

What They Do In The Shadows

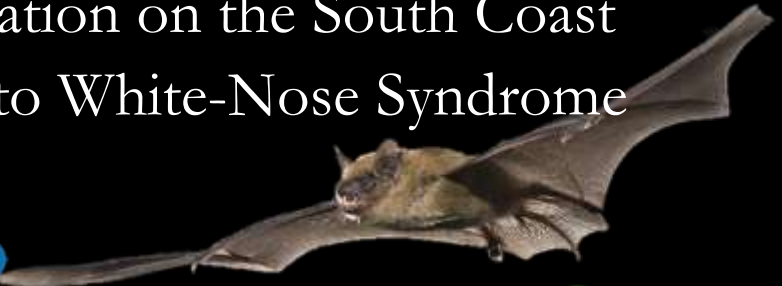
Bat Conservation on the South Coast
in Response to White-Nose Syndrome



Coastal Partners
In Conservation



UNIVERSITY
OF THE FRASER VALLEY



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Overview

- *Quick* intro to bat biology and species in our region
- White-Nose Syndrome
 - What is it?
 - Where is it?
 - What are we doing?
- Bat Conservation
 - Bat Counts
 - Bat Ambassador
 - Bat Friendly Communities

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Why Bats are Important!

- Bats are key predators for many night-flying insects.
- Bats are a bioindicator for our ecosystems
- They provide billions of dollars in economic by helping control agricultural, forest, and urban pests.
- While not in Canada, other bat species feed on nectar and provide critical pollination for a variety of plants like peaches, cloves, bananas and agaves.

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Myth Busters!

1. Myth: Bats are blind!

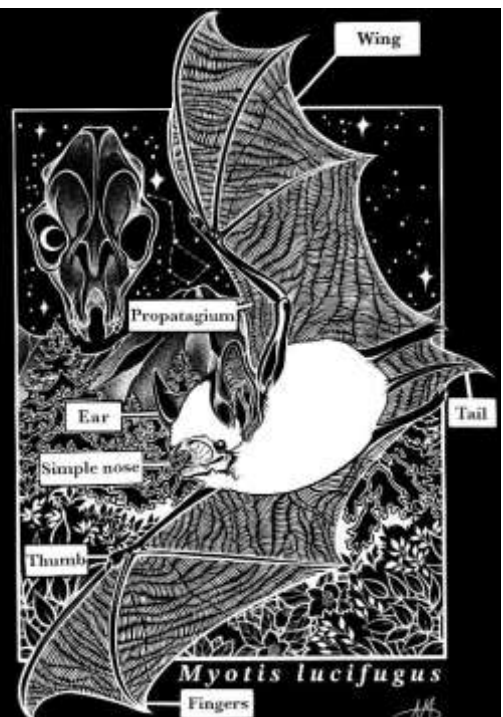
Fact: Bats can see just fine and some larger bats have very good eye sight

2. Myth: All bats have rabies

Fact: Less than 1% of bats have rabies,

3. Myth: Bats are rodents

Fact: Bats are not rodents or closely related to that group of mammals.



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South Coast Bat Species

- All bats in BC are insectivores
- 17 in BC
- **10 species in our region**

Potato Size	Tater tots
Silver-haired Bat	California Myotis
Townsend's Big-eared Bat	Yuma Myotis
Big Brown Bat	Little Brown Myotis
Hoary Bat	Long-legged Myotis
Mexican Free-tailed Bat*	Western Long-eared Myotis
Pallid Bat	Northern Myotis
Spotted Bat	Fringed Myotis
Eastern Red Bat	Western Small-footed Myotis
	Canyon Bat*

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These bats are not as physically distinctive compared to the larger bat species!

Long-legged Myotis



Western Long-eared Myotis



California Myotis



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Little brown myotis

vs.



Yuma myotis

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Eastern vs. Western Bat Populations

Western Bats

- Hibernate in smaller numbers at sites less accessible to humans

Eastern Bats

- Hibernate in large numbers inside caves



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White-Nose Syndrome – What Is It?

