points correspond to larger acreage).

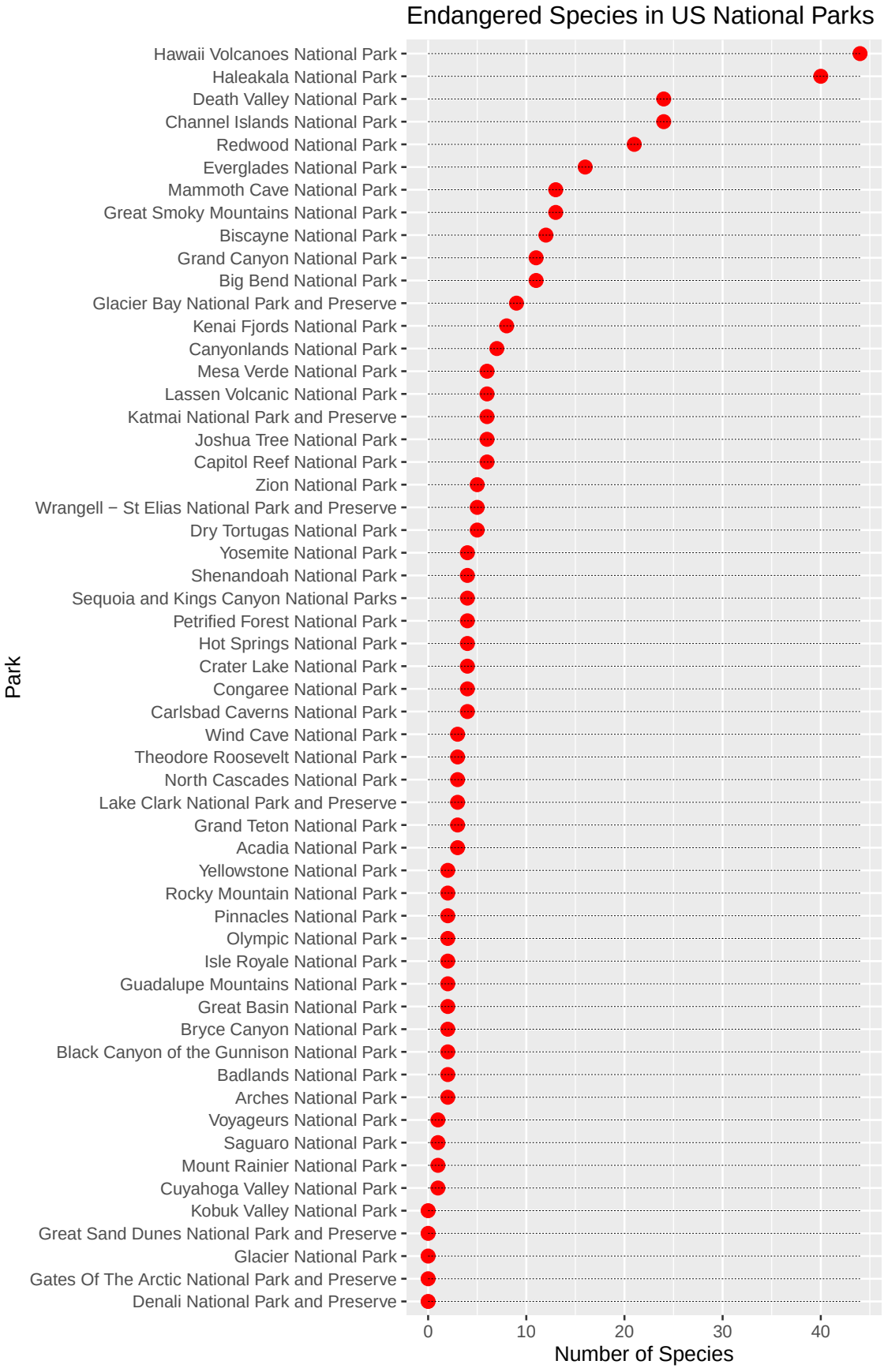
The first scatterplot shows a positive association between the number of mammal species and the number of bird species in the parks.

