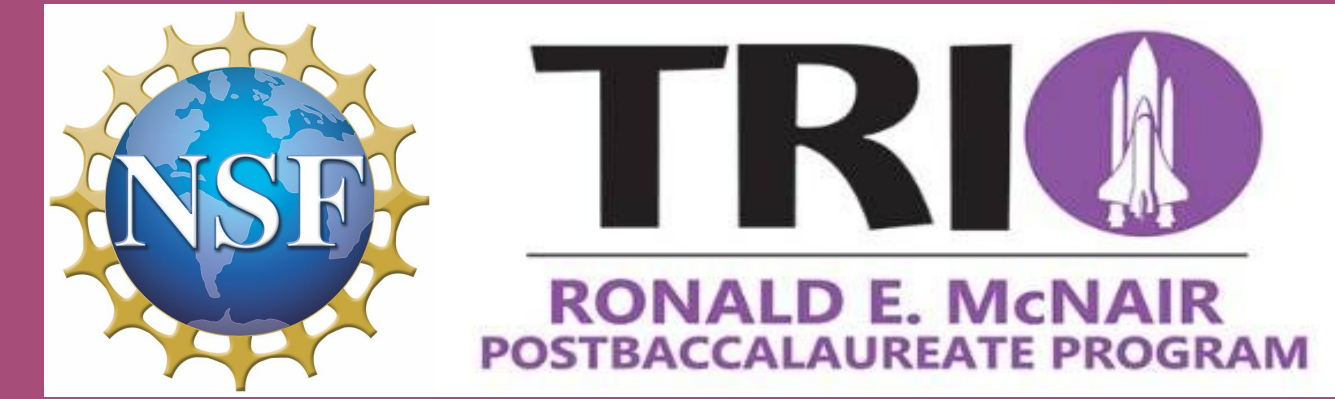


Native Pollinators and Conservation efforts in The Greenway of Grand Forks, ND and East Grand Forks, MN



Introduction

- Restored habitats need to protect native plants and pollinators. The Greenway is approximately 2,200 acres of recreational habitat located along the Red River in East Grand Forks, MN and Grand Forks, ND..
- The City of Grand Forks implements maintenance of the manicured recreational areas through burning, and the use of herbicides and pesticides to deter weed and mosquito populations.
- The outcomes of these conservation efforts are unknown. This research examines the impact of conservation efforts on native pollinator emergence

Methods

- Sampling along Greenway (June-July 2021)
- Performed microdissection to remove guts from Bee species for DNA extraction
- PCR- DNA amplification
 - Amplified BD150/151 primers for 16s ribosomal DNA for identification
 - Amplified MCR F/R primers for microbiome for Illumina sequencing
- Sanger sequencing
 - Validated results for 16s ribosomal DNA gene
- Illumina Sequencing
 - Currently in progress
- Compared sequences to NCBI GenBank database
- Collected information on conservation practices along the Greenway

Results

Hymenoptera Species Phenology	Frequency
<i>Andrena dorsata</i>	0.24
<i>Bombus impatiens</i>	0.33
<i>Bombus sylverstris</i>	0.05
<i>Megachile pugnata</i>	0.28
<i>Megachile relativa</i>	0.1



Andrena dorsata



Bombus sylverstris



Bombus impatiens



Megachile pugnata



Megachile relativa

Implications

There is information that is lacking on native pollinators in North Dakota; this research will provide a comprehensive understanding on how to protect these species and ensure their survival

These are the most abundant species in the greenway region that we have identified

Phenology shows that social bees are more present compared to solitary bees, which can imply that solitary bees are in need of different plants to increase synchrony of plant-pollinator systems.

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