

Western Canada Bat Network Newsletter

Issue No. 31 Winter 2017



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Cover – Heather Gates extracts free-flying bat from harp trap at hibernaculum near Nelway in early Dec. 2017. Photo: C. Lausen.

Updates by region

Alberta

Alberta Community Bat Program Update

Cory Olson, Program Coordinator

The Alberta Community Bat Program had another successful year in 2017. Our second year of operation saw major growth in the delivery of public events, inquiries, public participation, and program content. Some of the highlights include:

1. Delivered over 40 public events across Alberta, including talks, evening bat walks, display booths, and workshops.
2. Collected over 50 roost observations from citizen science submissions, most with guano submissions, to allow species determination.
3. Partnered with Neighbourhood Bat Watch (<https://batwatch.ca>) to work towards building a national roost and bat-observation reporting system. This platform allows roost and bat observations submitted by the public to be visualized across Canada, in any province that has joined the program (with a random displacement to prevent others from finding the roost).
4. Added a new toll-free contact number (1-866-574-1706) that people can call with inquiries about bats, or for advice about managing bats in buildings.
5. More than doubled our social media following compared with 2016 (and posted about 250 messages).
6. Over 1,000 downloads of our guide on managing bats in buildings, and over 2,000 downloads of our Alberta bat house recommendations guidelines.

7. Collaborated with research projects examining bat house temperatures and design, and winter activity of big brown bats.



Participants at a bat walk the Alberta Community Bat Program held with the Nature Conservancy of Canada at Gambling Lake. Photo: Z. Arnold

During the first quarter of 2018, we expect to release an updated document with guidelines for bat houses in Alberta, as well as a new guide on building bat friendly communities.

The program is operated by Wildlife Conservation Society Canada, and was developed in collaboration with Alberta Environment and Parks. Events and program content was made possible through the efforts of five regional coordinators, a program coordinator, volunteers, and others with WCS Canada and Alberta Environment and Parks. I'd especially like to thank Cori Lausen, Lisa Wilkinson, Susan Holroyd, Erin Low, Mike Kelly, Christine Godwin, and Darcey Shyry for their contributions to the project. I'd also like to thank Lisa Card with Highway 2 Conservation for providing many submissions to the citizen science program.

The program is continuing to grow thanks to the financial support of several agencies, including: Environment and Climate Change Canada (Habitat

Stewardship Program, Species at Risk Stream), Alberta Ecotrust, Alberta Conservation Association, and the Chawkers Foundation. To learn more, visit the program webpage (<http://www.albertabats.ca>), and follow us on Facebook (<http://www.facebook.com/albertabats>) and Twitter (<http://twitter.com/albertabats>).

Provincial update

Lisa Wilkinson, Species at Risk Biologist,
Alberta Environment and Sustainable Resource Development lisa.wilkinson@gov.ab.ca

We have started banding bats captured outside of Cadomin cave in August-September. The majority of bats captured were *M. lucifugus* and *M. volans*, with a few *M. septentrionalis*. This is consistent with capture records from over 20 years ago. Alberta Environment and Parks is developing a Bat Conservation Plan; the first draft has been reviewed by ABAT. This will address the primary threats facing bats in Alberta.

WNS Survivorship Modelling – Northern Latitudes as Potential Refugia for Little Brown Myotis

Cori Lausen, Wildlife Conservation Society Canada

Yvonne Dzal, University of Winnipeg, and Cory Olson, Sky Ecological, Edmonton, led the charge in September, obtaining the first ever early hibernation measurements of Little Brown Myotis in western Canada. Cory and a team of biologists, many volunteering their assistance, captured bats at Cadomin Cave hibernaculum, and enabled the measurement of metabolic rates, a key parameter in modelling overwinter survival, in the face of white-nose syndrome. These data will populate models being refined by a team of biologists in US, Canada and New Zealand as part of a larger western North American project. One of the hypotheses being tested is whether Little Brown Myotis at northern latitudes (Alberta and Northwest Territories) will be refugia for bats as WNS spreads across the west. Lower metabolic rates and cooler roosting conditions in northern climates may mean high survival rates in the face of WNS, but this is yet to be tested.

This winter, Cory will once again lead a field team into Cadomin, this time to determine normal arousal rates and arousal duration (using temperature sensitive transmitters). Winter arousals are a significant source of fat depletion mid-winter, and thus an important component of determining overwinter survival.



Lisa Wilkinson, Cory Olson and Kevin Downing set a harp trap at Cadomin Cave on Day 1 of field work. Photo: P.



Field challenges included locating the harp trap under snow on Day 2 of field work, adding to the challenge of accessing the cave nightly. Photo: C. Olson

We thank for assistance in the field: From Alberta Environment and Parks - Lisa Wilkinson, Dave Hobson, Paul Knaga, Kevin Downing; From Parks Canada - Geoff Skinner, Marie-Helene Hamel, Maria-Camila Roy-Avilan; Non-government - Nina Veselka, Joanna Burgar, Erin Tattersall, Erin Low, Emma Kunkel and Mike Kelly.

British Columbia

BC Bat Action Team in-person meeting refines BC WNS Action Plan

By Leigh Anne Isaac, BC BAT Coordinator

The BC Bat Action Team (BC BAT) spent the October 13/14 weekend at Camp Boyle in Summerland discussing bat conservation in BC. In total, we had 23 people attend from across the province, including folks from the Peace, Kootenay, Thompson, Okanagan, and Lower Mainland regions as well as Vancouver and Denman Islands. The BC government was well-represented, with biologists from Ministry of Agriculture, Ministry of FLNRO, and Ministry of Environment in attendance. This was our first in-person meeting since our September 2016 gathering, during which the 2016-2020 BC BAT Action Plan was drafted.

The purpose of our 2017 meeting was to summarize and present the work that had occurred in the last year as it aligned with the Action Plan's six action categories. Our intention was to highlight these achievements in order to bring everyone up to speed on the current state of work in the province and inform our work moving forward.

