



Promoting Native Pollinators at Whitewater Ranch

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Promoting Pollinators Team - Environmental Leadership Program



Introduction

Whitewater Ranch is an organic blueberry farm located in Waltherville, OR. Our goal is to promote and restore natural pollinator populations on the farm as a part of a long-term riparian restoration and monitoring project. Our main focus this year is continuing the monitoring practices and recommending protocols for future groups. As we maintain and monitor plants along Goose Creek, which runs through the property, we hope to support native fauna and track the effect of these planting sites on the local pollinator population.

Research Questions:

- How has vegetation changed along Goose Creek since 2019 monitoring?
- How has the abundance and diversity of pollinators changed since 2019?
- How has water temperature within WWR's watershed changed since 2019?

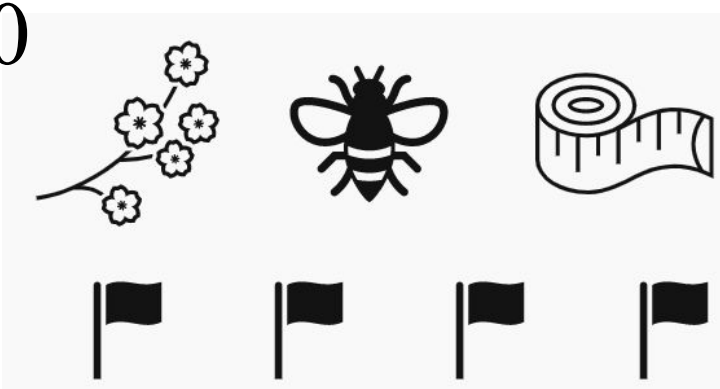
Methods

Plant Monitoring: Each plot contains 4 or more rows of flora planted parallel to the creek. Individual plants are monitored yearly. All of the plants are tagged in order to note the height, number of healthy branches, species code, damage assessment, and the neighboring competition from other plants.



Fig. 1. Map of Study Site for plant monitoring zones within the riparian area.

Pollinator Surveys: We conducted surveys along four 60 meter transects in the blueberry field closest to our restoration site, using a protocol based on Ullmann et al.'s Citizen Scientist Pollinator Monitoring Guide.



Pollinator Categories: European honey bee, bumblebee, orchard mason bee, flies and bee-flies, carpenter bees, and other pollinators

Water Monitoring: Water temperature is taken at the center of 6 locations along the creek using GPS coordinates with a basic water temperature thermometer in °F.

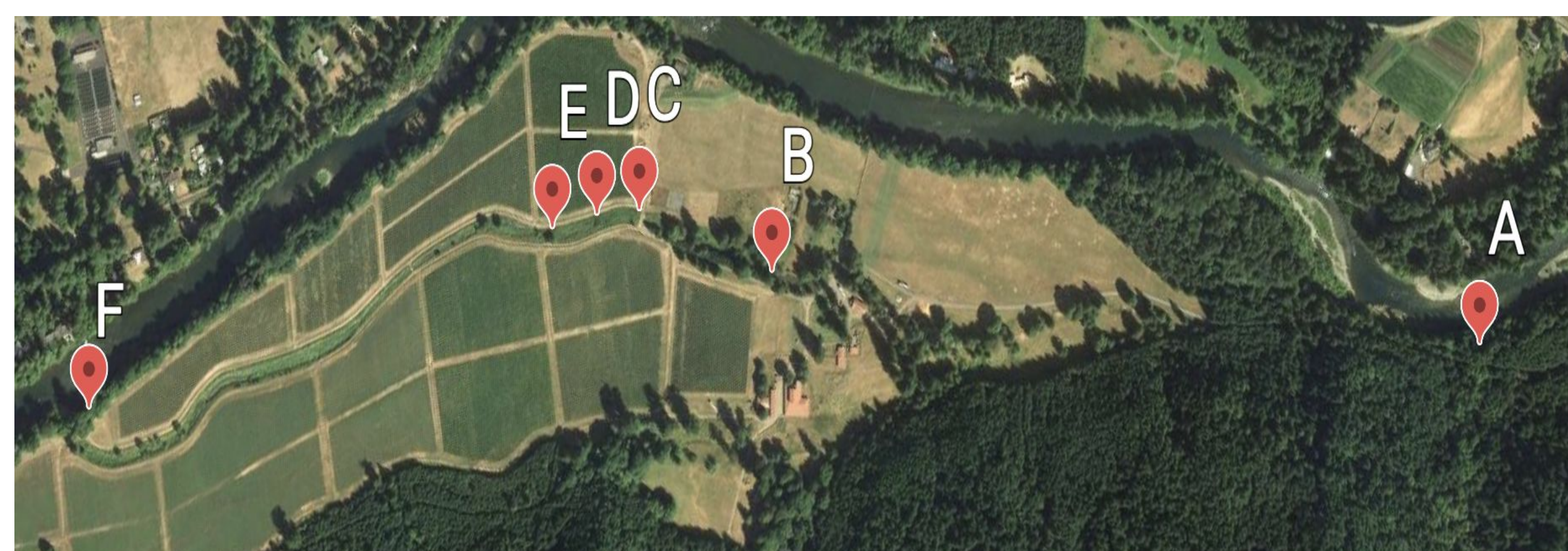


Fig. 2. Map depicting goose creek temperature monitoring locations.

