



# Wildlife and Weather Patterns: A Data-Driven Exploration

Alec Brooks, Seth Miller,

Minsung Jung, M.S., Megan Lahti, Ph.D., Eriko Sakamura, M.A., M.S., Cecilia Vigil, D.V.M.

Truckee Meadows Community College



### Abstract

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In recent years, the Great Basin region has witnessed a notable shift in its climatic patterns, attributed largely to the overarching phenomenon of climate change. The rising temperatures and altered perception patterns in this region have been impacting biodiversity distributions (Iknayan & Beissinger, 2020).

This project aims to evaluate the influence of climate change on the ecosystems of Reno, Nevada. We aim to investigate potential variations or trends in local weather patterns and explore the relationship between seasons, climate, and the biodiversity of the area. Additionally, we seek to identify any significant differences in biodiversity attributable to climate change. Our research is anchored in the analysis of data from Ecoblitz event.

# Methods

We have been examining two different data, iNatualist and Vegetation. The iNaturalist data comprises six separate observation datasets, Spring and Fall from 2021 through 2023. These observations were gathered during Ecoblitz events organized by TMCC biology faculties. The events took place in May and October of 2021, May and September of 2022, and May and September of 2023. The initial Ecoblitz event in May 2021 was a full-day affair, while the subsequent five events occurred at predetermined intervals and specific habitats: 8-10 am in forest/grassland, 11 am-1 pm in sagebrush, and 2-4 pm in wetland/riparian areas centered around San Rafael Ranch Park in Reno, Nevada. During these events, faculty members and their students utilized the iNaturalist app to observe and document as many plant, animal, insect, and fungi species as possible.

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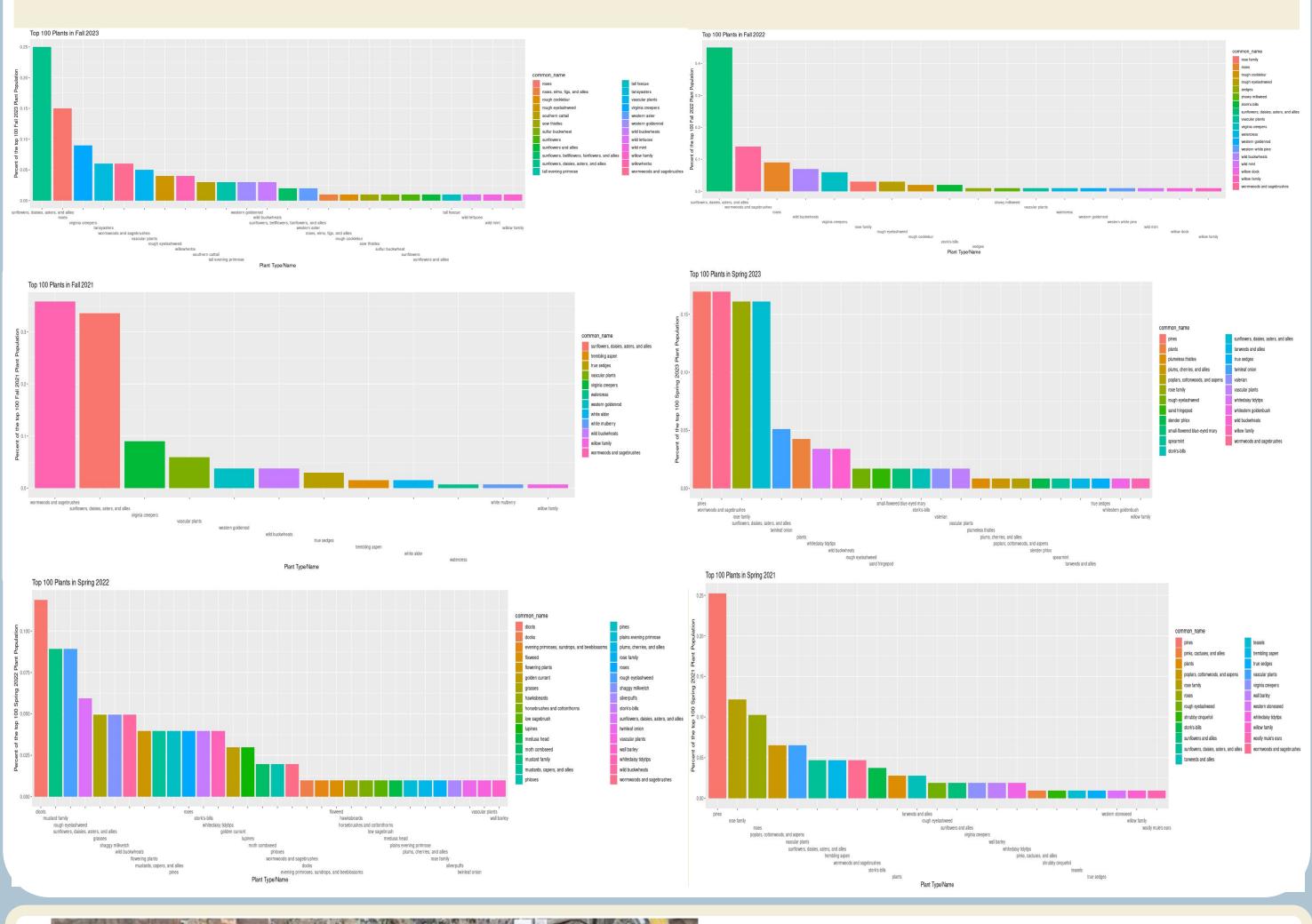
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Both the iNaturalist and Vegetation datasets underwent cleaning and analysis using statistical software, specifically R Studio.

