

# **Western Canada Bat Network Newsletter**

**Issue No. 26 Spring / Summer 2015**

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Cover photo: Heading off to work during the 2015 Bat Blitz at the Sage and Sparrow Grasslands, owned by the Nature Conservancy of Canada. Photo by Bill Parker.



A Pallid bat draws in a crowd at the Bat Blitz, May 2015. Cori Lausen photo.

# Updates by region

## Alberta

### Provincial update

Lisa Wilkinson, Species at Risk Biologist,  
Alberta Environment and Sustainable Resource Development [lisa.wilkinson@gov.ab.ca](mailto:lisa.wilkinson@gov.ab.ca)

A brief update from Alberta: We are hoping to develop a Community Bat Program, and are exploring funding opportunities. We will be consulting with BC about their successful program. Cory Olson has created a draft website for the program, which will be ready soon. Monitoring will be occurring in all natural regions as part of the NABat monitoring program, and is being conducted by AB Fish and Wildlife, Parks Canada, consultants and industry. We are hoping to identify maternity colonies to include in the monitoring program, and are continuing to place roost loggers in potential hibernacula and build a good working relationship with the caving community. The windfarm post-construction protocol has been reviewed and updated, and will be available soon. In May, Cori Lausen taught an acoustic course in Hinton, which was well attended and much appreciated. Lots of things going on - it should be a busy year.

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### Winter ecology of prairie bats

Brandon Klug, Ph.D. Candidate  
University of Regina

I just finished my last field season of data collection for my project on the winter ecology of prairie bats. I've captured a total over 100 big brown bats (*Eptesicus fuscus*) during my work in Dinosaur Provincial Park and am that much closer to determining habitat requirements and reasons for mid-winter flight in this population. I still have a bit of lab work left to do and a short stint in the field next fall as I just received a grant in-aid of research from the American Society of Mammalogists to do respirometry trials in DPP and the NWT. Stay tuned as the papers and pubs should start rolling out soon!

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### Bat acoustics course at Hinton prepares Parks Canada and Alberta Government for participating in NABat Program

C. Lausen, WCS Canada

Eleven participants attended the Comprehensive Bat Acoustics training course in Hinton, AB 1 – 15 May. This course was focussed on preparing organizations for participation in the North American Bat

Monitoring program, and thus, in addition to learning about bat detectors, site selection, deployment strategies, species identification, and software analyses, participants also learned about the NABAT program and what detectors were best suited for which aspects of the monitoring program. Specifically, instructional materials were provided for deployment of Titley Scientific detectors (Anabat SD1/2, Anabat Express, Anabat Roostlogger) and Wildlife Acoustics detectors (SM2BAT, SM3BAT, SMZC, and EM-Touch). Two field nights were spent recording bats at a nearby beaver pond board walk area, and the high levels of activity provided a lot of hands on practice with both active and passive detectors. We thank Wildlife Acoustics for providing training equipment.



This course was provided by Wildlife Conservation Society Canada, and instructed by Cori Lausen. Alberta Environment and Sustainable Resource Development hosted the course, and WCS Canada thanks Lisa Wilkinson of AESRD for organizing and coordinating logistics. The course was held at the Hinton Forestry Training Centre which provided an excellent classroom with affordable on site meals and accommodation. As the demand for acoustics trainings increases, we hope to be able to provide further training options across Canada. As a main organizer of the NABat program, WCS Canada plans to facilitate more agencies, organizations and individuals to participate in this continental scale monitoring through training courses. Several representatives from Parks Canada attended the Hinton training, and the NABat monitoring is beginning this summer in several of the western national parks. All course proceeds go to furthering bat conservation efforts in Canada.

While the 2016 course schedule and locations have not been finalized, Vancouver has been suggested as a spring course location in western Canada and Point Pelee National Park in southern Ontario as an eastern Canada location, tentatively scheduled for the last week of May 2016. For more information on trainings, contact:

[info@batsRus.ca](mailto:info@batsRus.ca) ([www.batsRus.ca](http://www.batsRus.ca)).



# British Columbia

## Bat Blitz on Nature Conservancy Canada (NCC) Osoyoos properties

BC and Alberta biologists came together on 22-25 May 2015 to inventory bats on the Nature Conservancy of Canada's (NCC) properties south of Osoyoos, BC. Inventory was conducted using acoustic and mistnet capture on the Sage, South Blocks, Sparrow and the newly purchased Kitt Carr properties. A record turn-out of biologists (27) resulted in great coverage of these properties over four nights. Our large group was organized into four teams and lead by experienced bat-blitzers. Despite the rustic tenting environment, the big yellow party tent and porta-potties made it feel like luxury camping! A really big thank you goes out to Leigh Anne Isaac, VAST Resource Solutions, for organizing this year's event. Thank you to all those who attended and travelled from afar to participate!



The camp at Sage and Sparrow Grasslands. Photo by Cory Olson.

In total, 14 sites were inventoried using acoustic and netting techniques. Of these, mistnetting was completed at 9 sites. We captured 11 species, including a male pallid bat. Species captured were Little Brown myotis, Yuma myotis, California myotis, Western Small-footed myotis, Fringed myotis, Long-eared myotis, Long-legged myotis, Pallid bat, Big brown bat, Silver-haired bat, and Townsend's Long-eared bat. Spotted bats were heard frequently on the Kit Carr property. Acoustic analyses have yet to be completed. We hope to find evidence of Hoary bat and Canyon Bat.