It became apparent throughout the day that we needed to revisit the Action Plan in order to clarify text, streamline the actions, remove duplication and perhaps most importantly, provide a higher level strategic summary to put the overall plan into context and highlight main priorities for funders. We spent time at the end of Day 1 thinking about our strategic priorities and Orville Dyer summarized this in a .ppt that he presented on Sunday morning. Orville is now in a process of developing a draft Strategic Plan with Cori, while Leigh Anne and Tanya are developing a draft Revised Action Plan to reflect all of our input. On Sunday, the group spent time discussing the draft Schedule of Studies as outlined by Environment and Climate Change Canada. Through our discussions we became aware of many items that needed clarity.

Like all good bat meetings, there was lively discussion, laughter and of course – dancing. We are grateful to the Fish and Wildlife Compensation Programs in the Coastal, Columbia and Peace regions for providing support for the accommodation and food costs. Many thanks also to the Province of BC for covering the catering costs.

I appreciate the many hours of volunteer effort contributed by the organizing committee. Orville, Mandy, Cori, Inge Jean, Tanya, Fawn, and Juliet helped to pull together the framework and background PowerPoint presentations for the meeting. A huge thank you to Tanya for finding group accommodation so we could all spend the weekend together and for organizing all of the catering. And finally, thank you to everyone for travelling long distances to participate in this group think session. It is our intention to hold another in-person meeting in 2018 and a Doodle poll to gauge potential dates will be distributed in the new year. You can find the entire Action Plan on the new bcbat.ca website; to help in implementing the actions in this plan, we encourage you to join the regular BC Bat Action Team conference calls held every 3 months (contact: bcbatteam@gmail.com).



Isabelle, my wonderful field assistant, setting up an insect light trap. Photo: A. Lauzon

Long term effects of forest harvesting on habitat use by foraging insectivorous bats

Audrey Lauzon, MSc. Candidate, University of Regina

I just finished my last field season of data collection for my project on the long-term effects of forest harvesting on habitat use by foraging bats in Nelson (BC). Wildfires made my fieldwork much harder to plan this year. I used basic

ultrasonic heterodyne detectors (Pettersson D100) to sample foraging bat activity in my study area, to allow direct comparison of my results to Grindal and Brigham (1999). I also collected insects with light traps to measure prey availability on my transects during the last two summers, which I hope to link to foraging activity. This fall, I have identified them to the order and dried them to estimate their biomass...

Next step: create models in R to test my thesis' hypotheses!



Wildfire close to my study area! Photo: A. Lauzon

“Got Bats?” B.C. Community Bat Program Update

Mandy Kellner, Provincial Program Coordinator



Bats nestled inside a 1-year-old maternity bat house in the Cariboo region. Photo: V. Reznicek

The BC Community Bat Program had another very busy year, with regional coordinators across the province working towards the conservation of bat colonies in human structures.

Highlights this year from across the province include bats leaving maternity colonies very in the summer (perhaps in response to the hot dry conditions), monitoring of new bat condos in Kitimat to determine occupancy after demolition of a

roost site, ongoing work in the Peace Region to connect with remote northern communities, work with landowners to retain a large colony in a condominium (Paula Rodriguez de la Vega, Okanagan Region), the discovery of large colonies and potentially a roost complex (Leigh Anne Isaac, Kootenay Region), and amazing volunteer participation, enabling the completion Annual Bat Count emergence counts at over 130 sample sites across the province. Once all 2017 data has been entered, results from the 2017

Annual Bat Count will be available – if you are interested in the results program so far, please contact Mandy at bcbats@gmail.com for a copy of last year's Bat Count Report.

This winter we will be busy improving guidance for regional coordinators in 2018, connecting with the Alberta Community Bat Program and BC regions to continue work on the Bat Friendly Communities, and working with the BC government to streamline our data collection and management. We will also be collecting bat carcasses and reports of winter bat activity for WNS surveillance (see below).



Constructing a bat house at a Gabriola Bats workshop. Photo: L. Ciocea

The BC Community Bat Program is funded by the Habitat Conservation Trust Fund and Habitat Stewardship Program, in partnership with the Ministry of Environment and BC Conservation Foundation and local bat programs and land conservancies in 20 regions across BC. The network has a toll-free number (1-855-9BC-BATS) which links to various parts of the province as well as a Facebook page (<https://www.facebook.com/bcbats>) and a website with numerous resources (www.bcbats.ca).



Wanted – Dead Bats! WNS Surveillance Year 2

Once again in 2017/18, with funding from the BC government, the Got Bats Network will be contributing to surveillance for White-nose Syndrome in BC bats. Regional coordinators will be soliciting reports of winter bat activity and dead bats, and collecting and shipping any dead bats to the lab for WNS testing.

If you find a fairly freshly dead bat in British Columbia please do not touch it with bare hands – you can refer to the BC Wildlife Health page on bat health at <http://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-health/wildlife-diseases/white-nose-syndrome> for more information and the appropriate protocols, or contact the BC Community Bat Program at 1-855-9BC-BATS or www.bcbats.ca.

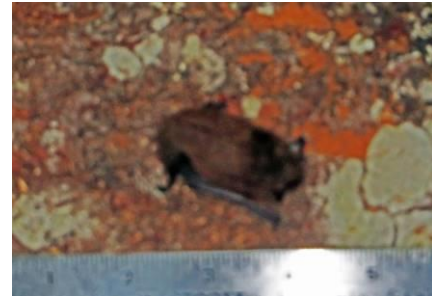
Fall bat sightings at Pender Harbour

Bill Bengeyfield, Garden Bay (Pender Harbour), BC

Last March 2017 you helpfully identified a 'dormant' bat in my woodpile as a silver-haired. On November 18, 2017 around 4 pm I discovered a second bat as I was again un-piling dry firewood. This

location is approx 12-15ft from the location of my March bat sighting. The two sites are similar in that both bats were approx 18-24 inches above local ground level, and in small crevices among old dry split fir chunks that had been stored for over a year under a solid waterproof deck. Both locations are largely protected from the prevailing SE winds, with this November site being in the lee of our house. The March bat's location was somewhat more wind-exposed but still had 2 high stacks of similar firewood material immediately to windward.

