Turnbull Wildlife Refuge
Friends Newsletter

Friends of Turnbull President 2021 Annual Report Fall 2021

by Lorna Kropp

FOT Board Highlights of 2021

1) The pandemic sidelined most Friends of Turnbull NWR activity for fiscal year 2021. During this time there has been activity on the federal level in defining the nature of the relationship between USF&W Refuges and their non-profit, local Friends groups. This re-assessment was prompted by a report from the Office of the Inspector General titled, "The US Fish and Wildlife Service Needs to Improve Oversight of Its Friends Program." Each Friends group is required to have a "Partnership Agreement" which is renewed every 5 years. The agreement specifies roles and responsibilities of each party. Our Friends group is small, and has modest fund-raising goals and has all volunteer efforts. Other groups across the country have much larger organizations and are professionally staffed, with much larger budgets. The new 2021 Partnership Agreement template will require more official reporting of financial status and on-site fund-raising activities. The Friends of Turnbull NWR current Partnership Agreement was completed in 2019 and will be updated as scheduled around the year 2023/24.

2) A side benefit of the national discussion of Friends groups' relationship to USF&W has been the quarterly presentations and discussions among the many Refuge Friends group volunteers, held virtually, with the chance to hear about activities and concerns of other Friends around the country. The meetings have been organized by the National Wildlife Refuge Association and the Coalition of Refuge Friends and Advocates. The meetings and presentations have been so useful that most groups have expressed the desire that they continue after the pandemic.

3) In September, 2020, the FOT Board Financial Committee, which was formed to make recommendations regarding our substantial gift from the Rabe Trust, suggested that the Board embark on an investment plan to safely grow the funds for use on FOT Refuge projects. The goal is to earn 3% annually in investment. The FOT Board Financial Committee continues to oversee the investment.

4) The FOT Board did receive and approve the requests for new STEM equipment from both Environmental Education program (Elementary scopes, nets, magnifiers) and the Biological program (trail cameras, GPS units and iPads). The cost, of approximately $10,000, was paid for from the Rabe Trust proceeds.

5) The Glass Eye Viewing Scopes (purchased by FOT in 2017) have been repaired and were returned to the site overlooking Pine Lake, this September, 2021. They were away for repair for nearly two years.

FOT Activities

1) We participated in the "Earth Vigil for Earth Day," April 22 on Zoom; we were paired in a chat room with representatives of Dishman Hills Nature Conservancy.

2) We were allowed to organize a "small, outdoor activity" in late spring and arranged for Fran Haywood to lead a Bird Walk on the Refuge for 10 "newer" members on May 29, 2021. It was very well received by the participants.

FOT Nature Store

1) The Nature Store was unable to open for 21 months, from November/December 2019, all of 2020, until August, 2021.

2) When the Nature Store closed for the season in December 2019, a new NS Management Team was organized to replace the solo manager after Priscilla Bowen resigned. The Team organized over the off-season, and completed inventory orders, but the COVID-19 pandemic interfered so the store never opened in 2020.

3) The Nature Store Management team has 5 members, each with a specific role:

a. Heather Bosch is the Inventory and ordering coor dinator
b. Lorna Kropp is the Technology and Volunteer Training coordinator
c. Joanne Power is the Volunteer Scheduler
d. John Barber manages deposits/ cash box and mail
e. Kassie Fauth is the Consignment coordinator

4) We attempted an online store from November – December 2020, selling T-shirts, and hats. We received a total of 5 orders ($108) and 3 donations (Metals Fabrication employees/ Weaver Family and one FOT member) for $1600 toward the Environmental Education fund.

5) At the same time the NS Team arranged consignment with Copy Junction for T-shirts (moose and swan), hats, sweatshirts, Audubon Bird toys, and water bottles, since the store on Refuge was unable to open.

6) In July, 2021, the FOT Board asked permission to reopen the Nature Store and worked on establishing COVID

(Cont. on p. 2)

protocols (masks, cleaning counter surfaces, social distancing, gloves for handling currency) to protect volunteers and visitors. The store re-opened for the first weekend hours on August 7-8, 2021.

