



Western Canada Bat Network Newsletter

Issue No. 27 Fall 2015

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Table of Contents

Updates by region.....	2
Alberta.....	2
Provincial update	2
Alberta Community Bat Program.....	2
British Columbia.....	3
Dead bats and the Animal Health Lab – what happens to the bat?	3
“Got Bats?” B.C. Community Bat Program	4
Update on the status of the Keen’s Long-eared Myotis colony on Haida Gwaii	5
Western.....	8
Key ingredients for western bat conservation: Monitoring winter bat activity, BatCaver, inhibiting Pd, and WNS survivorship models.	8
International	11
45 th North American Symposium on Bat Research (NASBR) – Monterey, CA	11
White Nose Syndrome	12
Updated decontamination protocol	12
Funding for WNS research	12
Recent literature/resources.....	12
Conferences	13
WBCN newsletter submissions	13
Archived newsletters	14
Distribution list.....	14

Cover – Brrrr! Fall netting team at the Jersey Mine hibernaculum near Salmo: (left to right) Heather Gates, Cori Lausen, Dennis Gof, Leigh Anne Isaac, Audrey Gagne. *Photo by Angus Glass.*

Updates by region

Alberta

Provincial update

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

AEP (Alberta Environment and Parks), with the help of consultants, is continuing with the NABat Monitoring program, and Joanna Burgar (AEP) is taking the lead to organize data capture and storage. Some study sites are in their second year, others in their first. Parks Canada is actively involved in the program, with both acoustic monitoring and roost exit counts. We are also working with Parks Canada to investigate potential hibernacula using roost loggers. On **Oct 31**, there were at least four locations in Alberta that hosted bat house building workshops in support of the attempt to set a record for the most bat houses built in one day. The big news is the creation of the Alberta Community Bat Program. See Cory's write-up and we are always looking for ideas and assistance.

Alberta Community Bat Program

Cory Olson

The website for the Alberta Community Bat Program (www.albertabats.ca) and an associated Facebook page (www.facebook.com/albertabats) are now operational. With help from other participants of the Alberta Bat Action Team, we are working to develop the program, and to secure additional funding for its operation. The objectives of the program are to (1) engage the public towards the goal of bat conservation, (2) promote stewardship to protect and enhance bat habitat, and (3) use citizen science to increase our understanding of Alberta bats. We will soon be collaborating with the Community Bat Programs of BC to adapt some of their publications, and other programs, to the Alberta context, including recommendations for how to manage bats in homes. If you have any feedback on the program or website, or have content suggestions, please email admin@albertabats.ca.



A roost tree located near Fox Creek, Alberta. The large pine snag was from an old fire, and had guano inside at the base. Photos by Ken Jones.

British Columbia

Dead bats and the Animal Health Lab – what happens to the bat?

Glenna McGregor, Veterinary Pathologist
Animal Health Centre, BC Ministry of Agriculture

All bats submitted to the Animal Health Center, part of the BC Ministry of Agriculture, receive a full post-mortem examination by a veterinary pathologist, including histology (microscopic examination of tissues), rabies immunohistochemistry, PCR testing for *Pseudogymnoascus destructans* during the winter, and further testing (bacterial culture, virus isolation and others) as indicated by the post-mortem findings. The goal of the post-mortem examination is to determine the cause of death and look for evidence of any infectious and non-infectious agents that may pose a threat to bat, human, domestic animal or wildlife health.

Between January 1 and September 30, 2015, full post-mortem examinations were performed on 49 bats submitted to the Animal Health Center from throughout British Columbia. The bats necropsied included 33 Little Brown bats (*Myotis lucifugus*), 3 Big Brown bats (*Eptesicus fuscus*), 3 Yuma myotis (*Myotis yumanensis*), 2 California Myotis (*Myotis californicus*), 2 Northern Long-eared bats (*Myotis septentrionalis*), 1 hoary bat (*Lasiurus cinereus*) and 1 silver-haired bat (*Lasionycteris noctivagans*); four bats were too severely decomposed to identify. Eight of the bats died of trauma, 7 of dehydration/heat exhaustion, 4 of rabies, 3 of pneumonia, 3 of starvation and 3 of septicemia (bacterial infection of the blood). Fifteen of the bats were too severely decomposed to determine the cause of death and in 3 the cause of death could not be determined on macroscopic or microscopic post-mortem examination.