## Findings: iNaturalist

The dataset encompasses various types of data, including plant and bird observations, focusing on wildlife within San Rancho Raphael Park. Data was collected during the Spring and Fall seasons of 2021, 2022, and 2023. Notably, sagebrush and wormwood emerged as the most prevalent plant species across both seasons. To streamline analysis, I selected the top 100 data entries for display in the subsequent graphs. These graphs underscored the dominance of wormwood and sagebrush throughout the seasons and across the years.

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# Forest/Grassland Riparian/Wetland Sagebrush A00044 A00044

# Survey Area

Ecoblitz survey area (pink line) at Rancho San Rafael regional park wherein three vegetation zones were determined: Forest/Grassland, Sagebrush, and Riparian/Wetland.

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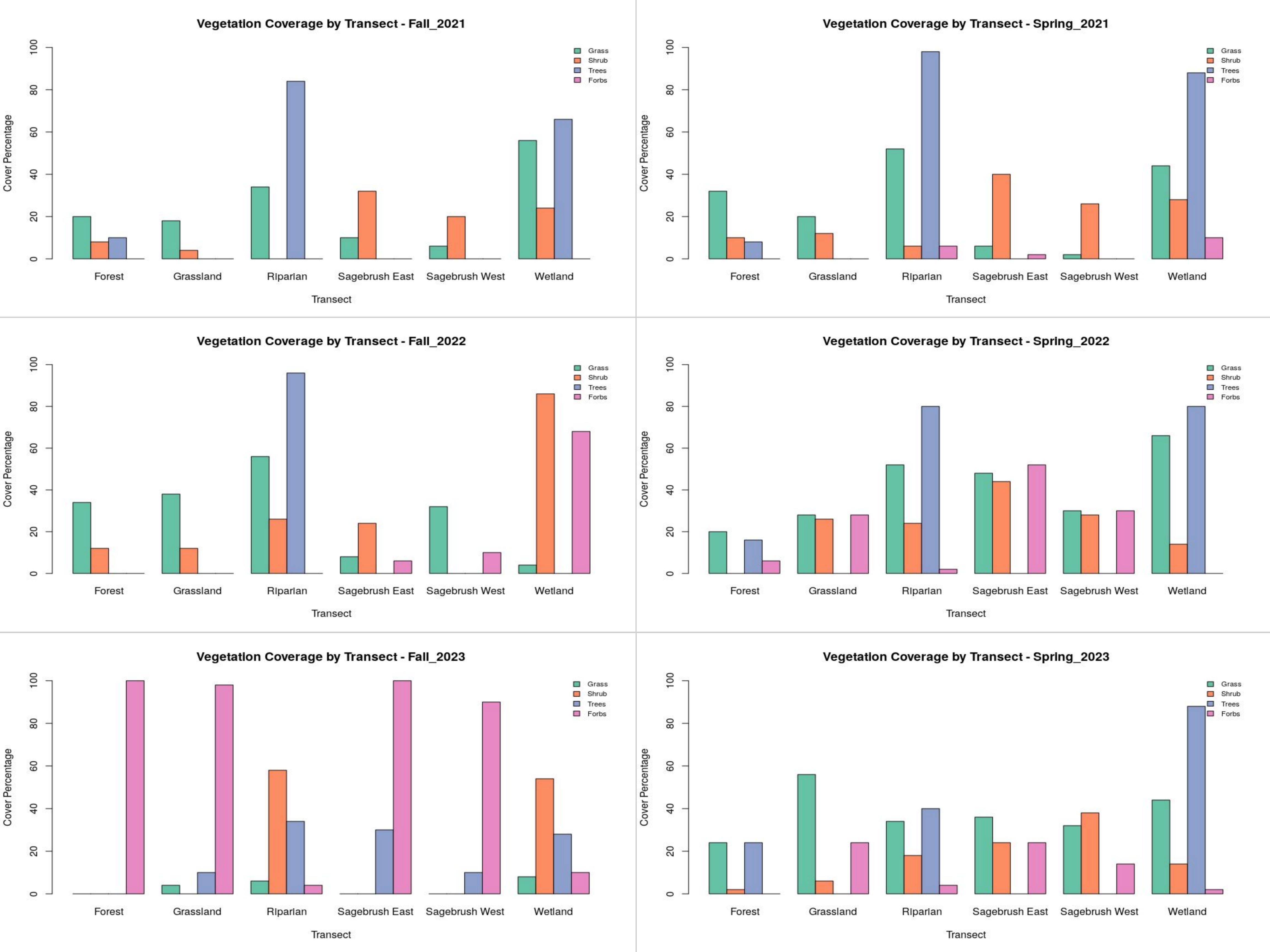


# **Future Directions**

Subsequently, our research will incorporate climate, weather, flowering phenology data to examine the influence of climate on plant growth and the variations observed in each season and year. We intend to procure weather data from the National Weather Service for the state of Nevada.