7) The Nature Store sales have been good so far, totaling $3,120. We have several (5-7) very loyal volunteers. Ideally, we can use a volunteer pool of about 16 people.

8) Our Nature Store Outreach – Consignment at Copy Junction in Cheney – will continue year-round. We are grateful to Roger Hagenbuch and Copy Junction for their support.

Newsletters:

Joanne Powell has produced four quarterly Newsletters this year; 108 sent by email and 30 printed and mailed by Copy Junction.

Membership:

June is membership renewal month. Many members use the online PayPal link and an equal number send in membership checks by mail. The membership fluctuates with activity and currently is low. We continue to send information to last year's members as well.

Financial Report:

STCU Accounts:

Standard Checking:	$130,646.50
Friends Savings:	$6,962.94
EE Contractor:	$14, 461.58
Biological Program:	$4,302.73
Total:	$156,373.75

Cetera Advisor Networks (Voya Investments)

8/1/21-8/30/21:	$76,665.08

Total Assets: $233,038.83

Save water; go native with backyard wildlife plantings this fall

By Madonna Luers

Fall is one of the best times to add plants to your landscape (as their root systems go into dormancy), and using native species helps attract wildlife and save water.

Our native birds, butterflies, bees and other wildlife evolved with plants native to the Inland Northwest. Those plants evolved with our region's relatively dry conditions, so they don't require supplemental watering once established.

With population growth and climate change, water can no longer be considered unlimited anywhere. Meeting demands for all uses of water – including fish and wildlife – requires water conservation practices, with or without drought.

One of the best long-term ways to both save water and attract wildlife is to "go native" by replacing thirsty, exotic landscape plants and bluegrass lawn with appropriate native, drought-tolerant plants that will thrive on rainfall alone. Their beautiful blooms, seeds and fruit are just as attractive in your landscape as any non-native species. This shift to sustainable "xeriscaping" (from the Greek "xeros" meaning "dry") will also save you time and money on maintenance and chemicals.

Try replacing a few plants or small spaces of lawn at a time, and remember that even a native, drought-tolerant species will require regular watering right after planting to establish a solid root system. The water savings will come later (and for the long run).

When you plant anything – native or not – remember to locate it in your yard where it is best suited and to minimize water use. Don't plant a shade-loving species in a full-sun location or you will be watering it constantly, and it likely will never look at home.

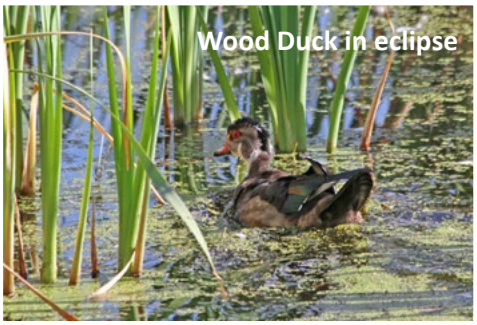
If you're not ready to reduce that bluegrass lawn with native plantings, you can at least reduce watering. Lawn care experts say that occasional, deep watering is best for grass, rather than daily light watering, which doesn't allow deep root systems to develop.

Variety at Turnbull

All photos by Carlene

By Carlene Hardt

One just never knows what you will see at Turnbull NWR no matter what time of year it is! In September I enjoyed seeing a variety of animals and a new kind of beetle. This Bumble Flower Beetle was busy feeding on the flowers of a Mullein plant. Its oval-shaped body and fuzzy hair certainly are distinctive features. Along the path, I spotted a Wood Duck in its "eclipse plumage." You certainly could see that its sides and bold stripes had faded, but he still had his bright eyes and bill.