We are attempting to increase the numbers of bats submitted to the lab to try to increase our understanding of the cause of death of bats in BC and to try to detect emerging diseases as early as possible. If you find a fairly freshly dead bat in British Columbia please do not touch with bare hands - 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.

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

Juliet Craig

“Got Bats?” is a network of community bat projects across BC that was launched in May, 2014. This network promotes bat conservation, particularly of bats in buildings, by 1) detecting and protecting bat roost sites; 2) providing education to counter negative attitudes towards bats; 3) promoting the building and installation of bat-houses; and 4) coordinating a province-wide Citizen Science annual bat count to monitor bat populations. Funded by the Habitat Conservation Trust Fund and Habitat Stewardship Program, and in partnership with the Ministry of Environment and BC Conservation Foundation, the network is comprised of 13 regions across BC including: Southern Vancouver Island, Salt Spring Island, South Coast, Haida Gwaii, Sunshine Coast, Okanagan, Thompson, Shuswap, Lillooet, East Kootenay, West Kootenay, Skeena and Peace regions.

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 and a website. In 2015, the network received over 250 roost reports and inquiries, conducted over 130 site visits to landowners with bats in their buildings, built more than 160 bat-houses, and provided 30 presentations.

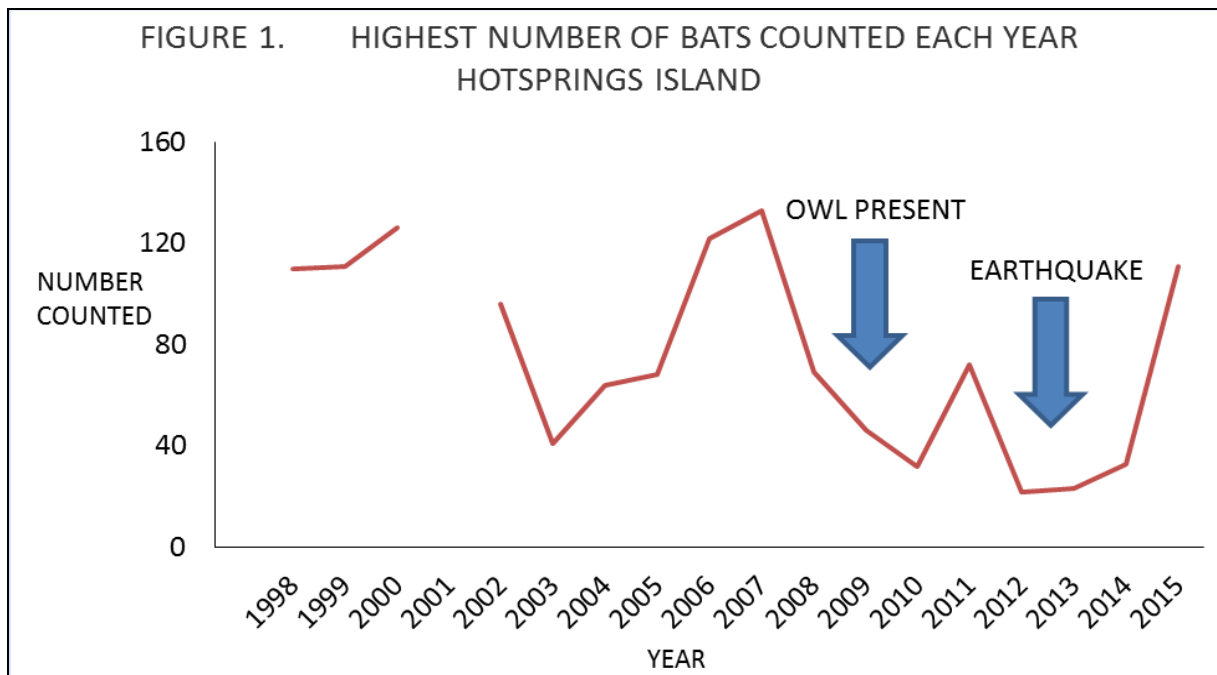
A focus of the program in 2015 was to develop outreach materials specific to audiences that may come across bats or that build bat-houses. A 16-page booklet specific to the pest control industry was produced called “Got Bats? Seven Steps for Managing Bats in Buildings: A Guide for Pest Management Professionals”. A presentation was made at the Structural Pest Management Association conference in Vancouver. Currently, other documents are being written and will be available in the new year. They include “Building Homes for Bats: A Guide for Bat Houses in British Columbia” (designed for people who build or buy bat-houses) and “Got Bats? A BC Guide for Homeowners with Bats in Buildings”. Bulletins for the building and roofing industry are also planned. All of these documents will be made available on www.bcbats.ca in the new year.