The blitz team surveyed a rocky canyon on the Sparrow property, where the Canyon bat (*Parastrellus hesperus*) was recorded by Mike Sarrel a few years ago. This was one of 2 deep canyons/river-valleys sampled, and a big thank you to those who helped haul gear in and out. Cold rainy weather on the day we sampled the Sparrow canyon resulted in low capture rates. So when all was said and done, the elusive Canyon bat remains uncaptured in Canada!

Weather certainly did not cooperate, with 2 of our 4 days rather cool and rainy. Overall, the blitz was still a great success. Our work was featured in the Osoyoos Times and on Global TV. Thank you to Jared Hobbs for providing photos and video footage to Global.



A few of the bats from the Sage and Sparrow Grasslands: Pallid bat (top), Small-footed bat (left), Townsend's big-eared bat (right). All photos by Cory Olson.

## **Kootenay Community Bat Project: a community-based approach to bat conservation**

Abstract of a poster presented at J. A. Craig, M. Sarell and L. A. Isaac. Silverwing Ecological Consulting, Nelson, BC (JC); Ophiuchus Consulting, Oliver, BC (MS); and Independent Consultant, Kimberley, BC (LI).

The Kootenay Community Bat Project (KCBP) was established in south-eastern British Columbia in 2004 as a community-based approach to bat conservation in buildings. The goals of the KCBP are to: 1) promote the conservation of bats in the Kootenay region, including species at risk and those at risk from White Nose Syndrome; 2) engage citizens in community-based bat stewardship; 3) conserve and enhance critical bat roost habitat; and, 4) monitor bat populations. This project incorporates outreach, inventory, and stewardship activities. KCBP is highly publicized, and encourages local participation in identifying and conserving bat roosts. KCBP also includes roost surveys of bats in buildings on private lands. Over 600 site visits have been conducted in the past 10 years and a total of 514 roost sites have been identified. Seven bat species were detected including Townsend's Long-eared Bat (*Corynorhinus townsendii*), Californian Myotis (*M. californicus*), Western Long-eared Myotis (*Myotis evotis*), Little Brown Bat (*Myotis lucifugus*), Yuma Myotis (*M. yumanensis*), Big Brown Bat (*Eptesicus fuscus*), Silver-haired Bat (*Lasiurus noctivigans*) and Long-legged Myotis (*M. volans*). Over the past ten years, the project has provided 14 bat-house building workshops, 73 community programs and 182 school programs. Almost 450 bat-houses were constructed as a result of this project. An Annual Bat Count was initiated in 2012 to incorporate citizens in bat population monitoring and over 20 sites are being monitored annually. The involvement of community members in bat conservation holds great potential for the collection of long-term monitoring data. This project is the model for the province-wide BC Community Bat Project Network that was established in 2014.

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## **Determining species diversity and population size of bats at the Remac Mine, Pend d'Oreille valley, BC**

Lausen, C. L., and L.A. Isaac. Wildlife Conservation Society Canada, Kaslo (CLL); VAST Resource Solutions Inc., Cranbrook, (LAI).

In Canada, the greatest species diversity of bats occurs in British Columbia (BC). Little is known about bat ecology in the province, particularly in winter. Bats play a critical environmental role and now face unprecedented threats due to White Nose Syndrome (WNS). Of urgency is to locate hibernacula, so that potential mitigation can be strategized and overwintering habitat secured. We focused on a mine in southeastern BC, called Remac. Preliminary investigations suggest it may be the most populous and diverse hibernaculum in the province. Our goal was to quantify the number of bats and species using this hibernaculum. Bats were acoustically monitored at mine entrances to determine species identification and patterns of activity. Free-flying bats were captured using mistnets strung across accessible mine portals from September 2012 – November 2014, with emphasis on late fall and winter.



Bats were banded to allow individual identification upon recapture. We captured four species in winter: Californian Myotis, Silver-haired Bat, Townsend's Long-eared Bat and Big Brown Bat. The former 3 species were most commonly captured. In fall and winter, unusual acoustic patterns attributed to Silver-haired bats suggest a 'mating song'; the presence of females, and males with stored sperm for all 3 common species supports the hypothesis that mating is occurring here. We have banded >200 bats and continue to catch many unbanded individuals, suggesting this hibernaculum is large relative to other western hibernacula. Recaptures confirm roost fidelity within and between years, and have provided the first evidence of year-round residency of Silver-haired bats at a mine.

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Spot the biologists! Sampling in the Sage and Sparrow Grasslands. Photo by Cori Lausen.

