



AMPHIBIAN MONITORING

COMMUNITY SCIENCE PROGRAM

2024 REPORT

AMPHIBIAN MONITORING COMMUNITY SCIENCE PROGRAM

The Amphibian Monitoring Community Science Program is offered through Woodland Park Zoo's Living Northwest Conservation Program. Launched in 2012, the program provides much-needed data on amphibian populations for Washington Department of Fish and Wildlife (WDFW) and other land managers. To protect Pacific Northwest amphibians—frogs, toads, salamanders, and newts—wildlife managers need to understand where their populations are and how they are doing, which is one reason why we have enlisted community volunteers to gather critical data on amphibian presence and breeding activity in Puget Sound's urban and suburban landscapes.

Participants are trained and equipped with hip waders, GPS units, aquascopes, and other monitoring tools as they learn how to find, document and identify egg masses of different amphibian species in a way that's safe for people, wildlife and habitats. Volunteers are organized into teams and visit their wetland site monthly—recording data and taking photos of any egg masses or other life stages of amphibians they encounter. Over a six- to seven-month period, volunteers monitor for and submit data on eight different species of frogs, toads, and salamanders in wetlands throughout western Washington, including parks and other wetland sites across King and Snohomish counties.

2024 NUMBERS AT A GLANCE

# TEAMS	18
# SITES	20 (some of these include multiple ponds; 1 new site this year)
# VOLUNTEERS	109
# VOLUNTEER HOURS	1,650+
# OBSERVATIONS (as of November 6, 2024)	1,141
# RESEARCH GRADE OBSERVATIONS (as of November 6, 2024)	574 (50%)

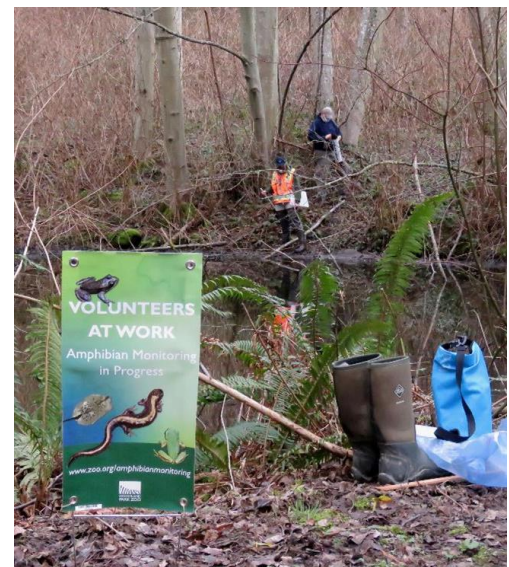


Photo by Elaine Chuang, project volunteer

VOLUNTEER TRAINING

Woodland Park Zoo staff and experienced Amphibian Monitoring volunteer team leaders conduct the training for the volunteers. After registering, volunteers complete a self-paced, interactive learning module in Discovery Den, an online learning platform where the zoo provides program training, protocols, and supporting resources for volunteers. Additionally, all volunteers attended a live, online training session to review the data collection protocol, learn about updates, and connect team members with their team leader for each site. This session was followed by an optional in-person, field demonstration session at Discovery Park in Seattle.

DATA MANAGEMENT PROCESS

All amphibian observations for this project are entered into iNaturalist with photos, georeference (latitude and longitude) and additional fields (weather, site conditions, etc.) as directed by the protocol. In iNaturalist, an observation can be entered with or without an initial species identification by the observer. Observations can then be validated or identified by project curators (project volunteers with expertise in amphibian identification who are recruited to assist with species identifications) and by the general iNaturalist online community. iNaturalist observations become "Research Grade" when the iNaturalist community agrees on an identification.

After each monitoring season, the data collected by community scientists is synthesized into this summary report; site-specific data is also summarized and provided to each land manager. Data are also openly available to the public on the iNaturalist platform.

