Summary of Internship

Working in the Conservation Department of Utah’s Hogle Zoo (UHZ) alongside the Citizen Science Wildlife Biologist, Kayleigh Mullen, the conservation internship aims to give the intern insight into the field of conservation biology with case study and practical experience within the conservation efforts of Utah’s Hogle Zoo.

In a usual week you will be spending more than 60% of your time out in the field conducting surveys with biologists and volunteers from other federal, state and non-profit institutions such as; U.S. Forest Service, U.S. Fish and Wildlife, Utah Division of Natural Resources and Wild Utah. We plan to have you working 24-40 hour weeks.

Most field work will be focused on amphibians, in particular the boreal toad. Our aim is to conduct visual encounter surveys across their state range to monitor known populations, as well as; determine presence at sites historically known to be inhabited, identify breeding ponds and discover potential habitat for future reintroduction programs.

Alongside our efforts, agencies are testing for chytrid at known toad localities, PIT tagging individuals to estimate population size, analyzing genetic diversity between populations and rearing captive toads to be used in translocations and reintroductions. Data collected will go towards; helping make research driven, scientifically sound decisions when it comes to future development, helping identify conservation priority areas for this species, and help to fill in knowledge gaps surrounding this elusive amphibian.

As is the nature of field work, do not expect a 9-5 Monday- Friday schedule. Some overnight trips are planned along with a few weekend trips, including Sundays. As an intern we expect you to be working 20-40 hours a week but we are also understanding of your other commitments and will accommodate flexibility within reason.

As the area of conservation is a multidiscipline field, the internship aims to reflect that and so expect to be working in other areas such as education, sustainability, outreach, recruitment and plenty of hands-on field biology, the balance of time on these things we can try to adjust to your own interests also! There will be opportunities to shadow animal care staff, the sustainability coordinator and our education team.
**Applicant Requirements**
- Applicant must be 21 years old or older
- Intern must have completed at least 18 months of college credits.
- Candidates must provide proof of current negative TB test and tetanus shot.
- Applicants must pass a drug and alcohol test and a background check.
- Capable of hiking an incline (1000ft/mile)
- Applicant must be able to stand for at least 3 hours
- Applicant must be able to lift 50 lbs

**Internship Requirements**
- Intern completes 400 – 560 hours over a 14-week period
- Intern Project: TBD
- Journal: each intern must keep a daily journal to be shared with their supervisor and mentor
- Presentation: Interns will prepare a 15 – 20 minute presentation at the end of the summer, this presentation will be shared with other interns and Zoo staff

**Supervision**
- Intern will be supervised by Kayleigh Mullen, Citizen Science Wildlife Biologist for Utah’s Hogle Zoo

**Pay**
- This is an unpaid internship

**College Credits**
- Utah’s Hogle Zoo is unable to award any college credits. The institution that the student attends will decide the credit, if any, and any additional academic requirements that must be completed during the student’s internship. Utah’s Hogle Zoo is willing to work with the different higher learning institutions with regards to completing scholastic requirements during the student’s internship.

**Proposed Schedule**
- **Monday May 14th 2018 – Friday 17th August 2018**
- Available positions: Two
- 14-week period
- Total of 400 – 560 hours during the duration of the internship
- Monday – Friday, some Saturday and Sunday camping trips
  - Hours worked per day are flexible due to the nature of the internship (weekend events, night events, multi-day trips, and weekend events)
**Boreal Toad Conservation at UHZ**

**Background**

The Boreal toad (*Anaxyrus boreas boreas*) is a subspecies of the Western toad (*Anaxyrus boreas*), (alongside one other sub-species, the California toad, *Anaxyrus boreas halophilus*). For several years Utah’s Hogle Zoo has been focusing conservation efforts on this Utah native. A state ‘Wildlife Species of Concern’, the boreal toad is our region's only alpine forest dwelling toad. Once considered common, its populations have rapidly declined in recent decades, echoing global amphibian declines.

The major factors thought to be contributing to this decline include; habitat destruction and fragmentation, pollution, chytrid fungus, increased UV radiation and introduced invasive species. Despite this, In October 2017 the decision was made not to list them as a federally endangered species.

Summer is the only time of the year we can effectively monitor boreal toads through visual encounter surveys. Throughout late fall boreal toads are scattered amongst alpine meadows, waterbodies and forests. Small, solo and camouflage they are a tricky species to survey for. Winters, from around October- late March, are spent hibernating. Making use of downed logs, old mammal burrows and tree roots, they burrow deep into the ground to avoid the frost.

Here at Hogle Zoo we have around 40 boreal toads; four on exhibit in the Small Animal Building, several used for outreach programs and the remainder in our Center for Boreal Toad Conservation. This assurance colony is part of a wider program alongside Living Planet Aquarium here in Salt Lake City, Denver Zoo, CO, Omaha Zoo, NE and Wahweap Warm Water Fish Hatchery, UT.

Our juveniles are being reared in enclosures through summer, with access to soil to burrow, logs to climb, pools to swim and rocks to bask. Fed a diet of crickets, meal worms and night-crawlers they can naturally hunt and stay active. At the end of fall, coinciding with natural hibernation, the toads are placed in artificial hibernaculum, lowering temperatures to induce hibernation over winter. In spring we hope to have some breeding pairs to raise tadpoles to metamorphs, with a goal of reintroducing toads into the wild after a good head start in captivity.
An example of a typical month interning:

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<td>Help with Zoo Brew event</td>
<td>In field-Strawberry Reservoir with UDWR</td>
<td>In field-Duchesne River Radiotracking</td>
<td>In field-Silver Lake Survey</td>
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<td>Day off</td>
<td>In field-Visit Northern Region UDWR</td>
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<td>Camping-Leave for Paunsagunt Plateau</td>
<td>In field-Survey P.Plateau</td>
<td>In field-Survey P.Plateau</td>
<td>Return SLC Clean camping gear</td>
<td>Day off</td>
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<td>In field-Uintas Lake Creek Sites</td>
<td>In field-Maybird Gulch Ponds</td>
<td>In office-Date entry Work on ID skills, write up trip</td>
<td>Shadow Day-Small Animal Building</td>
<td>In field-Duchesne River Radiotracking</td>
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Typical Duties

- Conduct boreal toad surveys through visual encounter surveys (65%)
- Conduct boreal toad surveys through radio tracking and environmental DNA methods (15%)
- Conduct office work and research (15%)
- Attend training, meetings, classes (5%)
Learning Outcomes

1. Acquire greater knowledge and further skills necessary to pursue a professional position in conservation/wildlife management
2. Learn the processes used by conservation professionals in the management of sensitive species
3. Appreciate the nature of zoo work and their role in the conservation of the natural world and those that inhabit it
4. Develop strong communication skills, through working collaboratively with personnel from federal, state and non-profit agencies
5. Understand the balancing act of land use for recreation and grazing with the management of wild animals and protection of vital habitats

The intern will finish the internship having developed skills in:

- Use of GPS unit and water monitoring equipment
- Experience conducting Visual Encounter Surveys
- In-field data collection on standardized data sheets used by agencies such as Utah Division of Wildlife Resources and the U.S. Forest Service
- Identification skills for all Utah resident amphibians, and many fish, reptiles and birds
- Experience using radio tracking equipment
- Experience using environmental DNA equipment
- Understanding of zoo operations
- Understanding of the fundamentals of a zoo based conservation organization
- Points of contact with personnel from both state and federal agencies

Interested applicants should contact Kayleigh Mullen at kmullen@hoglezoo.org