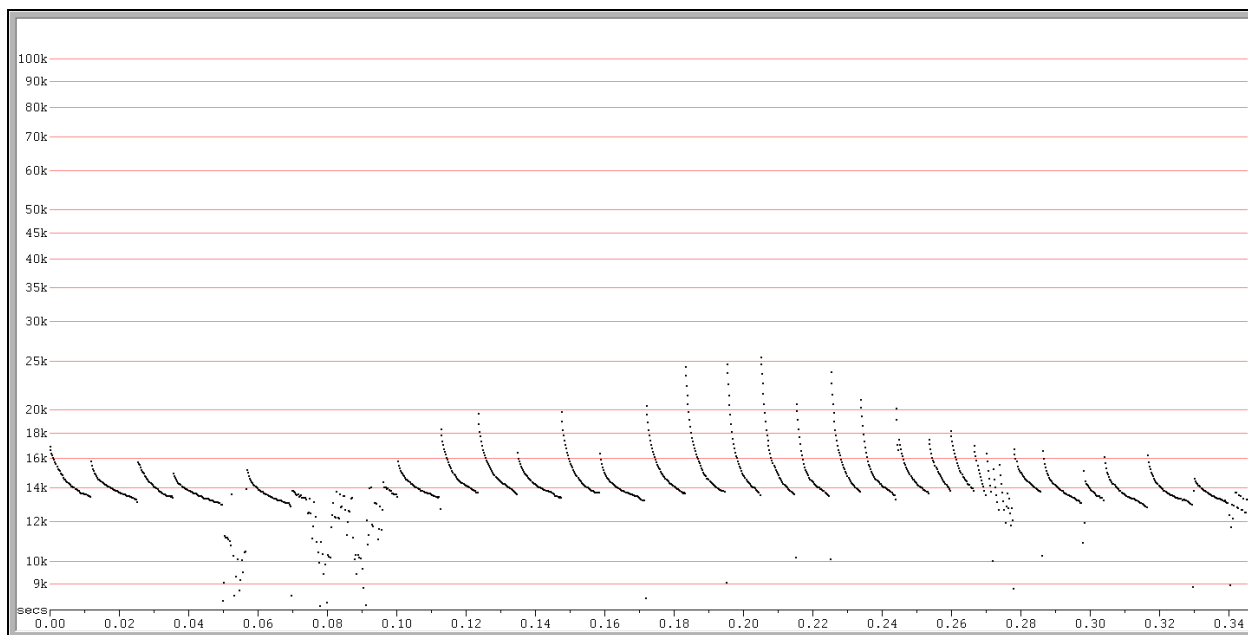
### Three bat species to be on the look-out for in BC

Cori Lausen, WCS Canada. [clausen@wcs.org](mailto:clausen@wcs.org)

Last summer, Chris Currie recorded a *Nyctinomops macrotus* (big free tailed bat) on the Sunshine Coast of BC. Several passes of high quality calls allowed a positive identification of this species by several acoustics experts. This species has been documented previously in BC (specimen from lower mainland), but is still suspected of being a vagrant. However, this is a good reminder that we should all be looking for bat species that may not currently be common.

Here I list and describe the bat species that we should be acoustically monitoring for in some areas of BC over the foreseeable future:

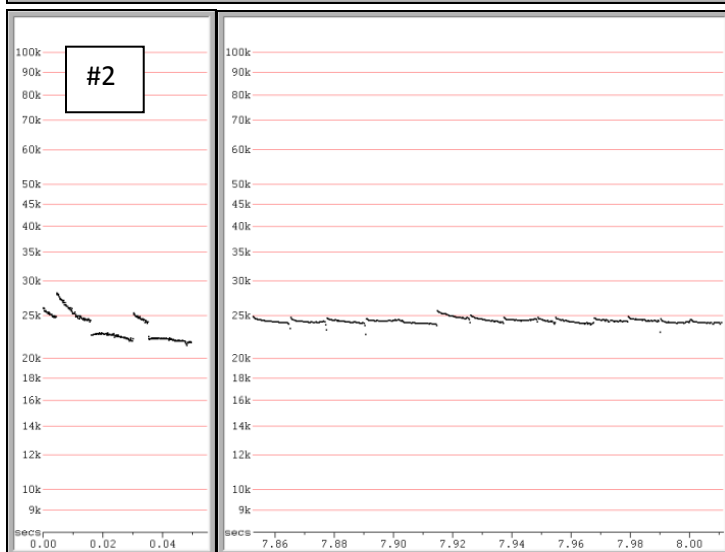
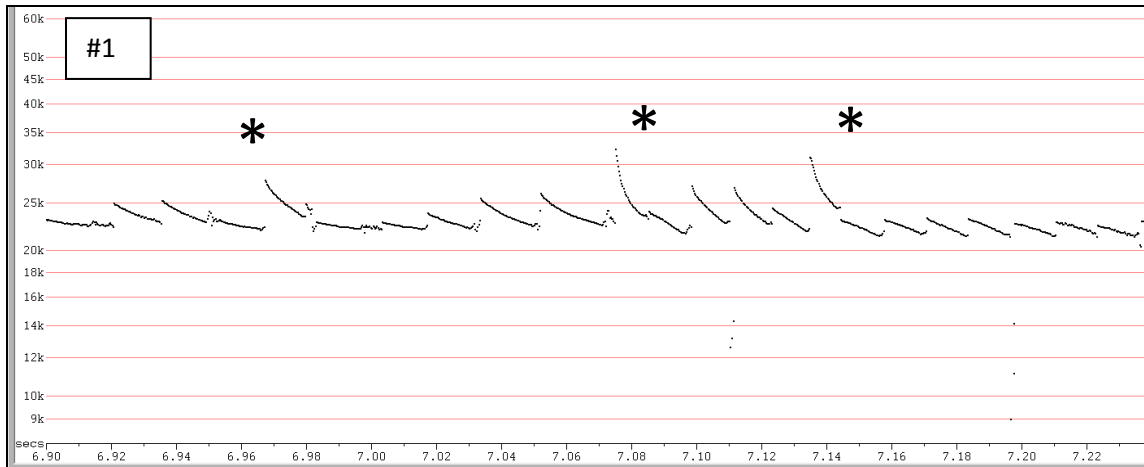
1. *Nyctinomops macrotus* (NYMA). As a rock-loving molossid, this bat could show up anywhere on or near our coastline. So for people doing monitoring in this region, please keep a look out for sonograms that have minimum frequencies below 20 kHz, but are too steep to be a hoary bat. Hoary bats, when echolocating below 20 kHz will produce low clutter calls that can be almost flat and end as low as 14 kHz; NYMA will produce a relatively high clutter shaped call below 20 kHz, with calls as low as 12 kHz (see example below). Recall that generally bats producing their lowest frequencies are also producing their lowest sloped calls, so calls ending around 12-14 kHz that are not flat, are not hoary and are thus likely NYMA. The only other animal that could be confused as hoary or NYMA is flying squirrel, but the presence of several pulses in a row should allow squirrels to be teased apart from bats.



