

Turnbull Wildlife Refuge Friends Newsletter

Friends of Turnbull President's Report Fall 2023

by Lorna Kropp

Accomplishments for Year: October 2022 – September 2023

- Research Grant Committee started early with announcement in October to all area colleges' biology faculty members. Committee members: Lorna Kropp, Nancy Curry, Peggy O'Connell and Molly Dixon, Refuge Biologist. They held "Meet and Greet" in March, 2023 and received 3 applications in April. Two researchers were selected and each was granted approximately \$1000.
 - Megan Garvey, EWU Master's student, did research on "Fairy Shrimp" in Refuge vernal pools.
 - Bukky Oredugba, EWU Biology student-led team evaluated ponds for invasive Stickleback presence.
- The Board hired a bookkeeper to provide the monthly reports and to put our Quickbooks accounts in more understandable format. For those of who are not accountants, learning and maintaining the accounting software has been a big hinderance for volunteers.
- The Board appointed a committee to work with Refuge Staff on renewal of our Partnership Agreement with US Fish & Wildlife and Turnbull NWR. The committee and the Visitor's Service Manager and new Refuge Manager discussed current and potential projects and arrangements to draw up the next 5-year agreement. It currently is being reviewed by the Regional F& W office and should be approved and signed soon.
- The Pollinator Garden Committee tackled "weed control" by spreading chips on the area to be planted during several workdays in the spring and summer. Committee members also researched plants suggested by Refuge Biologist to create a list of plants to be included in the planting plan. The group met with the EWU Prairie Restoration team and accepted plant starts from Thurmond Johnson. After nurturing

them all summer, the 70 plants were planted on September 30 in the Pollinator Garden plot. Additional attempts will be made to do winter sowing of seed collected on the Refuge in the Fall.



Pollinator Garden, John Barber & Mike Borysewicz

- The Board met and welcomed new Refuge Staff this year – Visitor's Service Manager and new Refuge Manager/Deputy Complex Project Leader, Cassandra Roeder.
- FOT Board members participated in early stages of planning for re-starting and revising the Environmental Education program at the Refuge to create teacher-led curriculum and program. It is anticipated that FOT will help fund a team of local teachers to create the resources in the summer of 2024.
- FOT agreed to fund ½ the cost for an AmeriCorps EE Coordinator, shared with The Lands Council. The term is the school year 23/24. The EE Intern will be at the Refuge 2.5 days each week (Friday, Saturday and every other Thursday). Fundraising to help with the estimated \$8,000 cost is planned, including participation in the national Public Lands Alliance event, "Walk for the Wild," on October 14, 2023.

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- At the suggestion of the new Refuge Park Ranger/ Visitor’s Service Manager, we have a subcommittee designing a “Donation Box,” which will be positioned in the Admin Entry/Exhibit area for FOT donations when the Nature Store is not open. Nancy Curry and Bruce Kessler are working through several design iterations and negotiating with Cassie about a location that can be secure, but not damage any of the exhibits. Presently the idea is a “Bluebird Box” that can be strapped onto one of the trees near the Nature Store.

- Supported and advertised the guided walks led by seasonal Park Ranger, Breanna Hild, alternating between Kepple Peninsula and Pine Lake trails in June, August, September and October.

Nature Store

- The Nature Store Management Team was revised in the Fall, 2022 due to the illness of Heather Bosch, and the retirement of Joanne Powell. Two new members, Carolyn Wright and Molly Kennington, were added to Lorna Kropp and John Barber, continuing members. In addition, the days and hours of the store operation were expanded to 4 days each week : Friday, Saturday, Sunday and Mondays from 10am-4pm. We recruited new volunteers to help with the load of one extra day. The Refuge Volunteers (2 couples who lived at the Refuge) took on Mondays.
- The Management Team researched 12 new items for the Nature Store as well as some new vendors. New this year are:
 - Liberty Graphics shirts of organic cotton with water-based inks and environmental art designs
 - Earth Art lively animal stickers, FOTNWR new poster stickers, and patches and pins
 - Bob’s Native bee houses
 - Wildlife-related children’s games and new children’s books
 - Granola snacks from a local company
 - Rope baskets and embroidered cards by a FOT member artist
 - New FOTNWR Poster design T-shirt
 - Map You Adventure GIS map artwork prints and cards of the Scablands
- Nature Store Volunteers recruited and trained to see themselves as Refuge Ambassadors

(Cont. on page 3)