Photopoints: Photos of 14 key locations, identified by GPS coordinates in UTM, are captured along Goose Creek. These same locations have been visually recorded since 2015 to observation the restoration progress over time.

Results

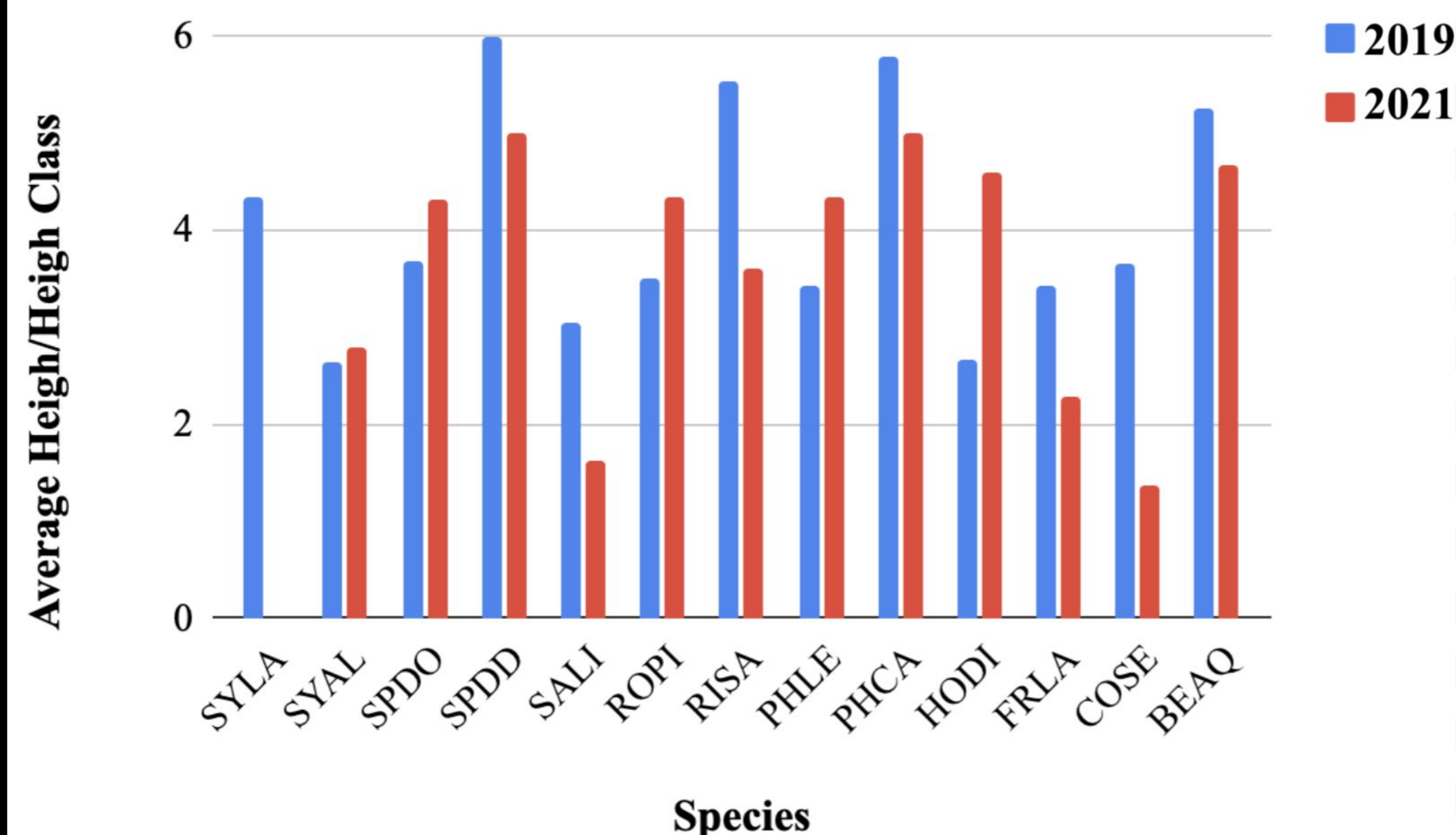


Fig. 3 Comparison of the average height (trees) or height class (shrubs) for species between 2019 and 2021