- Caused by *Pseudogymnoascus destructans* fungus (P.d.)
- Disease affects bats during hibernation
- Complex physiological effects
 - Bats deplete fat and water reserves during hibernation → can't make it through winter
- Not all bats affected equally



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WNS Affected Species

Full-blown WNS

- Little Brown Myotis
- Northern Myotis
- Long-legged Myotis
- Fringed Myotis
- Big Brown Bat
- Yuma Myotis
- Western Long-eared Myotis

P.d. Detected Without WNS

- Silver-haired Bat
- Townsend's Big-eared Bat
- Eastern Red Bat
- Western Small-footed Myotis
- Mexican Free-tailed Bat

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WNS – Where Is It?

- First detected in NY State 2006
- Spread of ~200 km/yr
- 2016 jumped to Washington State

Declines difficult to estimate
5.7 - 6.7 million (USFWS 2011)



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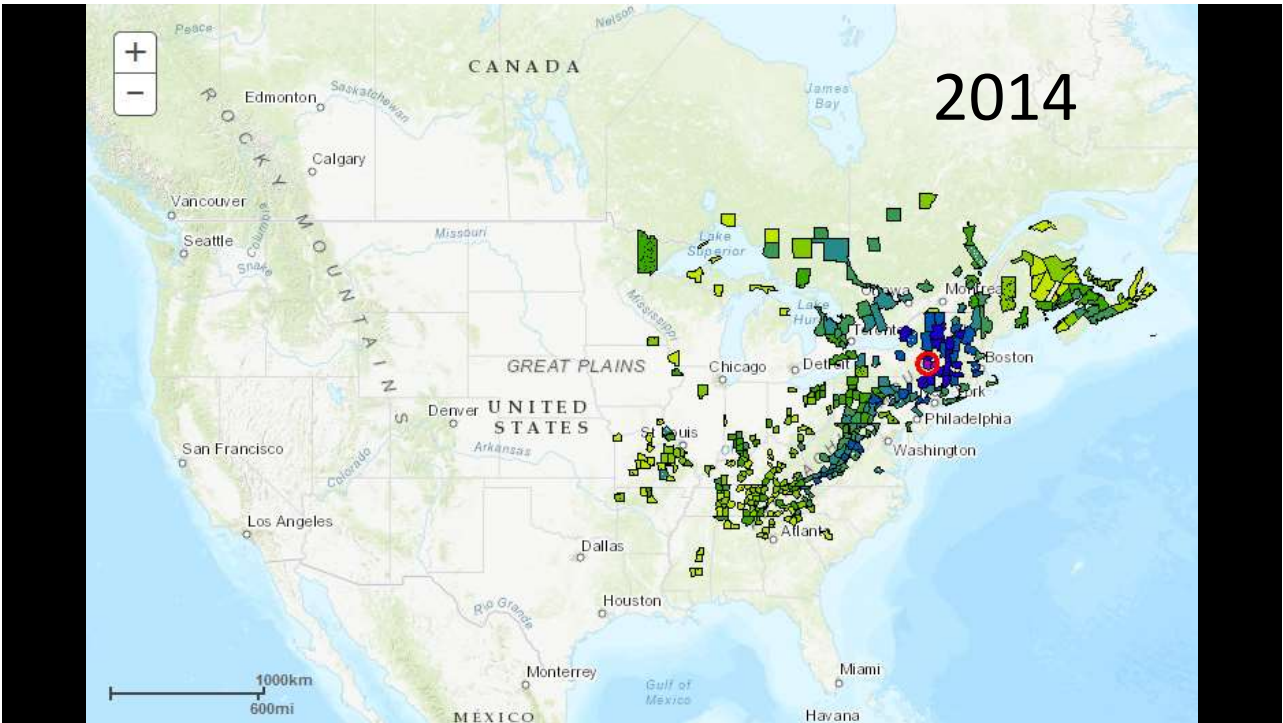