I was able to lay a ruler down on the wood next to the animal, and its huddled up 'length' was a bit more than 1.5 inches. I did not get a measurement on my March bat, which I believe was definitely 'larger' than this November specimen. The temperature recorded at the Sechelt Airport for Nov 18 was 8.7 degC at 4pm.



Myotis from woodpile. Photo: B. Bengyfield

WNS Survivorship Modelling for BC Bats

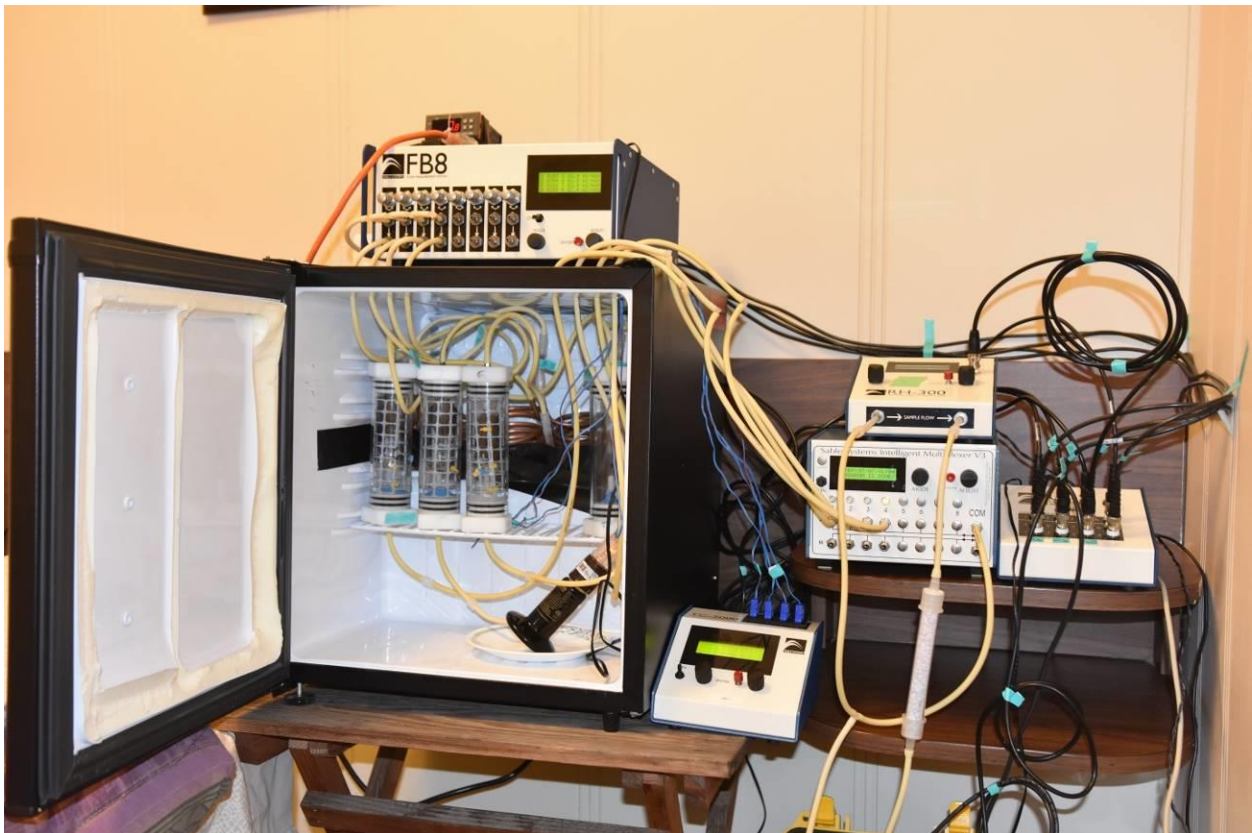
Cori Lausen, Wildlife Conservation Society Canada

Yvonne Dzal from University of Winnipeg joined the WCS Canada team in Salmo, BC, successfully measuring respirometry rates from captured bats at a major mine hibernaculum in SE B.C. This is the final year of data collection, and modelling will ensure based on this year's data. Winter data collection includes arousal rates of California myotis using temperature sensitive transmitters. Models are being developed and refined by Reed Hranac and Dr. David Hayman of Massey University New Zealand. Three WNS survivorship models are expected from the data collected in the West Kootenay over the past 3 years: *Lasionycteris noctivagans*, *Myotis californicus* and *M. yumanensis*. While all efforts were made to include *M. lucifugus*, sample sizes were too low. Instead, *M. californicus* was measured in both fall and winter, and comparisons will now be made to determine whether the metabolic rates in each season are the same. If the rates are not significantly different, then this will open up the possibility of sampling many other species of bats in B.C. during fall when they are more accessible than in winter. Fall metabolic rates can then be used to predict overwinter survival with and without the influence of WNS. We thank our funders: BC Government and Waneta Dam Terrestrial Compensation Program (Columbia Power).





Field team in West Kootenay Nov-Dec bat captures for mark-recapture population estimation at one of BC's largest bat hibernacula. From left to right: Heather Gates, Elodie Kuhnert, Alexis Heckley, Cori Lausen, Jason Rae.