During the 2021 season, a graduate student with the Advanced Inquiry Program interned with the project to extract, clean, and merge the 2012-2021 project data. We now have a complete Site Master list of every site monitored since 2012, which years the site was monitored, and whether amphibians were or were not found each year. Based on the Site Visit reports that volunteer teams now submit, we are tracking "no species observed" reports and have a more efficient method for calculating volunteer hours. The project also resulted in a clean Excel document of the project data from 2012 to 2021, to which each year of new data is now added. The data can be summarized in various ways, some of which are presented below. If you are interested in accessing this full dataset, please email monitoring@zoo.org with your request and a summary of what you plan to do with the dataset.

More information on data validation in iNaturalist can be found in this article: Boone, M.E. & Basille, M. 2019. *Using iNaturalist to contribute your nature observations to science*. Retrieved from <https://edis.ifas.ufl.edu/uw458>.



Amphibians of Washington project page:

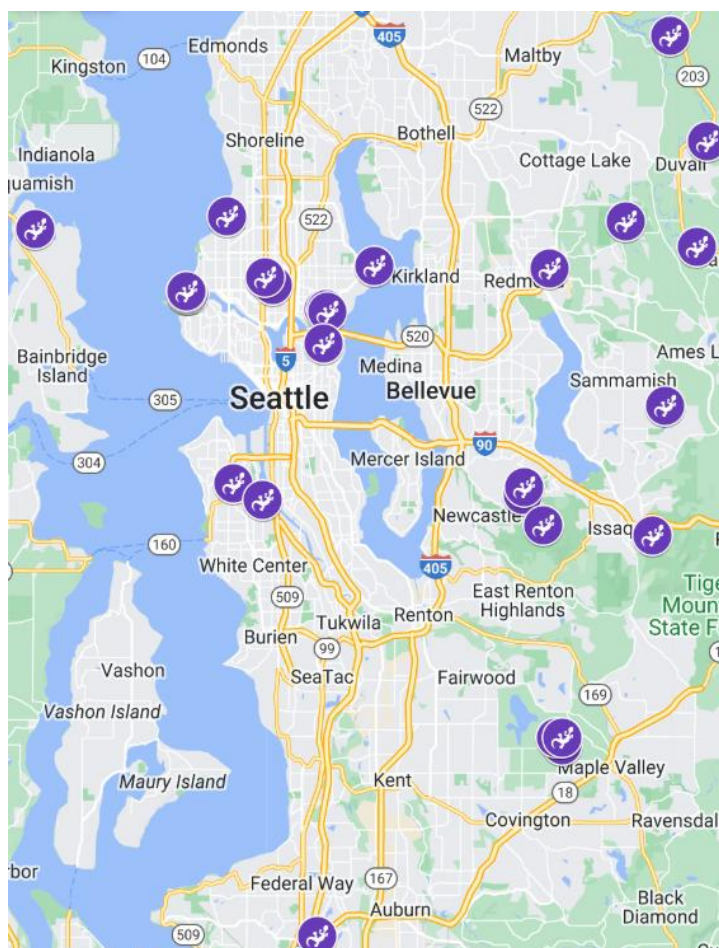
<https://www.inaturalist.org/projects/amphibians-of-washington/>

SITES – 2024 SEASON

This year, the zoo again held an advisory meeting with local land management agencies and/or interested non-profit organizations to consider regional needs for annual site selection. Participants included municipal and state agencies, such as Bellevue Parks, Seattle Parks and Washington Department of Fish and Wildlife, as well as the Oxbow Farm and Conservation Center and City of Issaquah.

The site selection advisory group discussed a site selection process that considers the following:

- The principal goals of the project: 1) to detect if common species are staying common and to look for presence of rare species, and 2) to contribute data to help detect long-term trends, including distribution of breeding sites across the urban landscape and shifting phenology of breeding periods.
- Volunteer accessibility and interest—strive to make science and conservation accessible to populations who may be underrepresented in science and conservation; allow volunteers to choose the location(s) they want to monitor.
- The geographic distribution of sites—include locations across a broad area throughout King and Snohomish counties.
- Sites of interest to the project's land manager collaborators.
- Sites with known beaver activity (given new research about the positive influence of beaver activity on amphibian diversity).