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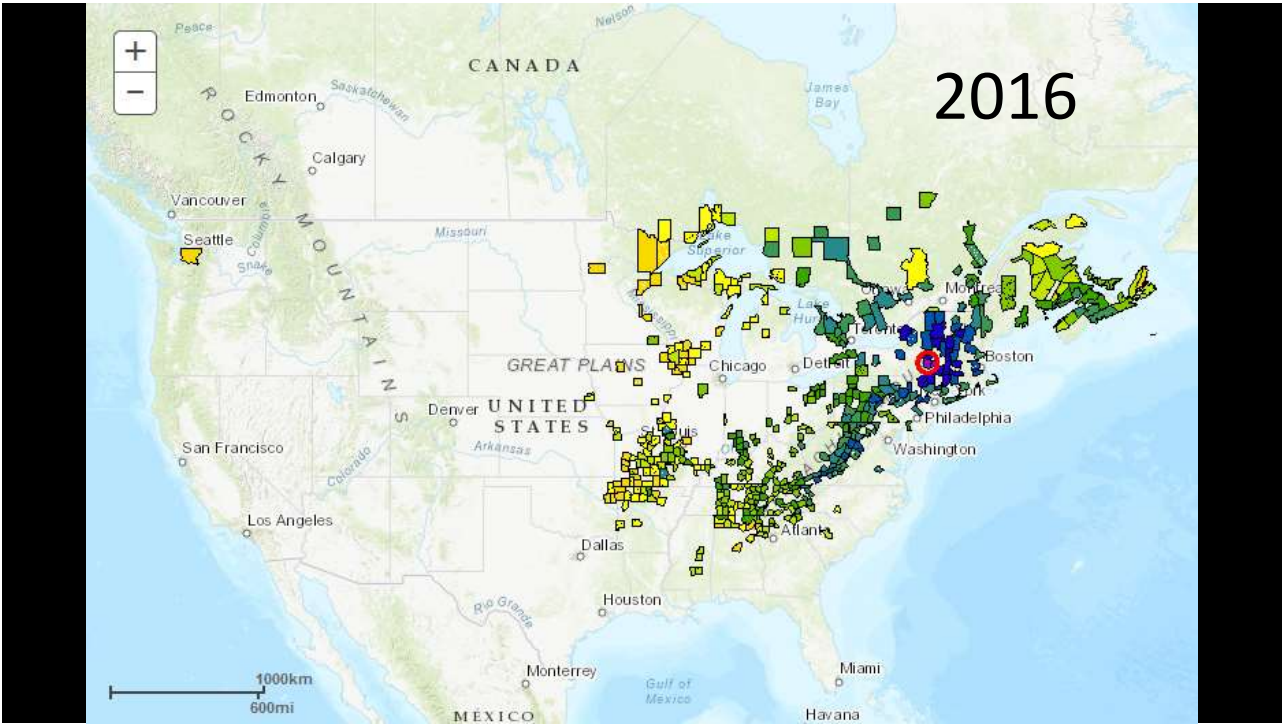
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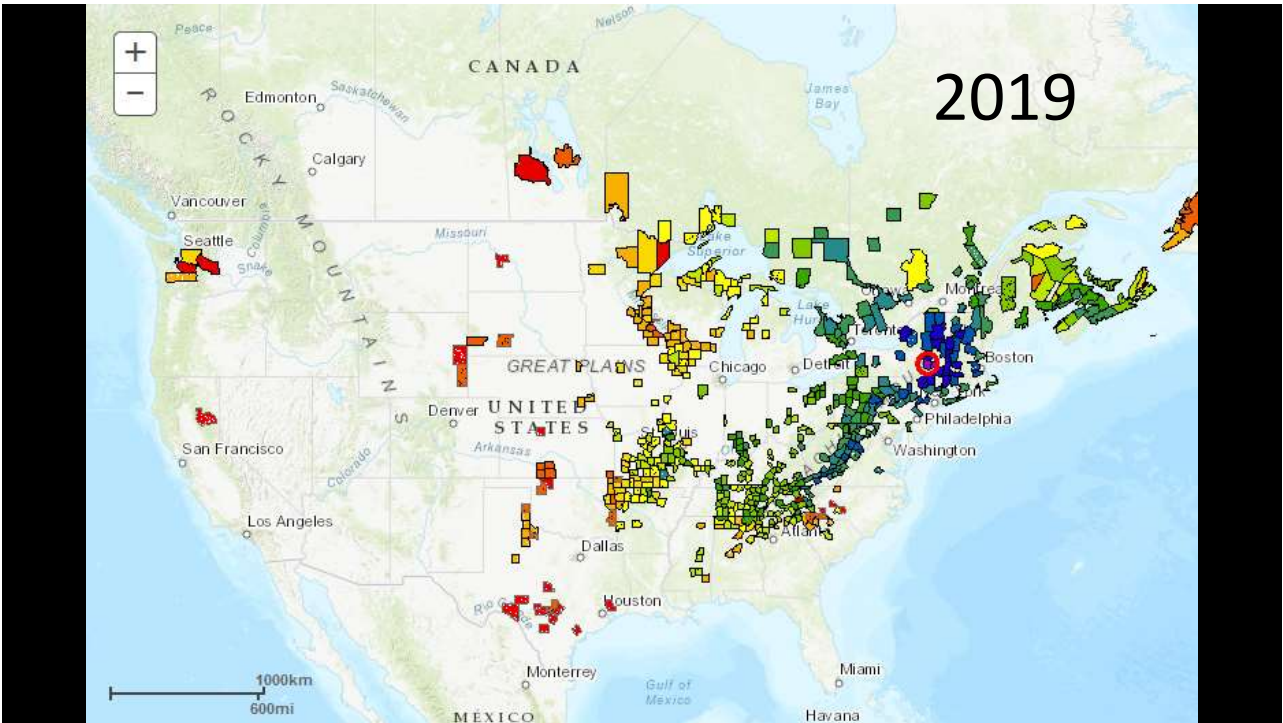
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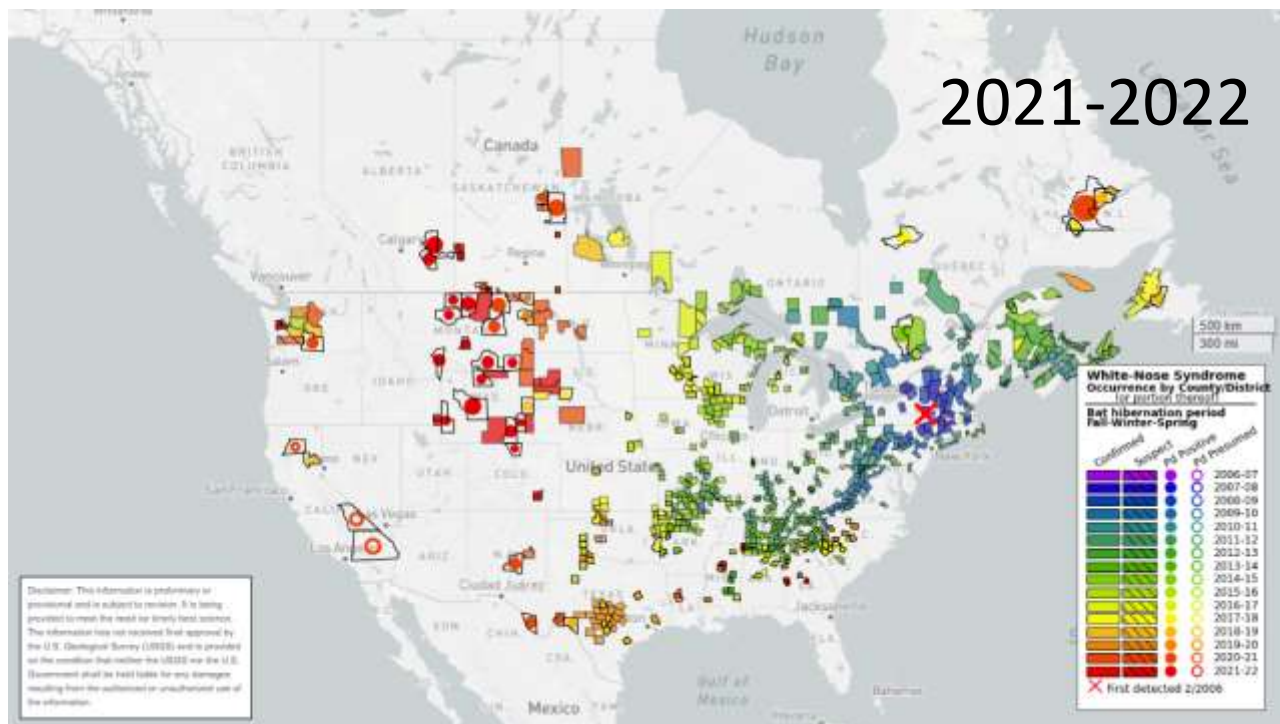
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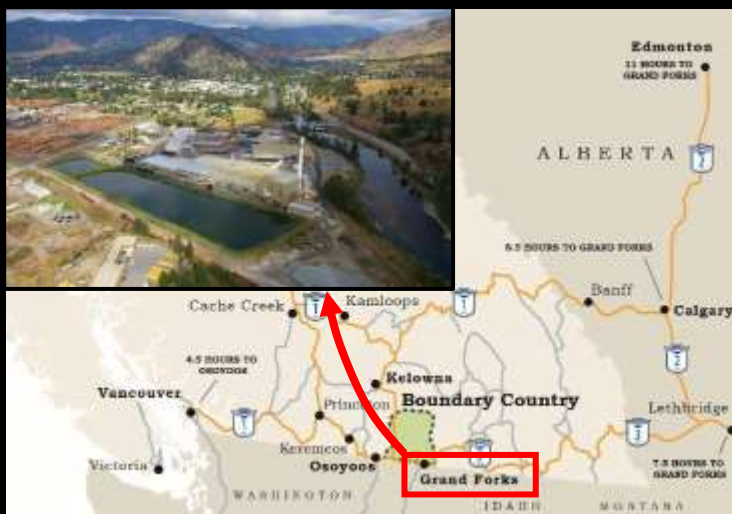
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P. destructans has now been detected in BC, Canada (2023)