Oxygen use and carbon dioxide production measurements of bats in chambers exposed to 2, 4, 6, and 8°C test temperatures. In-kind use of equipment from University of Regina, Dr. Craig Willis' lab. Missing from photo: Yvonne Dzal, respirometry wizard, master of ducking out pictures. Photo: J. Rae

Saskatchewan

Brigham lab update

Mark Brigham, University of Regina

Audrey Lauzon (M.Sc.), Erin Swerdfeger (M.Sc.) and Alyssa Stulberg (Hons.) are working on bats in the lab in Regina. Brandon Baerwald (PhD) and Shelby Bohn (M.Sc.) defended their theses in March and September respectively. Brandon is now working as a brew master at Nokomis Craft Ales in Nokomis SK. He published 2 papers in 2017 and has one manuscript still on the go. Shelby has moved on to the University of Guelph for a PhD. I am also co-supervising the PhD of Zenon Czenze (University of Auckland). He has submitted his thesis for review and we hope to hear the outcome any day. He has published 3 papers in 2017 and submitted a further manuscript. I also served on the committee of Scott Bergeson (Indiana State University) who defended his PhD thesis in 2017. He is now teaching at Indiana

University–Purdue University Fort Wayne. Dr. Erin Baerwald will formally be joining the lab on 1 Jan 2018 as an NSERC post-doc

Since 1 July 2017 I have been on sabbatical leave. I am working in the Department of Zoology and Entomology at Rhodes University in Grahamstown South Africa. I am working with Dr. Ben Smit who has recently focused on heat tolerance in passerine birds but who is slowly coming around to the idea of furry beasts. He and I worked in the past on torpor use by Freckled Nightjars.



Tadarida aegyptiaca (Egyptian Free-tailed bat) captured near Uitenhage, Eastern Cape Province South Africa

This year I finally got around to publishing the project I undertook with Robert Barclay and David Jacobs on my last sabbatical!! I gave a talk about this work at the Annual meeting of the Zoological Society of Southern Africa meetings in Pretoria. Ben and I are co-supervising the M.Sc. of Lauren Bailey who is working on the impacts of artificial lights on insect bat foraging. We have also begun a project on thermoregulation by *Rhinolophus capensis* who roost in a tunnel on a farm just outside of Grahamstown. This site is historic as Prof. Ric Bernard who worked at Rhodes for several decades began publishing in the bats in this tunnel in 1983. I am also working with Dave Nagorsen, Cori Lausen and Jared Hobbs to produce a 2nd Edition of the Bats of



Showing of a bat to a young admirer. Photo: M. Brigham.

British Columbia book. Finally I am working with Erin Fraser and Alex Silvis to edit a compilation of material that came out of a conference held in Tucson in spring 2017 into a handbook for folks aiming to use acoustic devices to sample and survey for bats. I am still the co-editor of the Canadian Journal of Zoology, so send me your good papers!

Biology of lesser short-tailed bats

Zenon Czenze, PhD Candidate, Brigham Lab, New Zealand

I am in the final stages of my PhD and will be defending in the New Year. I investigated the seasonal and latitudinal variation in thermoregulation, roost choice, and diet of lesser short-tailed bats (*Mystacina tuberculata*) from distinct populations across New Zealand. My results showed the first evidence that torpor is used flexibly throughout the year by lesser short-tailed bats, demonstrating that both roost choice and season impact torpor patterns.

Site-specific roost choice and torpor patterns were apparent between lesser short-tailed bat populations during summer and winter, and energetic strategies appear to, in part, depend on population-specific differences. Although bat populations in warmer climates are under less thermoregulatory stress, site and climate specific adaptations appear to be employed that affect roost choice and torpor patterns. Unlike previous diet studies, which manually identified invertebrate prey based on morphology and suggested bats are dependent on terrestrial beetles, I used molecular techniques and found that lesser short-tailed bats are more dependent on moths and flies, which comprised up to 90% of diet. Despite these preferences, lesser short tailed bats exhibit site- specific dietary differences. The proportion and diversity of prey orders consumed differed between winter and summer sites as well as seasonally and among demographics.



Mystacina. Photo: Z. Czenze



Yukon Government staff in front of a bat house constructed and installed in Whitehorse, September 2017. Humans from left to right: Scott Cameron (YG), Thomas Jung (YG), Julie Thomas (YG), Darcy Doran-Myers (YG), and George MacKenzie-Griev (Wolf Creek Bobcat). Photo: Scott Cameron

Manitoba

Craig Willis, University of Winnipeg

Craig has passed along the excellent Manitoba/Ontario BatWatch Newsletter – included at the end of this newsletter.

Yukon

Yukon Government: Summary of Bat Projects in 2017

Julie Thomas, Species at Risk Biologist, Environment Yukon

In summer 2017 the Yukon Government continued our maternity colony monitoring program (ongoing since 2004), which involves bat banding and collecting demographic data at little brown bat colonies in bat houses and buildings. This year we captured a total of 847 little brown bats at 7 different maternity colonies across southern Yukon, and banded 534 new bats.

We also conducted an acoustic monitoring study in central and southern Yukon, to determine if little brown bats are more abundant near towns than in the surrounding wilderness due to constraints on roost availability (results are forthcoming). We completed a small-scale telemetry pilot project in Whitehorse, with the goal of tracking roost selection and switching behavior, identifying key foraging habitat, and determining home range sizes. We may expand on this project in future years. Lastly, we erected four large multi-chambered bat houses in southern Yukon, which brings our total up to 21 bat houses established by the Yukon Government throughout the territory. We are currently working on developing an outreach program for homeowners with bats in their buildings. Key staff on these projects include Piia Kukka, Thomas Jung, Lauren Quong, and Julie Thomas (with help from many others).