Map of King and Snohomish counties showing sites monitored in 2024

In 2024, 18 teams monitored a total of 20 sites (some sites contain subsites—ponds separated from one another) with several subsites being new this year, including wetlands we had not yet surveyed in Green Lake, Magnuson Park, Redmond, Round Lake, SHADOW Lake. The Friends of Green Lake non-profit organization trained with WPZ this year so they could survey Green Lake as a potential reintroduction site for Pacific chorus frogs. We also worked with the next generation of conservations through a partnership with the Washington Conservation Corps team serving with the City of Redmond. Our friends with Green Issaquah joined us this year to learn how amphibians are doing in nearby Issaquah wetlands. Oxbow Farm & Conservation Center staff monitored three sites, each of which included a complex of subsites, using the zoo's protocol. Three of our 2024 sites were selected to assist with a Washington Department of Fish and Wildlife grant-funded Stormwater Pond Biodiversity study (which WPZ is a partner on), which is aiming to determine which stormwater pond conditions promote species diversity and abundance and whether stormwater ponds are equitably distributed and managed across socioeconomic strata. These data are still being analyzed.

SITE	SUBSITES	LAND MANAGER
Bloedel Reserve	Multiple Ponds	Bloedel Reserve
Camp Long		Seattle Parks & Recreation

Carkeek Park		Seattle Parks & Recreation
Cherry Valley	Multiple Ponds	Monitored by Oxbow Farm & Conservation Center
Crescent Lake (Snoqualmie Wildlife Area)		WDFW
Discovery Park	Wolf Tree Ponds	Seattle Parks & Recreation
Green Lake	Two areas of the lake	Seattle Parks & Recreation
Hazel Wolf Wetland		Forterra
Keller Farm Mitigation Bank	Multiple ponds	Monitored by Oxbow Farm & Conservation Center
Lewis Creek	Two ponds (Main and North)	Bellevue Parks
Magnuson Park	OLA Wetlands	Seattle Parks & Recreation
Oxbow Farm & Conservation Center	Multiple ponds	Oxbow Farm & Conservation Center
Puget Park		Seattle Parks & Recreation
Redmond Watershed Preserve	Karis Bog	City of Redmond
Rhododendron Park Pond		Rhododendron Garden
Round Lake		City of Issaquah
SHADOW Lake Nature Preserve	Multiple Ponds	SHADOW Lake Nature Preserve
Sky Country Trailhead (Cougar Mountain Regional Wildland Park)	Klondike South	King County Dept. of Natural Resources & Parks
Union Bay Natural Area	Multiple ponds	Seattle Parks & Recreation / UW Botanic Gardens
Washington Park Arboretum	Woodland Ponds	Seattle Parks & Recreation / UW Botanic Gardens