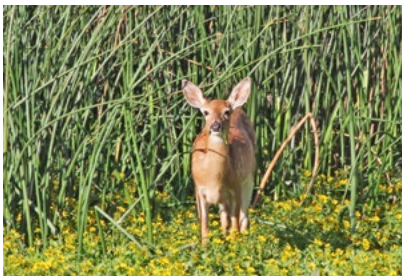
Wood Duck in eclipse

One day a young couple told me that there was a Great Horned Owl just sitting like a statue in the middle of a pine tree on the west side of Middle Pine Lake. It took some time to find it, but I spotted a dark silhouette and discovered the owl they were talking about. I have fond memories of the Great Horned Owls we've seen at our home!

Later, for the first time, I saw an unusual medium-sized raptor flying low and weaving over the cattails. Its face reminded me of an owl, but the body was hawk-like. I learned that it was a Northern Harrier. When it was weaving over the field, it was watching and listening for small animals beneath the vegetation; but they also hunt small birds. The Internet says its disk-shaped face functions much like an owl's, with stiff facial feathers that help direct sounds to the ears.

Northern Harrier, immature female

There have been visitors at Ice Pond! The fawn in my picture was grazing and was quick to turn around and dart into the reeds when it heard voices of people coming down the path. Then, a couple of weeks later, as I was approaching that same pond, I saw photographers taking pictures of something in that direction. I stopped and quietly walked forward and was delighted and surprised to see a bull moose and his mate, grazing at the far end of the pond! Since they weigh up to 1200 pounds and are very tall, I proceeded with caution to not disturb them. The first things I noticed were the bull's huge antlers! From the path and about 150 feet away, I mostly stood close to a big bush to stay out of sight while the bull flirted with his mate – until the bull made some grunting noise and looked directly at me. At that point I turned and hustled back the way I came so there would be trees between us. It was wonderful to see how healthy they looked.



Fun facts: Moose are browsers and will casually devour 73 pounds of plants in a day during the summer and 34 pounds in the winter. Their antlers can weigh up to 40 pounds.

Roger Hagenbuch of Copy Junction

For great service to our organization, the Friends of Turnbull National Wildlife Refuge is gifting an honorary lifetime membership to Roger Hagenbuch of Copy Junction in Cheney, WA. Roger has been both generous and helpful with the various printing needs that the Friends group has had for at least the last 7 years. Roger also has provided a presence for the Friends' Nature Store in the community during this pandemic year as the actual store on the Refuge had been closed for 21 months.

Testimony: Roger has been incredibly helpful since I first met him. I can't remember the year, but it was at least 2014-2015. We originally had our newsletter printed at EWU's print shop, but they closed their public services, so I needed to find another printer. I was going to an exercise class in the strip mall where Roger's shop is located and walked in to talk to him about printing our newsletter. He was really helpful and gave us a great price. He printed our newsletter when the whole thing was mailed out rather than just the 30+ we have printed now. He printed all the booklets for the FFF festival that we held in conjunction with the MayFest put on by Cheney and did a great job. He would call me whenever there was a problem with the layout, rather than just printing what he saw even if it needed an adjustment. We never had to ask for reprints due to errors. He went out of his way to help with advertising the event and with giving me solid advice on the best way to layout/print the information.

Joanne Powell, FOT Newsletter Editor

Roger and Copy Junction has printed, folded, and mailed the Quarterly Newsletter since 2014. His excellent work has always been priced fairly and he has offered donations for Auction Fundraising.

Copy Junction also printed the Auction Booklets and Bidsheets for the Friends' Auctions for several years from 2015 – 2019 at reduced cost or gratis. In addition, there were several years of program booklets for the Refuge outreach program, Floods, Flowers, and Feathers, and MayFest Festivals, 2012-2019.

In 2020 when the Nature Store at the Refuge could not open for the entire season, we approached Roger about helping with an online Nature Store and package pick-up. He suggested that he would like to take items from the store on consignment and sell them for us. He has been THE source of Friends of Turnbull items in Cheney during the pandemic, and for that and the extended exposure in the community we are very grateful.

