



BAT ACTIVITY TRENDS

COMMUNITY SCIENCE PROGRAM

2024 Summary Report

LIVING NORTHWEST AND BAT ACTIVITY TRENDS (BAT) PROGRAM

Woodland Park Zoo's Living Northwest Conservation Program advances the conservation of wildlife in the Pacific Northwest through collaborative wildlife research and monitoring, restoring populations of imperiled species, and proactive outreach and engagement to promote human-wildlife coexistence.

Washington state is home to 14 known bat species (all insect-eating bats), most of which range across the state (four species are only found in eastern Washington) but have been little studied. Of the 14 known bat species in Washington, 11 are included on Washington's list of Species of Greatest Conservation Need due to suspected impacts on their populations from loss of roosting habitat, fatalities due to wind turbines and/or the effects of white-nose syndrome (a fungal disease that can be fatal to bats).

Our region lacks a baseline of bat activity levels and long-term population trends. If bats are actively observed circling and foraging, although this doesn't tell us about population size, this is a good indicator that the area provides important foraging habitat for our insect-eating bats. **Woodland Park Zoo's Bat Activity Trends (BAT) Community Science Program was designed to help answer this fundamental question: Where are bats active in our region? We seek to help answer this question by empowering community science participants to gather and submit data on bat activity in their own neighborhoods.**

Woodland Park Zoo launched this program in summer 2022 to raise awareness of bat species, habitat needs, and conservation issues within local communities, including the importance of urban areas as bat habitat. **For the 2024 season, Bats Northwest and Washington Department of Fish and Wildlife's Habitat at Home program continued to collaborate with Woodland Park Zoo as partners** in providing outreach and programming to involve more people in the BAT program. For further background on the development of this program, see the Summary Report from the 2022 season at www.zoo.org/batactivity.

The program design includes a straightforward procedure for conducting visual bat observations and provides a fun engagement opportunity for community-based organizations, many with sites that provide good bat-watching locations, such as urban farms and wetlands. The [FieldScope platform](#) for the BAT data offers user-friendly access to the broadest group of people, including teachers and students. To increase the accessibility of the program, we have provided Spanish translations of many of the program resources.

This community-gathered data is creating a baseline map of bat activity across the region. By offering this community science opportunity each year, WPZ and its partners will garner bat activity trend data, which will illustrate patterns in foraging habitat distribution and bat behavior or distribution. With this data, scientists and conservation managers can be alerted to changes that may indicate problems in need of further study or intervention. The data may also be used as a jumping off point for further research, to investigate areas of high and/or low or no bat activity across the region and what may be influencing these patterns.

BAT PROGRAM GOALS

COMMUNITY GOALS	SCIENCE GOALS
Raise awareness of the importance of bats in our ecosystem	Better understand the activity levels of bats in different parts of our region
Overcome myths and misconceptions about bats in a way that leads to more positive perception and improved coexistence	Increase awareness of threats to bats including white-nose syndrome and actions people can take to prevent its spread
Introduce people to safe and fun bat observations	Create a baseline for year-to-year comparisons of bat activity
Create an increased connection with nature and community	Better understand the range of local bat species
Encourage further participation and leadership in community science	Share basic information about bat activity with other local bat conservation projects

COMMUNITY EVENTS SUMMARY

First season 2022: May (pilot) and June – September 2022

- Two training webinars for individuals in late July 2022 to learn how to participate in the program
- **12 programs at 10 different locations in collaboration with nine community partners**
- **More than 300 participants** joined us to learn about local bats, participate in bat observations and submit bat activity observations

Second season 2023: May – September 2023

- Two virtual trainings in May/June – one for people interested in leading and/or hosting BAT programs and one for people interested in participating in BAT observations
- Community programs were offered in collaboration with program partners (Bats Northwest, Washington Department of Fish and Wildlife), which increased the reach of Bat Activity Trends programs
- Programs were well attended by participants of all ages; people learned about programs from social media (Instagram and Facebook), a press calendar advisory, a “Things To Do in Seattle” list published for tourist lodgings, and word-of-mouth among other avenues. Attendees demonstrated great interest and curiosity about bats; most programs had at least a couple of very knowledgeable bat aficionados (often youth)
- Two Bat Trivia Nights (new for 2023) held in a south Seattle pub and a north Seattle pub
- Also new in 2023, upon request from Seward Park Audubon Center, we piloted a BAT Leader training to prepare community volunteers to lead BAT programs. These BAT Leaders led bat walks at Seward Park once a week throughout the summer. This was a very successful model, and we plan to look for other sites who wish to run a similar model of volunteer-led BAT programs at their sites in future seasons
- **A total of 35 programs were offered at 18 different locations (plus virtually) hosted by 14 different community partners**
- **More than 800 program participants** joined us to learn about local bats, participate in bat observations and submit bat activity observations

Third season 2024: May – September 2024

- Woodland Park Zoo hosted a UW Doris Duke Conservation Scholar, Madeleine Diaz, for the summer to work with us on the Bat Activity Trends program. Madeleine co-hosted several BAT programs with community partners as part of her program activities during the summer.

