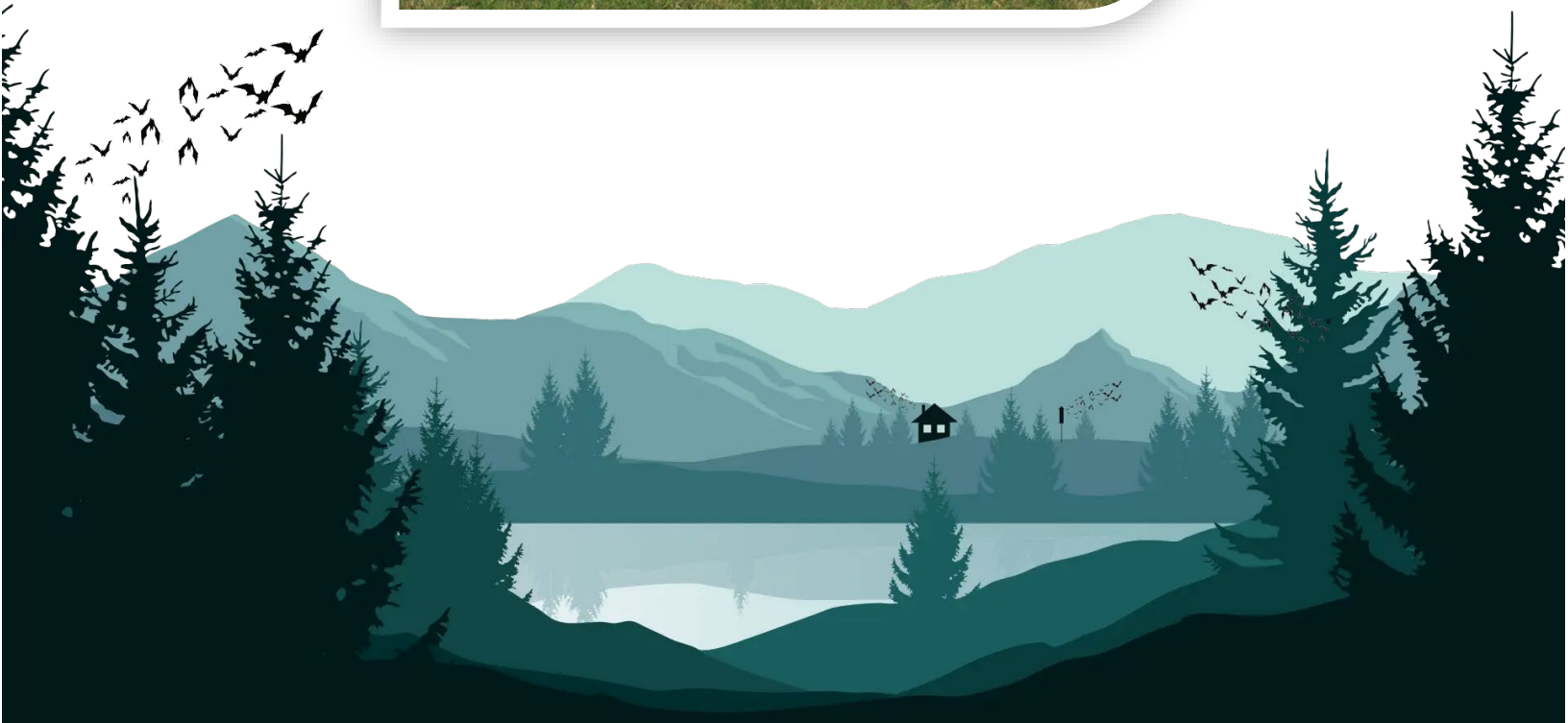




BC Bat Ambassador Handbook



Acknowledgments

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Introduction

Thank you for your interest in becoming a Bat Ambassador for your region! Bat Ambassadors play an important role in bat conservation in BC. Bat Ambassadors conduct outreach events, participate in citizen science and other data collection activities, and serve as a resource on bats to their communities. A team of keen, committed, well-trained Bat Ambassadors is an incredible resource in a region. This handbook is designed to provide you with information on:

- What every Bat Ambassador Needs to Know
- Bat Basics - 10 Facts to Know About Bats
- Outreach and Communication
- Citizen Science Protocols
- Bat Friendly Communities
- Bat Boxes and Best Practices
- Key Resources
- [Bats 101: All About Bats](#) Appendix (a separate document)

Ideally, you have received this handbook as part of a training workshop since it is intended that this handbook be supplemented with a presentation and additional information on bats.

What Every Bat Ambassador Needs to Know

Who is a Bat Ambassador?

Bat Ambassadors are keen individuals who are trained by the BC Community Bat Program to:

1. Promote bat conservation of our BC bat species.
2. Correct misconceptions about bats and improve public perceptions of bats.
3. Increase awareness of the BC Community Bat Program and regional community bat programs and the resources they have available.
4. Collect valuable data on bats, including bat counts and white-nose syndrome surveillance.
5. Deliver bat educational programs (e.g. park interpreters, biologists, and naturalists who are interested in science communication and education) with consistent goals and messaging.
6. Promote Bat-Friendly Communities in BC.

Bat Ambassadors are generally associated with Community Bat Programs in BC. Regional bat programs began forming in 2004 to provide communities with a resource to report and seek assistance with bats in their buildings, learn more about bats and their conservation, build alternative roosting structures (bat boxes) for bats, and report bat colonies. In 2016, a network of these bat projects formed as the BC Community Bat Program with the mission to raise awareness of bat conservation issues, help residents manage bats in buildings, and collect data needed to monitor and better understand bats in the province (through the implementation of a citizen science program, i.e., “bat counts”). Take a moment to visit the website and identify your regional Community Bat Program and their contact information (bcbats.ca).

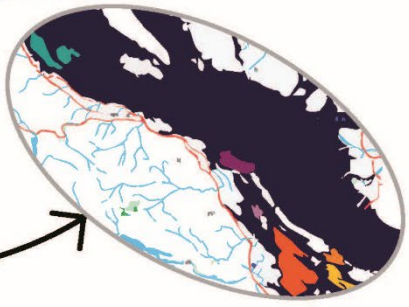


BC Community Bat Program Network



The "Got Bats?" BC Community Bat Program is a network of community bat projects across BC that promotes bat conservation through

- 1) education and outreach to raise awareness of bats and recruit local bat stewards,
- 2) detection, protection and monitoring of bat roosts,
- 3) province-wide Citizen Science involvement to monitor bat populations, and
- 4) enhancement of habitat including installation of bat boxes.

1. Metro Vancouver / Sea to Sky Metro Vancouver / Sea to Sky Community Bat Program 1-855-922-2287 ext 11 vancouver@bcbats.ca	8. Gabriola Island Gabriola Bats gabriola@bcbats.ca	16. Kootenay Kootenay Community Bat Project 1-855-922-2287 ext 14 kootenaybats@gmail.com
2. Fraser Valley Fraser Valley Community Bat Program 1-855-922-2287 ext 23 fraservalley@bcbats.ca	9. Mayne Island Mayne Island Conservancy mayne@bcbats.ca	17. Columbia Shuswap Columbia Shuswap Community Bat Project 1-855-922-2287 ext 24 shuswap@bcbats.ca
3. Sunshine Coast Sunshine Coast Wildlife Project (SCWP) 1-855-922-2287 ext 15 coastwildlife@gmail.com	10. Pender Island Pender Island Conservancy pender@bcbats.ca	18. Skeena Skeena Bat Project 1-855-922-2287 ext 19 skeena@bcbats.ca
4. Northern Vancouver Island Cumberland Bat Collective northisland@bcbats.ca	11. Salt Spring Island Salt Spring Community Bat Project 1-855-922-2287 ext 16 saltspring@bcbats.ca	19. Cariboo Scout Island Nature Centre 1-855-922-2287 ext 22 cariboo@bcbats.ca
5. Mid Vancouver Island Nanaimo Area Land Trust 1-855-922-2287 ext.16 midisland@bcbats.ca	12. Thetis Island Thetis Island Nature Conservancy thetisbats@gmail.com	20. Peace Peace Bat Project 1-855-922-2287 ext 18 peace@bcbats.ca
6. Southern Vancouver Island Habitat Acquisition Trust (HAT) 1-855-922-2287 ext 12 bat@hat.bc.ca	13. Okanagan Okanagan Community Bat Program 1-855-922-2287 ext 13 okanagan@bcbats.ca	21. Omineca 1-855-922-2287 ext.26 omineca@bcbats.ca
7. Denman & Hornby Islands Denman/ Hornby Bat Project denmanhornbybats@gmail.com	14. Thompson Kamloops Naturalist Club 1-855-922-2287 ext 21 thompson@bcbats.ca	
	15. Lillooet Lillooet Naturalists Society 1-855-922-2287 ext 17 lillooet@bcbats.ca	

bcbats.ca

1-855-9BC-BATS

Regions may change annually due to available funding. Please refer to bcbats.ca/regions for the most updated version.

