

AMPHIBIAN MONITORING COMMUNITY SCIENCE PROGRAM 2021 REPORT

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The Amphibian Monitoring community science program is offered through Woodland Park Zoo's Living Northwest

program. Launched in 2012, the program provides much-needed data on amphibian populations for Washington Department of Fish and Wildlife and other land managers. In order 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've enlisted community volunteers to gather critical data on amphibian presence and breeding activity in Puget Sound's urban and suburban landscapes.

Woodland Park Zoo staff and experienced Amphibian Monitoring volunteer team leaders conduct the training for the volunteers. Participants are 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. Once trained, the volunteers form teams and choose a wetland or pond to monitor on a monthly basis—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



Photo by Elaine Chuang, project volunteer

Washington, including parks and other wetland sites across King and Snohomish counties.

2021 NUMBERS AT A GLANCE	
# TEAMS	16
# SITES	20
# VOLUNTEERS	61
# VOLUNTEER HOURS	855
# OBSERVATIONS	474
# RESEARCH GRADE OBSERVATIONS	224

DATA MANAGEMENT PROCESS

All 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 no identification by the observer or with an initial identification by the observer. Observations are validated by online Amphibian Monitoring project participants (project "curators") recruited to assist with identifications of the observations.

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 <u>https://edis.ifas.ufl.edu/uw458</u>



Amphibians of Washington project page: <u>https://www.inaturalist.org/projects/amphibians-of-washington/</u>

VOLUNTEER TRAINING & CONTINUING EDUCATION

For the 2021 season, a graduate student with Woodland Park Zoo & Miami University's Advanced Inquiry Program (AIP) interned with the project to support volunteer training, continuing education and engagement. Training was held in an all-online format for the first time this year; teams then picked up their equipment at a later date from Woodland Park Zoo. During the monitoring season, four continuing education sessions were led by the AIP intern. Two of these provided additional support to volunteers in the areas of taking good photographs and using iNaturalist. The third session included a presentation by an urban amphibian ecologist on the results of amphibian research in the Portland, Oregon area. The fourth session included an overview of the full set of project data and a discussion of how the data could be displayed and shared. Towards the end of the season, the AIP intern worked to capture and note improvements to be integrated into the training for 2022, which will be hosted on the zoo's new digital learning platform.

SITES - 2021 SEASON

For the first time, our pre-season planning included an advisory meeting with stakeholders from local land management agencies and/or interested non-profits, including Seattle Parks, Bellevue Parks, Washington Department of Fish & Wildlife, Forterra, Beavers Northwest, Snoqualmie Tribe – Environment & Natural Resources Department and Oxbow Farm & Conservation Center. The group discussed that while the project data may or may not be adequate for full research studies, the data is important in providing a baseline or suggestion of trends that could give other researchers a great starting point and a way to guide their own site selection for specific studies.

The group discussed site selection and that this project balances site selection considering the following:

- Main aims of the project include 1) to detect whether common species are staying common and keep an eye out for 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, give volunteers choice about where they want to monitor
- Include sites across a broad area (to the north, south, east and west of Woodland Park Zoo)
- Sites of interest to our land manager collaborators
- Monitoring some sites with known beaver activity emerged as a new focus

For the 2021 season, a UW undergraduate student conducted amphibian monitoring on sites in Union Bay Natural Area using this project's protocol and contributing data to this project, while using additional protocols to conduct other types of surveys for amphibians at the site. Also in 2021, we added a few sites in eastern Washington (only one of which was monitored this year, however) involving staff from the USFWS Leavenworth National Fish Hatchery and high school teachers and their students from Wenatchee and Okanogan.



American Bullfrog Amphibians (not ID'd to species) Northern Pacific Tree Frog Northern Red-legged Frog Northwestern Salamander Rough-skinned Newt

Map of King and Snohomish counties showing sites with observations of amphibians in 2021

OBSERVATIONS – 2021 SEASON

In 2021, a total of 17 sites were monitored by 15 teams, with several of these sites containing subsites (ponds separated from one another). An additional 3 sites, each including a complex of subsites/ponds, were monitored by Oxbow Farm & Conservation Center staff using the WPZ protocol as part of their research.

	NUMBER of OBSERVATIONS
SPECIES	PER SPECIES
American Bullfrog	17
Amphibians	
(not identified to species)	46
Rough-skinned Newt	6
Northern Red-legged Frog	27
Northern Pacific Tree Frog	102
Long-toed Salamander	56
Northwestern Salamander	220
GRAND TOTAL	474

DATA PROJECT - 2012 - PRESENT

For the 2021 season, a second graduate student with Woodland Park Zoo & Miami University's Advanced Inquiry Program (AIP) interned with the project to extract, clean and merge the project data from 2012-2016 (logged in Washington Department of Fish & Wildlife's database) with data from 2017 to the present (logged in iNaturalist). This proved to be quite a large task, and several other data aspects of the project were improved along the way. 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 "absence" reports and have a more efficient method for calculating volunteer hours. The project resulted in a clean Excel document of the project data from 2012 to present, to which each year of new data can be 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 you request and a summary of what you plan to do with the dataset.



Northwestern salamander egg mass (D. Koch); long-toed salamander larvae (J. Charnley); Pacific tree frog tadpole (J. Charnley)

OBSERVATIONS – 2021 SEASON



* only includes observations identified to species

2021 – Observations by Site*



The following sites were monitored during the 2021 season but no amphibians were observed:

- Kimball Creek (amphibians were observed but data are in the process of being submitted)
- Longfellow Creek
- Thornton Natural Area Beaver Pond
- Woody Island Trail (Leavenworth)

OBSERVATIONS - 2013 - 2021



* only includes observations identified to species

ACKNOWLEDGEMENTS

The lands that we monitor on are the lands of the Tribal signatories of the Treaty of Point Elliott (1855), whose stewardship of the waters, plants, land an 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.

Woodland Park Zoo would 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!
- Advanced Inquiry Program Interns in 2021 Alexi Guddal and Masha Dvornika
- Oxbow Farm & Conservation Center
- Bellevue Parks & Community Services
- Forterra
- SHADOW Lake Nature Preserve
- Seattle Parks & Recreation
- Snoqualmie Tribe Environmental & Natural Resources Department
- Washington Department of Fish & Wildlife

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