- Community programs were again offered in collaboration with program partners this year (Bats Northwest, Washington Department of Fish and Wildlife), which increased the reach of Bat Activity Trends programs
- With Seward Park Audubon Center, we continued the BAT Leader training, preparing community volunteers to lead BAT programs. These BAT Leaders led bat walks at Seward Park once every two weeks throughout the summer.
- **A total of 26 programs were offered at 13 different locations hosted by 10 different community partners**, including new locations and hosts such as Pigeon Point Park in Seattle with Delridge Neighborhood Development Association, Meadowbrook Pond in Seattle with Beavers Northwest and Schafer State Park near Elma with Washington State Parks.
- **More than 900 program participants** joined us to learn about local bats, participate in bat observations and submit bat activity observations

Community Events & Trainings - Summer 2024

Date	Event	Location / Host	Facilitating Organization(s)	Attendees
6/26/24	BAT Leader Training	Seward Park with Seward Park Audubon Center	WPZ, BNW, Seward Park Audubon	23
Every other week throughout summer (5 total)	BAT Program	Seward Park with Seward Park Audubon Center	Seward Park Audubon staff and volunteers (WPZ staff co-facilitated one session)	48
6/27/24	Bat Talk	Bloedel Preserve (Bainbridge Island)	WPZ, BNW	15
Every other week throughout summer (5 total)	Bat Programs	Green Lake Park with Bats Northwest (WPZ staff co-facilitated two sessions)	BNW	298
7/27/24	Bat Program & BAT Observation	Schafer State Park	WPZ, WDFW	65
7/31 & 8/1/24 (7/29 canceled due to weather)	BAT Program	ZooTunes at Woodland Park Zoo	WPZ	47
8/1/24	BAT and Beavers Program	Meadowbrook Pond with Beavers Northwest	WPZ, BNW	30
8/2/24	BAT Program	Luther Burbank Park, Mercer Island	WPZ, BNW	70
8/14/24	BAT Program	Environmental Science Center, Seahurst Beach Park, Burien	WPZ	21
8/6 & 9/16/24	BAT Program	Woodland Park Zoo (for Jungle Party donors)	WPZ	9
8/17/24 – Cancelled due to weather	BAT Program	SHADOW Lake Nature Preserve	SHADOW staff and volunteers	0

8/17/24	BAT Program	Woodland Park Zoo – Bear Parking Lot (for Amphibian Monitoring volunteers)	WPZ	20
8/28/24	BAT Program	Pigeon Point Park with Delridge Neighborhood Development Association	WPZ	21
9/10/24	BAT Program	Union Bay Natural Area with UW Botanic Gardens	BNW	20
9/12/24	BAT Program	Tukwila Community Center with Green Tukwila	WPZ, BNW	25
9/13/24	BAT Program	Rainier Beach Urban Farm & Wetlands with Tilth Alliance	WPZ, BNW	150
10/29/24	Bat Trivia	Flying Bike Brewery	BNW, WPZ	40
TOTAL	26 programs	13 locations with 10 different community hosts	Most events co-facilitated by two or more partners	902

OBSERVATIONS SUMMARY

Observers count “bat passes” – how many times they saw a bat pass by (regardless of whether or not they were different individual bats). As it is impossible to distinguish and count individual bats when conducting these types of observations, we use number of “bat passes” as an indicator of bat activity (foraging or traveling) level.

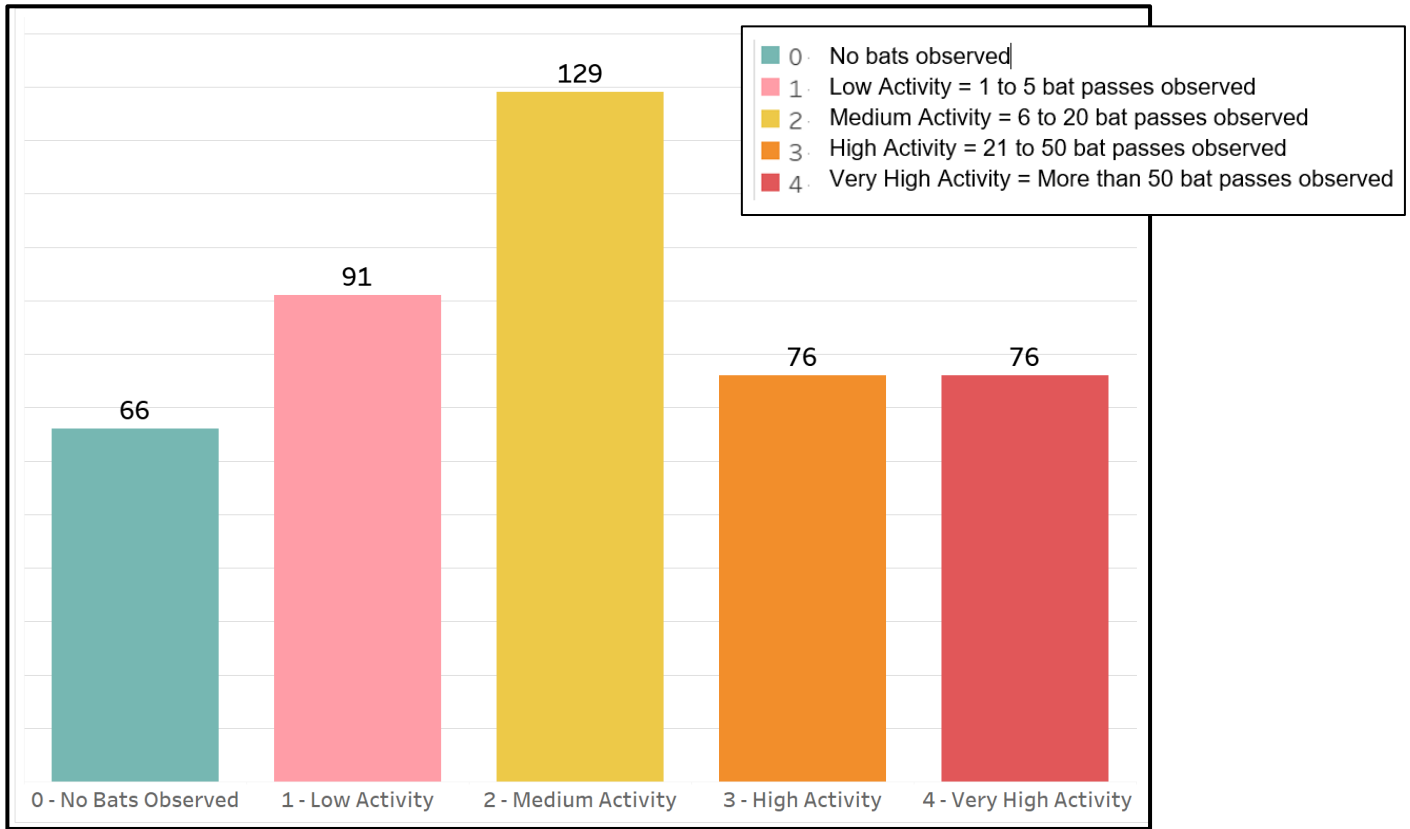
All BAT program observations are logged in the BAT program on FieldScope:

