



AMPHIBIAN MONITORING

COMMUNITY SCIENCE PROGRAM

2022 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.

2022 NUMBERS AT A GLANCE

# TEAMS	18
# SITES	21 (some of these include multiple ponds; 5 sites were new this year)
# VOLUNTEERS	82
# VOLUNTEER HOURS	1,300+
# OBSERVATIONS	541
# RESEARCH GRADE OBSERVATIONS (as of October 11, 2022)	412 (76%)

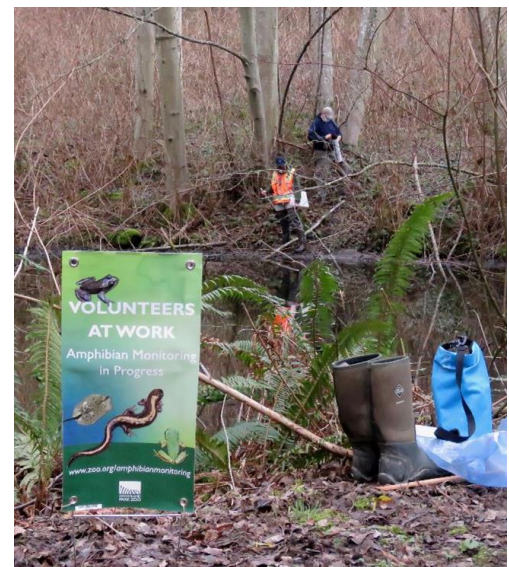


Photo by Elaine Chuang, project volunteer

VOLUNTEER TRAINING

Woodland Park Zoo staff and experienced Amphibian Monitoring volunteer team leaders conduct the training for the volunteers. This year, the zoo hosted program training, protocols, and supporting resources for volunteers in Discovery Den—a new online learning platform—to allow for self-paced, interactive learning. 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 Carkeek Park in Seattle, which was attended by approximately half of the volunteers.

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. During the 2022 season, a graduate student with Woodland Park Zoo and Miami University's Advanced Inquiry Program (AIP) worked with volunteers to ensure the quality and accuracy of their data submissions.

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 "absence" 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 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 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>.



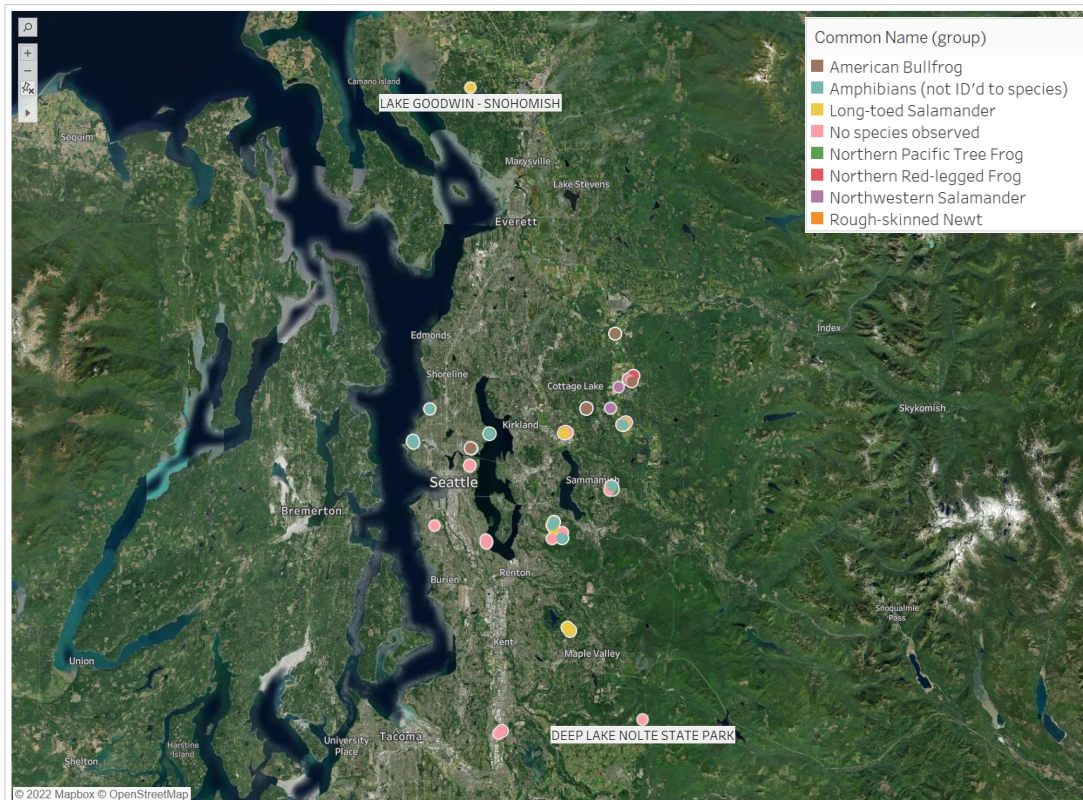
Amphibians of Washington project page:
<https://www.inaturalist.org/projects/amphibians-of-washington/>