Expectations of Bat Ambassadors

As Bat Ambassadors, you will be representing the BC Community Bat Program as well as your regional Community Bat Program (if there is one in your area).

Bat Ambassadors are expected to:

- Have **attended a seminar or workshop** by your Bat Ambassador Trainer.
- Ensure that the **bat information you present is accurate and consistent**. Refer to the [Bats 101: All About Bats Appendix](#) as well as the references provided.
- **Understand your role** (e.g. outreach, assisting with citizen science, promoting bat conservation, referring to professionals as needed) and what activities you should not undertake (site visits to buildings with bats, assessing public health risks).
- Work with the intention to **promote the conservation mission and goals of the BC Community Bat Program**.
- Provide a **valid police clearance** to your Bat Ambassador Trainer if working with children.
- Represent the BC Community Bat Program in a **professional** manner.
- **Be transparent about the limitations of your knowledge**.
- **Keep a log** of all activities, including the date, number of people attending, and activity. Report back to the regional coordinator or your stewardship organization.
- **Recognize funders** if they are supporting your program.
- **Have signed photo consent forms before using photos publicly**.
- **Have fun!** This is a wonderful opportunity to share your passion, expertise, and commitment.

Key Messages for Bat Ambassadors

One of the goals of a coordinated Bat Ambassador Program is to ensure that messages regarding bats and protocols are consistent. There are many interesting facts about bats and fun activities and methods of explaining them. You are encouraged to read and explore information in order to tailor your outreach to your specific area and audience. However, **these four consistent key messages should be incorporated into your outreach:**

- 1. Bats are interesting.**
- 2. Bats are important.**
- 3. Bats are in trouble.**
- 4. You can help bats.**

Roles of Bat Ambassadors

Bat Ambassadors can play a number of roles, depending on their interests and skills, the region they are working in, and the needs of the regional bat program. Here are examples of activities:

Public Outreach

Bat Ambassadors can initiate, participate in, or develop a number of public outreach activities in order to share factual information about bats, raise awareness of the regional community bat program, or identify roosts and recruit volunteers. Content and ideas for public outreach are listed in the [Outreach and Communication](#) and [Key Resources](#) sections of this handbook.

- **Presentations** to groups like Rotary Clubs, public libraries, stewardship organizations, naturalist clubs, Scouts Canada, or other venues where the audience is keen to learn about bats.
- **Display booth** at events like farmer's markets, fairs, and expos. The display booth can include examples of printed materials, 'props' (like bat figurines, skeleton, bat box, bat guano), laminated photos, and banners.
- **Workshops** on building a bat box, how to do a bat count, or 'eavesdropping on bats' with an acoustic detector.
- **Create props** for educational events, such as a 'bat cave', costume, puppet, or bat silhouettes with weights.
- **Distribute information to target audiences** (i.e. pest control companies, builders, roofers). Specific bulletins have been developed for these audiences and can be distributed in print or digital format.

Encouraging Roost Reporting

Several bat species and their important maternity colonies may be found in buildings and bat boxes. Bat Ambassadors can encourage landowners to report their bats to their regional community bat project during their public outreach activities. They may distribute “Got Bats?” postcards or other roost reporting information to hardware stores, pest control companies, builders, roofers and other audiences that may encounter bats.

IMPORTANT

Note that it is **not** the role of Bat Ambassadors to conduct site visits to locations with bat roost sites or provide advice on how to manage bats in buildings - it is the role of a regional coordinator with the appropriate training and insurance.



Annual Bat Count

The Annual Bat Count is a citizen science initiative to track bat populations over time at specific roost sites. Bat Ambassadors and the volunteers they recruit stand outside a known roost location at sunset and count bats as they emerge from the building. This data is then submitted to the BC Database. Your regional community bat project may have roost locations that require volunteers to monitor. See the [Citizen Science Protocols](#) section to learn how to conduct the Annual Bat Count. In addition, [Key Resources](#) section of this handbook has information on how to access a resource folder with videos and instructions on counting bats and submitting data.

Bat Carcass Collection and Submission

White-nose syndrome is a disease that is decimating bat populations in North America. Bat Ambassadors play an important role in monitoring for the introduction and spread of this disease in BC by collecting dead bat carcasses. Since large hibernacula are either not known or not accessible in BC, it is difficult to determine if the disease is present. However, dead bat carcasses that have been collected in winter can be swabbed by laboratory technicians or bat specialists to test for the presence of the fungus that causes white-nose syndrome. Bat Ambassadors can promote the collection of dead bats during winter months as part of their public outreach activities and then collect dead carcasses that have been reported. Note that bats should never be handled with bare hands. Gloves and proper protocols should be used when collecting bat carcasses. See the [Citizen Science Protocols](#) section of this handbook.

Encourage Bat-Friendly Communities

Municipalities in BC can seek designation as a “Bat-Friendly Community.” A Bat-Friendly Community encourages an appreciation of bats among the public; promotes bat-friendly management information; encourages green spaces, wetlands, and trees, with a focus on native, bat-friendly plants; and reviews/revises by-laws to promote bat-friendly practices. The program involves the municipality working with the regional Community Bat Program coordinator to develop a community plan. Bat Ambassadors can visit their local government elected officials and staff to promote their municipality as bat-friendly. See [Bat Friendly Communities](#) section of this handbook.

What Bat Ambassadors Should Never Do

An important component of Bat Ambassador Training is clear information on the activities that Bat Ambassadors should not do. These guidelines are important to ensure the health and safety of Bat Ambassadors, volunteers, and the public.

Bat Ambassadors CAN NOT do	Bat Ambassadors CAN do
Never offer public health advice. Do not give specific information about what to do if a person or pet may have been bitten by a bat (other than talk to public health immediately) or if they have guano in their attic.	Always encourage prompt contact with public health or a doctor if there are concerns about human contact with a bat. Direct human health-related questions to the local health authority. Direct pet-related questions to a veterinarian. Share documents and other general information about rabies and histoplasmosis.
Never handle a bat. A key message of the BC Community Bat Program and Bat Ambassadors is to never touch a bat with bare hands. Never. Ever. Specialists trained to handle bats have preventative rabies vaccinations and specific training on how to handle a bat. When collecting dead bat carcasses, follow protocols to ensure no contact between human skin and the bat carcass.	Promote the key message to never handle a bat. This messaging can save both human and bat lives.
Never conduct a site visit. One of the roles of regional bat programs is to visit properties that have potential bat roost sites. Regional Coordinators are trained and insured to enter a roost site.	Bat Ambassadors may encourage bat roost reporting so that Regional Coordinators or other properly trained professionals can conduct a site visit.
Never offer site-specific bat management advice. There are numerous factors to consider when managing bats in buildings including the bat species present, roost type, impacts to landowners, and impacts to bats, to name a few.	Bat Ambassadors may provide printed materials on managing bats in buildings (see resources section) and encourage landowners to contact their regional bat program.

Bat Basics: 10 Facts to Know About Bats

This is a brief summary of key facts to know about bats framed under the Four Key Messages. You are strongly encouraged to read [Bats 101: All About Bats Appendix](#) for more detailed information on the biology of bats in general and the ecology of bats in BC to enhance the information you share.

Message # 1: Bats Are Interesting

Bats are the only true flying mammals and use echolocation.