<https://bat.fieldscope.org/observations>

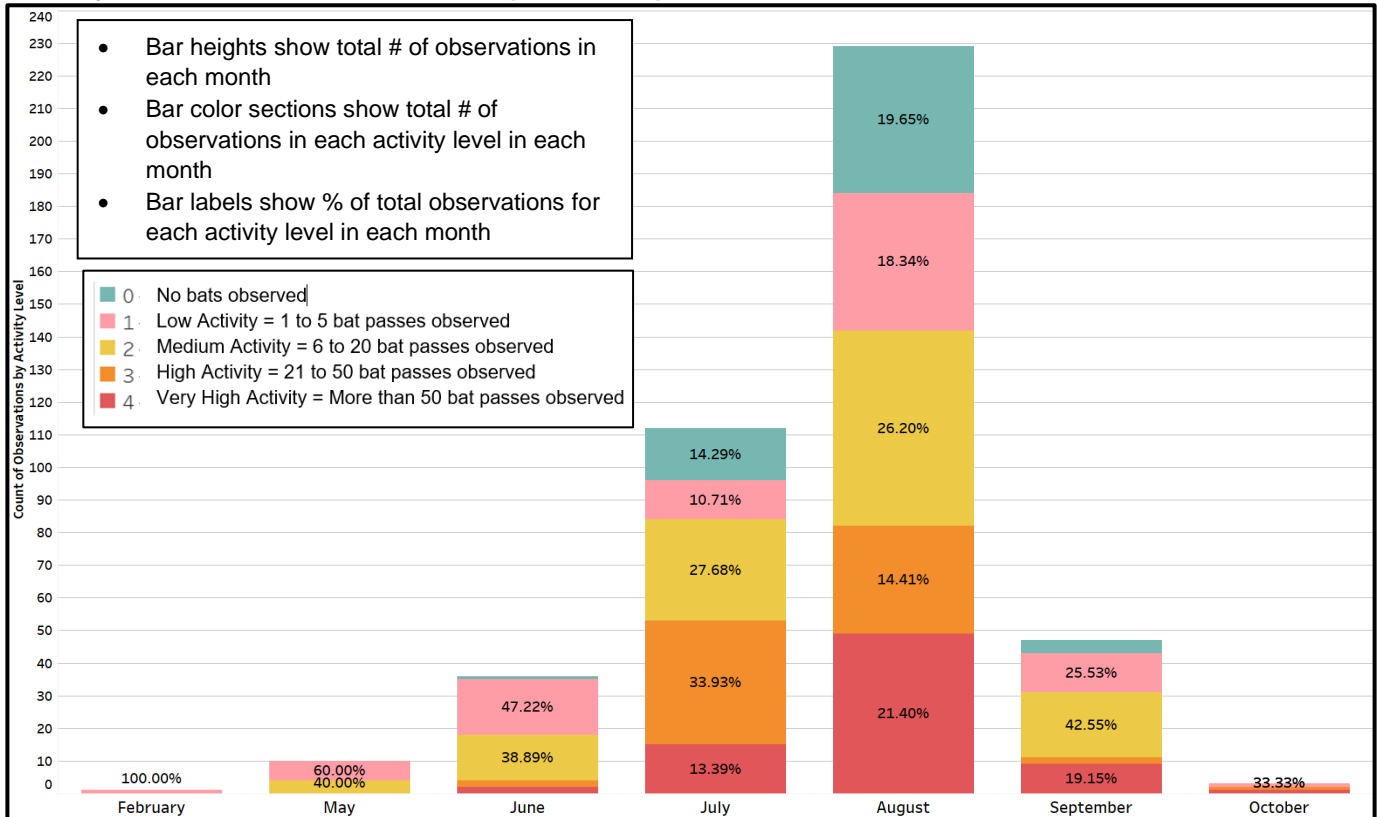
Time Period	Observations	Project Members (new individuals who joined the project on FieldScope)	Active Observers (project members who added one or more observations on FieldScope)
May - October 2022	181	48	25
May - October 2023	136	70	42
May - October 2024	121	57	29
Totals 2022-2024	438 observations logged on FieldScope	175 total project members on FieldScope	83 unique individuals who have logged observations on FieldScope

