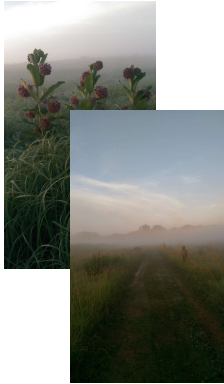


# Species Diversity and Relative Abundance of Reptiles and Amphibians at Glacier Creek Preserve

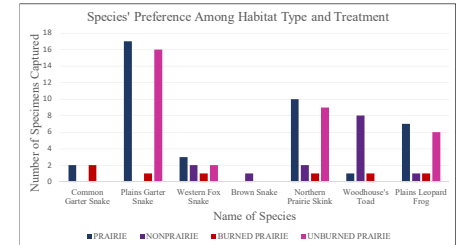
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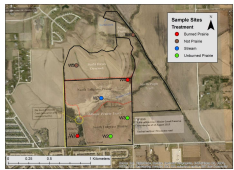


Northern prairie skink  
(*Plestiodon septentrionalis*)



## Introduction

- Tallgrass prairie preserve
  - Has expanded to include wetlands, creeks, seeps, and woodlands
- Restoration began in 1970 to maintain habitat for native flora and fauna
- Since 1970, Glacier Creek has increased from 65 ha (161 acres) to 172 ha (425 acres)
- First investigation of reptiles and amphibians inhabiting Glacier Creek Preserve



## Methods

- Seven sites were randomly selected to represent different habitats that occur in Glacier Creek Preserve
  - prairie last burned in 2016
  - prairie last burned in 2014
  - non-prairie
- Each site was coded by color and number for the purpose of marking reptiles and amphibians
- Sites were sampled using pitfall traps, cover boards, drift fencing, visual encounter surveys, and collapsible minnow traps
- All specimens were released at capture site.



Drift fence placed adjacent to a pitfall trap



Plywood used as a cover board



Silt fencing used as a drift fence

Species Expected to Inhabit Glacier Creek Preserve	Number of Specimens Captured	Number of Specimens Observed
Woodhouse's toad ( <i>Anaxyrus woodhousii</i> )	9	9
Blanchard's cricket frog ( <i>Acris blanchardi</i> )	0	0
Cope's gray treefrog ( <i>Hyla chrysoscelis</i> )	0	0
Boreal chorus frog ( <i>Pseudacris maculata</i> )	0	4+
Plains leopard frog ( <i>Lithobates blairi</i> )	8	9
Bullfrog ( <i>Lithobates catesbeianus</i> )	0	0
Northern leopard frog ( <i>Lithobates pipiens</i> )	0	0
Plains spadefoot toad ( <i>Spea bombifrons</i> )	0	0
Barred tiger salamander ( <i>Ambystoma mavortium</i> )	0	0
Common snapping turtle ( <i>Chelydra serpentina</i> )	0	0
Northern painted turtle ( <i>Chrysemys picta</i> )	0	0
Northern prairie skink ( <i>Plestiodon septentrionalis</i> )	12	52
Eastern racer ( <i>Coluber constrictor</i> )	0	0
Prairie kingsnake ( <i>Lampropeltis calligaster</i> )	0	0
Western fox snake ( <i>Mintonius vulpinus</i> )	5	7
Bullsnake ( <i>Pituophis catenifer</i> )	0	0
Western rat snake ( <i>Scotophis obsoletus</i> )	0	0
Ringneck snake ( <i>Diadophis punctatus</i> )	0	0
Northern water snake ( <i>Nerodia sipedon</i> )	0	0
Brown snake ( <i>Storeria dekayi</i> )	1	1
Plains garter snake ( <i>Thamnophis radix</i> )	17	18
Common garter snake ( <i>Thamnophis sirtalis</i> )	3	3
Lined snake ( <i>Tropidoclonion lineatum</i> )	0	0

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## Results

- Data were collected from April 2016-October 2016 and from February 2017-March 2017
- Eight of the expected 23 species have been observed to date
- Seven of the species have been captured
- Preliminary paired t-Tests indicate no significant differences between the number of species found among habitat type (prairie versus non-prairie) and treatment type (burned prairie and unburned prairie)
- Preliminary Shannon Diversity Indices:
  - Prairie: 0.6304
  - Non-prairie: 0.6142
  - Burned prairie: 0.7591
  - Unburned prairie: 0.5147

## Discussion

The species captured and observed at Glacier Creek Preserve were approximately one-third of those expected to inhabit the preserve. Though the results indicate low species diversity, it aligns with other research conducted on reptiles and amphibians in prairie landscapes, particularly those in burned treatments. It is likely that though sampling periods and frequencies were consistent among sites, capture rates would have been higher if the frequency of sampling was increased.

As Glacier Creek Preserve continues to restore the landscape back to native prairie and increase in size, it is expected that the species diversity will increase. When there is a greater area of continuous habitat, the species specializing in such habitat will increase in diversity and abundance. This research will be used in future projects at Glacier Creek Preserve to discover the changes to the reptile and amphibian communities over time.

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