Update on the status of the Keen’s Long-eared Myotis colony on Haida Gwaii

Doug Burles
Kamloops, BC

In a previous newsletter I reported on the status of the maternity colony of Little Brown and Keen’s long-eared Myotis at Hotspring Island, Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve and Haida Heritage Site (Gwaii Haanas for short). This colony is unusual in that the bats roost in rock crevices and amongst boulders that were, until recently, heated by a geothermally heated springs that occur on the island. Measurements taken in 1998 in some of the roost crevices revealed stable temperatures of 32-34 °C, conditions that would likely be ideal for reproductive bats.

Numbers of reproductive bats using these roosts have been counted every June since 1998 (Figure 1), with the exception of 2001. Count numbers initially suggested a relatively stable population of ~70 Little Brown Myotis and ~40 Keen’s Myotis. Numbers declined in the early 2000’s for unknown reasons but by 2006-07 numbers had rebounded to a higher level than ever, and the future of the colony looked good. Numbers were down again in 2008 however, and the decline continued into 2009-10. This decline, I speculated, was due to a Northern Saw-Whet Owl that had begun frequenting the area where the bats were roosting (as reported in Western Canada Bat Network Newsletter 17, 2010). On one occasion in 2009 I observed the owl fly in at dusk and land within 2 m of one of the roost entrances; it seemed to focus its attention on the roost entrance, and only left when it became aware of my presence. I subsequently saw it around the roosts on a regular basis, and by 2012 the colony had been reduced to fewer than 25 bats.





Main pool at Hotspring Island, Haida Gwaii. Some Keen's Myotis roosted in the rocks overlooking the pool. Photo by Doug Burles.

The colony was dealt a second major blow on October 29, 2012 when a magnitude 7.8 earthquake occurred on Haida Gwaii. (as an aside, a colleague of mine had a song meter that she had deployed to record saw-whet owls recorded the rumble of the earthquake! You never know what you might record when you set out recorders.) The earthquake blocked the flow of the hot water at Hotspring Island, and the bat roosts cooled. I thought this might be the final blow for the colony, and counts by Gwaii Haanas staff in 2013 and 2014 (Figure 1) seemed to support this conclusion.

In 2015 I again had the opportunity to return to Hotspring Island to conduct emergence counts. One of the first things we heard on arrival was a Northern Saw-Whet Owl calling from the interior of the island. We did find that some hot water was flowing in the intertidal zone but none of the roosts were being heated, so my expectation of counting a lot of bats was not high. You can imagine my surprise when on the first night we counted 104 bats! A few nights later we counted 111 bats, almost the exact number that I had originally counted in 1998.

So the bats had returned in spite of an owl still being present, and in spite of the absence of hot water to heat their roosts. My theory that the decline of the colony was due to owl predation has been disproven, although its presence may have caused many to temporarily abandon the roosts for other,

safer roosts. The roosts are not as ideal as they were pre-earthquake, but they do still provide some thermal advantage. Monitoring of one roost crevice revealed a stable temperature of 24-26 °C over a four day period at a time when T_a was 12-24 °C.

While the reasons for the variable use of the roosts at Hotspring Island over the last 17 years remains obscure, long term monitoring of this colony has provided some interesting insights. What was initially thought to be a relatively stable colony turned out to be anything but. It remains to be determined just how important owl predation is in the use of these roosts. Determination of owl diet during June and July may help to answer this question. Will the bats continue to use the roost crevices even though they are no longer geothermally heated? It will be interesting to see how many bats are present in 2016.

PS. Shortly after writing the above, I learned that the flow of hot water has suddenly increased greatly and conditions for bats and bathers are almost back to what they were pre-earthquake.



Approaching a potential hibernaculum near Revelstoke, BC. Photo: Mandy Kellner.

Western

Key ingredients for western bat conservation: Monitoring winter bat activity, BatCaver, inhibiting Pd, and WNS survivorship models.