2022 – 2024 OBSERVATIONS of BAT ACTIVITY

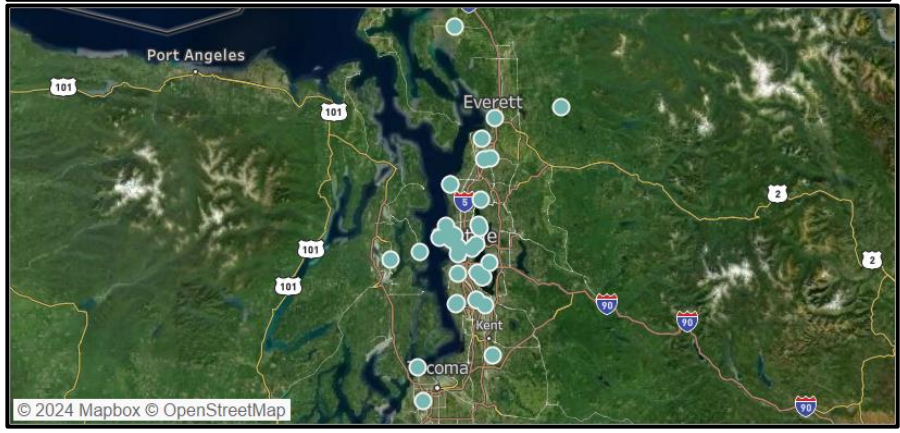
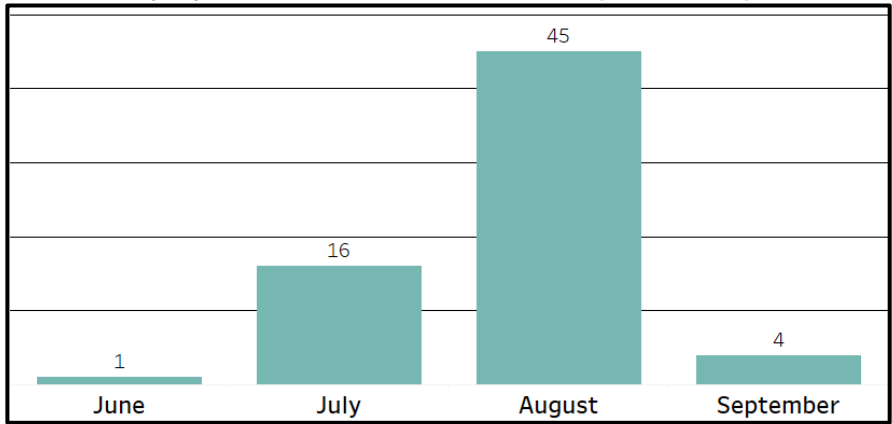
Activity Level - Total in each category (2022-2024)



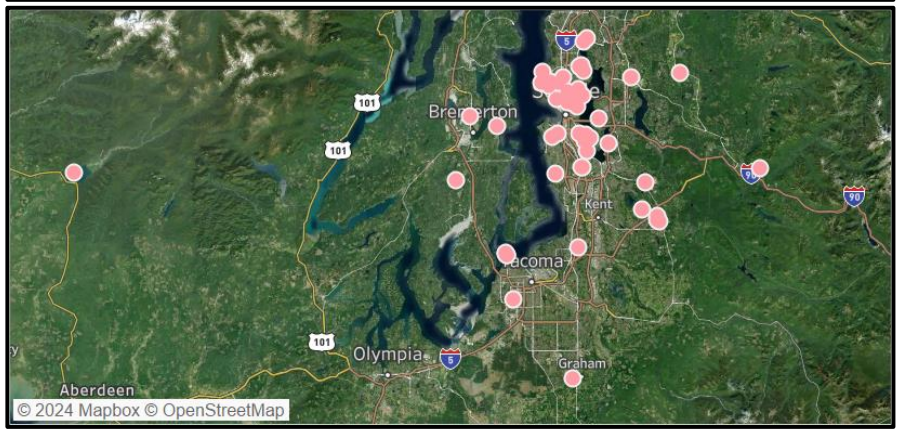
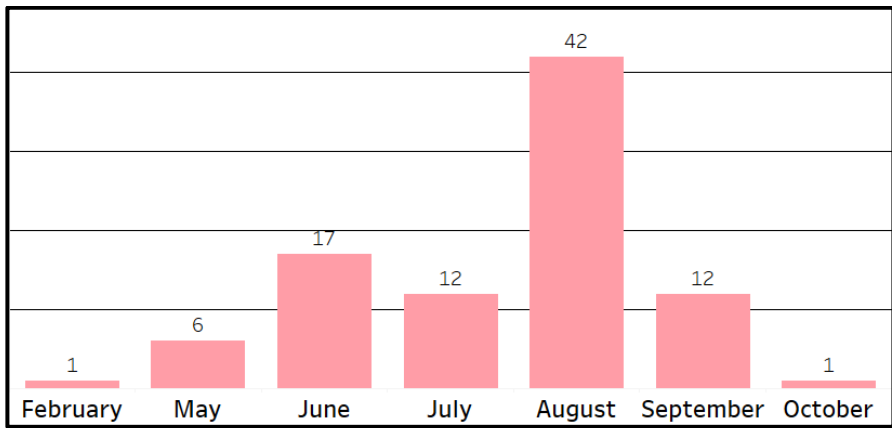
Activity Level - Total in each month (2022-2024)