Sonogram of *N. macrotus* recorded by Chris Currie in 2014 on Sunshine Coast.

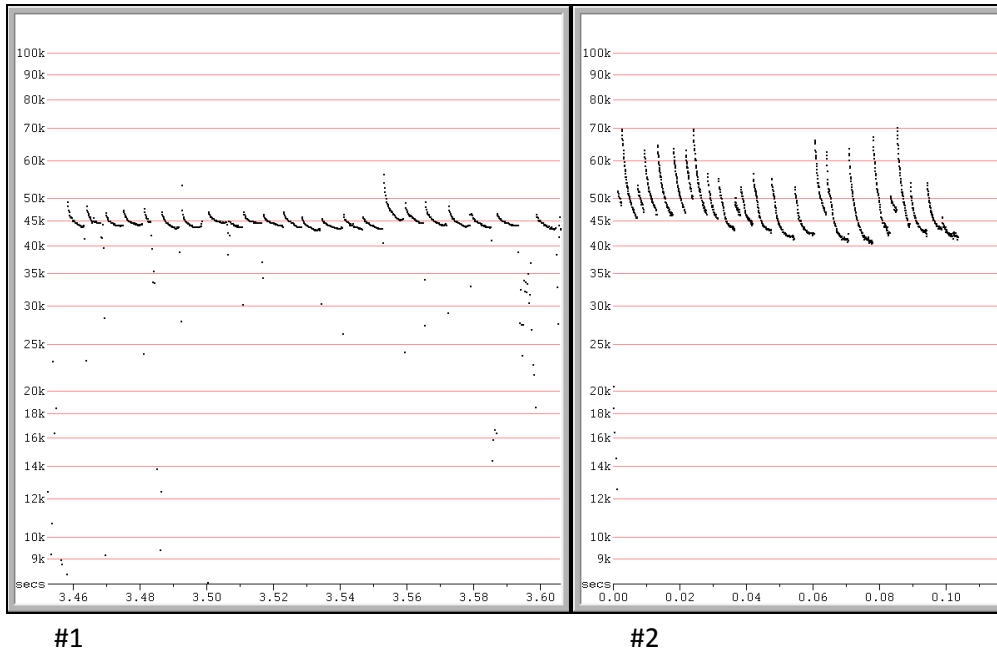
2. *Tadarida brasiliensis* (TABR). The Brazilian/Mexican free-tailed bat, another molossid, has been expanding its range for many years now and has made a substantial presence in Idaho. Several specimens have been turned into state biologists in the past year (Rita Dixon, pers. comm.). It is thus likely that this bat will show up in BC and Montana in the near future. This species is a generalist, often roosting in large colonies in mines, bridges, and buildings.

Here in NW North America, this species could be easily confused acoustically with silverhaired or big brown bats. There are really only 2 ways to reliably tease TABR echolocation calls from these species: 1. The tendency for TABR to somewhat randomly produce high clutter type calls amongst a sequence of otherwise low clutter calls (e.g., see #1 in figure below); 2. Flat sonograms between 20-25 kHz (#2 in figure below) sets this species apart, because big brown bats do not produce flat calls and silver-haired bats do so only at or above 25 kHz. While hoary bat can produce flat calls, these occur below 20 kHz.



Sonograms of *T. brasiliensis*.  
 #1. Note the high clutter pulse (asterisk) interspersed among the low clutter (low slope) pulses. This pattern differentiates TABR from big brown or silverhaired bats. The fact that these pulses are well below 25 kHz also rules out the possibility of this recording having come from a silverhaired bat.  
 #2. Flat calls below 25 kHz allow this species to be differentiated from big brown and silverhaired bats.