Roger has always been helpful, very professional and competent and we appreciate the fact that he and his staff have always checked over questions with a print job, so that we have never had an issue which required a re-print.

The Friends of Turnbull, a non-profit organization, supports Turnbull National Wildlife Refuge, which protects and conserves 20,000 acres of habitat for wildlife. Members of the Friends group help with Environmental Education classes and Field Trips for area school children and others. We assist with planting and habitat restoration projects, and we raise funds to support interns for the Environmental Education program.

WEST VALLEY OUTOOR LEARNING CENTER

by Lily Stolar

The West Valley Outdoor Learning Center (WVOLC) provides hands-on learning, science, and outdoor education programs to the public in Spokane, Spokane Valley, and the surrounding regions. We have many animals on-site, including six birds of prey. We are able to work with these birds to teach students and the public about birds of prey.

We were honored to speak at the Friends of Turnbull Annual Membership meeting. Due to the extreme heat and smoke from this summer, we decided to focus our presentation on how both the birds of prey at our facility and those in the wild dealt with the extreme heat. Temperatures in Spokane reached record highs this summer, which put extra stress on nesting birds. June, in particular, was an abnormally hot month, which unfortunately correlated with when many birds of prey are raising their young. To ensure that the birds of prey living in captivity at the WVOLC stayed cool, we provided them with fans and fresh tubs of water. We also misted them with water several times during the hottest parts of the day. Unfortunately, wild raptors didn't fare so well. Many hawks and eagles were in the middle of raising their young when the extreme heat hit Spokane. This caused many baby birds to jump out of the nests. One of our volunteers, Tina Penny, also volunteers to rescue birds of prey in the wild. In a normal year, the rescue facility Tina volunteers at rescues about 30 birds. During the heatwave, this rescue facility rescued over 120 birds of prey. A majority of these birds were Cooper's hawks, merlins, red-tailed hawks, and eagles (Bald and Golden). Many babies perished in the intense heat, but with Tina's help, many birds were rescued, rehabilitated, and released.

If you would like to help birds of prey in your neighborhood, there are several things you can do. First, you can plant shade trees and place birdbaths outside. Birdbaths are a great way for wild birds to cool off. In addition, birdbaths attract song birds, the main prey for most raptors.

You also can try to reduce your carbon footprint and by voting for government officials who support the environment. Climate change is the main reason that we see these temperature fluctuations, so voting for environmentally savvy government officials is a great way to support your local ecosystem.

If you would like more information about the West Valley Outdoor Learning Center, who we are, or what we do, feel free to email us at: olcinfo@wvsd.org.