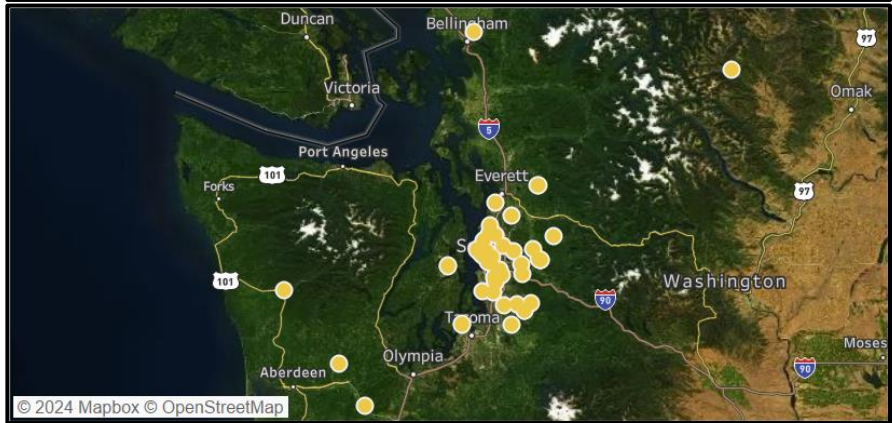
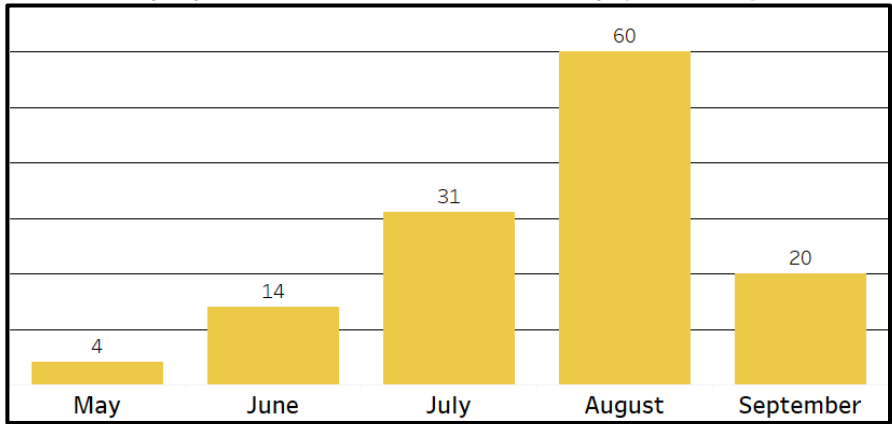
Bat Activity by Month - No Bats Observed (2022-2024)



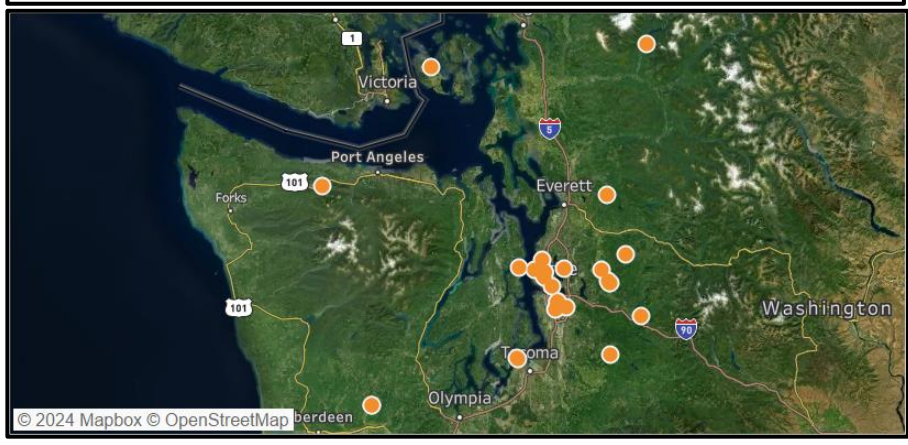
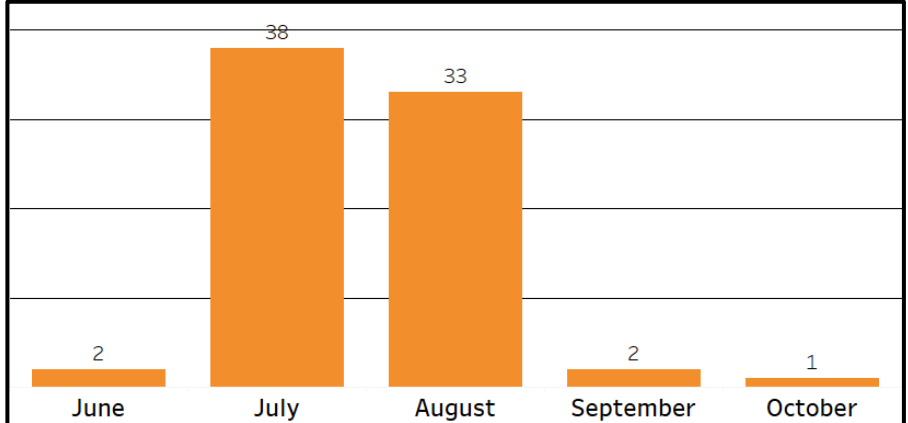
Bat Activity by Month - Low Bat Activity (1-5 bat passes observed; 2022-2024)