Bats are mammals of the order *Chiroptera*, which literally means “hand-wing.” With their forelimbs adapted as wings, they are the only mammals capable of true and sustained flight (Flying squirrels only glide). Bats are more manoeuvrable than birds, flying with their very long spread-out digits covered with a thin membrane (a.k.a. patagium).

Bats use their ears to navigate the night skies with echolocation. Just as the word implies, they locate objects in space by listening for rebounding echoes of their very loud, high-frequency calls. We cannot hear bats echolocating since their calls are at such a high frequency that they are above the hearing range for humans, but pets (cats and dogs) can. Bats use a frequency range of around 20 KHz up to 150 KHz. The range of human hearing is around 20 Hz to 20KHz. To ‘hear’ BC bat species, you can use a “bat detector,” which is a device with a microphone that captures the bat’s calls, divides the sound and slows it down so we can hear the call with our ears.

Bats are not rodents but long-lived mammals that reproduce slowly.

Bats are not rodents but belong to a special group of mammals that are long-lived with low reproductive rates (one or two pups per year) and high energy requirements since they are the only mammal that truly flies. There are few lifespan records for BC bats, but in Canada, there are records of Big Brown Bats surviving to at least 19 years and Little Brown Myotis to more than 39 years. Recent work in the UK has found a male Brandt’s bat (a type of Myotis) that is 41 years old. Such a long life in a small mammal is unusual. Some researchers are examining this phenomenon of extended longevity in bats, hoping to unlock the secret to the fountain of youth.

Most bat species in Canada produce a single pup per year, with the exception of Hoary, Silver-haired, Pallid, and Red bats, and some populations of Big Brown Bats have twins. Bat pups are huge compared to their mother’s body weight. At birth, they range from 25-30% of their mother’s mass. Just imagine a 150 lb woman giving birth to a 50 lb baby! Like all mammals, bats feed their babies milk.

Bats need a variety of habitats.

Many people think bats roost in caves year-round, but that is not the case. In winter, caves, mines and deep rock crevices are important for bats as **hibernation** sites (because they provide stable, cold temperatures above freezing and high relative humidity), but they are almost always too cold for summer roosts. Bats may also hibernate under tree bark, in tree cavities, in basements, or under siding. In summer, large bat colonies are usually **maternity roosts** composed of mothers and their pups. Generally, bats that are gestating or nursing their pup prefer warmer roost sites. Single male bats or non-reproductive female bats usually roost on their own in **day roosts**. Finally, **night roosts** are where bats rest between feeding but don't sleep during the day. Roosts can occur in a variety of natural and human-constructed features, discussed below. The types of roosts used can be specific to the bat species in question.

Natural Roosts

Not all bats will use buildings or bat boxes. Many rely on natural roosts including tree hollows or other spaces created by tree defects (cracks, spaces beneath peeling bark, within furrows of very deep bark). Other bat species may use only rock crevices (cliff faces, rock outcrops, mudstone areas of riverbanks). Some species in BC show a strong preference for certain types of structures, while others appear to be highly flexible depending on what is available in their environment. For example, the Hoary Bat and Eastern Red Bat nearly always roost hanging among the leaves of trees (although they may be found in a greater variety of locations during migration). Other species occupy a wide range of structures depending on what is available, such as buildings, bridges, bat houses, rock crevices, caves, and cavities in live trees or standing dead trees (known as 'snags'). Few bats in Canada roost in caves during the summer because temperatures are too cold. However, roosting preferences of some species are not well known.

Bats in Buildings

Several bat species have adapted to using buildings as roost sites, including attics, barns, sheds, chimneys and roofs. Buildings provide high-quality roosts for *some* species of bats, and it is possible and preferred to maintain bat colonies in buildings when safe to do so. Buildings with bat roosts are very important for conservation of these species, which include Little Brown Myotis. People can live safely with bats in buildings as long as the human and bat living areas are separate and guano can be regularly removed (to avoid smell). Unlike rodents, they do not chew or dig holes, and they don't bring in nesting material, so they do not create a fire hazard or destroy things. Bats do poop a lot, and they will urinate in their roosts, both of which can cause a significant smell if left unattended. The BC Community Bat Program has a great guidebook, "[Living with Bats,](#)" available as a resource for anyone with bats in a building (available for free download at bcbats.ca).

IMPORTANT

Bat Ambassadors should never offer advice on management of bats in specific situations. There are numerous factors to consider when managing bats in buildings including the bat species present, roost type, impacts to landowners, and impacts to bats, to name a few.

Bat Ambassadors CAN provide guidance material and contact information for the regional coordinator.



Bat Boxes

Interest in bat boxes has increased substantially in the past few years. It seems like an easy fix for the “bat conservation problem” (i.e., declining populations from various threats). The truth is that bat boxes provide habitat for only a few BC bat species (primarily Little Brown Myotis, Yuma Myotis and Big Brown Bat). There are concerns that bat boxes may overheat; to ensure bat boxes are a safe haven, it is important to use the correct size and style of bat boxes (large, multi-chambered nursery or rocket boxes) and install several boxes that receive varying amounts of direct sunlight. Small single-chambered bat boxes are less likely to attract maternity colonies and more likely to become too hot. If bat boxes are not large enough or positioned correctly to provide a range of temperature options that mimic natural and building roosts, bats may overheat. In particular, young, flightless bats are at risk. The installation of bat boxes is not recommended in habitats such as wetlands or riparian areas unless there has been considerable habitat destruction. See the [Bat Boxes and Best Practices](#) section of this handbook.

IMPORTANT

It is important to **follow the Best Management Practices for Bat Boxes** in BC when providing guidance on bat box installation. Promote registration of bat boxes on <https://bcbats.ca/>.



Message # 2: Bats Are Important

Bats play a crucial role in our ecosystems.

All bats in BC eat insects (and other arthropods). Bats consume large amounts of nocturnal flying insects, which can include mosquitoes, forest pests, and agricultural pests. The diet of bats varies by species— some species are moth specialists, others favour beetles. Larger bat species tend to eat large insects; smaller bats tend to eat smaller insects (such as midges and mosquitoes). A nursing mother bat can eat more than her own weight in insects in a night just to keep up with the energy demand!

Because bats are major consumers of nocturnal flying insects, they are important in the food chain and as part of our ecosystems. The impact of bats on insect populations should not be underestimated. Because bats consume the flying adult forms of many moths and beetles, they remove adult, egg-laying individuals who could be responsible for laying thousands of eggs that hatch into caterpillar forms that do the most damage to many crops. Bats consume pest insect species recognized by both the agricultural and forestry industries.

The importance of a bat’s diet is not just in controlling insect populations but also in cycling nutrients. Since bats may eat in one location but poop in another, they move the rich nutrients, essentially fertilizing the soil. For example, if a bat foraged on insects in a wetland but then pooped in a forest, that bat is helping fertilize the forest. Now imagine that times hundreds or thousands of bats!

All bats in BC are protected under the BC Wildlife Act.

All bats in BC are protected under the *BC Wildlife Act*, which protects bats from being hunted, captured, possessed, killed, transported, and harassed. It is illegal to kill a bat or exterminate a bat roost. Because of this protection, bats are not considered a pest and cannot be exterminated or removed by pest control.

Message # 3: Bats Are in Trouble

Most bat species in BC are endangered or threatened.

Many bat species are considered 'at risk' because there are so many threats to their populations. The conservation of bats is an urgent and important issue. There are 17 species of bats in BC, but two are only known from acoustic records. Of the 15 resident bat species, over half are on the provincial and/or federal species at risk lists. There is still a great deal to learn about bats in BC, and with increased survey effort and better identification tools, our understanding of bat species distribution may change. Visit <https://bcbats.ca/bat-basics/bat-species-in-bc/> to check the conservation status of BC bats.

There are many threats to bats, including white-nose syndrome (WNS)

White-nose syndrome

A disease called white-nose syndrome (WNS) is decimating bat populations in North America. This syndrome is caused by a lethal fungus *Pseudogymnoascus destructans* (*Pd* for short) that is spreading rapidly through hibernating bat species. Millions of bat deaths have been recorded across North America since 2006, when a fungal pathogen was discovered.