Activities

- Held a Beginning Bird Watching class March 25, 2023, with Wanda Peters as leader. There was a follow-up Bird Walk in June on FOT Membership Day.
- Represented at EWU Earth Day with a booth at the fair on campus, thanks to John Barber and Molly Kennington-Barber.
- Assisted with the Refuge Planting Day, April 22, when many volunteers from Friends and The Lands Council potted bare-root trees for later planting on Refuge projects in the area. Activities that day also included Pollinator Garden mulch spreading.
- Had a booth at MayFest in downtown Cheney along with the Refuge Park Ranger and a group of EWU biology students. FOT had supplies to make bee houses from bundles of hollow twigs and straws. The Refuge brought their very popular Touch Table, and the EWU students had a tank with invasive stickleback fish.
- Held a Wildflower Walk with Wendal Kane of the Eastern Washington Native Plant Society. A second flower walk was held in June on the FOT Membership Day. Membership day was an event for members in recognition of our annual membership renewal month – June.

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while in the Nature Store. We asked everyone to wear a TNWR T-shirt and name tag when on duty, did at least one session of general Refuge system and TNWR history for background, provided resources for helping visitors.

- The Nature Store has had 3-4 \$1000 weekends this season, thanks to the expanded hours and to placement of a sign near the Pine Lake overlook parking and bathrooms specifying the open hours for the store. Many visitors said that they had not known that the store was located further down the road in the Admin Building.
- Plans for next year include simplifying the sales process with barcodes on items and a reader to locate them in the Square item Library, improving both speed and accuracy.
- Net sales this year are close to \$20,000. (The best year previous has been \$10,000.)

As you can see, the Friends of Turnbull has had a busy and productive year. Our membership remains at approx. 75 members. Many members forget or just do not renew each year. Some return after a year with reminders. The Board has been held together by a very dedicated small group since the pandemic, amid major Refuge Staff turnovers. We are looking to add to the Board of Directors and have interviewed several people who checked off interest on the Membership Renewal forms. We are also looking to add people to working committees, particularly the Activities and Fundraising. We will continue to recruit new volunteers for the Nature Store, which is a great and fun way to contribute and get involved.

Walk for the Wild Fundraising event October 14

Walk for the Wild, a 5K walk at Turnbull, was part of a nationwide fundraising event coordinated by the Public Lands Alliance. It involved 70 National Wildlife Refuges in 26 states. The Public Lands Alliance spearheaded the fundraising for a “National Amplifier fund” that will be added to the local fundraising totals.

On October 14, we had a total of 40 participants turn out to walk. Our walkers had a beautiful day to get outside and walk around the Pine Lake loop trail. They got a stamp for each kilometer on the trail, then picked up their special stickers swag at the end, in addition to having a fun outdoors.

Many saw a moose, river otters, ducks and geese and more on their outing. The donations from Turnbull supporters, approximately \$1000, plus a portion of the amplifier fund, will go toward the cost of our AmeriCorps Wildlife Education Specialist. Jaelyn Wesche started in September and works coordinating classroom visits and encounters with other visitors to the Refuge 2.5 days each week (Thursday, Friday and Saturdays). We are sharing our AmeriCorps volunteer with The Lands Council, where she spends Tuesday, Wednesday and half of Thursday working on their “Beaver Program.”

If you missed the event, plan to watch for next year’s Walk for the Wild!



**AmeriCorp Intern
Jaelyn Wesche**

A Study of the Impact of Brook Stickleback Fish at the Turnbull National Wildlife Refuge (TNWR)

By Idowu “Bukky” Oredugba

It has been an excellent opportunity to work on the study of the impact of brook stickleback (*Culaea inconstans*), a non-native fish at the Turnbull National Wildlife Refuge (TNWR). Many thanks to Friends of Turnbull National Wildlife Refuge (FOTNWR) for funding and making this project possible. Five other EWU undergraduate students have joined me on this project: Jacob Heaton, Natalie McGuire, Sayla Merritt, Hunter Stoda, and Margarita Washington. We are concerned about the presence of Brook Stickleback because, through their consumption of zooplankton and invertebrates, they may indirectly impact phytoplankton abundance, decrease water clarity, and cause declines in macrophyte growth. Previous students in Dr. Joyner-Matos’ research lab have documented these trends in wetlands that have Brook Stickleback.

For this project, we wanted to determine whether Long Lake and Campbell-Lasher Lake, which previously were fishless, now contain Brook Stickleback. We did this by comparing fish presence/absence, water quality, and macroinvertebrate communities of Long and Campbell-Lasher Lakes with 30-Acre Lake (which has had Brook Stickleback for many years) and Turnbull Laboratory for Ecological Studies Pond (TLES Pond), which does not have any fish.

