

Trapping Variation in Frogs in Ohio Fens

Greyden Yoder

Wittenberg University, Department of Environmental Science, Box 720, Springfield, OH 45501

Introduction

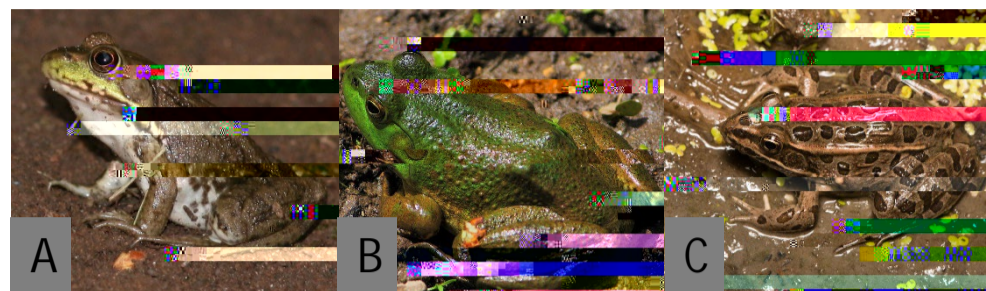


Figure 1: (A) The green frog (*Rana clamitans*). (B) The American bullfrog (*Lithobates catesbeianus*). (C) The northern leopard frog (*Lithobates pipiens*).

- These three frog species above are found throughout Ohio near areas with permanent or semi-permanent water sources¹.
- Early life stage diets vary only slightly and include algae, zooplankton, and other small diatoms.
- Their adult diets consist mainly of insects, insect larvae, and small invertebrates, however some have been observed eating snakes and even other frogs¹⁰.
- Data for this study was collected from a spotted turtle mark-recapture study. This study contained 4353 total trap nights, with 302 total frog captures.

We hypothesized that capture rates would increase for green frogs, leopard frogs, and bull frogs during their peak periods of breeding, May – June¹¹, March – June⁸, and March – July⁷, respectively. We believe this would occur due to the increased movement by females, as well as satellite males unable to win proper territory². To understand the variation in capture rate between trap sessions, we will compare the total captures over the 15 trap sessions standardized to 30 traps each. Additionally, a comparison of percent capture rate per trap per trap session, and a Shannon-Weiner index of diversity.

Methods

- This study was conducted in a fen surrounded by agricultural land in Clark County, Ohio.
- Decoys were placed in ProMar Minnow traps (TR-502 36” or TR-503 24”) and traps were checked at 24 hours intervals⁵.
- Decoys consisted of Safari Limited red-eared sliders (269529, 5.3”L x 3.6”W x 1.5”H) spray-painted with Krylon Fusion Flat Black (K02519000), as well as Sargent Art Acrylic yellow (22-2302) and orange (22-2314) colors (G. Lipps

Methods

Results



Figure 3: A comparison of total frog captures per trap session. See table 1.

Results

Table 1: Total traps per session, and total trap nights per session. There were 4353 trap nights

| Trap Session | Total Traps per Session | Total Trap Nights |
|-------------------------|-------------------------|-------------------|
| 25-Mar-17 – 29-Mar-17 | 26 | 130 |
| 21-Apr-17 – 03-May-17 | 30 | 390 |
| 16-May-17 – 26-May-17 | 40 | 440 |
| 08-Jun-17 – 15-Jun-17 | 50 | 400 |
| 23-Jun-17 – 30-Jun-17 | 40 | 320 |
| 05-Sept-17 – 12-Sept-17 | 30 | 240 |
| 28-Sept-17 – 10-Oct-17 | 30 | 390 |
| 25-Oct-17 – 31-Oct-17 | 30 | 210 |
| 18-Feb-18 – 26-Feb-18 | 30 | 268 |
| 14-Apr-18 – 17-Apr-18 | 30 | 120 |
| 02-May-18 – 13-May-18 | 40 | 480 |
| 07-Jun-18 – 11-Jun-18 | 35 | 175 |
| 17-Sep-18 – 28-Sep-18 | 30 | 360 |
| 22-Mar-19 – 27-Mar-19 | 30 | 150 |
| 29-May-19 – 04-Jun-19 | 40 | 280 |

Figure 6: Comparison of total capture rate per species per trap session.

- A chi-squared p-value of 0.0397 was calculated, stating that there was significant difference between total number of frog captures per night. This significant difference was due to the outlier of 8.76 captures per night in the Mar-17 trap session. Without this outlier, the data would not be significant.
- Due to the nature of fens being fed by ground and surface water year round, the presence of frogs in these areas may not vary greatly, causing the data to not be representative of other frog habitats such as lakes, ponds, etc.
- Variations in air and water temperature may also play a role in the variation of capture rates, and these values may have greater variation in areas other than fens.
- The data used for this comparative study originated from a turtle capture project. A mark-recapture study using frog capture techniques instead of turtle trapping techniques may produce different data that could better illustrate the variation in capture based on breeding periods.

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