- *P. destructans*, was detected in bat guano in the Grand Forks area
- This discovery was announced on April 3rd, 2023, by the British Columbia government.



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What to Do if You Find a Dead or Injured Bat

- If found a **dead bat** between

June 1st to October 31st

- Report and collect ONLY if more than 3 bats are found dead

Nov 1st to May 31st – WHITE NOSE SYNDROME

- collect the dead bat without touching with bare hands
 - wrap with paper towel
 - place in a ziplock bag
 - Place in freezer.
 - Contact your local bat programmer immediately
- If found **injured** or **sick bat** ...
 - Contact your local bat programmer immediately



Wildlife Rescue
ASSOCIATION

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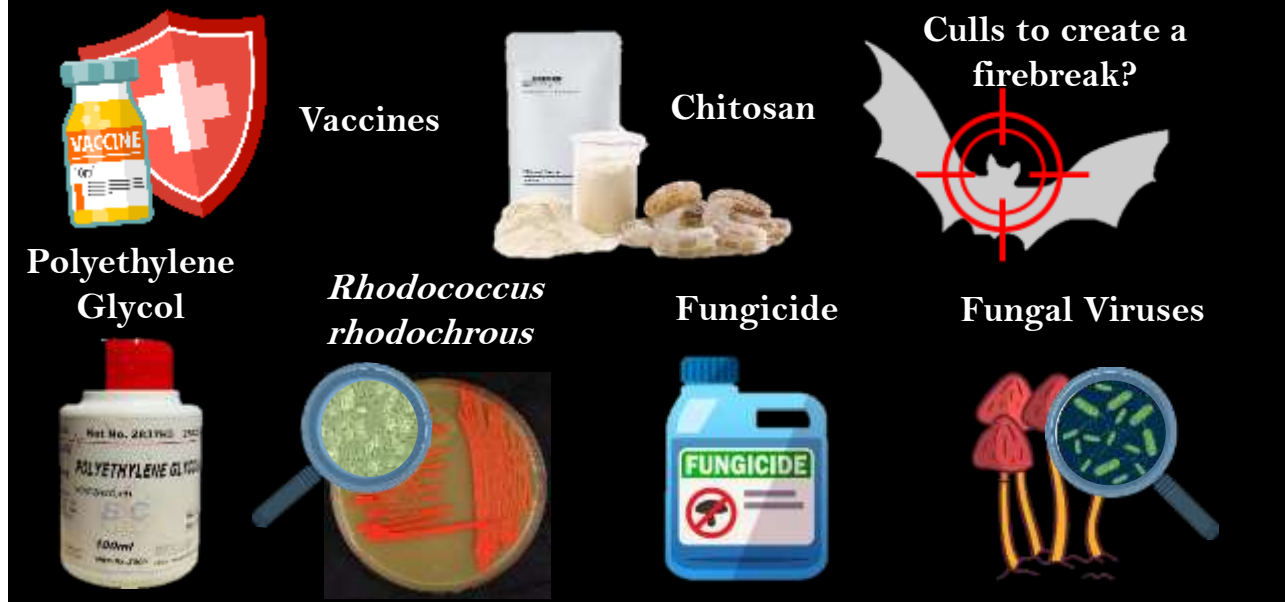
WNS – What Are We Doing?