Western

Kootenay National Park Bat Inventory Preliminary Results Summary

By Cory Olson, Sky Ecological / Alberta Community Bat Program (crolson@outlook.com)

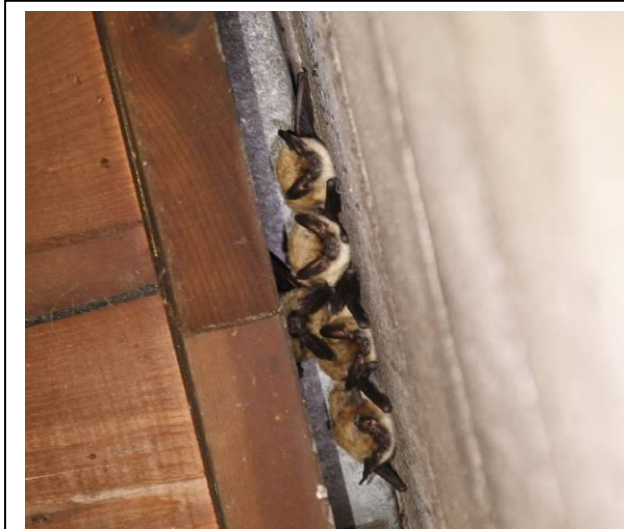
From July 8-11, 2017 a group of biologists—including representatives of the Alberta and BC Community Bat Programs, Parks Canada, Ktunaxa Nation Council, University of Calgary, and others—gathered for a bat inventory in Kootenay National Park. Captures using mist nets occurred over four nights, and bat detectors were deployed at six locations in the park, which were intended to operate until at least the end of migration.

Weather conditions allowed for two excellent nights of netting; the other two nights had varying levels of rain. We captured six species across three nights: Long-eared Myotis (13 bats), Little Brown Myotis (7 bats), Silver-haired Bat (5 bats), Long-legged Myotis (3 bats), Big Brown Bat (1 bat), and Hoary Bat (1 bat). Building roosting Long-eared Myotis were found at one location within the park; several additional locations also had signs of guano, which will be tested to confirm species identity.

Acoustic data showed evidence of high levels of migratory bat activity throughout the park, especially of Silver-haired Bats (or Big Brown Bats as these are acoustically similar). One of the highest levels of Silver-haired Bat activity occurred near the Vermilion Pass, about 2 km west of the BC/Alberta border. This area appears to be low-quality bat habitat, but is a potentially important flyway for bats moving east/west over the continental divide between Alberta and BC. The peak of Silver-haired Bat/Big Brown Bat activity occurred from approximately Aug 28 – Sept 8, when well over a thousand passes of the Silver-haired Bat/Big Brown Bat species complex were detected over the twelve-day period at the Vermilion Pass detector station (with similar trends elsewhere in the park).

The available evidence suggests that Silver-haired Bats were migrating through the pass. Mountains would have impeded North/South movement, so the most likely explanation is that they were moving west from Alberta into BC. Possibly these bats were en route to the Columbia Basin, an area where Silver-haired Bats are frequently encountered throughout the winter (Cori Lausen, Pers. Comm.).

Hoary Bats were also frequently detected, but unlike Silver-haired Bats, a seasonal peak in activity is not evident across sites. The three eastern most detector stations had much lower Hoary Bat activity than at the three western stations, and Hoary Bat activity at the Vermilion Pass was generally low. This pattern may occur if many of the Hoary Bats being detected were summer residents rather than migratory individuals. Hoary Bat activity declined substantially after about August 20th.



Long-eared Myotis maternity colony roosting in Kootenay National Park. Photo: C. Olson

Analysis of the acoustic data is ongoing, but so far, there is evidence of at least one species not captured during the four days of netting. Acoustic calls indicative of California Myotis or Yuma Myotis were detected in the park, although they were notably absent at the three detector stations nearest Alberta. We are hoping to continue work in 2018, especially to address periods around peak-migration when several detectors were non-operational. A detector is also being maintained near the Radium Hot Springs over the winter to monitor activity of bats that may be overwintering in the park.

I would like to thank Parks Canada for their support, as well as the volunteers who helped with this project; in particular: Dwight Bourdin, Anne Forshner, Jeanette Goulet, Tania Peters, Erin Low, Cathy Conroy, Mandy Kellner, Tawnya Hewitt, Richard Klafki, Lizelle Odendaal, Erin Miller, and Stephanie Findlay.

Reducing Severity of WNS -- Prophylaxis Strategy at Maternity Roosts

Cori Lausen, Wildlife Conservation Society Canada

Dr. Ann Cheeptham, Thompson Rivers University, Dr. JP Xu, McMaster University, and Dr. Cori Lausen, Wildlife Conservation Society Canada, have teamed up to develop a western-specific 'treatment' for WNS. The goal is not to treat the disease per se, but to prevent it, or at minimum, to reduce its impact or severity. The strategy is simple: outcompete *Pseudogymnoascus destructans* (Pd) using naturally occurring wing microbes. Think "yogurt for bats". It is the same principle as probiotics like yogurt, where 'good microbes' out-compete bad microbes. The 'good microbes' will be sourced from wings of bats in western Canada, for a western-specific approach.

Dr. Cheeptham and her lab have already isolated several bacteria that can inhibit the growth of Pd. Interestingly, several of these have come from big brown bats, a species that has been far less impacted by WNS than eastern Myotis species. These and more, will form the foundation of a 'probiotic cocktail' that Dr. Xu's lab will develop and test to determine efficacy in combinations. WCS Canada will then, through a graduate student project in collaboration with UBC Okanagan, test and implement this treatment on BC bats in the zone likely to be hit by WNS most imminently – Vancouver.

Captive bat trials and field application will be in collaboration with BC Nature Park, and South Coast Bat Conservation Society. Assistance and oversight is being provided by Dr. Glenna McGregor, Dr. Helen Schwantje, Dr. Purnima Govindarajulu, Orville Dyer, and Dr. Craig Willis. To date, this research is being

funded through a grant from the National Fish and Wildlife Federation (Bats for the Future Fund) to Thompson Rivers University and a grant from MicroGrants for MicroBats to WCS Canada. We thank numerous individuals for helping to wing swab bats to source local anti-Pd microbes, and ask that if others would like to help contribute, to please contact us.



