

**PhD Assistantship: YY Bullfrogs for Invasive Species Management**  
**Department of Watershed Sciences**  
**Utah State University, Logan UT**

**Project Description:** We are recruiting a PhD Student to assess innovative methods for invasive population control of American Bullfrog *Lithobates catesbeianus* through the development of YY individuals and modeling their ability to extirpate nuisance populations. Effective management methods to control invasive bullfrogs are lacking and previous examples of successful landscape-scale bullfrog eradication efforts have been incredibly costly in time and resources. The development and release of YY individuals (frogs that are homozygous for the male-coding chromosome) may provide managers an additional tool in the control of invasive bullfrog populations.



The objectives of this research are: 1) assess effectiveness of exogenous hormone treatments, such as 17- $\beta$  estradiol (E2) and 17- $\alpha$  ethynylestradiol (EE2) treatments, for genetic male (XY-male) feminization and determine health effects on developing bullfrogs, 2) develop and test genetic sex identification markers allowing for sexual genotyping of feminized males and YY males, and 3) model stocking scenarios of YY bullfrogs in combination with congruent removal efforts across a variety of landscapes.

**Position Duties:** This is a multifaceted research project which will entail captive population management and experimental rearing of bullfrogs, histology and pathology assessments, genetic assay development and testing, and quantitative methods for simulating YY releases. The student will be working with researchers in Utah, Arizona, and New Mexico to develop a comprehensive overview of the feasibility of developing YY bullfrogs and assess their theoretical effectiveness in population extirpation. The student will author manuscripts and present at conferences to disseminate findings. The student will obtain mentoring experience working with undergraduate research technicians and will work closely with the New Mexico Dept of Game and Fish. The selected student will be advised by Dr. Chad Teal (U.S. Geological Survey, Utah State University) and co-advised by Dr. Javan Bauder (U.S. Geological Survey, University of Arizona) and Dr. Zachary Klein (New Mexico State University). In addition to these research duties, the student will need to successfully complete the required coursework, as well as author and defend their dissertation.

**Qualifications:** M.S. in biology, ecology, genetics, aquaculture, fisheries, aquatic sciences, natural resource management or other related fields. Applicants with career experience in research or extensive undergraduate research will be considered even if they do not possess an MS degree. A good work ethic is mandatory. Writing, organizational, data management skills, and quantitative skills are required, as well as the ability to maintain positive working relationships with members of the lab, department, and stakeholder groups. Only applicants that can obtain a valid U.S. driver's license by start date need apply.

*Utah State University does not discriminate or tolerate discrimination, including harassment, based on race, religion, sex, national origin, age, genetic information, sexual orientation, gender identity or expression, disability, status as a protected veteran, or any other status protected by University policy, Title IX, or any other federal, state, or local law*

**Location:** The successful applicant will be based out of the Department of Watershed Sciences at Utah State University in Logan, UT. Logan is a relatively small college town located at the base of the Bear River Range and the Cache National Forest, offering a diversity of outdoor recreation opportunities, as well as being within a short drive of Salt Lake City and its many amenities. For additional information describing the department, faculty, and programs see <http://www.qcnr.usu.edu/wats/>. Chad Teal's faculty page can be found at <https://qcnr.usu.edu/directory/wats/faculty/teal-chad>.

**Support:** Starting annual stipend of \$26,000; plus tuition, fees, and health insurance will be covered.

**Closing date:** September 27, 2024

**Start date:** Negotiable

**Contact:** Please email a letter of interest, resume or CV, a writing sample (first author publication preferred), unofficial copies of transcripts, and the names and contact information for three professional references to Dr. Chad Teal, email: [chad.teal@usu.edu](mailto:chad.teal@usu.edu) ASAP for consideration.