Cori Lausen, WCS Canada. Kaslo, BC

Some highlights from this fall for WCS Canada's bat conservation program include continued winter monitoring, focussing largely on northern BC; the official launch of BatCaver.org; a new collaboration with Thompson Rivers University, funded by US Fish and Wildlife Service; and joining an international team led by WCS' Global Health Program on a new initiative to model WNS survivorship in the west.



Cori Lausen runs a microphone cable high on a tree, installing a bat detector at Liard Hot Springs, which will (hopefully!) record throughout the winter, running on solar power. *Photo by Michael Proctor.*

For 4 weeks this past summer, I travelled around northern BC, meeting great people interested in helping bats. I deployed bat detectors for fall, winter, and spring monitoring at: Fraser Lake, Terrace, Telegraph Creek, Dease Lake, Atlin, Liard Hot Springs, Muncho Lake, Williams Lake, Ft St John, Tatla

Lake. There are many fabulous people assisting me with this effort including many local biologists and citizen scientists maintaining detectors this winter. This is the last year of a four year winter monitoring program funded by Habitat Conservation Trust Foundation (HCTF). During the first three years, I recorded a lot of bat activity throughout central and southern BC. All acoustics data will be summarized in a final report in 2016.

BatCaver.org, a WCS Canada citizen science program to locate cave and mine hibernacula, has officially launched! The website, designed and produced by program coordinator Martin Davis, and WCSC's Gillian Woolmer, and Lindsay Potts, went live this past August. Two Alberta BatCaver coordinators -- Greg Horne and Dave Critchley -- came onboard in August. Many cavers from BC and AB have been busy placing bat detectors (Titley Roostloggers) underground, along with temperature / relative humidity loggers. Although these are still being put into place, it is anticipated that more than 50 roostlogger detectors will be monitoring for bats this winter. BatCaver is sponsored largely by Environment Canada in BC, and TD Friends of Environment in Alberta, with additional support from HCTF, FWCP Columbia Basin and Golder Associates.

Most of you are aware of the new potential mitigation strategies for WNS – ‘banana’ cure, natural wing bacteria, and other soil fungi. However, it is not clear what these potential strategies would do in a real cave environment, and especially in the west, where cave microbiomes are not well understood, and of course, neither are the bat communities that use them. WCS Canada has teamed up with Dr. Ann Cheeptham, Thompson Rivers University, to pursue a new ‘west-specific’ cure for WNS. Ann, a cave microbiologist, specializes in isolation of microbes from cave sediments. Funded by US Fish and Wildlife Service, the main goal of this research is to discover new ways to inhibit the growth of *Pseudogymnoascus destructans* (Pd), but at the same time, not introduce new microbes into western cave environments when and if treatment of WNS-infected bats becomes a reality in BC/AB. This research project has already received cave sediment samples from the BatCaver program. The search for natural cave microbes that inhibit Pd will begin in Ann's lab in 2016.

If you look up hibernation metabolic rates of North American bats in the literature, you will find rates for eastern species and populations, but nothing from the west. And yet, a new WNS survivorship model by Dr. David Hayman, Massey University, New Zealand, suggests that metabolic rates during hibernation, along with roosting conditions, stored fat mass, arousal rates, and other parameters, are important for populating a model to predict WNS mortality. Hence, the need to measure hibernation metabolic rates for the various western bat species, and across latitudes given the variation that is known to exist. I started this work this past fall in Creston, BC with Brandon Klug (U of Regina) and Yvonne Dzal (UBC). We measured 23 bats, mostly *Myotis yumanensis*, but a few *M. californicus* and *M. lucifugus*, determining their metabolic rates at varying temperature regimes. Funded by BC Ministry of Forests, Lands, and Natural Resource Operations, and by FWCP Columbia Basin, we will be continuing this work in

December, in addition to measuring arousal rates in hibernating bats using temperature-sensitive transmitters. Meanwhile, Dr. Sarah Olson, WCS Health and Health Policy Program, has been leading the international team who will be using these data to model WNS survivorship. This past fall, the team was successful in receiving a multi-million dollar Department of Defense Strategic Environmental Research and Development grant to study metabolic rates of hibernating bats across western US, and model survivorship of bats under changing conditions including WNS and climate change. In addition to those mentioned above, the larger team also draws on expertise from Texas Tech University (Dr. Liam McGuire), Montana State University (Dr. Raina Plowright), and Conservation Science Partners (Dr. Brett Dickson).