Swabbing a California Myotis. Sampling of natural microbes will enable production of a probiotic cocktail to potentially reduce the severity of WNS. Photo: J. Rae

WCSC Mistnet Capture Course- 20 -26 July 2017

Cori Lausen, Wildlife Conservation Society Canada

Twelve biologists convened in Lillooet for 6 nights, 7 days of bat capture training. The course focussed on mistnetting of bats each night in diverse habitats with different species and deployment scenarios, including setting nets by belly boat over deep water, deploying harp traps at roosts, setting triple and quad high nets for high flying bats like spotted bats, and using radiotransmitters to track bats for roost location. In 6 nights total, 222 bats were captured of 10 of the 11 species known in the area: *Myotis lucifugus*, *M. evotis*, *M. thysanodes*, *M. volans*, *M. ciliolabrum*, *M. yumanensis*, *M. californicus*, *Eptesicus fuscus*, *Lasionycteris noctivagans*, *Euderma maculatum*. All participants received hands on practice extracting bats from nets and processing (measuring, banding, genetically sampling, etc.). Two significant new maternity roosts of little brown myotis were discovered, one in a natural rock crevice and one in a building. This course was held at Thompson Rivers University Lillooet campus; a big thank

you to Vivian Birch-Jones and Jared Hobbs for logistics and assistance, planning capture sites and arranging nightly access. Additional instructional assistance was provided by Heather Gates and Leigh Anne Isaac. Overall the course was a huge success, and WCS Canada hopes to offer the course again in the future.



Bat Capture Class of 2017, Lillooet. From left to right bottom: Darcey Shyry, Sue Dulc, Heather Gates, Leigh Anne Isaac, Aimee Mitchell, Ralph Heinrich, Brian Paterson, Inge-Jean Hansen, Deanna MacTavish, Vivian Birch-Jones, Ian Routley. Top row: Jason Rae, Cori Lausen, Jared Hobbs, Kaiden Bosch. Photo by I. Routley

WCSC Acoustic Training Courses

Cori Lausen, Wildlife Conservation Society Canada

Two western acoustic training classes were offered this past summer, one in Lethbridge, Alberta (31 July – 4 Aug. 2017) and another in Spokane, Washington (12-16 June 2017). Both courses offered training in bat detectors for passive and active recording (with focus on Wildlife Acoustics and Titley Scientific, and overview of Pettersson), call identification and call analysis (KaldeidoscopePro, Analog, and Sonobat). Each course included two nights of hands on recording in the field. Although course schedules are still being finalized for 2018, two western courses have been tentatively scheduled: Vancouver, B.C. in early May, and Edmonton, Alberta in early June. Check <http://batsrus.ca/training-courses/> for details in 2018 for schedule updates.



Setting nets by belly boat at mistnet capture course in Lillooet, July 2017. Photo by I.Routley.

North American Bat Monitoring Program and BatCaver

Cori Lausen, Wildlife Conservation Society Canada

Thanks to a growing list of collaborators and volunteers, NABat and BatCaver continue to engage biologists, cavers and citizens. While BatCaver is just ramping up for another winter of monitoring, NABat successfully completed its second year of monitoring in BC. Bats were acoustically monitored in grid cells as far east as Elko, BC, north as Dawson Creek, and west as Pacific Rim National Park, 27 cells in total.

WCS Canada receives funding from Fish and Wildlife Compensation Program Columbia, Columbia Basin Trust, and Habitat Conservation Trust Foundation to administer NABat and BatCaver in B.C. with additional funding for BatCaver from Habitat Stewardship Program (Environment and Climate Change Canada, Species at Risk Stream). However, these programs would not be successful if it wasn't for many other individuals and organizations. We thank Alberta and BC caving communities for once again assisting with deployment of bat detectors underground in Alberta and BC this year. NABat's successful monitoring of 27 grid cells in 2017 would not have been possible without invaluable partners and collaborators: Lillooet Naturalist Society, Sunshine Coast Wildlife Project, South Coast Bat Conservation Society, Habitat Acquisition Trust, Slocan Lake Stewardship Society,

Thompson Community Bat Program, Haida Gwaii Bat Program, Kootenay Community Bat Program, Okanagan Community Bat Program, Skeena Community Bat Program, Peace Community Bat Program, Fernie Nature, Nature Conservancy Canada, Salt Spring Conservancy, Parks Canada, Ministry of Environment, Zonal Consulting, Athene Ecological, and more. Analysis of recorded calls is underway, and 2016 results are now available and being entered into both USGS and BC Government databases.

International

Sri Lanka!

Doug Burles



Fruit bats in tree. Photo: D. Burles

On a recent trip to Sri Lanka I encountered an unusual predator of bats. While walking around a lake I observed a Monitor Lizard with a fruit bat in its mouth swimming along the shoreline. When I searched a nearby tree I found a few bats (likely Indian Flying Foxes) roosting in it. A google search revealed that the Land Monitor Lizard is actually an agile tree climber and it is not uncommon for it to prey on roosting bats.



Monitor lizard with a bat in its mouth. Photo: D. Burles

White nose syndrome

Current decontamination protocols

With the discovery of WNS in western North America, an updated Canadian decontamination protocol was produced. The most recent Canadian decontamination protocol for WNS continues to be available on the Canadian Cooperative Wildlife Health website (http://www.cwhc-rccsf.ca/wns_resources.php) or http://www.cwhc-rccsf.ca/docs/WNS_Decontamination_Protocol-Mar2017.pdf. The CWHC website has a variety of WNS resources, and is well worth investigating.