As of 2024, WNS has not yet been detected in BC bats, but it is very close. The presence of *Pd* fungus was detected in bat guano in the Boundary region of BC in 2022. Visit <https://www.whitenosesyndrome.org/> to find the most recent update on the spread of *Pd* fungus and WNS in North America.

The fungus grows as a white 'fuzz' on the noses, tails and wing membranes of hibernating bats of various species. The fungus causes the bats to wake during hibernation, which uses up critical fat reserves. Infected bats are often seen flying in winter and will emerge from hibernation sites well before the appropriate time of year. *Pd* has affected some bat species more than others. Little Brown Myotis, Northern Myotis and Tri-colored Bats were listed Federally as Endangered in Canada in 2014 after populations of these three species dropped precipitously due to deaths from White-nose syndrome. WNS is considered one of the worst wildlife epidemics ever observed in North America. There are efforts to monitor WNS, and the public is encouraged to report dead bats in winter and spring to help monitor for this disease.

Habitat Loss

Stable bat populations primarily depend on four things: good quality summer day-roosting habitats; adequate foraging habitat (places that produce patches of insects) and access to drinking water; connectivity between these two habitats (some bat species will not cross open areas; some may refuse to cross gaps as small as 10 meters, while other bat species have no issue with open spaces); and undisturbed hibernation sites over winter. Urban development, destruction of old buildings, loss of wetlands, poor forestry practices, and other human activities can lead to the loss of natural habitat for wildlife, especially in terms of the loss of trees that would have been used as roosting habitat for bats. Loss of foraging and drinking habitat can result from land reclamation (draining wetlands), channelization and loss of riparian habitats, and contamination and sedimentation of wetlands, ponds, and riparian habitats.

Wind Turbines

Wind energy facilities pose a threat to bats. Bats die from either being hit by the turning blades of the wind turbine or because of barotrauma (reduced air pressure at turbines). Wind facilities built in forested areas will require forest clearing. Loss of trees and tree roosts; removal of rock features suitable for roosting bats may also impact local bat populations. Any construction activity or development that changes drainage patterns or results in the loss or degradation of riparian areas can negatively affect bats. Bat fatalities generally peak during the late summer/early fall during the autumn migratory period for bats. Migratory bat species seem to be most affected (Hoary Bat, Red Bat, Silver-Haired Bat), but in northeastern BC, other non-migratory *Myotis* species are also impacted.

Insect Population Declines

Possibly one of the most alarming things to have been brought to light in the past decade is the decline in insect populations worldwide, with 40% of insect species in decline. In North America, half of all Lepidoptera (moths/butterflies) and beetle species are in decline, with 1/3 threatened with extinction. Half of all bee and ant species are threatened, and 63% of caddisfly species are threatened. Since insects are the primary diet of bats in Canada, the loss of this prey can severely impact bat populations. There has been no single reason found for insect declines, but there are several factors that contribute to their demise, including loss of habitat, pesticide use, climate change, and the invasiveness of species and diseases.

Climate Change

Climate change may affect levels of bat activity and bat numbers. Extreme weather patterns, especially drought, extreme heat, cold, and precipitation, increasing storm intensities, and sea level rise can directly affect bats and the habitats they depend on. Declines in available water during times of drought can cause lower bat reproductive success and population decline. Bat reproduction and hibernation are both closely tied to environmental temperatures and conditions. The timing of hibernation in autumn and emergence in spring (with subsequent initiation of pregnancy) is dependent upon cues from temperature and weather. The effects of these changes on bat population sizes and differences between bat species are unknown.

Predation by Cats

Cat attacks are a common cause of bat mortality. Bats do have natural predators (such as birds of prey), but cats can hear their echolocation, learn the location of a bat roost and catch bats as they emerge. They have been known to eliminate entire colonies of bats. The “[Happy Cat brochure](#)” was developed by the Stewardship Centre for BC to promote responsible cat ownership to keep cats happy and safe and, in turn, reduce cat predation on bats. Cat welfare groups, veterinarians as well as conservationists encourage keeping cats indoors with only supervised outdoor access (catios, leash-walking, cat-proof fencing).

Message # 4: You Can Help Bats

People can protect and create bat habitat.

There are many ways that people can protect and enhance bat habitat. People with bats in their buildings can be stewards of these colonies. People can live safely with bats in buildings as long as the human and bat living areas are separate and guano can be regularly removed (to avoid smell). Unlike rodents, they do not chew or dig holes, and they don’t bring in nesting material, so they do not create a fire hazard or destroy things.

There are situations when people can’t or don’t want to live with bats in their buildings. Excluding bats from their current roost site so that they cannot re-enter is a viable way of removing bats from a building, but it must be done under strict protocols in order not to harm bats. Some factors to consider include the bat species present, timing (evictions should never be done in summer when bats may have pups), how viable it is to seal all the entry and exit points, and what alternative roost habitat is available. When a colony is being evicted from a building, it is a good opportunity to install several bat houses.

There are many other ways to promote and create bat habitat. You can find more information in the “[Bat-Friendly Communities](#)” guidebook that talks about what habitats bats need, how to improve habitats for bats, and how to eliminate hazards that we unintentionally set up for bats.

Never touch a bat with your bare hands.

When left alone, bats are not a danger to people. However, there are important procedures and safety precautions you should be aware of to ensure you and the bats remain safe. *Never touch a bat with your bare hands.* Bats do carry the rabies virus but less than 1 % of bats are likely to be infected. Nevertheless, rabies is a serious disease, and it is essential to never touch a bat with bare hands and report all contact to a medical professional. Although extremely rare, there is potential to contract rabies from a bat bite or scratch, usually from accidental contact or deliberate handling of bats. Any direct contact with a bat must be reported immediately to Public Health or a physician.

If possible, injured or dead bats should be left where they are. If they are at risk of coming into contact with people or pets, they should be removed and put somewhere else. For sick or

injured bats, use leather gloves and a box or butterfly net to capture them, then place them carefully in a loose weave pillowcase and pin it to an outside wall with the open end up. This way, the bat can climb up and fly away at night if it is able. Bats should not be placed in jars or boxes where they cannot fly away (unless there has been a risk of rabies exposure and the bat is being submitted for testing). Note that bats roosting in odd places, such as low on walls or exposed areas of buildings, does not mean that they are sick, and they should be left where they are if possible. Dead bats may be buried, or if they are to be collected for testing, handle them with gloves and put them in a bag or box. Report dead bats found during the WNS surveillance period between November 1st and May 31st to our website bcbats.ca.

IMPORTANT

Never touch a bat with bare hands. If you are bitten or scratched by a bat, seek immediate medical attention.



Participate in citizen science data collection.

There is relatively little known about bats in BC. Citizen-science data, such as annual bat count data, is an important contribution to our understanding of bats. Several current research projects include identifying hibernacula, bat activity in winter (hibernating bats hibernate, but they do arouse frequently), types of roost structures, and potential impacts of white-nose syndrome when it arrives in the province. Key information may be reported by citizens, and Bat Ambassadors can play a role in encouraging people to participate in BC Annual Bat Count (tracks population trends), report roost sites (particularly large maternity roosts or hibernacula), register bat boxes, and collect bat carcasses and report bat activity in winter. Bat Ambassadors can also assist with WNS surveillance - reporting dead bats between November 1 and May 31st, collecting dead bats if appropriate to send for WNS testing, monitoring the date of arrival to roosts in spring, and collecting guano in spring to test for *Pd* fungus. See the [Citizen Science Protocols](#) section of this handbook. Please contact your regional coordinator to see what information is needed in your area.

Outreach and Communication

A key role of Bat Ambassadors is to initiate, participate in, or develop public outreach activities. Here are some tips, instructions and/or examples of outreach activities. You can find much more content and many ideas for public outreach in the [Key Resources](#) section of this handbook. Remember, all outreach should be based on the four key messages.