SITES – 2022 SEASON

This year, the zoo again held an advisory meeting with stakeholders from local land management agencies and/or interested non-profit organizations to consider regional needs for annual site selection. Stakeholders included municipal and state agencies, such as Bellevue Parks, Seattle Parks and Washington Department of Fish and Wildlife, as well as the Snoqualmie Tribe and Beavers Northwest.

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 2022

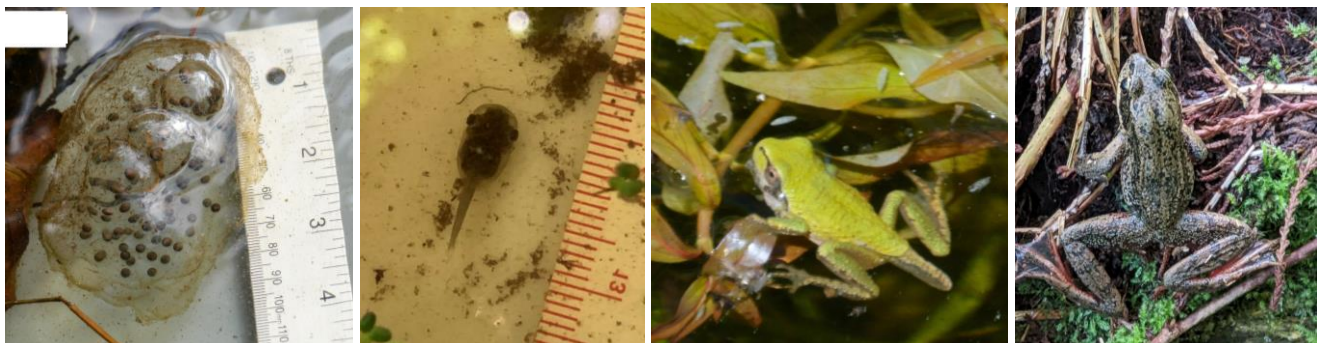
In 2022, 18 teams monitored a total of 21 sites (some sites contain subsites—ponds separated from one another) with several being new this year, including a Washington state park and two King County Department of Natural Resources sites. Oxbow Farm & Conservation Center staff monitored three sites, each of which included a complex of subsites, using the zoo's protocol.

SITE NAME	SUBSITES	LAND MANAGER
Carkeek Park		Seattle Parks & Recreation
Cherry Valley (Snoqualmie Wildlife Area)	Multiple ponds	WDFW, monitored by Oxbow Farm & Conservation Center
Crescent Lake (Snoqualmie Wildlife Area)		WDFW
Deep Lake – Nolte State Park		Washington State Parks
Discovery Park	Wolf Tree Ponds	Seattle Parks & Recreation
Hazel Wolf Wetland		Forterra
High Point SHA Pond		Seattle Housing Authority / Monitored by DNDA
Keller Farm Mitigation Bank	Multiple ponds	Monitored by Oxbow Farm & Conservation Center
Lake Goodwin		Snohomish County Public Works
Leavenworth National Fish Hatchery North Pond		USFWS Leavenworth National Hatchery

Lewis Creek	Two ponds (Main and North)	Bellevue Parks
White River Countyline Levee Setback	three ponds	King County Dept. of Natural Resources & Parks (monitored by KC-DNR staff)
Magnuson Park		Seattle Parks & Recreation
Oxbow Farm & Conservation Center	Multiple ponds	Oxbow Farm & Conservation Center
Pritchard Island Park		Seattle Parks & Recreation
Rainier Beach Urban Farm & Wetlands		Seattle Parks & Recreation / Tilth Alliance
Red Town Trailhead (Cougar Mountain Regional Wildland Park)	Three subsites	King County Dept. of Natural Resources & Parks
Redmond Watershed Preserve	Old Pond	City of Redmond
SHADOW Lake Nature Preserve	Upper Pond and Lower Pond	SHADOW Lake Nature Preserve
Union Bay Natural Area	Several ponds	Seattle Parks & Recreation / UW Botanic Gardens
Washington Park Arboretum	Multiple ponds	Seattle Parks & Recreation / UW Botanic Gardens