3. *Parastrellus hesperus* (PAHE). The canyon bat has been found across Washington and thus could appear in southern BC. One such recording has already been made by Mike Sarell in southern Okanagan, near Osoyoos. This species roosts in rock features and has what is referred to as a 'typical pipistrelle' pulse shape to its echolocation calls (see diagram below). Pipistrelle calls in general tend to be rather curved and can have even a bit of an upturned tail. The only other species that produce this shape of call in BC are hoary bats and eastern red bats (lasiurines), particularly in high clutter situations. Canyon bats can be differentiated from eastern red bats and hoary bats because the former species has calls that end near 45 kHz whereas the latter 2 species minimum frequencies range from 30 - 45 kHz and 15 – 30 kHz, respectively. While it is slightly possible that a red bat could be confused with a canyon bat, the sequence pattern of pulses generally allows these species to be differentiated. The main difference between pipistrelle calls and lasiurine calls is that the former does not vary its minimum frequency during its call sequence, unlike lasiurines, especially in high clutter. To illustrate this, see the diagram below.



Calls that end in a bit of curvature and in some cases even a slight up-turned tail are: #1. Pipistrelle type of pulse shape; #2. Lasiurine type of pulse shape. #1 is a recording of a canyon bat, and although taxonomically it is no longer considered a pipistrelle, it does have call features that we'd associated with this taxonomic group; #2 is a recording of an eastern red bat in moderate clutter. Note that #1 demonstrates the tendency for canyon bats to have consistent minimum frequencies, whereas #2 clearly illustrates the tendency for lasiurines to vary their minimum frequency. This is because canyon bats are slow flying bats, whereas eastern red bats are fast flying bats. Additionally, the high frequency components to calls are generally seen in red bats that are not seen in canyon bats.

## Seeking silver in southeast British Columbia mines: hibernation ecology of silver-haired bats

Cori Lausen, Wildlife Conservation Society Canada, Kaslo, BC V0G 1M0.

The silver-haired bat, *Lasionycteris noctivagans*, is generally considered a ‘migratory-hibernator,’ migrating to areas where it overwinters with periods of dormancy. It is not known to what extent this bat is susceptible to White Nose Syndrome as its winter ecology is poorly known; however, this species has been found *Pseudogymnoascus destructans* positive in the east. In B.C. Canada, it has long been hypothesized that this species may not be migratory given its year-round detection in the province; however, intra-provincial or short distance migrations could not be ruled out. I studied silver-haired bats at two mines in SE B.C. from 2009 – 2014. Using temperature-sensitive transmitters in winter, I documented the arousal patterns of both sexes, and of adults and young-of-year. I also determined that silver-haired bats hibernate in mines, rock-crevices, trees and snags, often switching roosts during the winter period. By banding individuals at these 2 mines in both summer and winter, I documented the first evidence of year-round residency at mines by male silver-haired bats. Recaptures of both males and females banded as juveniles and recaptured as adults in subsequent years confirms roost fidelity. Evidence of winter mating was found in some January and February captures. Patterned acoustic recordings by silver-haired bats at these two mine sites could be described as “songs” and may be associated with mating behavior given their predominance during fall and winter.

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# Saskatchewan

## University of Regina Bat Lab Update

Dr. Mark Brigham [mark.brigham@uregina.ca](mailto:mark.brigham@uregina.ca)

Since the last newsletter our lab has published two peer reviewed papers:

Alberdi, A., J. Aihartza, O. Aizpurua, E. Salsamendi, R.M. Brigham and I. Garin. 2015. Living above the treeline: roosting ecology of the alpine bat *Plecotus macrobullaris*. *European J. Wildlife Research*. 61:17-25.

Klüg, B.J. and R.M. Brigham. Changes to metabolism and cell physiology that enable mammalian hibernation. *Springer Science Reviews*.3.1:39-56

Brandon Klug's effort stems from a component of his PhD requiring an extensive literature review. there is a new journal that publishes these efforts. Brandon has completed his 3rd field season in Dinosaur Provincial Park in Alberta (he left before they became raving socialists! :) ) working on winter bat ecology. Now his task is to sort through the data and pull things together to begin to write a PhD thesis.

Shelby Bohn is gearing up for her first field season in the Cypress Hills of Saskatchewan. She is going to focus on roost use by silver haired bats. She also published a note in the Blue Jay about a record for *Myotis ciliolabrum* in east central Saskatchewan.

I have had a semester of admin leave after a lengthy term as Department. Head. I have tried to write up several papers and am making some progress with some data that are long overdue to be published. I did get a chance to see Hawaiian hoary bats during holidays on the big Island in January. While doing some field work on nightjars in Panama in February, I had a chance to see an interesting interaction between a big carnivorous bat (*Phyllostomus hastatus*) and a little fruit eating species (*Carollia perspicillata*). They were roosting with many other bats in a culvert in Gamboa, Panama. Why the little bat that could well provide a snack for the big bat was snuggled up so close is a mystery.



Bat friends! A large carnivorous bat (*Phyllostomus hastatus*) and a little fruit eater (*Carollia perspicillata*) just hanging out in Panama. Photo by Anne Brigham.