Presentations

Presentations about bats are usually extremely popular with community groups, school children, and the general public. Consider offering presentations to groups like your local Rotary Club, Scouts troupe, school, naturalist group, or nature festival. This Kit includes a PowerPoint presentation template (*Bats Out of the Darkness*) that you can adapt for your purposes by selecting which slides you want to include or leave out (however, you must keep the acknowledgement slide). Some things to consider when developing a presentation include:

- **Who is your audience?** The attention span of younger children is shorter than that of adults. Consider less detail and more activities with younger audiences and more scientific details (from [Bats 101: All About Bats Appendix](#)) for older audiences.
- **What is your goal?** Identifying one or two goals for your presentation can help guide your approach and key messages. For example, your goal may be to enlist more citizen scientists, promote bat reporting, or reduce harmful impacts on bats. You may be presenting to your local city council to promote Bat Friendly Communities. Discuss goals with your Bat Ambassador Trainer before your presentation.
- **What are your key messages?** Always use the four key messages in this handbook as the basis of your presentation, but you may wish to emphasize different information depending on your audience. For example, naturalist groups may be more interested in participating in citizen science activities, building associations may be more interested in bats in buildings, or children may be more interested in ‘cool’ general bat facts.
- **What activities can you incorporate?** Bat presentations can be enhanced by using activities like games, ‘flapping your arms’ at the same speed as a bat, going for an acoustic bat walk after your presentation, or playing ‘bat bingo’. Ideas for games and activities can be found in the resources section.
- **What props can you bring?** Presentations become more interesting when you can ‘show and tell’ some objects. See the section on Display Booth Items for ideas.

Bat Games and Activities

There are a number of games and activities that can be used to enhance presentations and other events. Some popular ones include ‘bat and moth’, which is like Marco Polo, where the bat is blindfolded and has to catch the moth; and True and False games, where children run to either side of an area depending on if the answer is true or false; or a bat nature walk. Only your imagination is the limit. The Village of Cumberland created a community art project by cutting bat silhouettes and having residents paint and hang them around the area. Ideas can be found in the following resources:

Activities in the EduKit	https://www.bcbats.ca/index.php/bat-basics/bat-resources-for-teachers-and-educators
Bat Art Gallery from Cumberland	https://www.cumberlandforest.com/village-bat-gallery/
BC Nature Kids (bat species cards, activity ideas)	https://www.naturekidsbc.ca/be-a-naturekid/stewardship-citizen-science/bat-citizen-science/
Alberta Bats Colouring and Activity Book	https://www.albertabats.ca/wp-content/uploads/ACBP_Bat_Activity_Book.pdf
Bat Conservation International	https://www.batcon.org/about-bats/games-and-activities/
Bat Scavenger Hunt	Walk during the day with a checklist of key features like a natural roost that bats could use, a building roost that bats could use, somewhere bats may find food, etc.

Display Booth

Hosting a display booth at a fall fair or other event can increase interest in bats and engage the public. Make sure you are informed about bats and prepared to answer questions prior to the event (e.g., read the [Bats 101: All About Bats](#) Appendix and [Key Resources](#) listed in this handbook). Also, remember that it’s ok to say ‘I don’t know’! Potential display booth items include:

- Table, chair and tablecloth (bat fabric can be purchased in October at a fabric store)
- Banner (your community bat program may have a banner you can borrow)
- Bat skeleton or enclosed dead bats
- Laminated pictures of BC bat species
- Magnifier box with guano
- Bat books
- Bat cave (tent) and other creative bat display ideas
- Printed materials (Got Bats: a BC Guide for Managing Bats in Buildings, Living with Bats, Happy Cat brochure, etc.)
- Clipboard to record roost reports and have people sign up as citizen scientists or new Bat Ambassadors

Examples of bat display booths



Props

Props can be used as part of presentations and display booths. Your imagination is your limit for what you can create to help engage the public, convey key messages, and make information interesting. There are some amazingly creative Bat Ambassadors. Some examples are:

- Bat life cycle giant wheel
- Bat cave
- Maps of bat species distribution (your region, BC, the world)
- Bat masks and costumes
- Bat puppets
- Giant's bat drawing/banner
- Sewn bat silhouettes in real size and weight
- Quiz cards
- If you are creative and like to come up with new props, have fun!



This 'bat cave' was adapted from a small tent using a felt cover. Inside, bats dangle from the ceiling and books can be displayed to read. Children and their parents often slip into the bat cave to learn more about bats. Created by Dawna-lea Ringer.



Costumes can be created that a presenter or audience member can wear.



Giant banner created by Bat Ambassador, Dawna-Lea Ringer.



These weighted bats were made by Bat Ambassador, Dawna-Lea Ringer. She cut each bat to size and then put weights appropriate for that species (e.g. flying fox, Little brown myotis, bumble-bee bat).



Life cycle wheel and maps



Quizzes and colouring sheets (lots available online)

Bat Walks

Bat walks are a fun way to engage the public at events like nature festivals, BC Parks programs, or other evening events. Bat walks are generally to 'listen' to bats echolocate, so a bat detector is necessary. These bat walks begin before sunset and continue until about an hour after sunset (so June is not an ideal month since they would start so late). Some factors to consider in planning a bat walk include:

- **Ideal group size:** Depends on the number of bat detectors available for sharing. Groups of about 25 are easiest to handle but 50 could be managed with some assistance to manage the group.
- **Types of detectors to use:** The Echo-meter Touch units with a tablet are the most popular (because of the visual display and the auto-ID feature), but any type of bat detector will work. Check your local library to see if they carry the 'Bat Packs' with bat detectors on loan. More and more BC libraries are carrying them.
- **Number of detectors needed:** Depends on the group size (one detector for every 3-5 people). If this is a limitation, it is possible to just have one detector for the guide and limit the group size to 8 or 10 so everyone can hear.
- **Timing:** Set up the walk based on official sunset time. Bats will start flying within 30 minutes past sunset. Give time for people to arrive and 20-30 minutes for an introductory talk. Set arrival time for participants about an hour and a half before sunset (especially if bat interpretive materials are set out for viewing beforehand). The walk itself can be about an hour or so. If you set up a black light and sheet to attract moths and night-flying insects, count on another 10-20 minutes for everyone to look at this as well. Packing up will take half an hour or so. Do not be discouraged if bats take some time to arrive – if there is not a roost nearby, or if a site is too open, it may take 30-60 minutes for bat activity to really pick up.
- **Introductory talk:**
 - Start with a welcome,
 - Explain the plan for the evening,
 - Introduce the BC Community Bat Program and its objectives (pointing out the website and social media platforms),
 - Talk about the number of bat species in BC, and the number of bat species expected in your area, and bat ecology (refer to [Key Messages](#)),
 - Explain echolocation and how the detectors work,
 - Discuss conservation concerns for bats and,
 - Why bats are important and what the average person can do to help BC bats.
- **Set up the display booth,** if feasible (but someone will need to tend to it during the walk).

- **Set up a white sheet with a black light** and check out the local insect fauna after the walk, insects are attracted by the light and you will be able to observe what is out there at night.
- **Ask attendees to bring a flashlight and dress appropriately** since it is often much colder after sunset.
- **Sign-in – Sign-out** may be useful, so you don't lose anyone. It is good to have a couple of helpers to ensure everyone is accounted for.
- **Walk and stop at strategic spots** and just listen for bats.

Bat Box Building Workshops

Bat boxes are another outreach tool to introduce people to bats and to get them excited and supportive of bat conservation. The current recommendation is to use the four-chambered nursery box plans (available at bcbats.ca) and to donate built bat boxes to the regional Bat Program so they can select sites. Current research on bat box use in BC is ongoing and we may see updates to recommendations. See *Best Management Practices for Bat Boxes in British Columbia* and *Building Homes for Bats* for more information at bcbats.ca.

Tips on how to run a bat box building workshop:

- Begin the workshop with a short presentation on bats. This can include general ecology and conservation information as well as specific information on where to install bat boxes. Remember that ideally, participants will donate their bat box to the regional bat program.
- Ask participants to bring their own power tools (drill with specific bit size for screwing in wood screws, caulking gun).
- Precut all the wood into “kits” following the plans available in the *Building Homes for Bats in BC* guide.
- Bring screws, caulking, extra drills, and extension cords.
- If you are staining boxes, bring appropriate clothes (or have participants or regional bat program stain them later).