OBSERVATIONS – 2024 SEASON

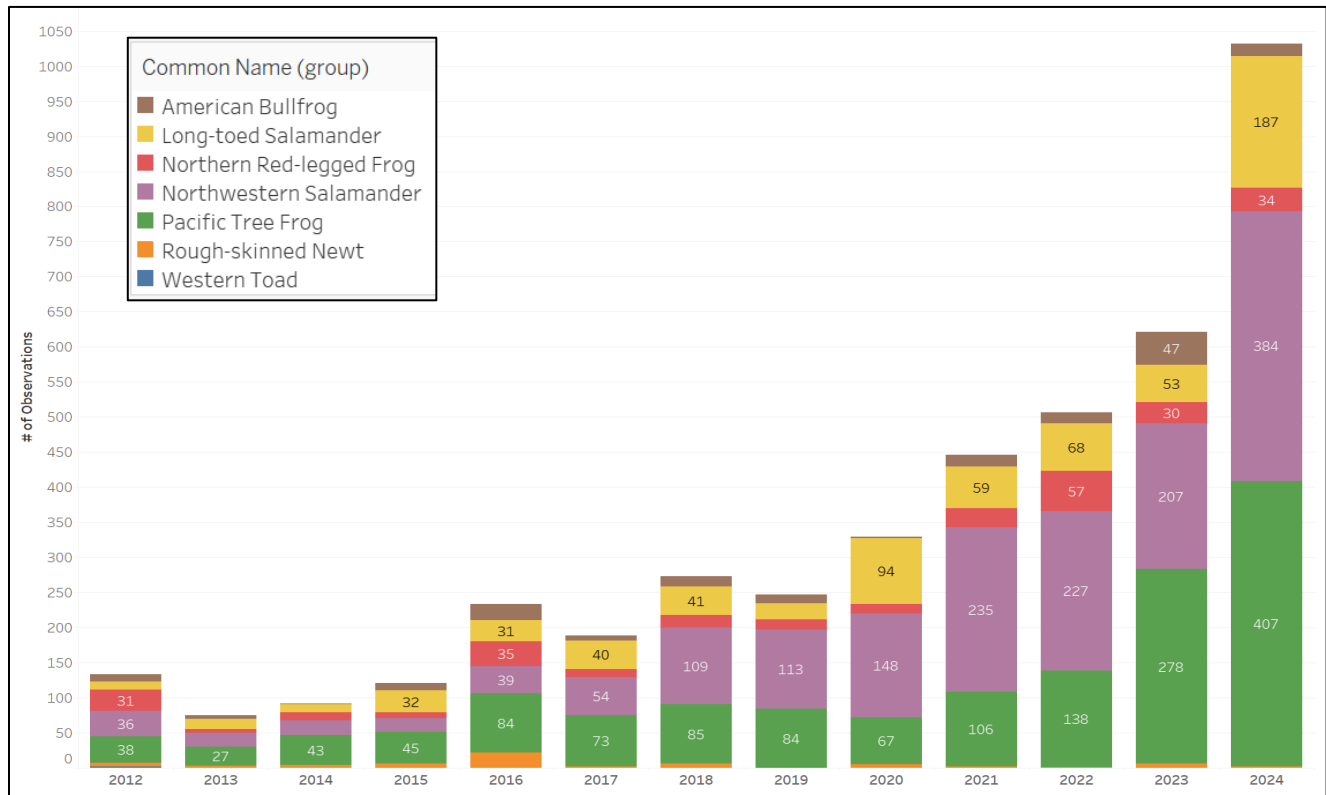
SPECIES	NUMBER of OBSERVATIONS PER SPECIES
American Bullfrog	18
Amphibians (not identified to species)	109

Long-toed Salamander	187
Northern Pacific Tree Frog	407
Northern Red-legged Frog	34
Northwestern Salamander	384
Rough-skinned Newt	2
GRAND TOTAL	1141