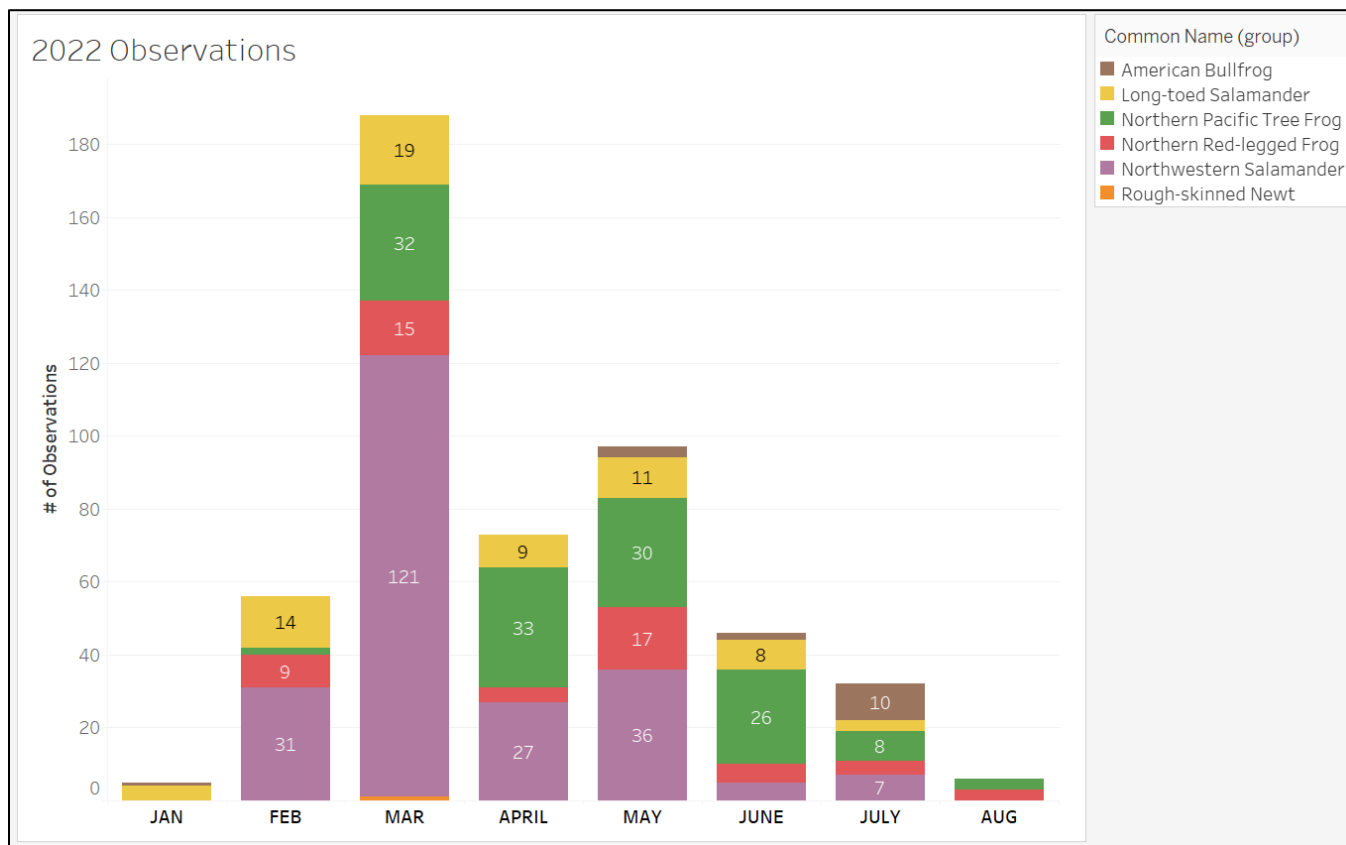
OBSERVATIONS – 2022 SEASON

SPECIES	NUMBER of OBSERVATIONS PER SPECIES
American Bullfrog	16
Amphibians (not identified to species)	38
Rough-skinned Newt	1
Northern Red-legged Frog	57
Northern Pacific Tree Frog	134
Long-toed Salamander	68
Northwestern Salamander	227
GRAND TOTAL	541



