BAT ACTIVITY TRENDS (BAT)

COMMUNITY SCIENCE PROGRAM

BAT Observation Program Outline

PROGRAM OUTCOMES

- Overcome myths and misconceptions about bats in a way that leads to more positive perceptions and improved coexistence
- Raise awareness of the importance of bats in our ecosystem
- Introduce people to safe and fun bat observations
- Create an increased connection with nature and community
- Empower participation in community science
- Encourage further participation and leadership in community science

RESOURCES

https://www.zoo.org/batactivity

https://bat.fieldscope.org

ITEMS TO HAVE ON HAND:

Recommended:

Participation packet

- At least one for yourself as a reference. You may want a few extras for other participants to read

Clipboards & pencils (tied on)

- Quantity depends on group size; people often observe in small groups of 5 to 7 people – one per group

Printed datasheets:

- Adult: https://www.zoo.org/document.doc?id=2963
- Youth scientists: https://www.zoo.org/document.doc?id=2964 (includes activities to help younger scientists stay engaged while waiting for the bats to arrive)
- Spanish datasheet: https://www.zoo.org/document.doc?id=2973

Optional (but fun!)

Bat books (adult and youth – whatever you have on hand or can find!)

- There are many great book suggestions in our kid-friendly participation packet

Bat skeleton model (optional – plastic “Halloween” bat is the most affordable option)

Brochures/handouts – anything you have on hand or can procure (inquire with Bats Northwest)

EchoMeter Touch and compatible phone or tablet (if available; https://www.wildlifeacoustics.com/products/echo-meter-touch-2-android-2)

PROGRAM OUTLINE

(with estimated length for each section; sections in bold have details below)

1) Presenters arrive - 30 minutes before participants arrive
2) Participants arrive
3) **Introductions, BAT Program Overview and Program Partners** – 10+ minutes
4) **Introduction to bats / Washington bats** – 15-20 minutes
5) Hand out clipboards and datasheets (one clipboard per "family"/group)
6) **BAT Program how to** - Go over datasheet – each family/group choose a recorder to fill out the datasheet, fill out left side of the datasheet
7) Split into smaller groups (according to overall group size and number of presenters)
8) About 10 minutes after sunset – start **BAT observations** (in small groups)
    a) Presenter can give tips for observing bats, remind teams of basic safety tips while observing wildlife at night, explain how to differentiate betweenbirds vs. bats flying overhead, share more cool info about bats and answer questions while group is scanning the sky for bats
    b) Observations for 30 minutes
9) Meet back together (if split out) - make sure recorders have filled out the datasheet completely. Collect datasheets and clipboards, share outreach materials (if applicable).
10) Remind attendees how they can conduct their own bat observations this summer from anywhere around Washington and submit their data via Fieldscope to assist in local bat conservation efforts. And, tell them to share what they learned about bats with others so we can get more people involved in this fun project!
11) If you have a smaller group and there is enough interest, you can walk teams through how to create a Fieldscope account and submit their own data. https://bat.fieldscope.org/
12) **Wrap up** and goodnight!

INTRODUCTIONS, BAT PROGRAM OVERVIEW, PROGRAM PARTNERS

- Introduce yourself and any other guest presenters (e.g. Bats Northwest)
- Consider doing a Land Acknowledgement if that feels genuine for you
    - https://www.duwamishtribe.org/s/Duwamish-Land-Acknowledgement_2-b5ww.pdf
    - Under the "This Land" header: https://www.zoo.org/livingnwtrail
- Share why you coordinated the event - Why are bats important to you?
    - I love bats! (and I'll share more about why in a few moments!)
    - Little is known about the activity of bats in Washington, and particularly in urban areas. While the data from this program won't necessarily tell us which species of bats or how many bats are in any given area, the data will show us what areas of our region have high bat activity (in particular, where they actively forage for insects). Learning about bats, such as where they hunt and roost in cities, is the first step to finding out how we can help them.
    - Bats face a number of threats, but in particular White-nose syndrome (WNS) - a disease that is devastating to bats and is caused by a fungus. The resulting disease has infected multiple species and killed millions of bats. The fungus disrupts the bat's hibernation, causing the animals to leave their roosts prematurely, fly into the winter cold and either starve or freeze to death. It was first recorded in the eastern U.S. in 2006; is has been found in Europe and Asia, but it is not yet known where the fungus originated or how it got to the U.S. The fungus and disease continue to spread rapidly across North America. The disease was first detected in Washington state in

2016 and the fungus and disease have since been detected in several counties and in several species of local bats. Because most bats in the western U.S. do not hibernate in large groups like eastern U.S. bats do, we do not yet know how the disease may impact bats in the western region. We need to keep a close eye on our bats in the face of this emerging disease.

- This program was developed and launched by Woodland Park Zoo's Living Northwest Program in 2022 and is now coordinated in collaboration with Bats Northwest and Washington Department of Fish and Wildlife. We are excited to be here with you to learn more about bats and so you can learn how to do your own bat observations!