Funding for WNS research

The Canadian Cooperative Wildlife Health website also has information on funding for WNS-related research (<http://www.cwhc-rccsf.ca/docs/WNS%20Funding%20opportunities.pdf>)

Recent literature/resources

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- Hranac, C.R., B.J. Klüg-Baerwald, Y.A. Dzal, C. Lausen, J.C. Marshall, S.H. Olson, D.T.S. Hayman. 2017. Modeling the impact of White-nose syndrome on two western bat species. Infectious Disease Conference, Ft Collins, July 2017.
- Klüg-Baerwald, B.J. and R.M. Brigham. 2017. Hung out to dry? Arid adaptation in hibernating big brown bats (*Eptesicus fuscus*). *Oecologia* 183:977-985. doi 10.1007/s00442-017-3837-0
- Klüg-Baerwald, B.J., C.L. Lausen, C.K.R. Willis and R.M. Brigham. 2017. Home is where you hang your bat: winter roost selection by prairie-living big brown bats. *Journal of Mammalogy* 98:752-760. doi 10.1093/jmammal/gyx039
- Lausen, C. 2017. White-nose syndrome in the west: updates and strategies. BC Invasive Species Conference, Kamloops, BC, June 2017.
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- Lausen, C.L., Burles, D., Blejwas, K., Nagorsen, D., Govindarajulu, P. and Friis, L. 2017. Long-eared bat taxonomy: Nuclear genetic evidence eliminates the species status of Keen's *Myotis* (*Myotis keenii*). North American Symposium on Bat Research, Oct. 2017. (poster)
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Conferences

Interdisciplinary Approaches to Managing Health of Fish and Wildlife: Kimberley, BC, May 1-2, 2018

<http://cmiae.org/event/interdisciplinary-approaches-to-managing-health-of-fish-and-wildlife/>

The expanding footprint of humans increasingly alters the complex dynamics of wildlife health and disease, which can threaten wildlife populations. An unprecedented rate of emergence and re-emergence of infectious disease has been enabled via transport of organisms, environmental degradation, and by other factors that compromise ecological stability, including climate change. In

Western North America, population-threatening diseases are occurring in fish and wildlife at an increasing rate, presenting significant conservation challenges. To ensure proactive conservation of wildlife populations, there is a need for cross-discipline sharing of information on current disease issues by governments, communities, scientists, wildlife managers, the agriculture industries, public health, and stakeholders from all sides. This upcoming conference will provide an opportunity for improved dialogue among experts: First Nations, veterinarians, academics, epidemiologists, wildlife biologists, stakeholders, managers, stewardship groups, and the public. Experiences with successful citizen science and disease-reporting tools will be shared. New research on the role of climate change and variables that help predict disease outbreaks will be of interest to species-specific disease monitoring and management efforts.

North American Society for Bat Research: Upcoming NASBRs include 2018: October 24-27. NASBR 48, Puerto Vallarta, MX.

WBCN newsletter submissions

Please submit all newsletter submissions to Mandy Kellner: Western.canada.bat.network@gmail.com
Submissions can be made at any time.

Archived newsletters

This newsletter first started in Fall 2002. It is produced two times per year and is housed by the Alberta Sustainable Resource Development on the Alberta Bat Action Team website. All past issues can be accessed at the following link: <http://aep.alberta.ca/fish-wildlife/wildlife-management/bat-management/abat-programs-publications.aspx>

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Manitoba BatWatch Newsletter



Neighbourhood Bat Watch Update Manitoba and Ontario



January 2018

Bat Watch Expands!

Alberta and Saskatchewan join Bat Watch

We are excited to announce that citizen scientists in Alberta and Saskatchewan are now able to join Bat Watch! Our team is in contact with organizations in other provinces and territories looking to expand the program further. Check out the current [map!](#)

The Importance of Bat Watchers

Bat Watchers can help to protect Endangered bats in Canada by identifying maternity roosts (i.e., colonies of female bats raising their babies in the spring and summer) and counting the bats in these roosts.

Little brown bats (*Myotis lucifugus*), northern long-eared bats (*Myotis septentrionalis*) and big brown bats (*Eptesicus fuscus*) are the bat species that will most likely inhabit maternity roosts on your property. Little brown bats and northern long-eared bats are listed as [Endangered in Canada](#) due to the fungal disease white-nose syndrome. Because they are Endangered, Environment Canada has drafted a [strategy](#) to help these species recover. A key objective of this strategy is to identify important maternity roost qualities and monitor populations.

Maternity colony counts have been essential for getting baseline population numbers and monitoring population declines due to white-nose syndrome. In many cases, it is much easier to monitor bats at maternity colonies rather than at caves or old mines where bats hibernate in winter. Caves can be difficult to find or access, dangerous to enter, and bats often roost in tiny crevices making count numbers inaccurate.

For more information on white-nose syndrome and its effects on hibernating bats, visit <http://batwatch.ca/content/white-nose-syndrome>.





Time of Year	2015	2016	2017
Early July	~95	~30	0
Early August	~60	~10	0

Bat counts conducted by a citizen scientist that show the decline of bats at an Ontario roost. In 2016, about 2/3 of bats did not return to the roost. In 2017, no bats were observed.

New Feature: Report sightings!

Have you seen a bat in your yard, at your campsite, clinging to a building, or active in the winter - you can now report these to Bat Watch!



You no longer need to have a maternity colony on your property to join Bat Watch. Observations of bats that are uploaded to the website (Participate Tab – Add a bat sighting) can provide important information about the natural history and range of bats.

Bats flying during the winter are often a sign that they are hibernating in a cave infected with the fungus that causes white-nose syndrome. These observations help researchers gain insight into the spread of this disease.

Newsletter

Maternity Colony Research

Summer 2017 was action-packed for the University of Winnipeg Bat Lab. We had a team of ten people to count bats, capture bats, and monitor for white-nose syndrome at maternity roosts. In total, we made 58 counts at 31 maternity roosts, in addition to capturing (and releasing) over 300 bats for white-nose syndrome research.

White-nose Syndrome Surveys

In the winter of 2017, white-nose syndrome was confirmed in two mines near Red Lake and Kenora. White-nose syndrome has not yet been confirmed in Manitoba, but during our summer surveys we saw wing damage consistent with white-nose syndrome in sites as far west as Turtle Mountain Provincial Park. All bats with damaged wings were swabbed for white-nose syndrome. We sent 87 swabs from bats in Manitoba and Ontario, and are awaiting the results.