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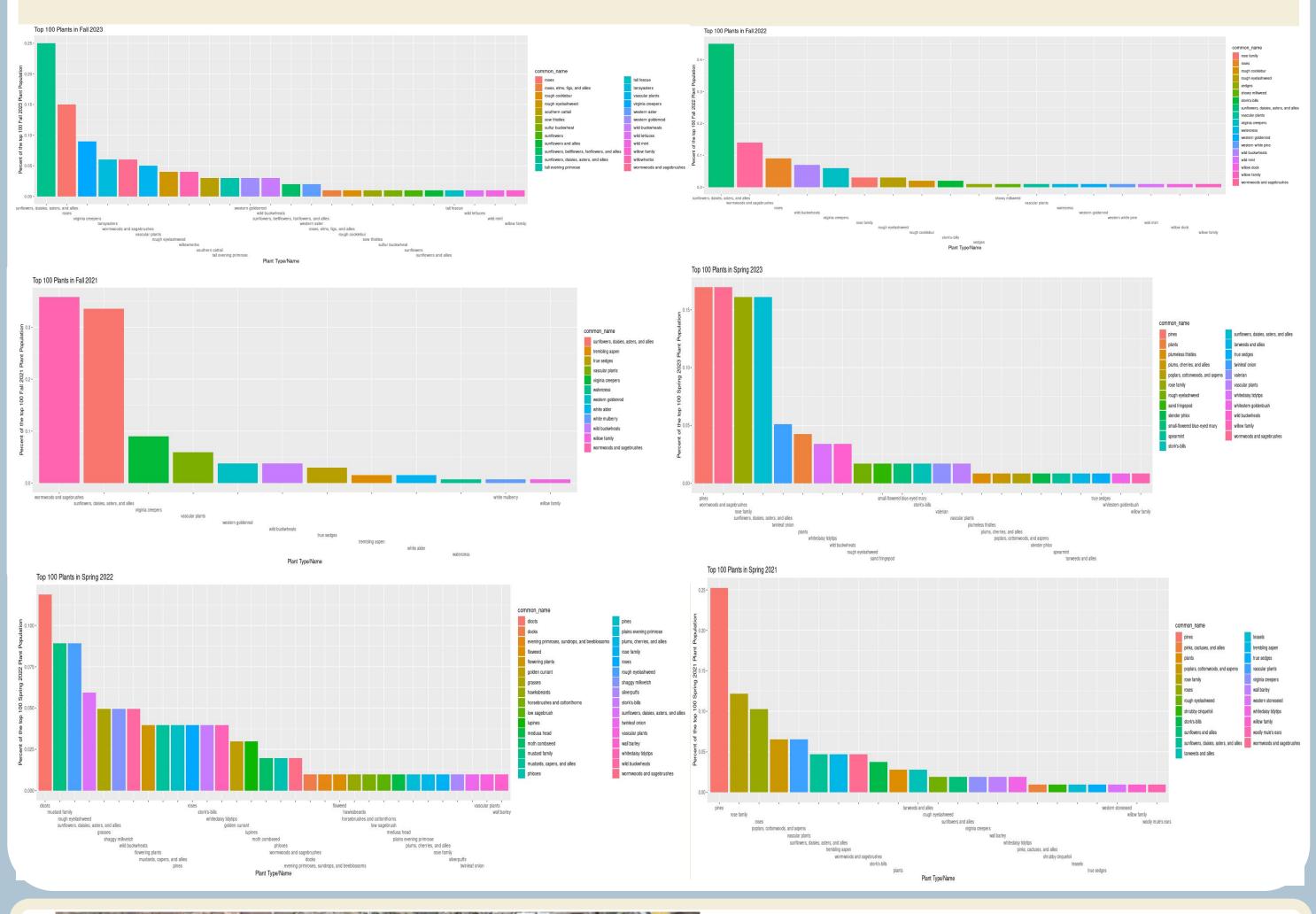
