

## 2022 COOPERATIVE SUMMER FELLOWSHIP PROGRAM – PROJECT PROPOSAL

APPLICANT TYPE: ESA;

PROJECT TITLE: LINKING GREY TIGER SALAMANDER (*AMBYSTOMA MAVORTIUM DIABOLI*) LENGTHS TO BIOMASS AND POPULATION STRUCTURE IN PRAIRIE POTHOLE WETLANDS

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Discipline: Ecology; Wildlife Biology;

### PROJECT DESCRIPTION

#### BACKGROUND

This project would be part of the Cottonwood Lake Study Area long-term wetland monitoring project carried out by Northern Prairie Wildlife Research Center staff. Sixteen prairie-pothole wetlands are monitored annually during the ice-free season. Part of this monitoring includes monthly sampling of barred tiger salamanders, where morphotype (e.g., juvenile, metamorph, and paedomorph), sex, and length are recorded. Ongoing work has identified unique, synchronous patterns in population demographics for barred tiger salamanders occur within this complex of wetlands. Additional data on barred tiger salamander natural history within the wetland complex is needed to assess the potential mechanisms causing the observed synchronies. We propose that a cooperative intern could collect additional salamander data, such as biomass, that would be then related snout-vent length (length), morphotype, and other relevant demographics. Investigating correlations between salamander length and biologically important metrics such as biomass could help maximize the amount of data obtained by our sampling activities. Additional activities could be incorporated into this project that would allow the intern to conduct independent research related to salamander ecology.

#### INTERN TASKS

Primary Responsibilities:

- Sample barred tiger salamander populations from CLSA wetlands every 2-4 weeks from May thru August. They will measure salamander biomass and length. They will also record demographic information.
- Data Entry
- Develop research questions that could be addressed during this study
- Investigate the relationship between salamander length, biomass, morphotype, gender, and other potentially relevant measurements relevant to the intern 's research question(s). Under the guidance of Dr. McLean, the intern will use (and learn) R to run relevant analyses.
- Help lead the CLSA field crew in carrying out field work for their tiger salamander project.

The intern will have the opportunity to gain additional experience by participating in other wetland monitoring activities, such as:

- Breeding Bird Surveys
- Aquatic macroinvertebrate trapping and identification
- Hydrological monitoring

## BENEFITS TO INTERN

The intern will:

- Learn about the U.S. Geological Survey's role in providing science to meet the Department of the Interiors needs.
- Develop technical field and lab skills related to wetland and salamander research.
- Gain leadership skills necessary to lead a field study.
- Gain experience in identifying research questions, study design, data analysis, and synthesizing findings.
- Will have opportunities to work independently and as a team.

## MENTORING PLAN

Both mentor and mentee will develop technical and interpersonal skills through weekly lab meetings and one on one discussions. There will also be opportunities for the intern to meet a variety of research staff at NPWRC and learn about their careers. I will also encourage individualized research experiences for the mentee. Throughout the process we I will work towards further developing mentoring skills, such as: (1) establishing and maintaining communication, (2) developing research expectations, (4) handling conflict, and (5) fostering independence. I will use The Wildlife Society Leadership Institute's handbook for mentorship advice and activities. I will also take advantage of the Internship Resources SharePoint site.

## ADDITIONAL DETAILS

### STUDENT SKILLS AND INTERESTS

The intern should be have a interests in both basic and applied research and understand their importance to wildlife management. Previous experience working with amphibians and or freshwater ecosystems is desired. A diverse educational background in the environmental and biological sciences. I envision this opportunity as a stepping stone towards a graduate program or working for a federal research agency, therefore I am looking for interns interests in attending graduate school and/or working for a government agency.

LOCATION: Jamestown, ND

### ACTIVITY LEVEL:

Level 8-2: The work requires some physical exertion such as long periods of standing, walking over rough, uneven, or rocky surfaces; recurring bending, crouching, stooping, stretching, reaching, or similar activities; or recurring

lifting of moderately heavy items. The work may require specific, but common, physical characteristics and abilities such as above-average agility and dexterity.

FIELD WORK	25-50%	VIRTUAL?	No
LAB WORK	25-50%		
OFFICE WORK	25-50%		
OTHER	0-25%		

PROJECTED START DATE	5/15/2022
EXPECTED DURATION	3-4 months