The survey for the project started in May, and we will conduct our last survey this month (October). We surveyed the lakes once per month. We deployed baited fish traps overnight to test for Brook Stickleback’s presence each month. We used a YSI meter to collect water temperature, pH, dissolved O₂ levels, and conductivity information. We used a non-contaminated D-net to collect a standardized “sweep” of macroinvertebrates living near the water/substrate interface, and we transported these sweep collections to EWU, where we counted the invertebrates and identified them to Order.

We have one more month of collections to complete; therefore, we have yet to analyze our data. However, below is a summary of the general trends we have observed.

- Fish presence/absence:
 - Long Lake and Campbell-Lasher Lake did contain Brook Stickleback

- We did not collect any fish at any time from TLES Pond (as expected)
- We did not collect fish from the 30-Acre Pond
- Water quality:
 - While the data are not yet analyzed, we did not notice any trends in water quality differences across the four lakes
 - Please note that our study sites at Campbell-Lasher Lake were too shallow for a survey in August. TLES and 30-Acre Lake were dry by September.
- Macroinvertebrate community:
 - Long Lake and Campbell-Lasher Lake have very low invertebrate diversity and abundance; many samples had no invertebrates. The few invertebrates we found in these samples mostly were mayfly larvae, damselfly larvae, dragonfly larvae, soldierfly larvae, crane fly larvae, water mites, water boatman, backswimmers, crawling water beetle larvae, leeches, midges/chironomids, clams (alive), snails (alive), and empty clams/snails.
 - 30-Acre Lake had amongst the highest invertebrate diversity and abundance values, in stark contrast to results from previous surveys of this Lake (most recently, 2015). Some examples are amphipods, diving beetle larvae, clams (alive), snails (alive), leeches, damselfly larvae, midges/chironomids, dragonfly larvae, mayfly larvae, water boatman, crane fly larvae, and water scavenger beetle larvae.
 - TLES Pond had amphipods, diving beetle larvae, caddisfly larvae, midges/chironomids, clams(alive), snails (alive), water mites, dragonfly, damselfly larvae, and water boatman.

The result of this project would help control damages from the invasive species, prevent new invasions to other wetland locations on the refuge, and assist in the management planning of the refuge.



Drawing by FWS

Reduce fall yard clean-up and get “wild”!

by Madonna Luers

Fall yard and garden clean-up is a ritual in our neighborhoods of trees to protect grass lawns from leaves and pine needles, and – let’s be honest – to save face with orderly neighbors. After all, we don’t want our property to appear “unruly” or “mussy” – words that are included in extended dictionary definitions of “wild”.

But the most successful wildlife habitat managers know that resisting that neat-and-tidy urge, especially now in the fall, is the key to helping birds and other wildlife more. Here’s why:

Leaf litter, dry heads and stalks of summer perennials, and other “leftovers” from the growing season are homes and/or food for wildlife. Insects and other invertebrates in that litter or duff are food for migrating blackbirds, bluebirds and many other species. Birds like goldfinches and grosbeaks love to feed on the old seed heads of your spent blooms and other plants that provide seeds well into winter.

Reptiles and amphibians use spent yard and garden vegetation for cover. Many small mammals make use of decaying matter and brush piles. Some, like mice, are not welcome in great numbers, but they DO provide food for birds of prey, coyotes, and other wildlife. Skunks and raccoons are better off using your natural garden waste rather than your garbage can or pet food.

Any wildlife, especially in abundance, can become a nuisance. So the amount of fall clean-up work you do depends on your situation, preference and tolerance. But consider leaving some piles of leaf litter here and there, and resist the urge to “dead-head” all spent blooms.

In the long term, consider reducing the amount of grass lawn to maintain on your property, and replace it with native shrubs and other plants that provide food and cover year-round for birds and other wildlife.

Then put down the rake and really get “wild”!



from Xerces



by Eleanor Biggs



Brush pile inhabitant

Bull Moose Visit

by Carlene Hardt

On Monday, I was just leaving Turnbull when I spotted a bull moose on the other side of the road! I pulled over, grabbed my camera and walked just a few steps down the side of the road to take pictures from a safe distance. I watched as he casually stepped over the fence, crossed the road ahead of me then, once again, stepped over the fence and went into the forest. I was impressed with his antlers! Did you know that a big bull moose can grow an 80-pound rack in a summer and they shed their antlers every winter? Also, by losing the excess weight, they can save energy to help them through the frigid winter months when food can be scarce.

A moment worth remembering.