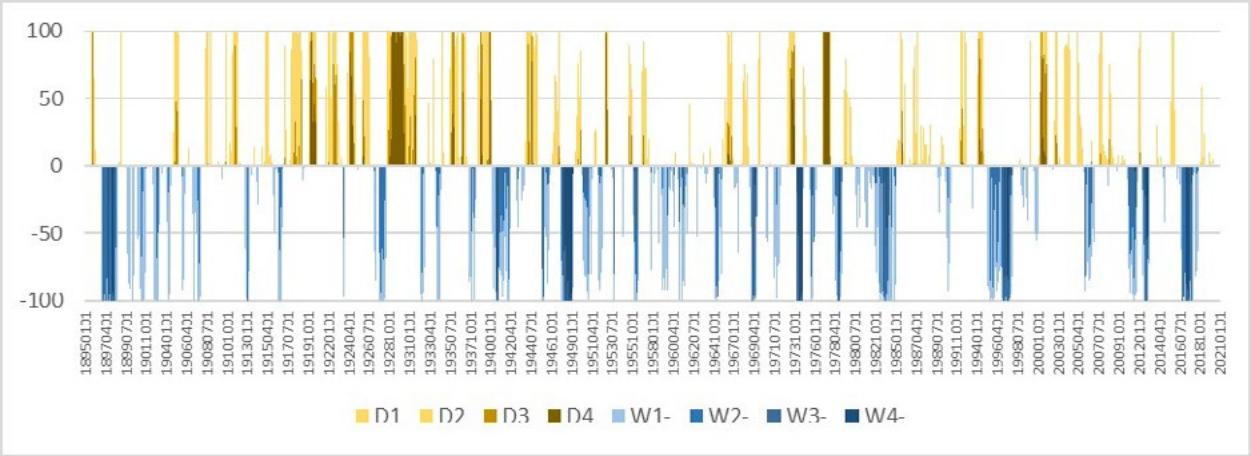
Red-tailed Hawk
© Greg Gard

Cooper's Hawk Nest
© Anthony Brake

Too dry or too wet? Do ducks really care?

Mike Rule

It looks like we finally may be near the end of yet another historic hot, dry year. This year has had a significant impact on refuge wetlands. The low snowfall this past winter and drier than normal conditions over the past three years resulted in all but the deepest, permanent wetlands drying up. Even the most drought-resilient wetlands such as Cheever, Upper Turnbull and Long Lake are at levels that have exposed a considerable portion of the wetland bottom. These conditions certainly will have an effect on future refuge waterfowl populations, at least in the short-term. Although drought has a negative connotation for most folks, periodic drying of wetlands are actually an important part of their cycle in this semi-arid portion of the west. The following graph of monthly drought indices shows the cycle of drought and wet periods in Spokane County over the past 165 years. Yellow to brown (D1-D4) indicate increasing dryness and departure from normal; the light to dark blue (W1-W4) indicate increasing wetness. As you can see, it is a pretty dynamic picture of dry and wet cycles of varying lengths and intensity. So how do wetlands and the wildlife respond to these cycles?



During prolonged wet periods when wetlands fully recharge in the spring and maintain relatively stable conditions over a period of years, overall productivity of the deeper, permanent wetlands can decline as they become more lake-like. This is especially true in refuge wetlands connected to an external drainage system which augments local run-off with off-refuge sources. These drainage systems were created in the 1900's to make wetlands more available for farming. Refuge restoration of drained wetlands involved the installation of water control devices in the drainage ditch. Those have given us some control over the flooding and drying of these wetlands. Prior to this drainage, nearly all of the large, deeper wetlands in the area were isolated and only received local runoff, which resulted in more frequent drying. Currently we try to manage restored wetlands as close to natural as possible. We set a maximum water level and let nature take its course. Because of the artificial augmentation of water input, some of these wetlands exhibit more stable water levels over time.

As lake-like conditions develop, the diversity of aquatic plants declines, favoring species (such as milfoil, bladderworts, and muskgrass) which can tolerate lower oxygen levels, decreased nutrients and light penetration for photosynthesis. Lower oxygen and nutrient levels occur as decomposing organic material builds up on the wetland floor, creating anaerobic conditions (low oxygen), which bind up many important plant nutrients, making them unavailable. Basically, lakes are good for fish and the birds that feed on them, but not so good for wildlife that need a diversity of plant foods and associated invertebrate species. Large areas of open water (called fetch) also produce greater wave heights during wind events, which can have significant

impacts on the nests of species, such as eared grebes and black terns that build floating nests on the edge of open water areas. Under lake conditions emergent plant beds (cattails and bulrush) become restricted to the narrow, shallower shoreline areas. These emergent plant stands are important for overwater nesting species such as redheads, ruddy ducks and, yellow-headed blackbirds. These species are found in areas with wider bands of emergent plants interspersed with pockets of open water, a condition often referred to as "hemi-marsh". These stands of tall emergent plants also provide important cover for waterfowl broods during the summer.