# National

## Recovery strategies for Little Brown and Northern Myotis

Lynne Burns, CWS

With the recent (2014) listing of little brown Myotis and Northern Myotis as endangered species under the Species at Risk Act (SARA), a recovery strategy is due to be posted within one year of that listing. Environment Canada has these two species slated to have recovery documents posted to the SARA registry this year (2015/2016) under their three year document posting plan (<http://www.sararegistry.gc.ca/default.asp?lang=En&n=09A60D9E-1#tab2>). This is a reminder that once posted as a proposed document, there will be a 60 day consultation period where anyone can comment on the proposed strategy. This would be a great opportunity for the bat community to weigh in on these plans. Keep your eyes peeled to the SARA website in the upcoming months for these postings.

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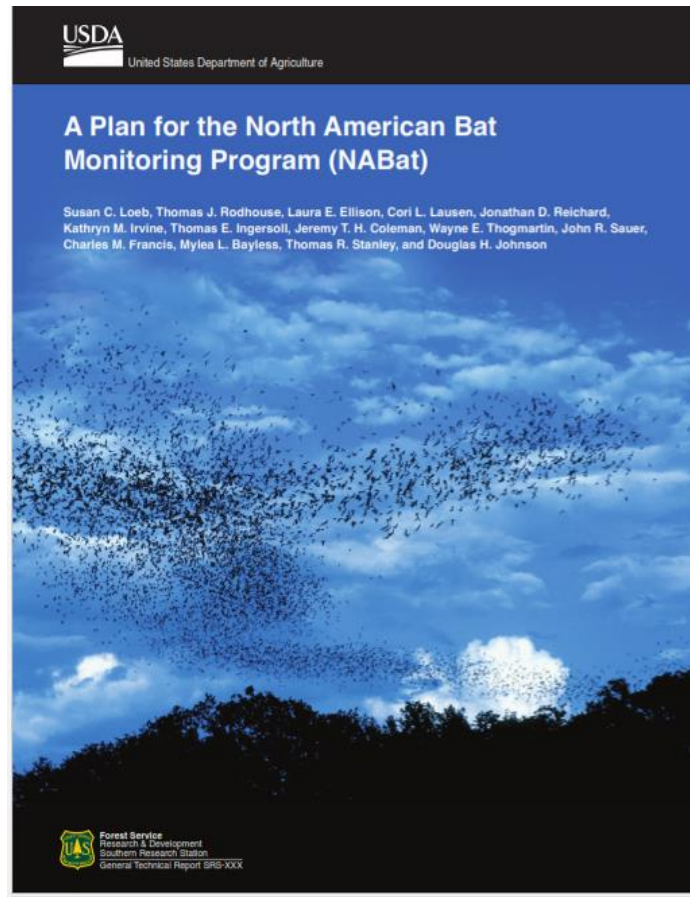
## North American Bat Monitoring Program - Document Posted

C. Lausen, WCS Canada, [clausen@wcs.org](mailto:clausen@wcs.org)

Ready to do colony counts and adopt a grid cell this summer? The NABat protocol has been officially released and now we need your help! We need people to acoustically monitor bats across the continent to establish baseline data and document changes over time. Only with repeated data collection in 10km x 10km grid cells each year, can we start to understand changes in relative abundance and distribution of bats on a continental scale. Baseline data collected for the next 5 years will underpin the first 'state of the bats' report. Responding to the threats of White Nose Syndrome, climate change and wind energy development, the NABat program was developed to use wide scale participation by biologists and citizen scientists to inform future management and conservation efforts for bats in US, Canada and Mexico.

While the document can be accessed at <http://www.treesearch.fs.fed.us/pubs/48442>, the actual program website (NABatmonitoring.org) will launch later this summer and provide a one-stop shop for folks to learn about the program, access grid cell layers for their areas, establish data sharing agreements, and submit data. For now, Canadian grid cells can be accessed from this link: <https://www.sciencebase.gov/catalog/item/546e6655e4b0fc7976e4e89e>

In a nutshell, the program entails two components: 1. regular counts of bats at known hibernacula and maternity colonies; and, 2. Acoustic monitoring for one week in a given grid cell. The latter involves deployment of 2 – 4 passive detectors and the driving of a road transect in the grid cell for 2 nights during the same week when the passive detectors are deployed. Consult the protocol document for details regarding details such as: deployment instructions, site selection, a description of bat detectors suitable for monitoring in this program, etc.



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# White Nose Syndrome

## Updated decontamination protocol

A Canadian decontamination protocol for WNS has been developed is available on the Canadian Cooperative Wildlife Health website

(<http://www.cwhc-rscf.ca/docs/WNS%20Decontamination%20Protocol.Oct%2028%202014.pdf>).

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## Funding for WNS research

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



# Field Notes

## Comparison of DNA collection methods to identify bat species

C. Lausen, D. Player, and J. Harrison. Wildlife Conservation Society Canada (CL); Matrix Solutions Inc., Calgary, Alberta, Canada (DP and JH)

Bat species are identified by visual morphological analysis in the field; however, some bat species are difficult to identify visually. For these species, DNA is collected to confirm species identification. Wing punches can be used to collect DNA but this technique poses risks to individual bats and requires extensive hands on training and experience. To decrease the chance of injury, dry swabbing of bat wings was tested as a less invasive protocol to collect DNA.