CAUTION

Building the recommended four-chambered bat boxes is challenging and should not be done by kids or inexperienced adults. **Finding assistance from an experienced woodworker is advised.**

If boxes are built small, differ in dimensions, or lack important features like ventilation holes and landing pads, they will not be safe for bats and will likely not be used by bats even if installed in the right location.



- Have a hand-out ready for post-build reference with information on how to install and where to install bat boxes and information on the citizen science program – how to report your bat box and counts. See the last page of *Best Management Practices for Bat Boxes in BC* as an example.
- Advise that they should also use caulking to seal any of the seams from the outside (to keep it both watertight and reduce cooling from air leaks).
- Discuss all the parts of the box and how it all works (interior panels roughed give little bats better grip on the inside of the box), the piece at the bottom hangs out for a landing pad for the bats and then they crawl inside, the vents on either side of the box to give the bats a “cool” area to hang out if it gets too hot, the large holes in the inside panels allow bats to move from one compartment to the next from inside the box, roof is slanted to drain rainwater (some people add roofing material to their boxes, such as a tin or copper sheet).
- Talk about how to hang up a box (different ways to attach it depending on whether you are installing it on a pole or a building). See information in *Building Homes for Bats in BC* guidebook.
- Discuss the importance of internal temperatures (needs to be quite warm, 37C range but not spiking over 40C or it can cause bats to move or possibly even heat deaths); stable, warm temperatures overnight are ideal.

Bat Count Workshops

The Annual Bat Count is a way to collect important data on bats at known roost sites. Conducting an Annual Bat Count workshop can both encourage participants to get involved as well as build confidence in the methodology. Ideally, a bat count workshop will be held at a site and time of year when the data can be used. See the Annual Bat Count Protocol in the [Citizen Science Protocols](#) section of this handbook.

- Prepare a count kit for everyone (counting sheet, pencil, clipboard, optional clicker-counter).
- Arrive on site about 30 min before sunset (it gives you about an hour to meet people, distribute material, give an intro speech, explain safety procedures, etc.).
- Explain how to assess the site if it is the first time counting at a site.

- Explain how to fill in the form. Fill in the site information, weather data, date, and observer's names prior to the count. At the end of the count, fill in the end time and number of bats.
- Listen for bats inside the roost (by staying outside).
- Explain the best locations around the roost to count (not facing exit but positioned to the side, light background like the sky or white building when possible).
- Explain how to count (only count emerging bats).
- End one hour after sunset or later depending on bat activity.
- Explain how to report findings to the BC Community Bat Program by the end of August (online form, by email or by mail).

Distribute Information to Target Audiences

There are certain professions and audiences that are more likely to come into contact with bats, including roofers, builders, pest control companies and realtors. Specific bulletins have been created for different audiences, and they can be distributed in print or digital format. Bat Ambassadors can play a key role in distributing information to these target audiences. Do searches online to find out companies that operate in your region. Be sure to coordinate with your regional bat program and have a tracking system of where you have distributed information, so the same companies are not contacted more than once in a season. Example bulletins and information include:

- For **Homeowners**: see [BC Guide for Managing Bats in Buildings](#)
- For **Exterior Blind/Awning Manufacturers**: see the section on best management practices for awnings and blinds.
- For **Pest Control Professionals**: see “7 Steps to Excluding Bats from Buildings for Pest Control Management Professionals”. There is a [2-page overview](#) (pdf), and a [16 page booklet](#) (pdf)
- For **Builders**: see the two page [A Bulletin for Builders](#) and [BC Guide for Managing Bats in Buildings](#)
- For **Roofers and Chimney Professionals**: see the two page [A Bulletin for Roofers and Chimney Professionals](#) and [BC Guide for Managing Bats in Buildings](#)
- For **Realtors**: see the two page [Got Bats in a house for sale? A bulletin for realtors](#) and [BC Guide for Managing Bats in Buildings](#)

Kelowna Museum Travelling Exhibit

The BATS: Out of the Darkness travelling exhibit was developed through a collaborative effort of 15 community and institutional partners in the Okanagan. It is a museum-grade exhibition that serves as a reminder of how essential bats are to the environment. It also provides a chance to celebrate these amazing creatures and foster stewardship within BC.

BATS is primarily composed of double-sided pop-up walls, which contain stories, information and incredible photographs. Video and audio elements foster interaction and help bring concepts to life. Bat specimens and objects, including a bat house and diorama, may be borrowed by institutions that meet the facility criteria. The family-friendly content focuses on BC-wide bat ecology, biology, habitat needs, syilx/Okanagan Nation perspectives, conservation issues, personal stories/case studies and fun facts.

It is managed by the Kelowna Museums and can be rented for a minimum of a three-month period. Bat Ambassadors can encourage local museums or institutions to bring it into their community. <https://www.kelownamuseums.ca/exhibits/bats-out-of-the-darkness/>



Citizen Science Protocols

Bat Ambassadors may become involved in collecting citizen science data and/or engaging others to collect this data. It is important to follow provincially developed protocols so that information is consistent. The following section lists protocols for reporting roosts, participating in the Annual Bat Count, collecting and submitting dead bat carcasses and guano, and using bat detectors.

Reporting Roosts and Bat Activity

Summer

Several bat species and their important maternity colonies may be found in buildings. Bat Ambassadors can encourage landowners to report their bats to their regional community bat project during their public outreach activities. They may distribute “Got Bats?” cards and booklets or other roost-reporting information to hardware stores, pest control companies, builders, roofers and other audiences that may encounter bats.

IMPORTANT

Note that **it is not the role of Bat Ambassadors** to conduct site visits to locations with bat roost sites or provide advice on how to manage bats in buildings - that is the role of a regional coordinator with the appropriate training, rabies vaccination, and liability insurance.



Winter

Two species of BC bats migrate for winter (Eastern Red Bat and Hoary Bat), and the rest hibernate. However, where the vast majority of bats in the province go during the winter is mostly unknown. Only a small number of bat hibernacula have been located in BC, mainly in caves and mines, and these account for a minor portion of the overall bat population. Reports of bat hibernacula are encouraged and this may be a key message when speaking with cavers or others who may encounter roosts. Reports of bats in woodpiles, buildings, and under trim/siding are also very valuable. **Remember that it is important not to disturb bats in winter.**

Report sightings of live bats in winter and early spring. This increases our knowledge about winter ecology and distribution, and any changes (such as early return) can flag sites for follow-up as this may indicate potential WNS.

Roost reports and bat activity reports can be sent to your regional bat program or submitted online to <https://www.bcbats.ca/index.php/got-bats/report-your-bats>

Annual Bat Count

The BC Annual Bat Count is a citizen science program that annually monitors bat populations in roost sites. Abandoned houses, barns, church steeples – and even currently occupied structures – can provide a summer home to female bats and their young. Monitoring these maternity

colonies can give biologists a good idea of how bat populations in an area are doing from year to year. With the occurrence of white-nose syndrome in western North America, monitoring these colonies is more important than ever. **The following is a short summary of Annual Bat Count protocols. It is important to download the most recent instructions and data forms every year** (check the website for updated instructions: bcbats.ca/get-involved/counting-bats/).

Ideally, the Bat Count includes four counts during the summer, which allows for the best comparison of data from year to year and between sites. Two counts **before pups can fly** (exact dates vary a little each year, but it takes place in early June until the end of June) and two more counts between **when pups are flying and exiting the roost with their mothers** (mid-July to the beginning of August) However, if landowners/count volunteers don't have time, they can choose their level of participation.

- Level 1: Bat Reporter - One count over the summer before pups fly
- Level 2: Bat Tracker - Two counts before pups fly
- Level 3: Bat Enthusiast - Two counts before pups fly and two counts when pups are flying and exiting the roost with their mothers

The following are the basics of the Annual Bat Count, but more details are in the Annual Bat Count instructions:

- Arrive at your bat roost at sunset (bats will begin to emerge at dusk).
- The air temperature should be at least 12°C with low wind speed.
- Sit or stand outside so that the bats' exit point is visible from a comfortable distance. More than one person might be needed if bats are exiting from multiple points.
- Tally the bats as they fly out for their nightly insect-eating. Record your observations on the datasheet.
- Enter your data online or mail data sheets to the BC Community Bat Program at the end of the summer.
- Do not enter the bat roosts or handle the animals.
- Please respect private property. Ask permission if the bat roost is on someone else's land.