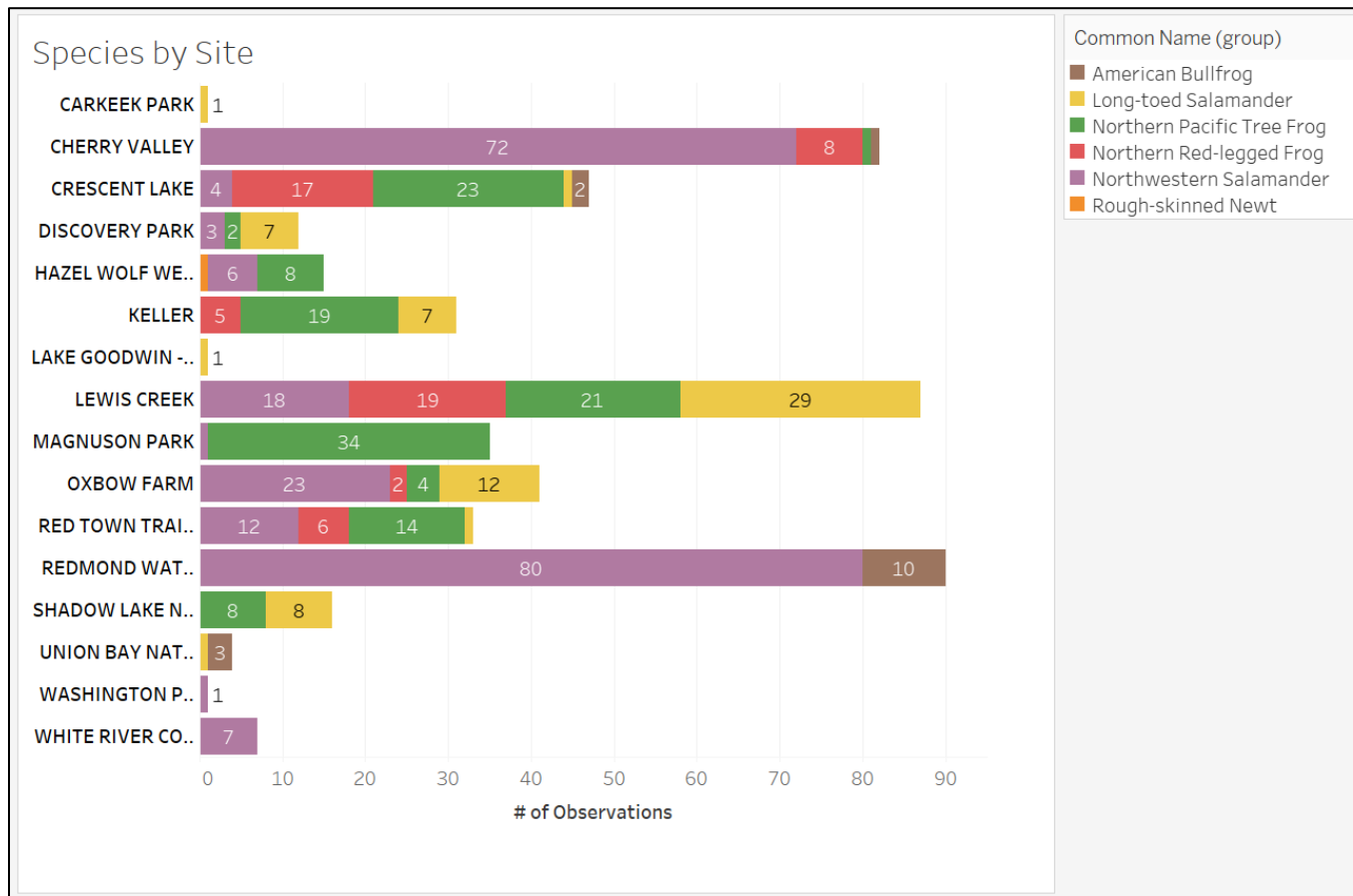
L to R: Northwestern salamander egg mass (M. Henderson-Sjoberg), Pacific tree frog tadpole (D. Koch); Pacific tree frog juvenile (M. Kayali); Northern red-legged frog adult (S. Lawrence)