43 wing punches and 44 wing swabs were taken from 44 individual bats. Six of those swabs were destroyed using a failed method. Of the remaining 38 swabs, DNA was isolated from each sample using an alternative method and amplified using three different primer sets. Overall, 35 of the 38 (92%) of the swab samples produced sequence-able amplification products that aligned to species in the NCBI database from at least one of the three primer sets. 50% of the wing swabs produced sequence-able amplification products from all three methods. All 35 of the identified samples matched both the field identification and the previously obtained wing punch DNA identification. This is compared to 43 out of 43 wing punch samples (100%) that were able to produce a sequence-able product from all three amplification methods. A concern about using wing swabs was that the swab may give an inconsistent identity from skin cells transferring between bats during contact. This study saw no evidence of this transfer; of the 35 samples for which a species identification was obtained, all 35 matched both the field identification and the wing punch identification.

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## New tools for bat biologists

C. Lausen, WCS

### NEW LIGHT-WEIGHT TRIPLE HIGH POLE SET

Those of you attending the Bat Blitz in Osoyoos this spring got to witness firsthand the new, light-weight triple high pole system available from Ron Redman of Arkansas. The poles making up this system are small and light-weight but very strong. If you purchase the kit as is, it will be about 12.25 kg and come with a complete pole system that stands 5 m tall, just enough to string 3 nets, one on top of the other. It is of course super easy to get bats in and out due to the flag pole system. You can optionally order adjustable rope clips so that you can customize the depth of the pockets. This clip system is super easy to use and is more adjustable than I've seen on any other triple high system. I personally want my triple high pole set to be a bit taller, so I have now ordered an additional 3 sections for each pole. That will

allow me to deploy on uneven ground or in water. These poles are stiff enough I can likely stack even a couple of more poles to make a quad net (stringing a 4<sup>th</sup> net underneath on its own set of poles).

If you need to pack a triple high pole set into the back-country, this is definitely your best option. And it is easy to set up with just one person, so I think this might be the most versatile triple high pole set up available. Ron has been refining this pole set based on feedback, and is willing to help customize as needed. If you are interested in ordering one, contact: Ron Redman [batman72015@yahoo.com](mailto:batman72015@yahoo.com). Cost will depend on how many options you select (e.g. extra pole sections, adjustable pocket depths, etc.) but you can plan on around \$900 USD.

And if you want to see how this pole system is put together (it is all colour-coordinated, so very easy): [https://www.dropbox.com/s/8g4q0o0mktbhduq/IMG\\_1241.MOV?dl=0](https://www.dropbox.com/s/8g4q0o0mktbhduq/IMG_1241.MOV?dl=0)

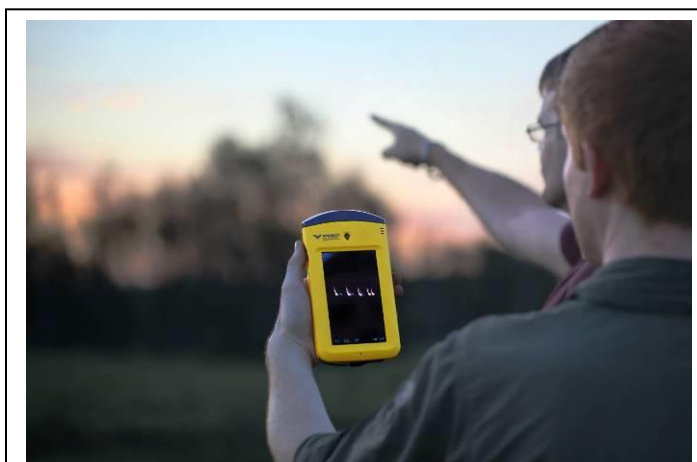
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### TITLEY SCIENTIFIC RELEASES THE NEW WALKABOUT BAT DETECTOR

There have been several new detectors on the market in the past year or so: Wildlife Acoustics' SMZC unit and Titley Scientific's AnabatExpress detectors were the most recent additions, each recording zero-cross only, relatively inexpensive, run on internal batteries, and are easy to deploy – great for NABat monitoring!

New on the scene this summer is the **Anabat Walkabout**. This detector is designed for active monitoring and will be particularly useful for driving transects associated with NABat monitoring.

For those reading the NABat protocol, you will notice that there is a requirement to use a directional microphone. The Walkabout optionally attaches to a regular Anabat microphone (green 'hi mic' or new 'stainless mic'). That mic can be on the roof of your car, and the Walkabout inside recording both full spectrum and zero-cross files, and simultaneously showing you recordings of the bat calls on its built-in 5" colour touchscreen. The detector has a built-in GPS so that each recording has a waypoint embedded, in addition to your track data.



The Anabat Walkabout in action.

**SPOTLIGHTS**

I also have many people ask me about spot-lights for actively monitoring bats. There are many over the counter spot-lights that you can buy, but all have some sort of problem when it comes to spotlighting bats – some have a dead spot in the middle making it difficult to properly see and ‘direct’ the bat in the beam of light; many have a yellow or orange glow to them preventing the bat’s true fur colour from being seen. Titley makes a custom spot-light designed specifically for watching bats during active monitoring. You may want to inquire about this spot-light if you are going to be doing active monitoring, contact: Kim Livengood ([kim.livengood@titley-scientific.com](mailto:kim.livengood@titley-scientific.com)).