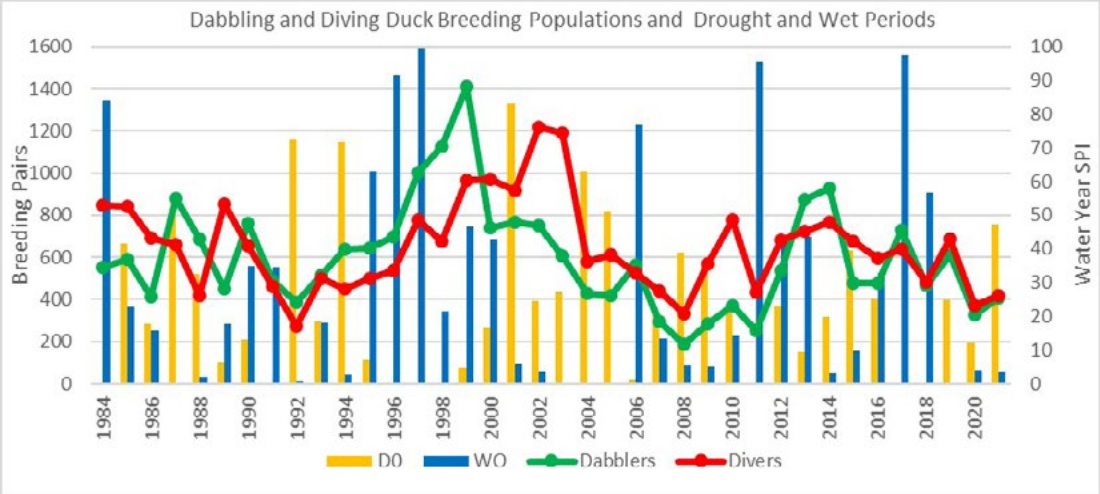
When drought conditions return, as they always do, wetlands receive less run-off and greater losses from evaporation and plant transpiration (evapotranspiration) in summer, creating larger areas of shallow, water and exposed mudflats. These drawdowns consolidate and oxygenate the organic soup that has accumulated during wet periods, releasing nutrients and allowing for the germination of a diverse array of aquatic plants. When flooded, these plant beds provide seed, plant material and substrates for invertebrates that fuel the refuge's food webs. These shallower areas also provide excellent breeding and foraging habitat for our native amphibians, shorebirds and wading birds. If dry conditions persist over more than one growing season, emergent plant beds will expand, creating hemi-marsh conditions. Drought under these conditions is a regenerative event

As with most things in life, too much of good thing can be detrimental. Prolonged drought without a return to normal or above normal wet years, similar to long-term stabile water levels, can change fundamentally the capacity of wetlands to provide habitat for the full spectrum of native wetland plants and wildlife. A significant number of the over 300 refuge wetlands are seasonal in nature and dry up most years. Without adequate spring run-off, many of these may be dry during the breeding season, which greatly impacts dabbling duck species such as mallards and cinnamon teal that prefer these shallow wetlands. The deeper wetlands, which we refer to as semi-permanent, can become covered predominately with emergent plants, with little to no open water. These 'closed' marshes may be good for some species such as rails and bitterns, as well as northers harriers and red-winged blackbirds. However, those species requiring hemi-marsh conditions, or even a larger proportion of open water areas vegetated with a diverse community of submerged aquatic plants, will be absent or present in very low numbers. Their productivity, as measured by the number of young reaching adulthood, what we refer to as recruitment, declines. We have seen this occur with waterfowl breeding populations on the refuge.

The refuge experienced a significant drought period in the late 1980s and early 90s, which resulted in all the benefits and negative results associated with drought. Waterfowl numbers plummeted as nesting habitat and, especially brood rearing habitat, declined (see the graph below). All was not lost. As expected, a return to a period of above normal water years (1995-1999) allowed the refuge's wetland-dependent wildlife to reap the benefits of those drought years. Spring wetland conditions improved with additional acres of seasonal wetlands flooded. Hemi-marsh occurred in abundance as emergent plant beds that expanded during the drought years were flooded, providing abundant overwater nesting. Productive submerged, aquatic plant communities provided food for young waterfowl and other wetland dependent birds. Because waterfowl typically return to the wetlands from which they hatched to breed, recruitment in these 'good' years builds the breeding population. Peak populations of eared grebes, black terns, and yellow-headed blackbirds were also observed during those banner years.