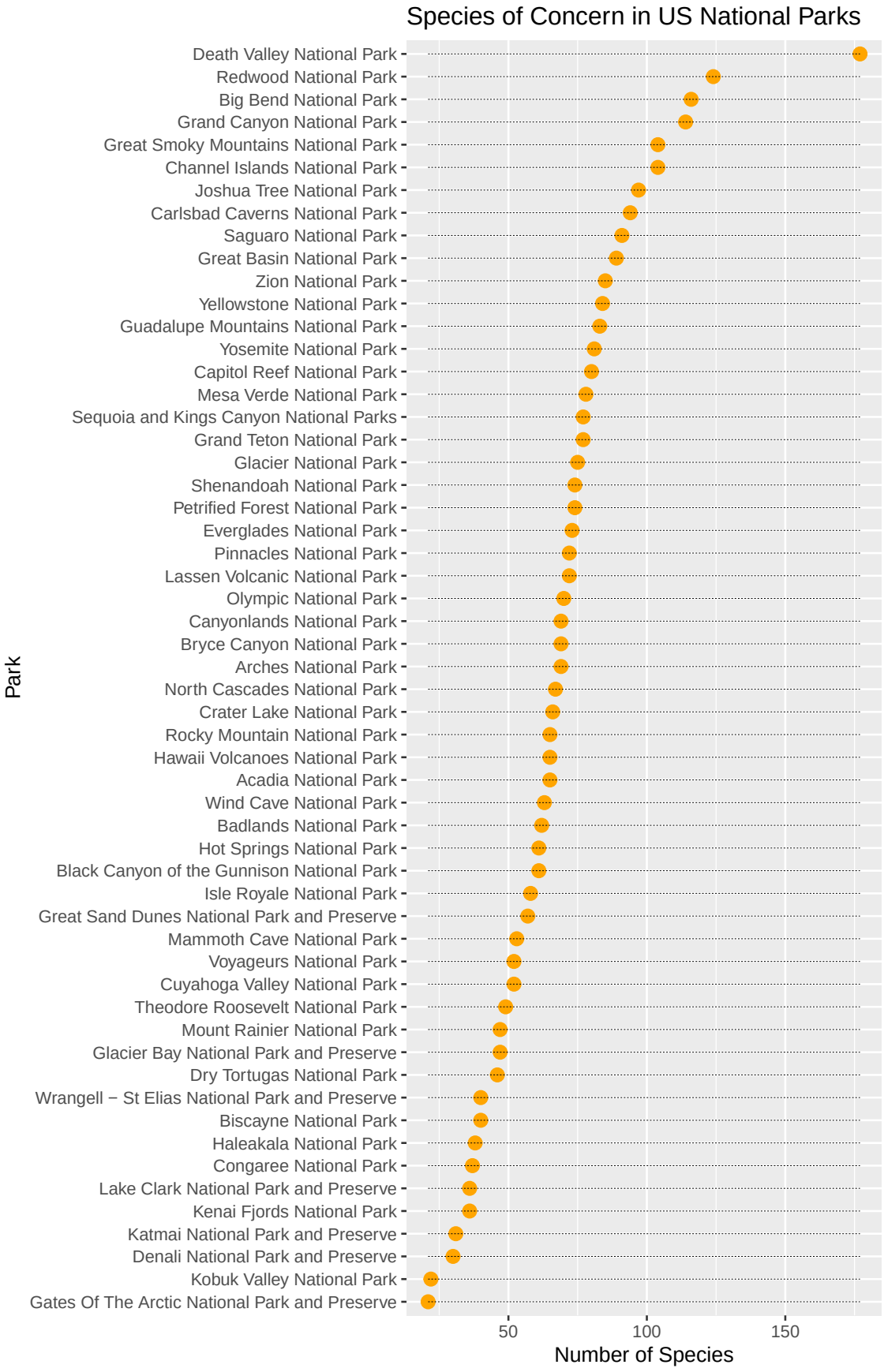
The second scatterplot shows a negative association between the number of mammal species and the number of fish species in the parks.

Can we predict the number of mammal species in a park?

Is it possible to predict the number of mammal species in a park with reasonable accuracy? To answer this question, I used variable selection techniques to ___.

Conservation Status of Species




Species of Concern in US National Parks
Death Valley National Park
Redwood National Park
Big Bend National Park
Grand Canyon National Park
Great Smoky Mountains National Park
Channel Islands National Park
Joshua Tree National Park
Carlsbad Caverns National Park
Saguaro National Park
Great Basin National Park
Zion National Park
Yellowstone National Park
Guadalupe Mountains National Park
Yosemite National Park
Capitol Reef National Park
Mesa Verde National Park
Sequoia and Kings Canyon National Parks
Grand Teton National Park
Glacier National Park
Shenandoah National Park
Petrified Forest National Park
Everglades National Park
Pinnacles National Park
Lassen Volcanic National Park
Olympic National Park
Canyonlands National Park
Bryce Canyon National Park
Arches National Park
North Cascades National Park
Crater Lake National Park
Rocky Mountain National Park
Hawaii Volcanoes National Park
Acadia National Park
Wind Cave National Park
Badlands National Park
Hot Springs National Park
Black Canyon of the Gunnison National Park
Isle Royale National Park
Great Sand Dunes National Park and Preserve
Mammoth Cave National Park
Voyageurs National Park
Cuyahoga Valley National Park
Theodore Roosevelt National Park
Mount Rainier National Park
Glacier Bay National Park and Preserve
Dry Tortugas National Park
Wrangell − St Elias National Park and Preserve
Biscayne National Park
Haleakala National Park
Congaree National Park
Lake Clark National Park and Preserve
Kenai Fjords National Park
Katmai National Park and Preserve
Denali National Park and Preserve
Kobuk Valley National Park
Gates Of The Arctic National Park and Preserve
Park
50
100
150
Number of Species

Future

Work count individual organisms in the parks (long term data collection) track change over time