Brandon Klug, University of Regina, with respirometry chamber. Oxygen consumption of *Myotis yumanensis* (in 4 containers) was measured at experimental temperatures to determine metabolic rates and identify the lowest temperature at which bats are likely to hibernate. *Photo by Michael Proctor.*

International

45th North American Symposium on Bat Research (NASBR) – Monterey, CA

Brandon Klüg-Baerwald, University of Regina

This year's NASBR was the society's largest conference ever with over 420 attendees! It took us to the West Coast thanks to local hosts Shahroukh Mistry and Dave Johnston.

The meeting was held in Monterey, California at the Monterey Plaza Hotel. Located on historic Cannery Row and perched over Monterey Bay, the hotel offered great views of the bay and was within walking distance of the Monterey Bay Aquarium, Fisherman's Wharf, and lots of places to grab food and drinks. That we could head out to the terrace just steps away from the presentation rooms to bask in the sunlight and see pelicans and otters added to the amazing setting!

Much fun was also had during exciting pre-conference activities. These included whale watching and pelagic birding in the Monterey Bay National Marine Sanctuary, kayaking into Elkhorn Slough, and a wine tour of Carmel Valley.

Student presentations filled the first day and, as always, set the bar high with a plethora of high-quality talks. Canadian highlights included an award-winning presentation from Quinn Webber (MSc, University of Winnipeg) and amazing talks by Erin Baerwald (PhD, University of Calgary), Kristen Jonasson (PhD, University of Western Ontario), Laura Kaupas (MSc, University of Calgary), and Jeneni Thiagavel (University of Toronto).

Talks continued with a program chock-full of good content *. Highlights included: a special symposium on ecological energetics hosted by Mark Brigham (University of Regina), which featured Canadian researchers Craig Willis (University of Winnipeg), Brandon Klüg-Baerwald (University of Regina), and Yvonne Dzal (University of British Columbia); an informative lunch-break discussion/debate hosted by Robert Barclay (University of Calgary) on automatic ID of bats via echolocation; and another excellent Women in Science breakfast.

Overall, everything ran smoothly. There was ample space for viewing the extensive collection of posters over two evenings, sufficient snack and coffee service during breaks, decently priced rooms, and solid AV support.

Also of note is that this year's Lunch with Mentors included senior PhD student Nate Fuller (Boston University) and newly minted PhD Erin Baerwald (now with American Wind and Wildlife Institute). This is something we hopefully see more of at future meetings given their perspective would be fresh and particularly relevant for those of us contemplating the next step.

The meeting closed with a great banquet that featured Robert Barclay's students generously gifting him a stylish bat-hat they won in the auction, Mark Brigham's students whacking a clay pig piñata off his

head with a whale baculum, and Quinn Webber et al. pledging \$400 for the right to shave Nate's beard in any fashion for his defense. All told over \$6k was raised for the Spallanzani fund!

Next year's NASBR is scheduled for 12-15 October in San Antonio, Texas. Hope to see you all there!

*Conference abstracts can be found online at:

<https://custom.cvent.com/6617CEC09A47484FA6AE8D57DF33CE01/files/event/E927BAB712AE4D33B274205739633D87/446db7497e4247d5a978282f486e7c7f.pdf>

White nose syndrome

Updated decontamination protocol

The most recent Canadian decontamination protocol for WNS is available on the Canadian Cooperative Wildlife Health website

http://www.cwhc-rccsf.ca/docs/WNS_Decontamination_Protocol-Jun2015.pdf

They also have a video about the decontamination protocol on their website: <https://youtu.be/kQjALbixJKY>

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

NASBR has a new electronic newsletter! Access is here:

<https://www.nasbr.org/pdfs/Lasiurus2015v0101.pdf>

Dr. Merlin Tuttle has established a new website (merlintuttle.org) on which many of his fabulous photographs are presented. He is allowing people to download these images for free if they are to be used for educational purposes.

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Conferences

NASBR 2016: Oct 12 - 15, NASBR 46, San Antonio, TX, USA.

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/alberta-bat-action-team/abat-programs-publications.aspx>

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