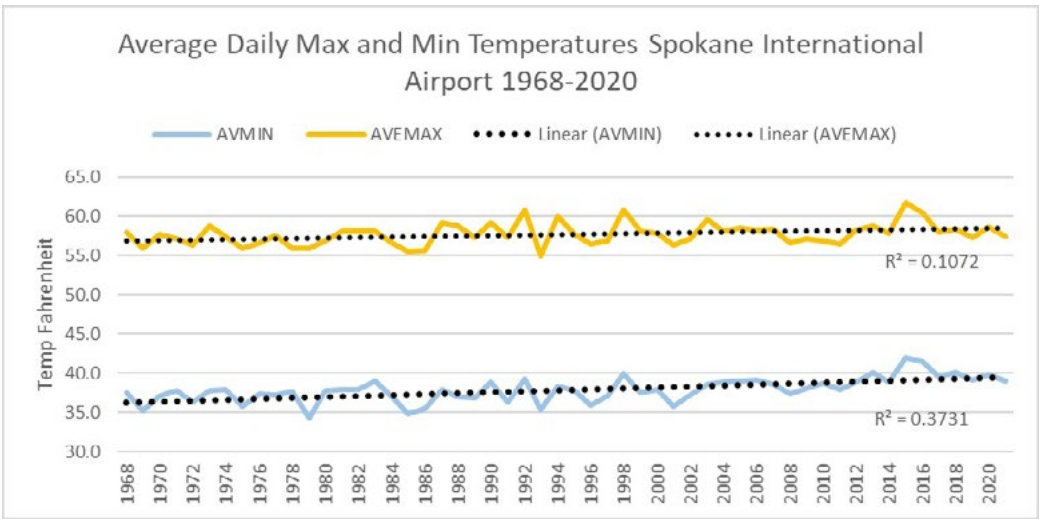
Red-winged Blackbird
© Connor Charchuk

Following this highly productive period the refuge experienced another prolonged dry spell. The result was a rapid decline in dabbling ducks that utilize seasonal wetlands more sensitive to drought. Diving ducks that use permanent wetlands more resistant to drought continued to increase for a few years, until more severe drought affected these wetlands too.

