

# Ant species richness and abundance in Western Minnesotan prairie fragmented by large-scale agriculture



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## Introduction

Offering a fine-scale, dynamic view of ecosystems, ants may be good indicators of habitat biodiversity and ecosystem health (Andersen & Majer 2004, Stadler & Dixon 2005, Styrsky & Eubanks 2007, Siqueira Neves *et al.* 2011). Currently, little is known about the ant species in Western Minnesota prairie, habitat fragmented by large-scale agriculture (Trager 1998, Kittleson *et al.* 2008). Particular ant species may be associated with native prairie forbs, highlighting the importance of native forbs in prairie restoration, management, and monitoring. I hypothesize that ant species richness and abundance will differ among prairie remnants, perhaps with the smaller remnants exhibiting less richness and higher abundance.



## Goals

- Determine ant species richness and abundance on each of the prairie sites
- Identify the ants associated with the prairie forb, *Echinacea angustifolia*

## Study Sites

• 4 prairie fragments of varying sizes and the burned and unburned units of Staffanson prairie preserve in Douglas County, Western Minnesota



## Methods

**Pitfall Traps:** We placed pitfall traps 5m apart in two plots on each site, with 12 traps per plot and 24 traps per site. With a minimum of 10m between plots, we placed Plot A around *E. angustifolia* and Plot B in areas without *E. angustifolia*. We filled traps ¼ of the way with propylene glycol, a drop of soap to decrease water tension, and capped the traps for one week to minimize effects from disturbance. On July 1<sup>st</sup> we uncapped the traps and collected ants on July 10<sup>th</sup> and 17<sup>th</sup>, freezing ants in Ziploc bags for later identification.



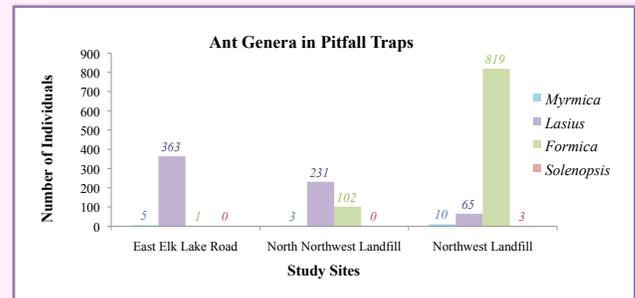
**Surveying Ants on *Echinacea angustifolia*:** July 5-7<sup>th</sup> and 23-25<sup>th</sup> we surveyed between 7 and 40 basal and flowering *E. angustifolia* plants at every site, collecting ants into vials of ethanol.

**Identifying Ants:** I am currently sorting, pinning, and identifying ants representative of each morphospecies, using online resources such as antweb.org, *The Ant Genera of Illinois*, and Carleton College's *Ants of Cowling Arboretum and Mcknight Prairie* to key specimens to genus.



## Preliminary Results

Presently, I have identified 4 genera and 13 potential morphospecies of ants. These identifications have yet to be confirmed by an entomologist.



*Myrmica* sp.  
3 morphospecies



*Lasius* sp.  
4 morphospecies



*Formica* sp.  
5 morphospecies



*Solenopsis* sp.  
1 morphospecies

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