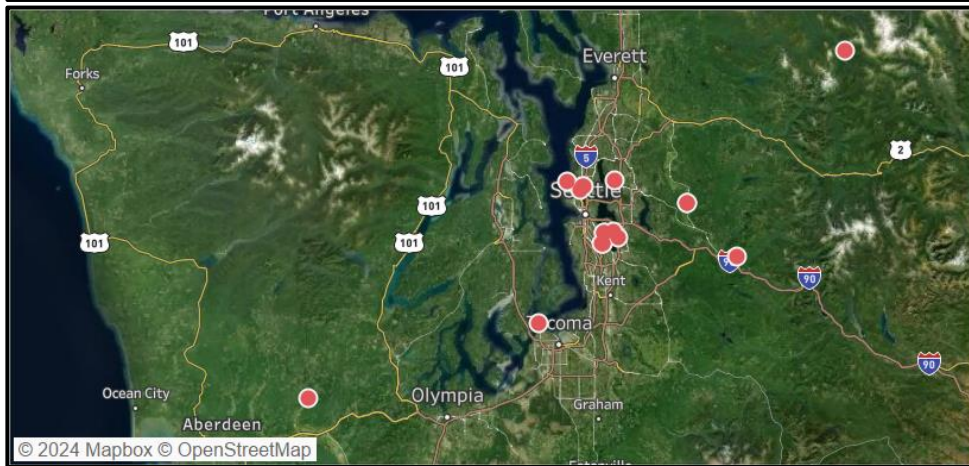
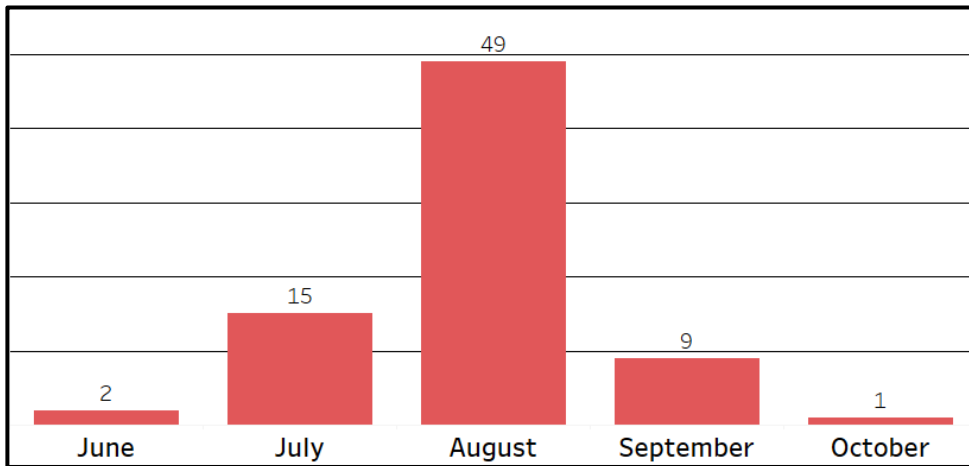
Bat Activity by Month - Medium Bat Activity (6-20 bat passes observed; 2022-2024)



Bat Activity by Date - High Bat Activity (21-50 bat passes observed; 2022-2024)