2022 – Observations by Species*



* only includes observations identified to species

2022 – Observations by Site*

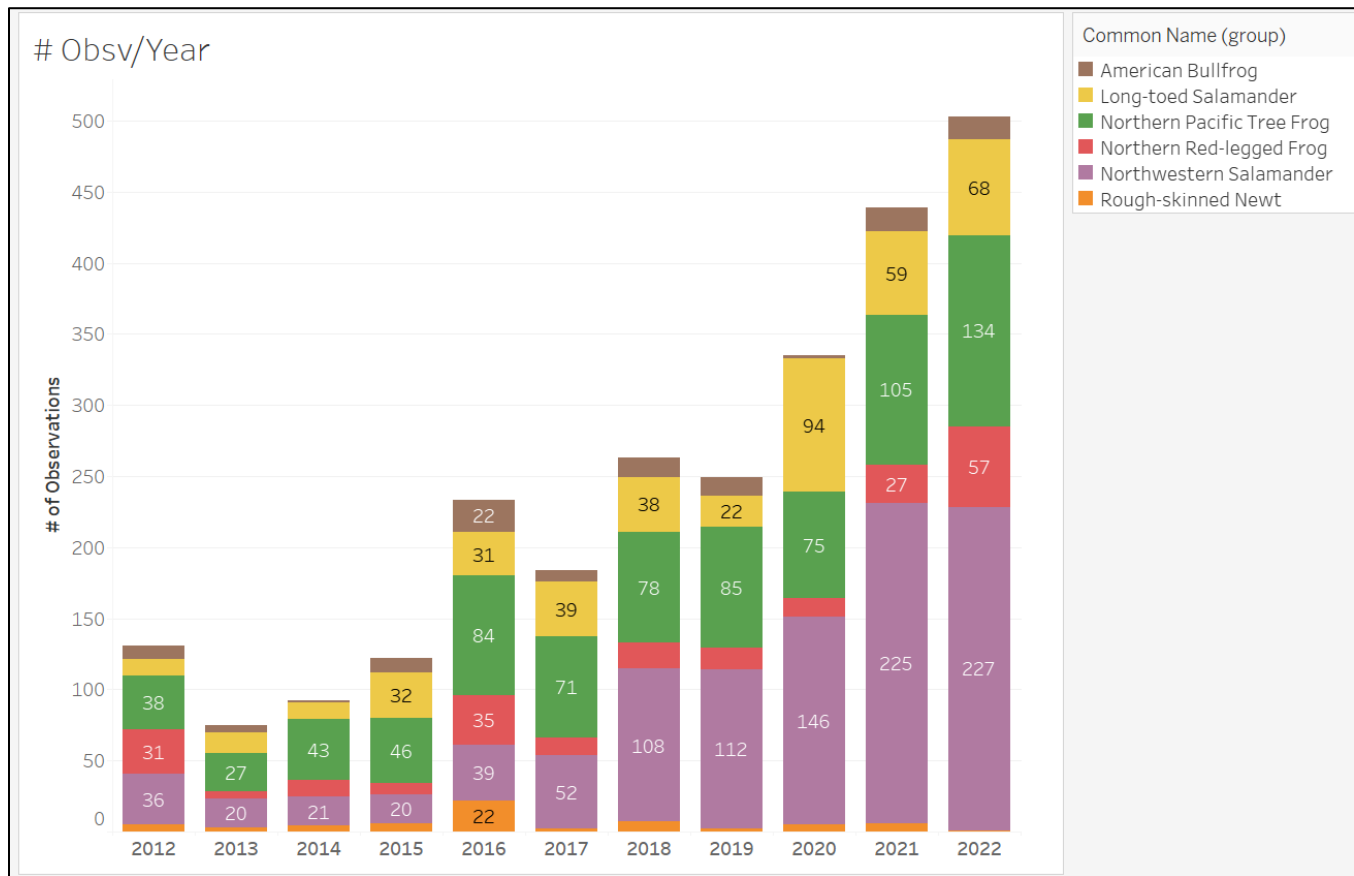


* only includes observations identified to species

The following sites were monitored during the 2022 season, but no amphibians were observed:

- High Point Seattle Housing Authority Pond
- Pritchard Beach Park
- Rainier Beach Urban Farm & Wetlands
- Deep Lake – Nolte State Park
- Leavenworth National Fish Hatchery (no data submitted)

2012-2022 – Observations per Year*



* only includes observations identified to species

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.

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!
- Jasmine Baker, Advanced Inquiry Program 2022 Project Intern
- Bellevue Parks & Community Services
- Forterra
- King County Department of Parks and Natural Resources
- The James M. Lea Foundation

- Oxbow Farm & Conservation Center
- SHADOW Lake Nature Preserve
- Seattle Housing Authority
- Seattle Parks & Recreation
- Snoqualmie Tribe – Environmental & Natural Resources Department
- Tilth Alliance
- University of Washington Botanic Gardens
- Washington Department of Fish and Wildlife