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# Advertisements

**VACANCY FOR POSITION OF RESEARCH ASSISTANT IN THE DEPARTMENT OF BIOLOGICAL SCIENCES  
JOB DESCRIPTION**

Looking for a full-time research assistant (RA) for a project investigating the urban ecology of bats in Singapore and the ecosystem services they provide (seed dispersal, pollination, consumption of insect pests). The RA will assist in collecting data in the field, labwork, and other tasks, under supervision.

**MAJOR DUTIES AND RESPONSIBILITIES**

1. Fieldwork (including at night) at various sites in Singapore. This work will involve:
  - surveying bats (acoustic monitoring, i.e., bat detectors; capturing bats in mist nets and harp traps),
  - handling and processing bats to collect physiological and other data,
  - collecting fecal samples for dietary analysis,
  - radio telemetry to find daytime roost locations and estimate nightly home ranges,
  - collecting nocturnal insects and conducting vegetation measurements in field sites.
2. Lab and analytical work, which will involve:
  - examining diet (by fecal analysis and microscopy)
  - analysing acoustic data (to identify bats and quantify activity)
  - identifying and quantifying captured insects (microscopy)
  - home range analysis
3. Data entry, management and analysis
4. Assisting with project logistics, including but not limited to purchasing equipment and/or materials, setting up study sites, and monitoring research progress.
5. Administrative work and tasks, including office-related work
6. Assist in supervising student projects

**APPLICATION REQUIREMENTS**

*Italicised items in bold are mandatory*, others are ideal:

- 1. BSc degree in life sciences, ideally ecology or biology**
- 2. Experience conducting ecological fieldwork**, especially using mist nets and handling bats.
3. Experience collecting and dealing with full-spectrum acoustic data and with radio telemetry.
- 4. Ability to deal with shifting work schedules (i.e., some nighttime work)**
- 5. Valid SG driver's license or the ability to obtain one**
- 6. Up-to-date rabies and hepatitis B vaccinations, or willingness to obtain both**
- 7. Basic Microsoft Office skills, especially MS Word and Excel**
- 8. Good interpersonal and communication skills, including proficiency in English**
9. Experience with the statistical analysis of data
10. Experience with academic writing

This position is available for up to three years, with salary commensurate with qualifications and experience. Conditions may be negotiable for exceptional applicants.

Interested applicants should send a cover letter, resumé/curriculum vitae, and the contact information of three referees to both:

Prof Theodore Evans [dbseta@nus.edu.sg](mailto:dbseta@nus.edu.sg)

Dr Joanna Coleman [dbscmj@nus.edu.sg](mailto:dbscmj@nus.edu.sg)

Only shortlisted candidates will be notified.

## Recent literature

- Alberdi, A., J. Aihartza, O. Aizpurua, E. Salsamendi, R.M. Brigham and I. Garin. 2015. Living above the treeline: roosting ecology of the alpine bat *Plecotus macrobullaris*. *European J. Wildlife Research*. 61:17-25.
- Burns, LE and HG Broders 2015. Who swarms with whom? Group dynamics of *Myotis* bats during autumn swarming. *Behavioral Ecology* DOI:10.1093/beheco/arv017
- Czenze, ZJ, and CKR Willis. 2015. Warming up and shipping out: arousal and emergence timing in hibernating little brown bats (*Myotis lucifugus*). *Journal of Comparative Physiology B* in preprint.
- Davy, CM, Marinez-Nunez, F, Willis, CKR and SV Good. 2015. Spatial genetic structure among bat hibernacula along the leading edge of a rapidly spreading pathogen. *Conservation Genetics* DOI: 10.1007/s10592-015-0719-z
- Johnson, NL, McLeod, BA, Burns LE, Arseneault, K, Frasier, TR and HG Broders. 2015. Population genetic structure within and among seasonal site types in the little brown bat (*Myotis lucifugus*) and the northern long-eared bat (*M. septentrionalis*). *Plos One* 10(5): e0126309 DOI:10.1371/journal.pone.0126309
- Klög, B.J. and R.M. Brigham. Changes to metabolism and cell physiology that enable mammalian hibernation. *Springer Science Reviews*.3.1:39-56

Loeb, Susan C.; Rodhouse, Thomas J.; Ellison, Laura E.; Lausen, Cori L.; Reichard, Jonathan D.; Irvine, Kathryn M.; Ingersoll, Thomas E.; Coleman, Jeremy T.H.; Thogmartin, Wayne E.; Sauer, John R.; Francis, Charles M.; Bayless, Mylea L.; Stanley, Thomas R.; Johnson, Douglas H. 2015. A plan for the North American Bat Monitoring Program (NABat). Gen. Tech. Rep. SRS-208. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 100 p.

Segers, JL and HG Broders 2015. Carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) stable isotope signatures in bat fur indicate swarming sites have catchment areas for bats from different summering areas. Plos One DOI:10.1371/journal.pone.0125755

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## Conferences

NASBR 2015: Oct 28 – Nov 1, NASBR 45, Monterey, CA, USA. Registration is now open.

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## WBCN Newsletter Submissions

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

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## 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://esrd.alberta.ca/fish-wildlife/wildlife-management/alberta-bat-action-team/abat-programs-publications.aspx>

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