



Photo by Melissa Parks

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Notes of a Naturalist

A newsletter bringing you the species, landscape, history, and happenings of the Taft-Nicholson Center

Lakeview Happenings

Another month has flown by! We started August off with the University of Utah Environmental Humanities graduate program. The second-year cohort joined us for a week to re-familiarize themselves with the Centennial Valley ecosystem and connect their humanities studies with ecology. They were then joined by the incoming first-years. This lucky group of incoming students got to spend the first days of their graduate program hiking, canoeing, and birding.



Incoming EH graduate students take in the Centennial Valley views



EH second years fill trashbags with noxious weeds during a service project

Faculty members and postdocs from the University of Utah's Science Research Initiative team spent a weekend of team building at the Taft-Nicholson Center. This group works hard to connect

undergraduate students to hands-on research opportunities. They used their time here preparing for the upcoming academic year.

We've also had some great Arts-and-Science Wednesdays this month! We listened to prose and poetry readings from the Artist Colony before they left, learned about the songbird study happening on the north side of the valley, heard from Artist-in-Residence Nick Pederson, and learned about wood duck population dynamics. Thank you to everyone who has been showing up to these community events and to all of the fabulous presenters!



The SRI team canoeing down Red Rock River

Meet the Artist: Nick Pederson

Nick Pedersen received his BFA in Photography from the University of Utah, and his MFA in Digital Arts from Pratt Institute in Brooklyn, NY. Pedersen's work combines his own photography, digital collage, and printmaking techniques to create elaborate, photorealistic images focusing on environmental issues. A main theme in his work is "beautiful decay," creating large-scale pieces that reveal a satirically, post-apocalyptic vision of the not-too-distant future. From climate change and more extreme weather events to loss of habitat, biodiversity, and species extinctions, our planet is quickly approaching a strange and unpredictable time. In response, Pedersen's artwork plays off of older forms of beauty in art making, referencing sublime landscape paintings, animal studies and still lifes, fanciful wallpaper, and textiles. His images appropriate these picturesque styles and idealized nature imagery to create elaborate juxtapositions with subversive elements from modern civilization. His projects focus on concepts like the reclamation of nature and rewilding the modern world, creating a contemplative series of narrative imagery and art installations that question the legacy modern humanity will be handing down to future generations.

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Centennial Valley is Hopping

Centennial Valley contains the largest wetland complex in the Greater Yellowstone Ecosystem. Despite all this water, only four amphibian species call this valley home: western (or boreal) toad, Columbia spotted frog, boreal chorus frog, and blotched tiger salamander. Amphibian species diversity here is limited by the constraints of high altitude. As cold-blooded critters, or ectotherms, amphibians are particularly sensitive to cold temperatures.

Each of the species found here has adapted to deal with the particularly challenging winters. Western toads and tiger salamanders hibernate in abandoned rodent burrows. Spotted frogs seek out warmer waters that don't fully freeze. Boreal chorus frogs have the most impressive adaptation for winter – they survive by literally freezing. They enter a dormant state and their breathing stops. The spaces between their cells contain ice nucleators, which can control the size of ice crystals and where they form, helping to keep them between the cells rather than within them. Meanwhile, high concentrations of sugars within their cells act as antifreeze. So their cells remain unfrozen, while the intercellular space freezes. They remain this way until they thaw out in the springtime.

The term amphibian comes from Greek roots and translates to "double life" in reference to their life cycle – young amphibians require water and breath through gills, but adults have lungs and live a much more terrestrial life. Their metamorphosis is controlled by the release of hormones, which can be triggered by stress. This includes ponds drying up, food running out, or the presence of predators. This means that, if conditions are right, the timing of this process can be delayed. Tiger salamanders living in deep lakes may remain in the larval stage for a couple of years. In some instances, they never fully metamorphose. Instead, they become sexually mature while still retaining their gills and aquatic lifestyle, a state that is known as "neotenic". Salamanders in this state are often called axolotls. They're different than the true axolotls found only in central Mexico, but they look very similar, with their permanent frilly gills and a tail fin that helps them swim. Tiger salamanders are quite widespread, but these axolotl morphs are much rarer. There are some confirmed populations north of Centennial Valley in the aptly named Axolotl Lakes basin of the Gravelly Range.

As a whole, amphibians have been declining since the late 1980s. The western toad is listed as a species of concern by the state of Montana because of its drop in populations across the Rockies. Even species with stable populations face many potential threats. Their skin is highly permeable (many amphibians breathe through their skin), making them very susceptible to pollutants and are considered to be indicators of habitat health. Because their life cycles are so dependent on water, populations can also take a hit during years of drought. But in wet years like this one, amphibians may catch a break. The valley has been hopping with frogs and toads this summer.



Columbia Spotted Frog



Boreal Chorus Frog



Western Toad



Blotched Tiger Salamander (NPS/Neal Herbert)