To learn more about the counts and how to collect valuable bat data, click below:

- [Download Annual Bat Count instructions and Bat Count data form from our website.](#)
- [Download instructions on how to collect a Bat guano sample \(PDF\) \(2024\)/.](#)
- See the Annual Count Monitoring Procedure in the resource folder.
- Watch the Bat Count Video in the resources folder or at the bottom of the [“Become a Bat Ambassador”](#) page of our website.

Dead Bat Collection and Submission

Dead bat carcasses can provide insight into white-nose syndrome detection and spread, as well as other potential bat diseases. Because there are different objectives for wildlife health research at different times of the year, please note the different guidelines for submitting bats within and outside of the white-nose syndrome surveillance period (November 1 – May 31). See the video in the resources folder on how to collect dead bats.

Summer Dead Bat Collection (June 1 – October 31)

Please collect dead bats if any of the following conditions apply:

- Any human or domestic animal that has been in close contact with the bat
- The bat was behaving oddly (day-flying, unusually aggressive, etc.)
- There are multiple dead bats at one site
- The mortality is associated with a bat box
- It is an unusual species
- You are unsure – contact your regional coordinator

Winter Dead Bat Collection (November 1 – May 31)

Please collect all dead bats during this period. The BC Community Bat Program will collect all bat carcasses reported by the public or through targeted WNS surveillance efforts, and if there are no rabies concerns, ship them immediately to the Animal Health Lab in Abbotsford. Contact your regional coordinator to coordinate pickup/shipping.

Storage and Shipping of Dead Bats

- Always handle dead bats with gloves (disposable vinyl or nitrile gloves are ideal) or a plastic bag over your hand.
- Wrap the dead bat in paper towels to provide cushioning and to retain moisture.
- Place the wrapped bat in a Ziploc bag and a label in another Ziploc bag (double bag).
- Freeze the bat and keep it frozen as freeze/thaw makes necropsy more difficult.
- Contact your regional coordinator with information on the bat and to get a Wildlife Health Identification Number.
- Label each bag with the Wildlife Health ID number, date, submitter, contact and location.
- Contact your regional coordinator to arrange shipping.
- Always ship the bats in a proper hard-sided cooler if possible, and you must ship them with commercial ice packs. Coolers cannot be returned.

Bat Guano Collection and Submission for Species Identification

Bat guano samples can be collected to identify bat species through DNA analysis. Samples can be collected by landowners and Bat Ambassadors, who then send samples to their regional coordinators. Guano can be collected throughout the summer. In the first week of September, the BC Community Bat Program will determine how many samples have been collected and how many can be processed within their budget. Since there may only be funds to test a small portion of the collected guano samples, some samples can be stored in the freezer. See the bat guano collection instructions in the Protocols folder of resources. Visit <https://bcbats.ca/get-involved/collect-guano-for-species-id/> for most updated instructions.

You will need:

- Disposable gloves (e.g. latex gloves that can be purchased at a pharmacy) or clean tweezers
- Small paper envelope (such as a coin envelope)
- Cotton ball
- Pen or pencil

How to collect a sample:

- Select guano that is dry, in solid pellets, and has had minimal exposure to sun and water.
- Avoid touching the guano, as this pollutes it with your DNA. Wear gloves, use tweezers, or scoop guano into a coin envelope. Clean tweezers or change gloves between locations if you are taking the guano from more than one location.
- Select ONE intact pellet and carefully nest it in a cotton ball. Place this inside a paper envelope. The cotton will prevent the pellet from being crushed. If you have multiple roost sites (e.g. more than one occupied bat-house) or an attic or building with hundreds of bats, use a different cotton ball and envelope for each site (e.g. one envelope per bat-house, one envelope at each end of the attic).
- Avoid putting samples into a plastic bag – they need airflow. If you have many small envelopes, put them all into a larger paper envelope to store and mail.
- If you cannot mail the samples within 14 days, air dry them for 1- 2 weeks, then put them in a Ziploc bag and store them in the freezer.

Label envelopes with:

- Your full name
- Date you collected the guano
- Location and site name (e.g., your address/GPS coordinates and specific location like “north bat box”)
- Contact phone

Bat Detectors

A bat detector is a device that makes echolocation calls audible to the human ear. It allows people to ‘eavesdrop’ on bats by listening to their calls. Some detectors present these calls as spectrographs, which are visual displays. Bat Ambassadors may wish to purchase a bat detector to enhance their own learning and use it as a tool. For example, bat detectors can be used for outreach and education, including Bat Walks, Annual Bat Counts to assist when knowing a bat is emerging, or to record acoustics observations at a site. The BC Community Bat Programs does not currently have the capacity to analyze acoustic recordings. If you record acoustic bat files, see [Other Opportunities to Get Involved](#) section below to learn how to share these through iNaturalist.

There are many types of bat detectors on the market. Here are two examples of simple devices.

The **Echo Meter Touch** is a unit by [Wildlife Acoustics](#) that connects to a tablet or phone. It is a very small unit that can fit in a pocket, so it is convenient for events. It comes with a free app that produces a visual display of bat calls. It also has an auto-ID feature so you can select the bat species in your area, and the detector makes the best guess about which bat species is flying overhead.

The **Pettersson D100** is a classic unit. This simple bat detector does not play the full range of a bat call (so you can’t hear the ‘song’ of a bat) but rather plays ‘clicks’ as the bat call goes through a certain frequency. For example, if this unit is set to 50 KHz, every time the call goes through that range, a ‘click’ can be heard. It indicates the ‘feeding buzzes’ of bats (as they call faster when they approach prey) and indicates bats are present.



Echo meter Touch 2 detector by Wildlife Acoustics This unit records all frequencies at once (full-spectrum); free downloadable software will give both audio and visual displays of the calls, and the auto-ID function will identify the bat species calling. The most affordable model is \$180 US.

Photo: Wildlife Acoustics.

Tunable detector (shown is the Pettersson D-100 from Sweden). These units are tuned into a single frequency to detect bats. Microphones are located on top. The second knob adjusts the volume. Price: about \$300. *Photo: Juliet Craig*

Bat Friendly Communities

BC has initiated a new “Bat Friendly Communities” program where local governments such as municipalities, regional governments, Indigenous governments, or Island Trusts can achieve this designation, and community members can learn about simple steps to benefit bats. Bat Ambassadors can play an important role in promoting this program in their community.

Bats need three basic things to survive: food, shelter and water. Well-managed habitats in urban, rural and wild areas can provide these key elements. Maintaining the diversity of features found in natural environments is important for ensuring the success of our bats. Providing bat boxes and buildings suitable for bats is unlikely to be sufficient if our ecosystems no longer support the insect communities that they rely upon for food.

Key components to becoming certified are:

1. protect and create habitat;
2. provide information about bats; and,
3. promote learning.

The BC Community Bat Program developed a Guidebook with suggestions on what people can do to make their backyards or communities more bat-friendly. The guidebook provides key elements that are needed to create a “bat-friendly community.” These are a) information on how to protect both bats and their habitats, b) information on backyard hazards and ways to improve or create habitat for bats, and c) information about our BC bat species that can be provided to the community. The Bat Friendly Communities Program can help individuals, communities, and organizations that are interested in maintaining and enhancing bat habitat.

Bat-friendly communities in BC (years certified)

- Dawson Creek (2016/17)
- Peachland (2019)
- Richmond (2020)
- Delta (2021)
- Port Moody (2022)
- Comox (2023)
- City of Langley

More details on certification can be found in this [list of criteria for certification](#). The document is available at bcbats.ca and in the resources folder of this Kit.

Bat Boxes and Best Practices

Bat boxes can be part of a bat-friendly community and are an excellent way to connect to a variety of audiences. Bat boxes can provide safe, secure roost sites for several species of bats in BC. **They are commonly used by Little Brown Myotis, Yuma Myotis, and Big Brown Bats, and occasionally used by California Myotis, Long-legged Myotis, and Long-eared Myotis.** Detailed construction and installation information is provided in *Building Homes for Bats in BC* and by Community Bat Program regional coordinators.