INTRODUCTION TO BATS / WASHINGTON BATS

- Bats are mammals (Order Chiroptera)
- 20% of all mammal species are bats (more than 1400 bat species total) (only rodents have more species – 40% or 2600+ species) (mammals total as of 2018 is 6500+ species)
- Bats are the only flying mammals (others, like flying squirrels, can only glide)
    - Chiroptera – means "hand wing". Bat wings are formed of membranes stretched over the fingers; bats use their fingers to deftly control their wings in flight – they are extremely agile which helps them find and catch insects on the wing.
    - Pass around any model or photos you may have of a bat's wing – show bat fingers / wings
- Worldwide different bats have different diets – many are insect-eaters, some drink nectar or eat fruit, some are able to catch and eat other animals such as fish or frogs.
    - And, yes, there are vampire bats – there only 3 species of vampire bats, they live only in Central and South America; they all do feed on blood, but they do so by making a small cut in the foot of another animal and lapping up the blood – not by using fangs to suck blood!
- Here in Washington, all of our bats are insect-eaters. What are bats here doing when they are active and flying around at night? Eating insects! And how do our insect-eating bats find their prey? They use echolocation. Echolocation is how bats "see" in the dark. Bats produce sound waves by contracting their larynxes (voice box) and emitting the sounds through their mouths. These sound waves bounce off an object, echoing back to the bat telling it what it is looking at.
- In Washington state we have 14 species of bats – 10 are found across Washington and the other 4 are found only in eastern Washington. All of our bats are insect-eaters that locate their prey using echolocation; most of them either hibernate or migrate in the wintertime.
- Bats play key roles in ecosystems around the world. In warmer climates, bats pollinate more than 500 species of plants including fruits like mangos and bananas and agave plants that we use to make tequila! In tropical climates, bats are also important seed dispersers when they eat fruits and then fly away and deposit the seeds in other parts of the forest. Here in the U.S. and in Washington state, we can thank bats for consuming tons of insects, including mosquitoes, each year, including moths and other insects that can be crop pests!
- Most people recognize these important roles of bats in our ecosystems and want to protect them – we're so glad you've joined us!
- If you know which bat specie(s) people may see at your site, you can show a few pictures and add a few fun facts specific to that/those species

BAT PROGRAM - HOW TO PARTICIPATE

- The Bat Activity Trends (BAT) program involves going out to observe bats, right in your own neighborhood.

- You can participate from a yard, patio, balcony or even a window with a clear view of the sky. You could also find a spot in a nearby park to do your observation or you can do a "walking survey" by choosing a starting point and observing for 30 minutes as you walk a loop back to your starting point.
- The best time of year to participate is during our peak bat activity months – June through August.
- You'll start your observation about 10 minutes after sunset and observe for 30 minutes.
- You will watch for bats, record what you see and submit the data to help create a visualization map of the levels of bat activity in our region. You can do one observation or as many as you like!
- We are focusing on activity, so you won't be counting individual bats, but making a tally of bat "passes" as an indicator of the level of activity in the area you are observing
- "No bats" is still important data!
- *Go over each part of the datasheet with tips for filling in the information.*

BAT OBSERVATIONS

- Other bat things to talk about during observations – *some of these topics might require further background reading or learning prior to sharing about them with others*:
    - How to tell a bird from a bat: https://www.youtube.com/watch?v=tYehqDvJ4ws
    - "Shifts" in the evening of insect eaters – birds such as swifts and swallows, dragonflies, then bats
    - Echolocation – search, approach and feeding buzz phases of echolocation
    - Bat roosts – in western US/Washington versus eastern US; "snack and snooze" during the night and use "snooze" roosts; day roosts for sleeping through the day; maternity roosts where females gather and raise their babies; and winter roosts for hibernation
    - Bat migration
    - Use EchoMeter and phone/tablet to record and display calls for participants – describe how species are identified by the frequency and other characteristics of their echolocation calls (search phase calls)

WRAP UP

- Make sure all parts of datasheet filled out; collect datasheets
- If you have an EchoMeter – play back a call or two that were recorded that night.
- Summarize the results – share out from each group
- Describe how to create a login on FieldScope to submit data
    - Either tell attendees that you will submit the data from this observation for them – OR, with a small enough group, walk them through submitting it themselves.
    - Either way, remind them, "Now you know how to complete your own observations at home or in your neighborhood!"
- Reiterate why this info is important – over time as we gather observations, the data will show us what areas of our region have high bat activity (in particular, where they actively forage for insects) and which areas have low activity. Bat researchers will be able to use this data as a jumping off point for further research into our local bats. **Learning about bats, such as where they hunt and roost in cities, is the first step to finding out how we can help them.** We will also be able to note trends in patterns in the face of White nose syndrome and other threats to bats.
- Handout any bat outreach materials you may have. Thank you and goodnight!