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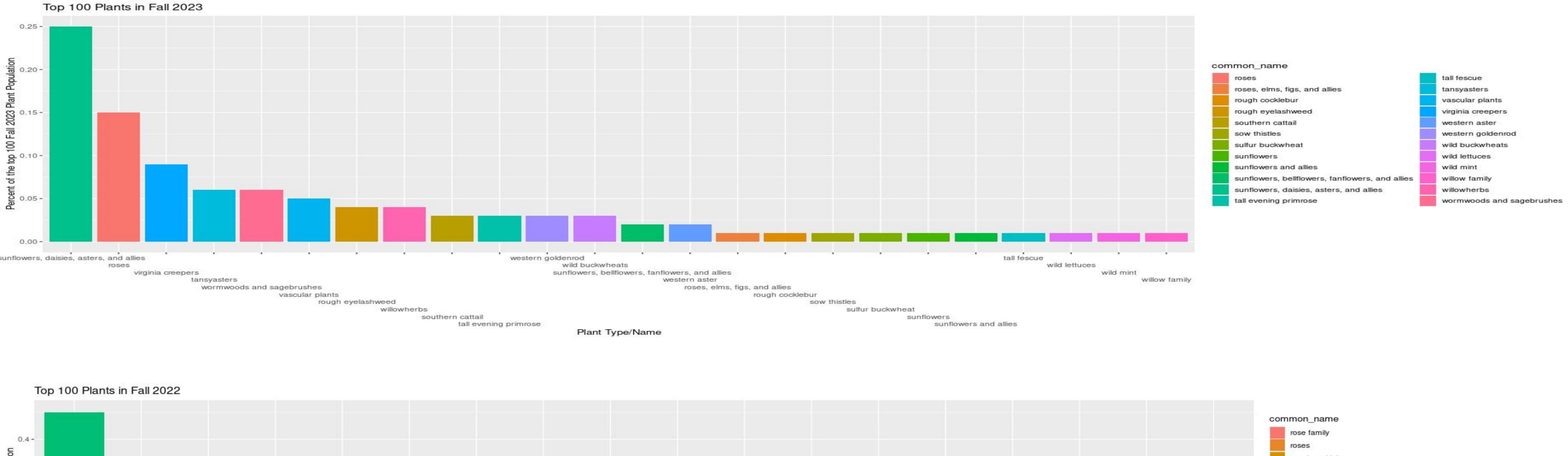