All photos by Carlene Hardt

Fairy Shrimp on the Refuge

Report and Photos by Megan Garvey

The Friends of Turnbull funded two projects this summer with the Rabe Research Grant, supporting EWU student research on the Refuge. My master's project was one of them.



Undergrad Sam Richardson sampling Stubblefield Lake, which functions like a large vernal pool.

Vernal pools are small temporary wetlands that fill seasonally from precipitation and snowmelt. In this area, they typically fill in the winter and dry throughout the late spring and summer. While considered important habitats and sources of freshwater diversity, they are often little accounted for in wetland conservation and restoration practices, this despite the fact that they often perform vital ecosystem services and host rare and endemic species. Like many of the world's wetlands, they are threatened by anthropogenic factors like conversion for alternative land use and climate change. Increasing temperatures and drier climates particularly threaten these pools as they can alter the hydroperiod, or time for which the pools are full, making it harder for inhabitants to thrive.

The order Anostraca contains the fairy shrimp. They lay eggs which form drought- and desiccation-tolerant egg banks in the soil of the pools once they dry. The eggs undergo cryptobiosis, becoming inactive during the dry period. 2-70% of each egg clutch hatches in the spring when the pools are full. There are 16 species known to this area of the country.



by A.G. Vandergast, USGS

Because the fairy shrimp have a lifecycle that is so closely tied to the cycle of the vernal pools, they are considered key indicators of pool quality. As they serve as an important food source for migratory birds and terrestrial organisms, they impact ecosystems beyond their pools. Many shrimps, including the ones of this area, remain understudied. This project seeks to enhance our knowledge of the fairy shrimps of this area, the locations of vernal pools, the conditions therein, and the factors that facilitate the presence of various species of the shrimps.

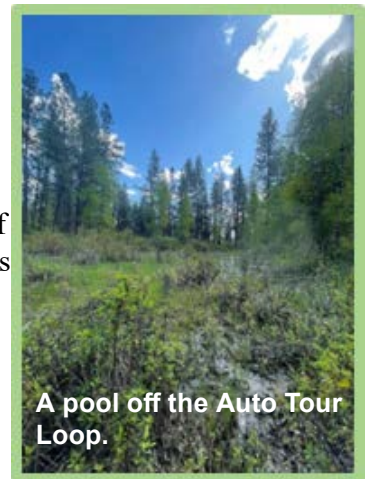
Twenty-five vernal pools are included in total, 5 of which are on the Refuge and 5 on the Turnbull Lab for Ecological Studies property.

This study utilizes a field component where, in Spring of 2022 and 2023, pool conditions were monitored, and fairy shrimp were collected and ID-ed. This informs which conditions favor which shrimp species. Shrimp species and pool data were also compared

to those from 1999 in many of the same pools to see how things have changed. Analyses are ongoing; however, the pools of this area primarily contained shrimp of species *Eubranchipus hesperius*, with only a couple (not at TNWR) containing *Branchinecta cornigera*. This represents a notable diversity loss since 1999 when some of these same pools contained more species. A nearest-date comparison also showed that pools were significantly deeper in 1999. This is important as larger pools were found to generally favor shrimp presence. *B. cornigera* was found in pools with significantly higher pH.

A lab component seeking to isolate and hatch harvested fairy shrimp, keying them from both eggs and those that hatch out is currently underway to determine if the fairy shrimp hatching in the pools differ from those represented in the egg bank and to establish a protocol for the lab-rearing of these particular organisms.

Upon completion of the project, results will be provided to TNWR and recommendations for future monitoring and maintenance of these pools will be made.



A pool off the Auto Tour Loop.

Friends of Turnbull NWR
P.O. Box 294
Cheney, WA 99004

The Friends of Turnbull National Wildlife Refuge, a nonprofit organization, supports the mandate of the refuge to protect and enhance wildlife and their habitats through education, research, habitat preservation and restoration.

Got email? Add it to your membership form for quick activity updates!

Membership Application

YES! I want to support the Friends of Turnbull National Wildlife Refuge and its programs with my membership.

Name _____

Address _____

City, State, and Zip _____

Daytime Phone _____

E-mail _____

Annual Membership: (Circle one)

Individual \$15

Family \$25

Business/Group \$35

Patron \$100

Benefactor \$500

Donation \$_____

Endowment Fund Donation \$_____

Amount Enclosed _____

New _____ Renewal _____

I would like to volunteer _____

Nature Store _____

Committee _____

Environmental Education _____

Where needed _____

My check is enclosed payable to
Friends of Turnbull N.W.R.

P.O. Box 294

Cheney WA 99004