- Still researching fundamentals
- Response encouraging – BC ahead of the curve
- Scarcity of known hibernacula challenging
- Mitigation has focused on limiting spread



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WNS – Management Approaches



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Probiotics

- Microbiome changes in P.d. survivors
- *Pseudomonas fluorescens*
- “Researchers developing probiotic cocktail to combat deadly bat disease”
- TRU/McMaster/WCS
- Swab a ton of bats from across province
- What’s growing on them
 - regional cocktail
- Test it in the field



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Probiotic Trails at Bat Colony Sites in Metro-Vancouver

- The bat colonies are sprayed with the probiotic bacteria in the hopes it reproduces naturally and spreads to other bats
- The main goal of introducing the probiotic gradually is that it does not overwhelm the bats immune system. Taking wing swab samples from the bats, and repeating them in the spring to see if the probiotic is still there and still viable.



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Keeping Track of the Bats! - P.I.T tags

- Passive - Integrated – Transponder
- An electronic and implantable microchip
- 1 mm in length
- Placed under neath the skin
- Antennas are placed outside of the roost, so the PIT tag gives data on the bat's behaviour when it leaves and exits the roost.



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2024 recap of the WCS Probiotic Project

41 capture nights at **5** sites

36 volunteers contributed **488** hours

1216 Bats Captured **318** recaptures

708 Bats PIT tagged **3799** total

794 Bats sampled for probiotic

327 Bats sampled for Pd



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How to get Involved with Bat Conservation

1. Conduct annual bat counts
2. Become a Bat Ambassador
3. Work towards becoming a bat-friendly Community



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BCBATS Annual Bat count

- A citizen science program
- annually monitor bat populations at maternity roost sites.

June 1 to 21

Before pups can fly

July 11 to August 5

When pups are flying and exiting the roost with their mothers

- Level 1: **Bat Reporter** – One count over the summer
- Level 2: **Bat Tracker** – two counts
- Level 3: **Bat Enthusiast** – four counts total



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Bat Ambassador

1. Public outreach

- Display booths at markets and fairs.
- Workshops
- Creating props

2. Participating in the Annual bat count

3. Promote bat conservation

4. Promote Bat-friendly Communities

Further resources on becoming a Bat Ambassador can be found on BCBATS website.



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Bat Friendly Community

The key components to becoming certified are:

1. Protect and create habitat

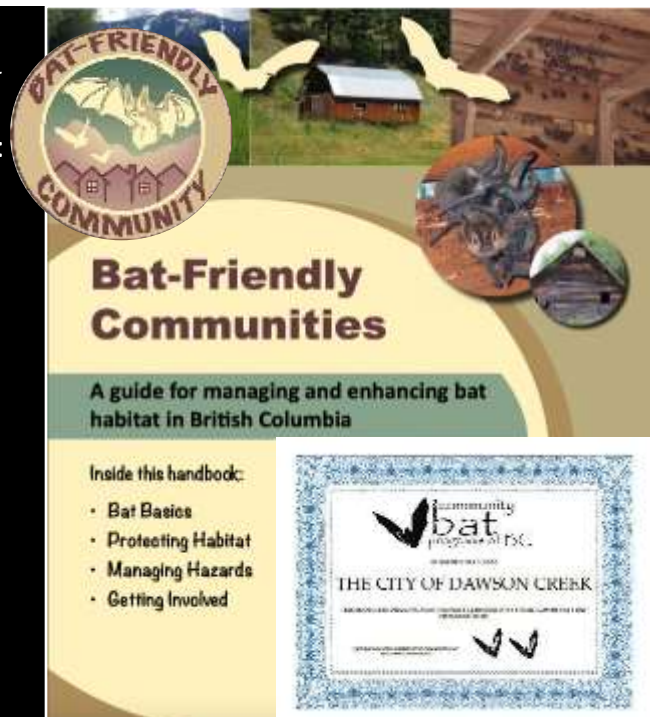
- installing bat boxes
- Planting native plants that benefit bats

2. Provide information about bats

- Public Presentations
- Providing literature and handouts about bats

3. Promote learning

- Bat walks
- Restoration and Conservation Projects



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Contacts

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References

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