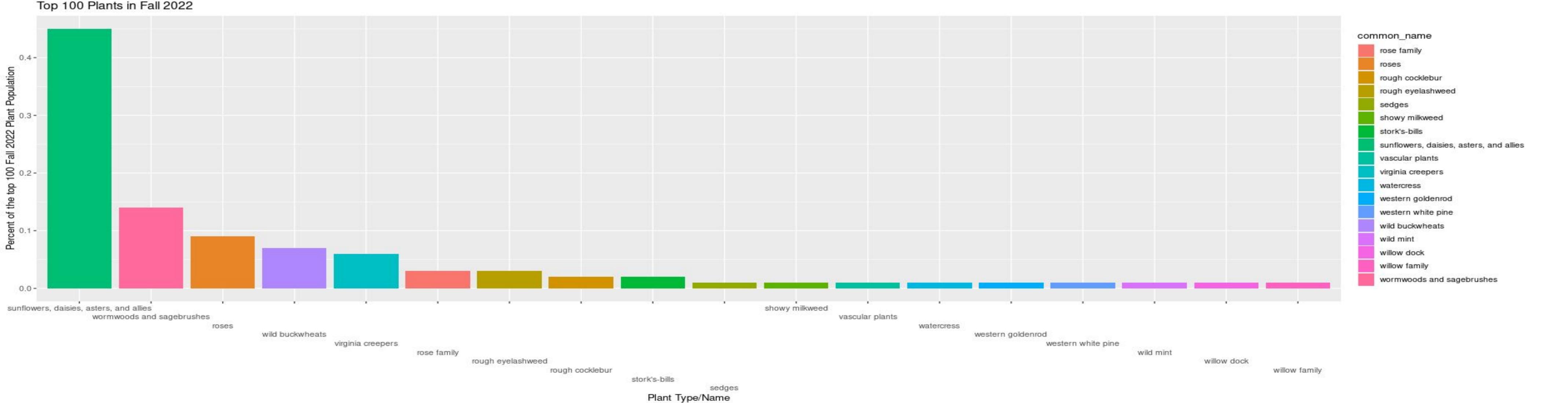
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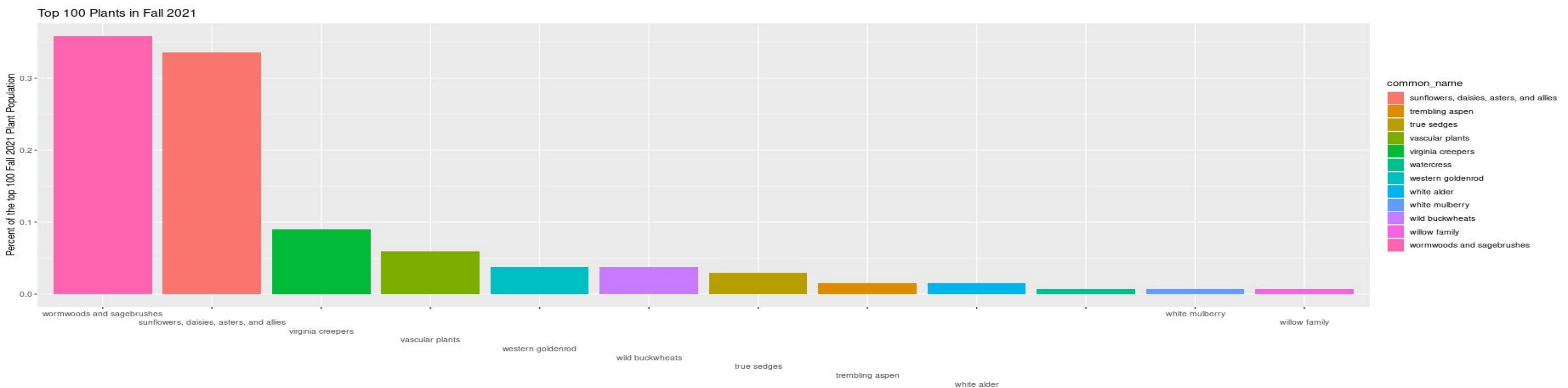
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Plant Type/Name