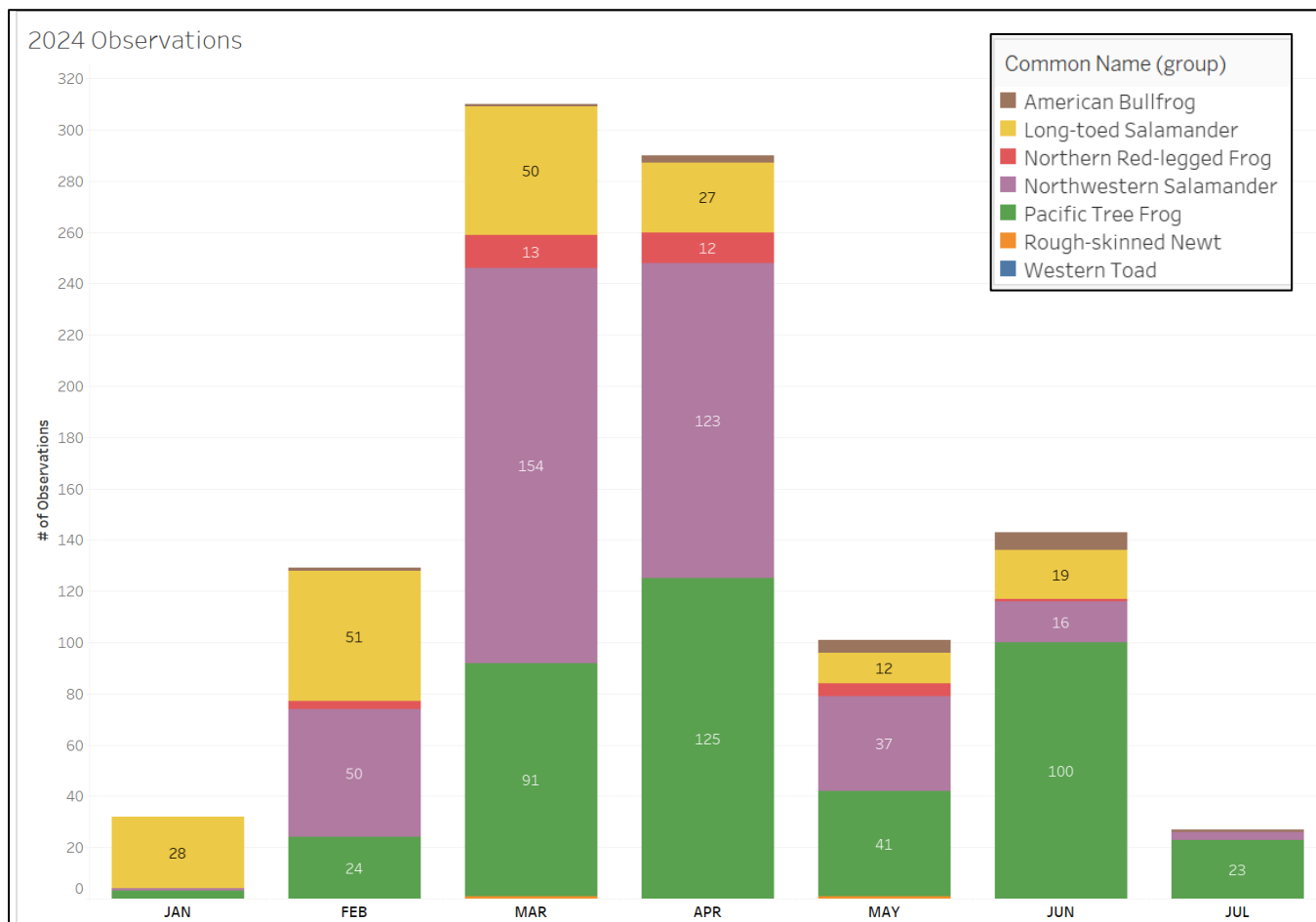
L to R: Northern Red-legged Frog (Seth Conner), Pacific Chorus Frog Egg Masses (Kathryn Arnold), Long-toed Salamanders (terrylou)