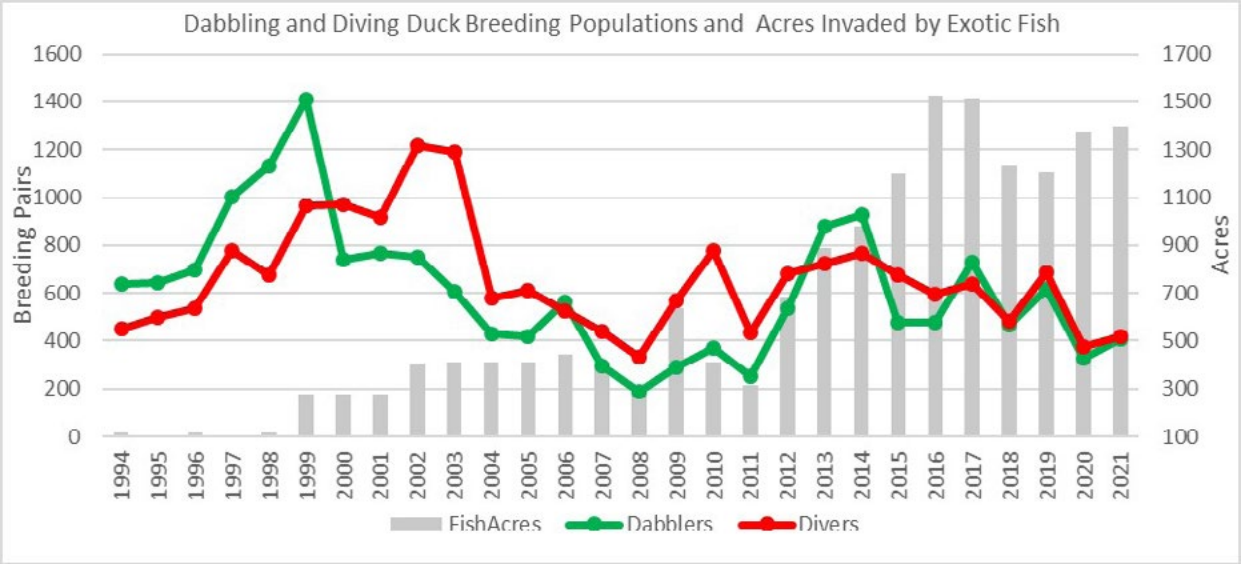


From 2006 to the present, climatic conditions have been more variable than in the past. Several years had wetter than normal winters and springs, only to experience drier than normal summer conditions. These years typically have decent spring wetland conditions, but wetlands draw down more quickly, resulting in less brood-rearing habitat. There have also been some very dry years during this period and shorter intervals of normal or above normal wet years. The result has been some short-lived increases in breeding population, but highly productive conditions have not been sustained over several consecutive years to build back waterfowl nesting populations to near historic peaks. Recent comparison of refuge waterfowl breeding populations to annual precipitation (snow and rain) found a lack of correlation to annual rain and snowfall. Both dabbling and diving duck populations were, however, positively correlated with the previous 5-year average of annual precipitation, supporting the hypothesis that waterfowl breeding in an area requires multiple years of above average conditions to significantly increase populations.

As with all natural systems, especially those impacted through human activities the relationships we observe are not always as simple as the natural cycles of wet and dry periods. Climate change may already be impacting refuge wetlands and associated wildlife. Models predict that annual temperatures will likely become warmer, especially during the summer. The precipitation amount is not expected to change, but it will come more as rain, with less winter snow. Looking back to 1968, the mean monthly maximum and minimum temperatures indicate a warming trend (see graph below). This has resulted in increased water loss from evapotranspiration. Recent climate impact modelling developed by the University of Washington has been applied to refuge wetlands. It predicts earlier and more frequent drying of wetlands resulting in loss of seasonal wetlands and making semi-permanent wetlands more seasonal.



We also have yet another human-caused perturbation to our wetlands, namely the introduction and spread of two species of non-native fish, the brook stickleback and the pumpkinseed. Historically, refuge wetlands were fishless. These species arrived in the 1990's and distributional studies conducted by Eastern Washington University and refuge biological staff have found steadily increasing numbers and distribution each year. Currently all of the large, managed wetlands that are connected to a drainage system contain fish. Several studies conducted by graduate students at Eastern Washington University have found that that these species have significant dietary overlap with waterfowl and their presence has affected the abundance of some types of aquatic invertebrates. Their effect on invertebrate populations also may be exacerbated by drying in wetlands that create the shallow water foraging habitat preferred by these species. Preliminary analysis of several variables as they potentially relate to annual breeding populations indicate that increasing acres of fish-infested wetlands might be partially responsible for the downward trend observed for some waterfowl species.



As we delve into these long-term data sets and tease out the relationships between climatic variables, human changes to the ecosystem, wetland conditions, and refuge wetland dependent wildlife populations, how we manage refuge wetlands may need to be adapted. We may need to look at ways to better take advantage of the artificial drainage system. Alternatives to be considered may be more frequent, periodic drawdown of our more permanent, managed wetlands to better emulate natural drying cycles, scheduling the sequence of drawdowns in a drainage system to reduce populations of exotic fish and the probability of reinvasion, and the use of vegetation management strategies (burning, disking, herbicides or mowing) to maintain hemi-marsh conditions and manage reed canarygrass. The Anthropocene is a period of rapid change to natural systems brought about by humans. It is going to take good science, hard work and creativity to sustain refuge habitats and wildlife into the future. Our partnerships with organization such as yours are essential to addressing these challenges.


Dabbling Ducks
Flickr

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