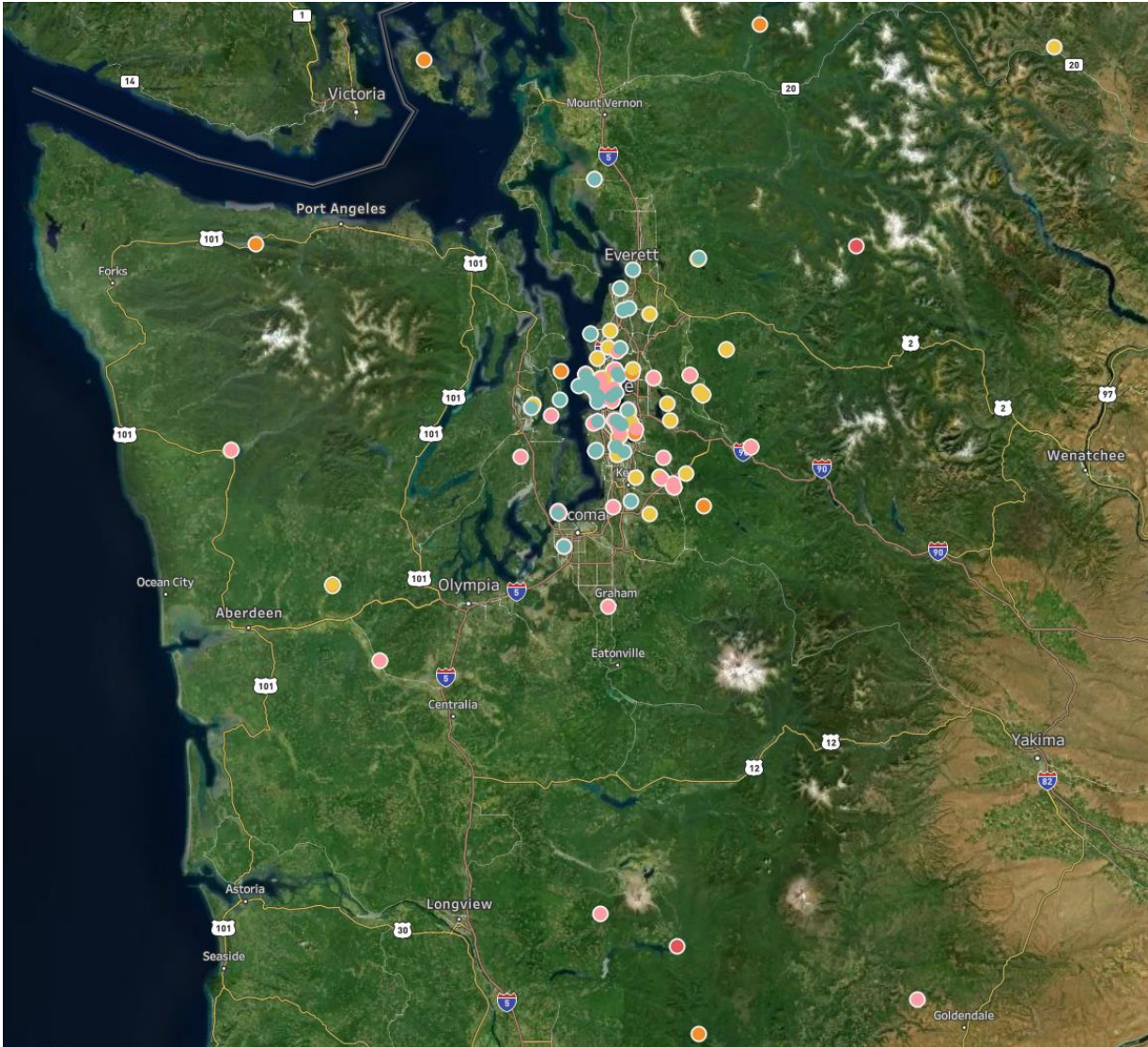


Bat Activity by Date - Very High Bat Activity (More than 50 bat passes observed; 2022-2024)

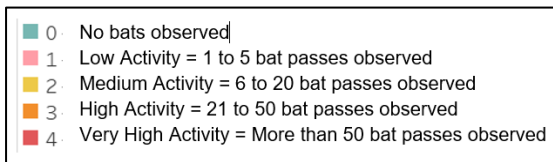


It was interesting that some of the areas where high bat activity was observed are right in the city of Seattle – one hotspot was at Rainier Beach Urban Farm & Wetlands (south end of the map below) where our friends from Tilth Alliance (for the third year) hosted a very popular (and active!) bat observation evening with us!

Geographic Spread of Bat Activity Observations – All Activity Categories (2022-2024)



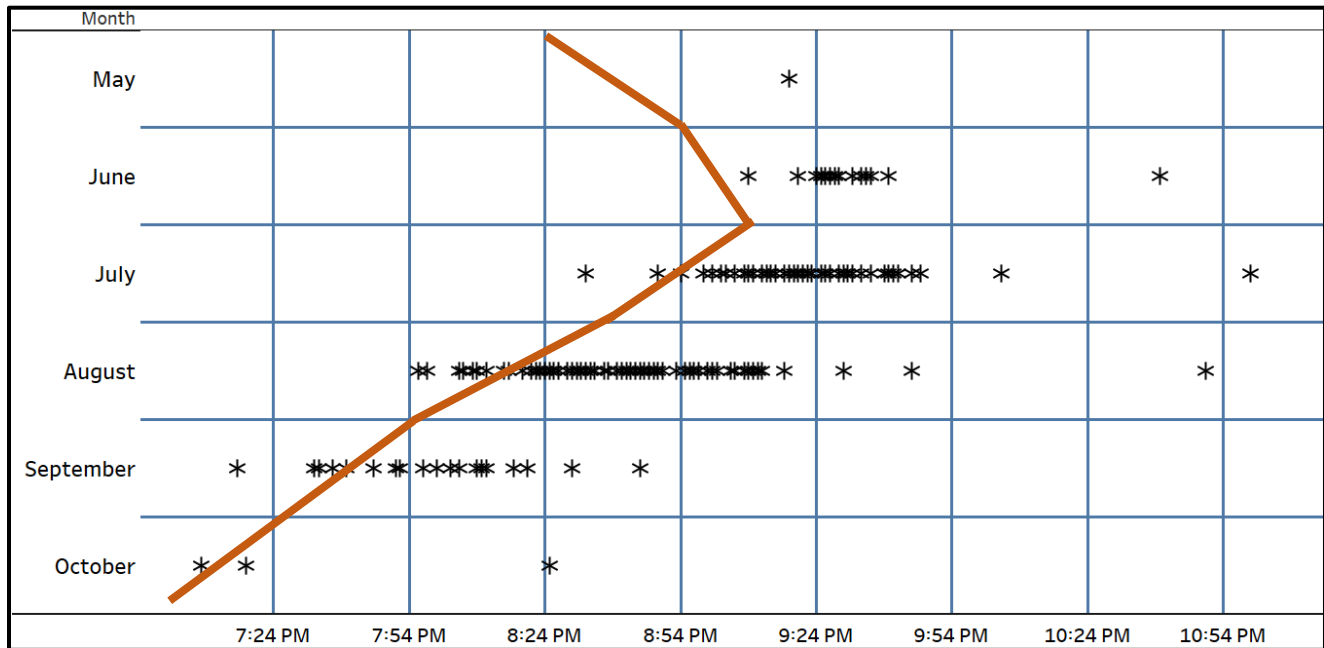
*plus one observation in the Spokane area not shown on map; dots may overlap



Time of First Bat Seen

With three seasons of data, we can begin to see trends in seasonal shifts in the time that bats first become active. The plot below shows the “time of first bat seen” from May to October in data combined from 2022 and 2023, with the time of first observations getting earlier as the summer goes on.