2012-2024 – Observations per Year*



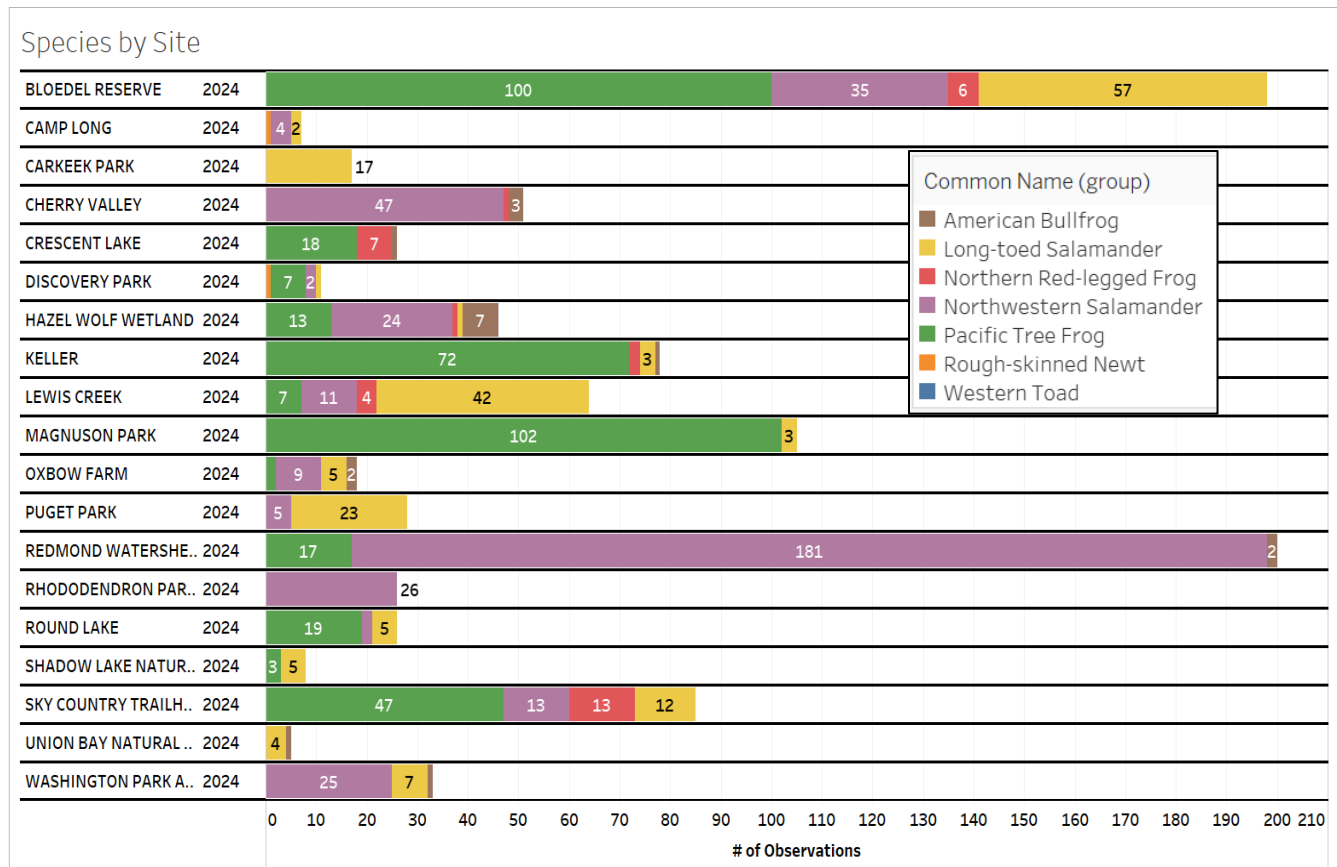
* only includes observations identified to species; number of observations represents the number of times each species was encountered in any life stage (not a count of egg masses or individuals)

2024 – Observations of Species by Month*



* only includes observations identified to species; number of observations represents the number of times each species was encountered in any life stage (not a count of egg masses or individuals)

2024 – Observations by Site*



* observations grouped by Site (all Subsites, if any, combined); only includes observations identified to species; number of observations represents the number of times each species was encountered in any life stage (not a count of egg masses or individuals)

The following sites were monitored during the 2024 season, but no amphibians were observed:

- Green Lake

ACKNOWLEDGMENTS

The lands that we monitor are the lands of the Tribal signatories of the Treaty of Point Elliott (1855), whose stewardship of the waters, plants, land and animal relatives in the Northwest has continued since time immemorial. Woodland Park Zoo acknowledges this stewardship, the sovereign rights of the Tribal signatories, and our responsibility to join with these Tribes to inspire and advance the restoration of relationships between humans and the living world around us.

In 2023-2026, this program is supported by the Puget Sound National Estuary Program's Habitat Strategic Initiative Lead (EPA Puget Sound Funds) in partnership with Washington Department of Fish and Wildlife (WDFW). WPZ is assisting WDFW with a study focused on amphibian, bird, and beaver presence in stormwater ponds and natural wetlands around Puget Sound. Woodland Park Zoo would also like to thank the many organizations, agencies and people who make this program possible!

- All of our Amphibian Monitoring volunteer team leaders, volunteer team members, site selection advisors and iNaturalist project curators!
- Bellevue Parks & Community Services
- Bloedel Reserve
- City of Issaquah
- City of Redmond
- FedEx
- Forterra
- Friends of Green Lake
- King County Department of Parks and Natural Resources
- Oxbow Farm & Conservation Center
- Rhododendron Species Botanical Garden
- SHADOW Lake Nature Preserve
- Seattle Parks & Recreation
- Tilth Alliance
- University of Washington Botanic Gardens
- Washington Department of Fish and Wildlife
- Washington Conservation Corps