watercress





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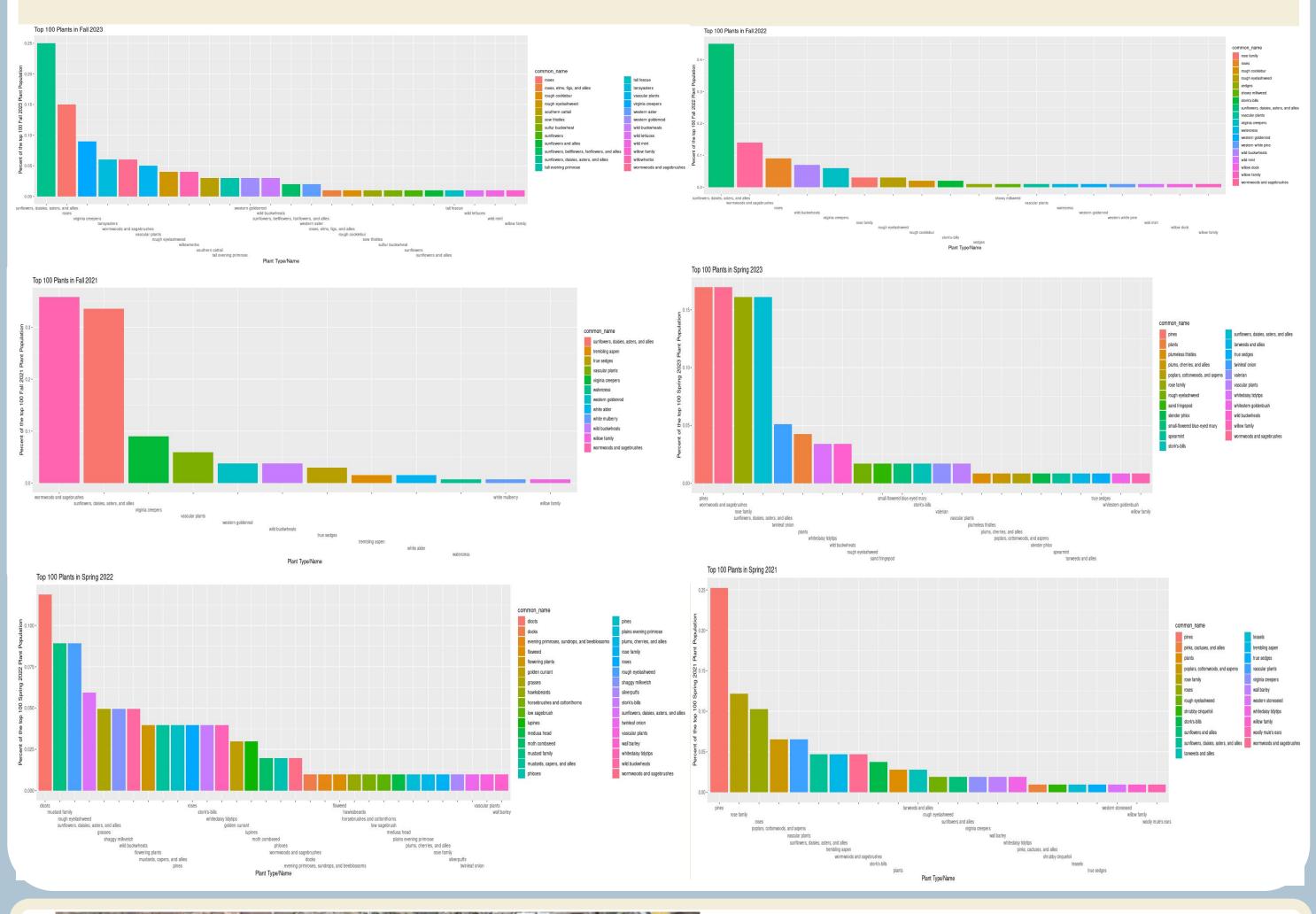
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