Time of First Bat Seen* (by minute; 2022-2024); orange line = approximate sunset time for Seattle

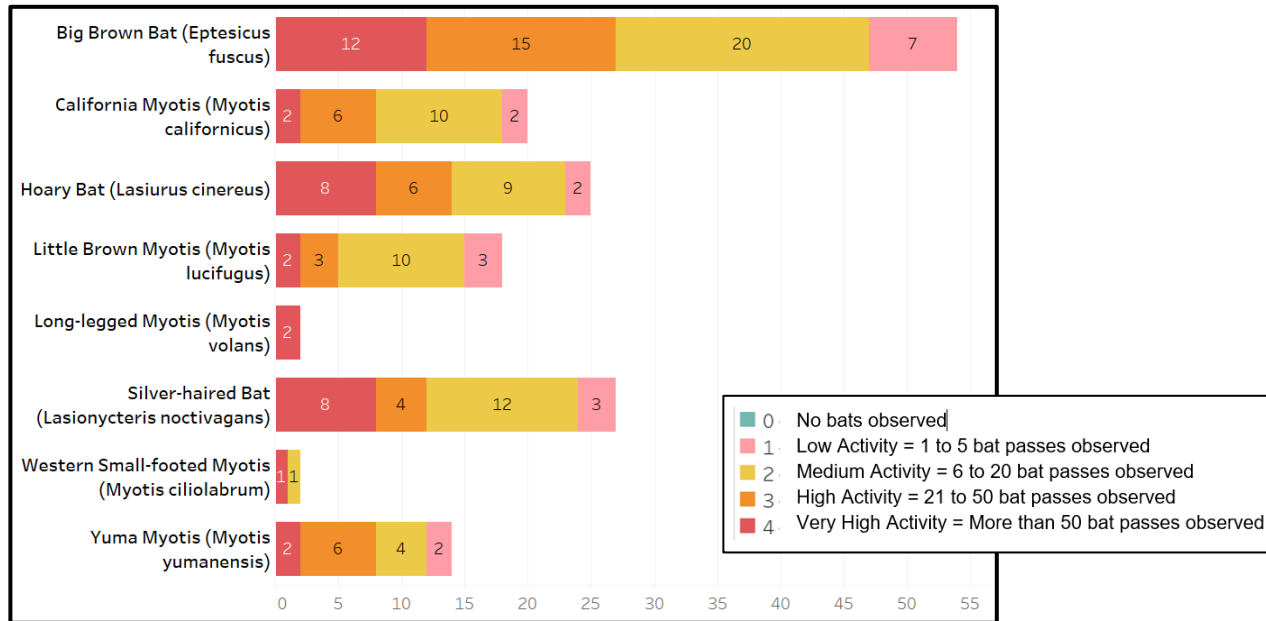


*Time of first bat seen is subject to when the observation period was begun; our protocol suggests starting at 5-15 minutes after official sunset time and observing for only 30 minutes.

Bat Species Identified With Handheld Detectors

Participants who have handheld bat detector technology can record echolocation calls of bat species observed; these detectors can suggest a tentative identification. The graph below shows which species have been identified by observers with handheld bat detectors and the levels of activity observed.

Bat Species Observed With Activity Level Categories (2022-2024)



THANK YOU FOR PARTICIPATING!

Thank you to everyone who participated in our Bat Activity Trends program! Thank you to our program collaborators – Bats Northwest and Washington Department of Fish and Wildlife!



Some highlights for next season:

- We will again host trainings for volunteer Leaders and Host Leaders (organizations with outdoor sites that can host events) to expand the base of people who can lead BAT program observation events. If you're interested in training to be a BAT Program Leader or Host Leader (if you work for an outdoor site), please complete this [BAT Volunteer Interest Form](#)
- We will continue to suggest that observers conduct three observations from the same station at different times during the summer to help us learn about seasonal trends. We would like to gather more observations from central and west Seattle to further investigate bat activity in these areas.
- We welcome interest from other organizations in joining the BAT program as program partners (partners can take on various roles -- scientific advising, recruiting for the project, training participants and leaders, hosting in-person events, sharing and using the data, etc.).

If you have any suggestions or questions for the Bat Activity Trends program, please email us at monitoring@zoo.org. **Thank you to all the observers, event hosts, volunteers and others who made the program possible and successful this summer!**



Participants engaging in a BAT observation at Seahurst Beach Park on a mid-August evening. (Photo courtesy of Katy Kachmarik, Environmental Science Center.)



WDFW's Kelsey Hansen helps a young BAT participant fill out the data sheet during a BAT observation at Schafer State Park. (Photo courtesy Washington Department of Fish and Wildlife).



Bats Northwest's Niki Desautels kicking off the BAT Leader Training at Seward Park on a rainy late June evening. (Photo by Katie Remine/Woodland Park Zoo)