A Novel Approach to Monitoring Northern Leopard Frogs (*Lithobates pipiens*)

***Catrina Alberts*[1]*, Erika Nowak*[2]*, Catherine Propper*[3]**

[1] Research and Mentoring for Post-Baccalaureates Fellow, Northern Arizona University, Flagstaff, AZ, USA
[2] Center for Adaptable Western Landscapes, Northern Arizona University, Flagstaff, AZ, USA
[3] Department of Biological Science, Northern Arizona University, Flagstaff, AZ, USA

Northern leopard frogs (*Lithobates pipiens*) are experiencing significant population declines within the Southwestern United States. On the Navajo Nation, they are listed as "Imperiled" and are considered a species of special conservation concern. Northern leopard frogs are vulnerable to habitat change because they require a permanent source of water to reach reproductive maturity. A significant threat to this species is loss of habitat due to grazing and climate change. Our goal is to provide a current species occurrence list of northern leopard frogs to the Navajo Nation Department of Fish and Wildlife using environmental DNA (eDNA) sampling coupled with conventional survey methods (i.e., visual encounter surveys, audio loggers, and camera traps). Environmental DNA is a non-invasive technique used for wildlife monitoring. Water samples will be collected from waterbodies that have known northern leopard frog observations within the last 20 years. Using quantitative polymerase chain reaction (qPCR) analysis of filtered water samples, we will determine presence or absence of our target species. We expect that eDNA sampling will be a good complement to conventional survey methods. eDNA sampling has been successfully used in aquatic species and we expect to yield accurate species occurrence data for our target species. We expect that there have been changes in their habitat over the last 20 years and expect to determine if suitable habitat still persists. Monitoring northern leopard frogs is critical to understanding if habitat restoration and/or reintroduction campaigns should be priorities for ensuring species persistence on the Navajo Nation.

Contact Information: Catrina Alberts, Northern Arizona University, Flagstaff, AZ, USA 86001, Phone: 520-338-5020,
Email: catrina.alberts@nau.edu