Pollinator Survey

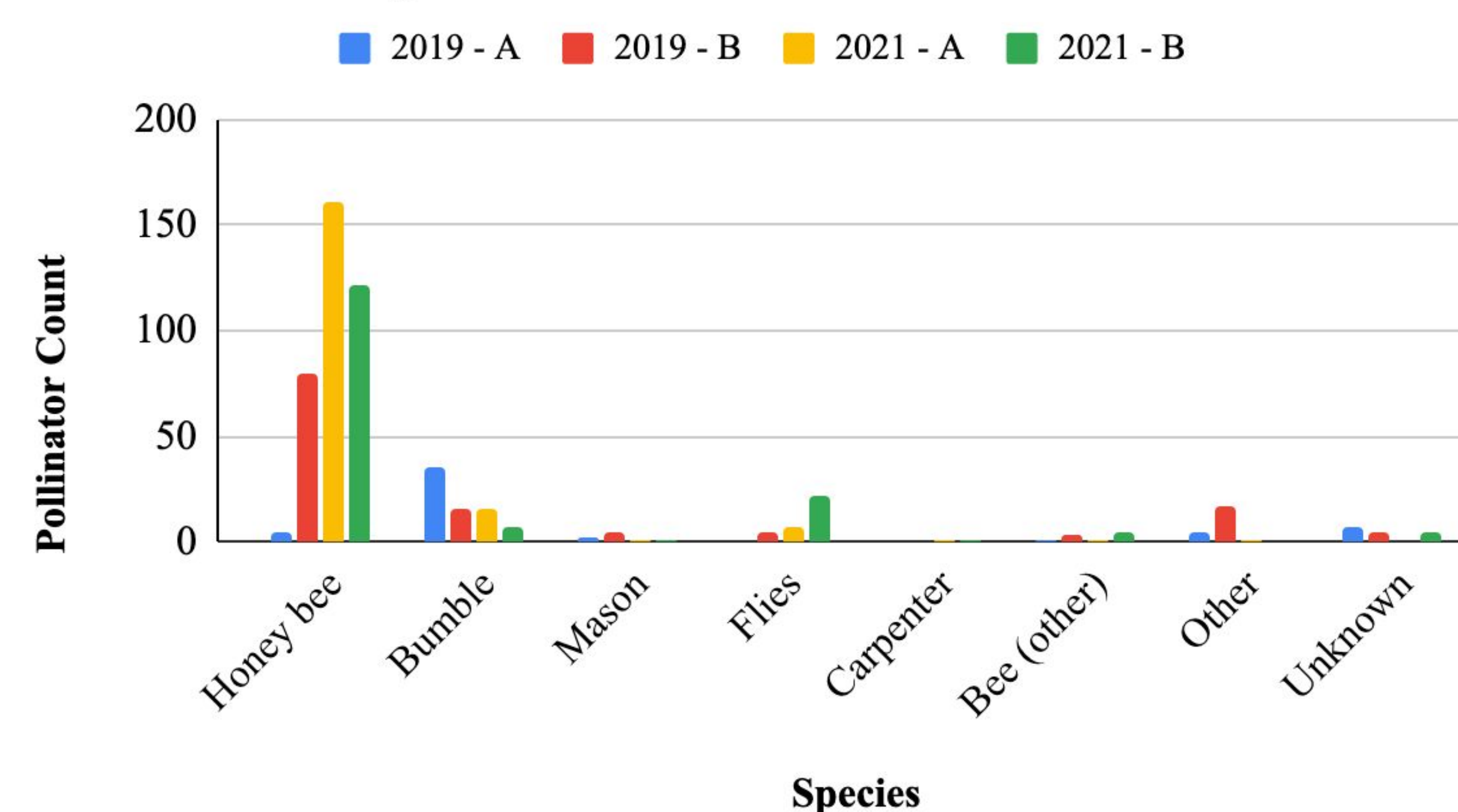


Fig. 4 Comparison of the number of each pollinator observed in blueberry fields adjacent to Goose Creek between 2019 and 2021