Bat wing with visible scars from adult female bat in Nopoming Provincial Park in Manitoba. We cannot say for sure the damage was related to WNS but this is worrying.

Bat Tracking!

Andrew Habrich and Trevor Moore, are two Masters' students at the University of Winnipeg. Andrew and Trevor radiotracked pregnant and lactating bats this summer in the Kenora region of Ontario. Radiotracking involves catching a bat, trimming the hair between its shoulder blades and attaching a tiny temperature-sensitive radiotransmitter with skin glue. After the bat is released, it can be followed with a handheld receiver and an antenna. The transmitters are groomed off within a few weeks. This research aims to answer

questions about the home range (i.e., the area in which an animal moves daily) of reproductive bats and how they are managing their energy with torpor.

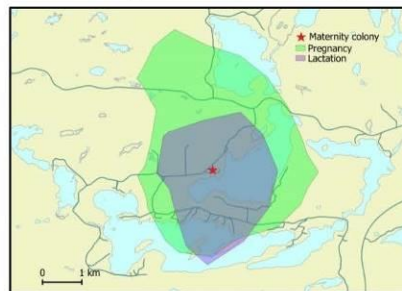


*Bat with radio transmitter
Photo credit: Lotek.com*

Torpor is state during which bats and other mammals and birds lower their body temperature to save energy. Although torpor helps bats avoid starvation, it can reduce immune responses, slow wound healing, slow pregnancy and reduce milk production in females supporting young. As a result, reproductive females may change the amount of torpor they use during and after pregnancy. Understanding how energetic demands of pregnancy and lactation affect the use of torpor and size of the home range of bats is relatively unknown. This lack of knowledge may limit the implementation of conservation efforts because we do not know the type and size of habitats bats need to survive.

Andrew's preliminary results show that lactating bats have home ranges that are ~11 km² and that they are about half the size as the home ranges of pregnant bats (~18 km²). The reason lactating bats have smaller home ranges is likely because they need to make return trips to the roost throughout the night to nurse their young. Trevor's preliminary results suggest that pregnant bats drop their body temperatures more than lactating females and that bats with wing scarring caused by white-nose syndrome spend fewer days in torpor than those without.

The work done by Andrew and Trevor will hopefully provide a basis for identifying the habitat that needs protection around maternity colonies and help influence ongoing and future efforts to ensure survival of WNS surviving moms and their young.



Home range of pregnant and lactating bats

Heated Bat House Project

Background

White-nose syndrome is a disease that affects hibernating bats during winter. It is caused by a cold-loving fungus that grows on the exposed skin (wings and nose), creating wounds and causing bats to warm up out of hibernation too often. Bats with white-nose syndrome often starve to death during the winter, or emerge from caves or mines too early to be able to survive. Female bats that are able to live through the winter with white-nose syndrome are often too skinny to be able to support pregnancy.

Starting in 2016, we started installing heated bat houses throughout Ontario and Manitoba to help combat white-nose syndrome. Bat houses were heated by small heaters controlled by thermostats. Previous laboratory research indicates that bats prefer heated rather than unheated bat houses, and that they heal faster in warmer environments. As a result, by providing bats with heated bat houses in the spring, we are hoping this will help white-nose syndrome survivors heal from the disease and successfully raise offspring.

Occupancy

It can take a few years for bats to move into a new house. So we are happy to report that 7/15 of our heated houses and 7/13 unheated houses were occupied by bats this past summer. We visited all bat houses to check for bats and count the number of bats occupying them.

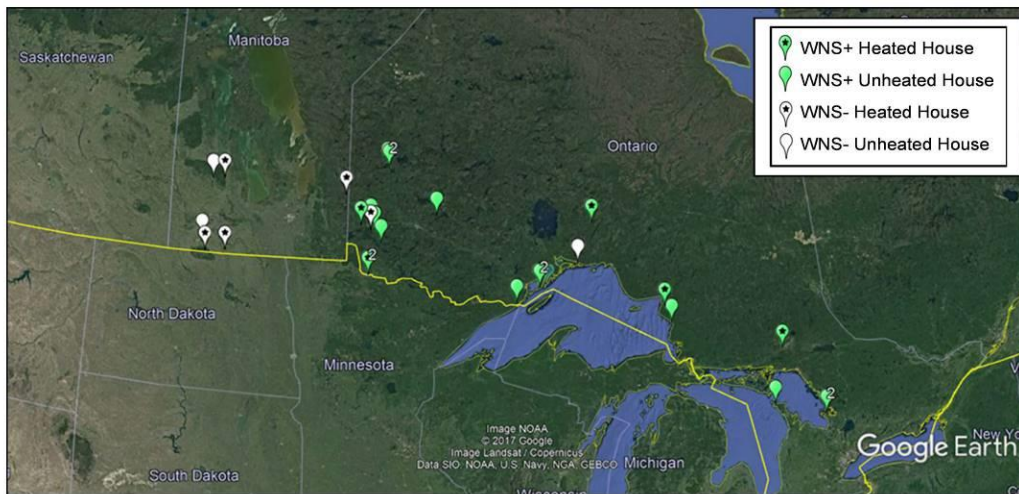
Do you want to participate?

Do you have:

- A bat colony on your property
 - o This greatly increases the chances the bat house will become occupied
- A place to install a bat house
 - o Post, wall or deck that is at least 10 feet above ground. South facing is preferred.
- Access to a plug that is within 25 meters and powered from May 1st to August 31st
 - o You will be provided compensation for associated electricity costs
- Willingness to have a field team visit your property twice in June and twice in July to count and capture bats

Email us at batwatch@outlook.com.

Follow us on Facebook [@neighbourhoodbats](https://www.facebook.com/NeighbourhoodBats)



Newsletter

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