Effectiveness of coverboards to survey reptiles and small mammals in a tallgrass prairie

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### Background



- The goal of this study was to assess the effectiveness of fall coverboard surveys as a method to detect reptile and small mammal communities
- Prairie Fork Conservation Area:
  - 711-acre restored prairie
  - Calloway County, Missouri
  - Cooperatively managed by MDC, MU School of Natural Resources, and the Missouri Prairie Foundation



#### Importance

- Prairie Fork is a managed prairie that aims to "restore and maintain natural communities"
- Reptiles and small mammals play important roles in ecosystems
  - Can be sensitive to and indicative of environmental change
- Coverboards have many possible research benefits
  - Inexpensive (money and labor)
  - Non-invasive trapping method
  - Can be left out for long periods of time

#### Methods

- 55 cover boards were placed throughout the area
- Checked once a week from 15 September 15 November 2021
- All observed reptile and small mammal species recorded
- Date and temperature were recorded
- Data analyzed using an occupancy modeling approach
  - Provides an estimate of detection probability
  - Provides an estimate of % coverboards used



### Methods

- Our cover boards were made of metal roofing
- Most had been placed in summer 2019 with additional placed in August 2020
  - Time to "weather" in the ecosystem



Speckled kingsnake Kampropeltis holbrooki

Deer mouse Peromyscus maniculatus

North American least shrew Cryptotis parva



Speckled kingsnake Lampropeltis holbrooki

## Results

REPTILE SPECIES OBSERVATIONS









### Results

- 29% of cover boards were used by reptiles
- 45% of cover boards were used by small mammals
- Detection probability varied through the season
  - Opposite trends in small mammals and reptiles



### Conclusions

- Reptile sampling:
  - Cover boards are not effective for sampling all species
    - Dominated by speckled kingsnakes
    - Did not see box turtles, ribbon snakes, rat snakes, fence lizards, five-lined skinks, glass lizards
  - Focus future sampling around August-October
- Small mammal sampling:
  - Cover boards were effective
    - Did not see meadow jumping mouse
    - Representative of community with diverse observations
  - Focus future sampling October-November

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