Water Temperature Comparison

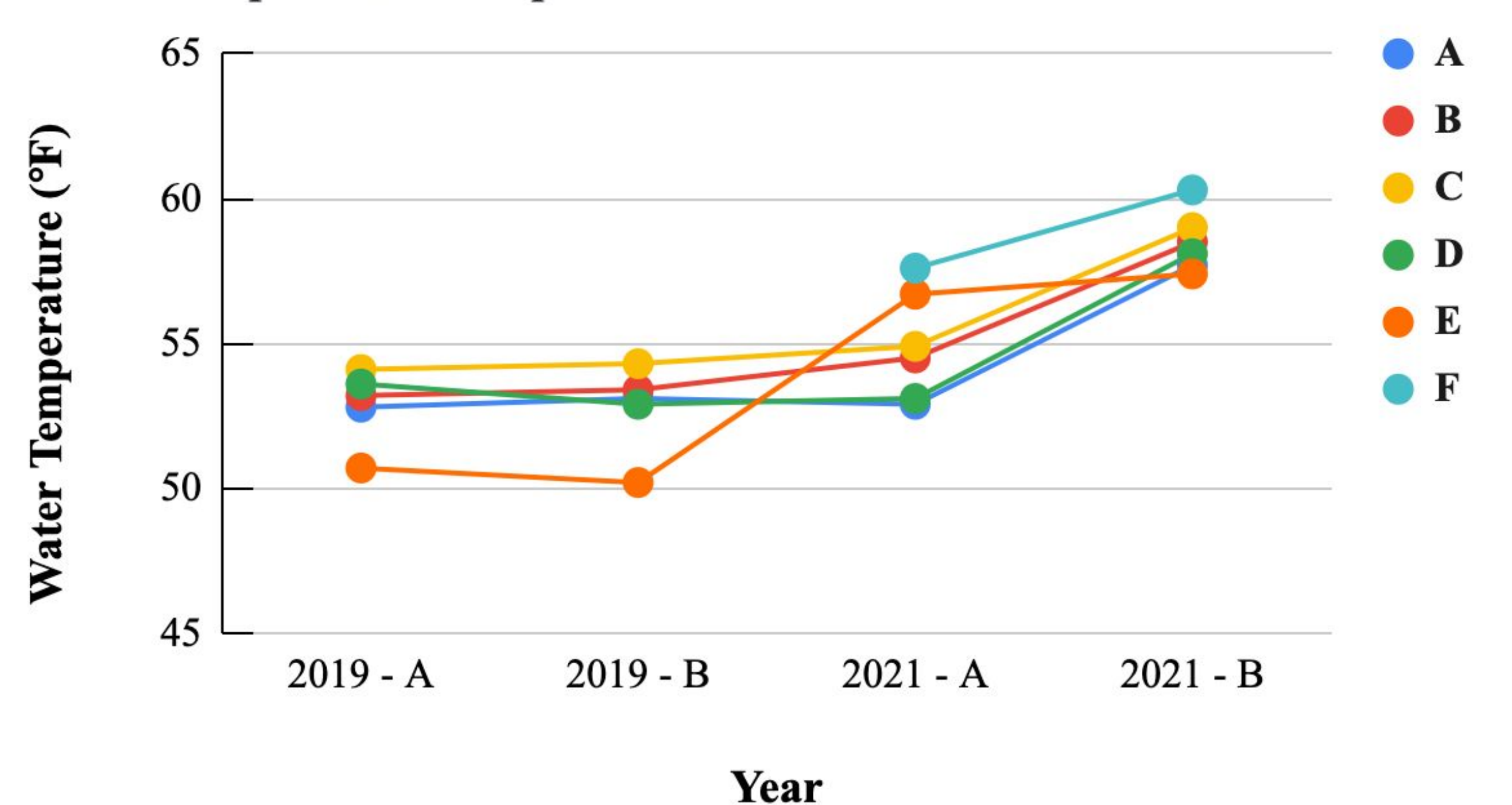


Fig. 5 Comparison of the water temperature of Goose Creek and Trout Creek between 2019 and 2021

Photo Points

2019 - Plot #10



2021 - Plot #10



Conclusions

Monitoring Changes

- A gradual progression in restoring and improving Goose Creek
- Pollinator diversity and abundance is relatively consistent between years
- Holiday Farm Fire has removed thousands of acres of potential homes for native pollinators
 - The observed decrease in Bumblebee populations may be due to habitat damage
- Photopoints showcase the damage of the fires and the growth of all the plantings from the past ELP teams
 - Reed canary grass might be competing with other plants
- Vegetation within riparian zone is growing and healthy
- Nutria, beavers, and other wildlife have decimated the Willows
 - Observed decrease in average Willow (SALI) height
- Droughts and decreased shade cover may have contributed to the increases in water temperature

Management Recommendations

- Rehabilitate pollinator habitat; ground nesting and tree nesting habitat
 - 173K acres of fire damage near the farm
- Continue planting a wide variety of native riparian flora
- Wrap Willows to protect from wildlife
- Implement new protocols:
 - Peg's Pollinator Patch contains an array of wildflower seeds from the Willamette Valley to encourage a larger pollinator population
 - Monitoring percent cover using drone
 - Monitoring species richness and abundance using quadrats
- Implement early-bloom and late-bloom refuge plantings
 - Necessary habitat and food source during blueberry off-season

Acknowledgments

Thank you to Jim and Jane Russell, our Whitewater Ranch hosts, and owners, Seth Morgan, the farm's manager, Peg Boulay, the program director, Dara Craig, our project manager, the Environmental Leadership Program, and our Private Donor.