Bat boxes can be an essential part of managing bats and providing habitat in urban and rural areas. However, before installing a bat box, it is important to consider if a bat box is necessary or appropriate in the situation. **Bat boxes are not recommended in undisturbed areas where natural roost sites are available** (e.g. patches of old cottonwood, aspen, conifers with sloughing bark or cavities, cliffs and rock outcrops with deep cracks, barns or outbuildings).

Do not install bat boxes in undisturbed habitats (e.g. undisturbed, older forests with cavities and sloughing bark) where roosts are likely available. This will avoid concerns about potentially increasing the few bat species that use boxes to the detriment of other bat species. If bat boxes are installed, maintenance and monitoring are needed to ensure the box is functioning and continuing to provide habitat. Reporting on the use of the box allows biologists to learn about bat preferences and improve guidance. Information on bat box size, style, installation, and monitoring is available in *Building Homes for Bats and the Best Management Practices for Bat Boxes*.

Bat boxes may be valuable in the following situations:

1. mitigation for exclusion from a known roost,
2. mitigation for the loss of natural roosting habitat,
3. education,
4. pest control.

There are numerous styles of bat-houses on the market, and not all of them are designed for BC. Some factors influencing the success of these designs are related to factors like size, vents, landing strip, etc. Other factors to consider when selecting a style are cost, space available on your property, size of the bat colony (if bats are already present), and location options.

For more information, see *Best Management Practices for Bat Boxes in BC* and *Building Homes for Bats*. For an overview of considerations on how and when bat boxes may best be employed to contribute to bat conservation, watch the [Wildlife Conservation Society Canada webinar 'Roosts for Tomorrow'](#)



A four-chambered nursery box for bats is designed for maternity colonies; this is the easiest model to build and the one we recommend. *Photo: Cory Olson.*



Rocket box-type bat house is also multi-chambered, is more difficult to build and more expensive, and is unclear if bats prefer this model. *Photo: Cory Olson.*



A bat "condo" is a condominium-style bat house for very large groups of bats, suitable for sites with large colonies that need to be excluded; it houses 1,000 bats or more. *Photo: Cory Olson.*

Other Opportunities to Get Involved

Some Bat Ambassadors have been keen to get involved in even more activities. Contact your regional bat program to find out what opportunities are in your area. These may include:

Sharing acoustic observations of bats through iNaturalist

There are many bat projects on iNaturalist. We encourage you to contribute your recordings to the Bats of Western Canada project hosted by the Wildlife Conservation Society Canada. Contribute your acoustic data (one or two files of each probable species at each site) to help better understand the distribution, habitat use and seasonal timing of bat activity. You can also contribute photos. <https://www.inaturalist.org/projects/bats-of-western-canada>

Participating in the North American Bat Monitoring Program (NABAT)

NABat is a North America-wide acoustic monitoring program for bats to monitor their populations. There are many active 'grid cells' being monitored in BC. Volunteers install bat detectors or do driving transects for two nights with a bat detector on the roof of the car. You

can learn more about NA Bat from [“NABat Program” YouTube video](#) by Bat Conservation International or can contact Wildlife Conservation Society Canada to get involved:
<https://www.wcscanada.org/Wildlife/Bat.aspx>.

Collecting guano for WNS surveillance (connect with BC government)

Bat guano samples are being used as a surveillance technique for white-nose syndrome. Guano samples can be collected by landowners and Bat Ambassadors, who then send samples to their regional coordinators. Contact your regional bat program to find out if samples are needed and what the protocols are for collecting them.

Key Resources

Background Information

- BC Community Bat Program <https://bcbats.ca>
- BC Nature Kids <https://naturekidsbc.ca/be-a-naturekid/stewardship-citizen-science/bat-citizen-science/>
- Wildlife Conservation Society Canada <https://wcsCanada.org/our-work/wildlife/bats/>
- White-nose Syndrome <https://www.whitenosesyndrome.org/>
- Video Introduction to BC Bats by BC Nature: <https://www.youtube.com/watch?v=6E5WSMuseDE>

Presentations and Outreach

- Bat EduKit Guide <https://bcbats.ca/attachments/BCBatEdukit-ActivityGuide-Low.pdf>
- BC Nature Kids (bat species cards, activity ideas) <https://naturekidsbc.ca/be-a-naturekid/stewardship-citizen-science/bat-citizen-science/>
- Cumberland Village Bat Gallery <https://www.cumberlandforest.com/village-bat-gallery/>
- Bat Scavenger Hunt (see resources folder)
- Alberta Bats Colouring and Activity Book https://www.albertabats.ca/wp-content/uploads/ACBP_Bat_Activity_Book.pdf
- Bat Conservation International <https://www.batcon.org/about-bats/games-and-activities/>
- Bats Live: A Distance Learning Adventure <https://batslive.pwnet.org/edubat/curriculum.php>
- Bat Week (takes place every October) <https://batweek.org/>

Helping Bats

- BC Bat Friendly Communities Handout <https://bcbats.ca/attachments/BC-BatFriendlyCommunities-Handout.pdf>
- BC Bat Friendly Communities Guide <https://bcbats.ca/attachments/BC-Bat-friendly-Communities-Guide-2018.pdf>
- Happy Cat Brochure http://stewardshipcentrebc.ca/PDF_docs/CatsBirds/HappyCat_Trifold_8.5x11_2019.pdf
- BC Bat Brochure <https://wildsafebc.com/wp-content/uploads/2024/07/BC-Bats-Brochure-V4.1-2024.pdf>
- Bat-friendly Gardening (Okanagan edition) <https://bcbats.ca/attachments/Bat-friendly-Garden-GREEN-version-Feb-2024.pdf>

Bat Boxes

- Best Management Practices for Bat Boxes in BC <https://www.bcbats.ca/attachments/BMPS-for-Bat-Boxes-in-BC-2019.pdf>
- Building Homes for Bats in BC <https://bcbats.ca/attachments/Building-Homes-for-Bats.pdf>
- Best Management Practices for the Use of Bat Houses in U.S. and Canada <https://ecos.fws.gov/ServCat/DownloadFile/241311>

Bats in Buildings

- Living with Bats in BC <https://bcbats.ca/attachments/Living-with-Bats-FINAL.pdf>
- Got Bats: A BC Guide for Managing Bats in Buildings
https://www.bcbats.ca/attachments/Bats%20in%20buildings20%20pages_2017_web.pdf
- Seven Steps for Excluding Bats from Buildings
https://www.bcbats.ca/attachments/Bats%20in%20Buildings_7steps_16%20pager_web.pdf
- Bulletins for specific audiences (e.g. pest control, builders, roofers) <https://bcbats.ca/got-bats/excluding-bats-from-a-building/>

Webinars

- Roosts for Tomorrow by Wildlife Conservation Society Canada
<https://programs.wcs.org/canada/Latest-News/ID/13513/Roosts-for-Tomorrow--Bat-Houses-Put-into-Context.aspx>

Bats and Health

- HealthLink BC: <https://www.healthlinkbc.ca/healthlinkbc-files/rabies>
- BC Centre for Disease Control: <http://www.bccdc.ca/health-info/diseases-conditions/rabies>
- Webinar 2024 Rabies and Human Health by BC Community Bat Program:
<https://www.youtube.com/watch?v=pCv6FFbblwM>

Resources Folder - Contact info@bcbats.ca to get access to this folder

Citizen Science Protocols	Supplementary Videos
• Sick or Dead Bat Protocol - 2024 in Bat Cave • Example Wildlife Health ID Form • DNA Sampling Protocol for Bat Guano Residents • Annual Bat Count Procedure	• Citizen Science: BC Annual Bat Count • Citizen Science: How to use the Bat Count Online Form • Inspiration of a Bat Ambassador: Joyce DeBoer • Inspiration of a Bat Ambassador: Georgie West • Ideas and Examples for Outreach • Citizen Science: Dead Bat Collection • Citizen Science: Guano Collection