

# Western Canada Bat Network

# NEWSLETTER

ISSUE NO. 16

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## CONTENTS

Letter from the Editor .....	1
Updates by Region .....	2
Manitoba .....	2
Saskatchewan .....	3
Alberta .....	4
British Columbia .....	6
Northwest Territories .....	9
Yukon .....	9
Idaho .....	10
WNS Bulletin Board .....	11
BCBAT Update .....	12
ABAT Update .....	12
WBWG Update .....	13
Announcements .....	14
Workshops .....	14
Conferences .....	14
Recent Literature .....	15
Field Notes – Focus on Acoustics .....	15
Archived Newsletters .....	19
Distribution List .....	20

## FROM THE EDITOR

**WNS Urgency in Canada.** I'd like to draw your attention to a suggestion made by Dr. Craig Willis at University of Winnipeg (see first section of this newsletter):

*"We'd encourage everyone to write provincial environment ministers as well as the federal minister to highlight the need for Canadian government-funded research to help address WNS. .... The U.S. has provided millions and Canada now needs to step up."*

WNS has made some apparent large 'geographic skips' (now in Oklahoma) and it may be here in the west much sooner than we think. Immediate WNS funding in Canada is needed. Certainly this is a topic for BCBAT and ABAT to address, but we need individuals to lobby also.

On an unrelated note, I'd like to put out a request for a replacement WCBN editor. It has been a great 6 years, but my plate has finally reached overflow! I would like to step down as Editor before the fall issue, and therefore, please let me know if you are interested in taking over this task. Thanks!

*Cori Lausen*



# UPDATES BY REGION

## Manitoba

### FROM THE UNIVERSITY OF WINNIPEG BAT LAB

Craig Willis

Several of us in the lab are currently working on small grants to various places to help pay for research important for the WNS effort. However, any money we and other labs can obtain from these sources is vastly less than what is needed. We'd encourage everyone to write provincial environment ministers as well as the federal minister to highlight the need for Canadian government-funded research to help address WNS. Perhaps we could draft a letter as a group, as well. The U.S. has provided millions and Canada now needs to step up.

#### *Lab Update:*

On the heels of the Kirkland Lake and Missouri announcements, our crew is bracing for the imminent and depressing arrival of WNS in western Canada (hopefully at least a couple of years away!). Next week (of April 26) several of us will be in the field doing surveys of all the known hibernacula in central Manitoba joined by **Vikram Misra** and **Trent Bollinger** of the University of Saskatchewan and Canadian Cooperative Wildlife Health Centre as well as **Jack Dubois** from Manitoba Conservation. This will kick Manitoba's WNS surveillance to the next level and we will update estimates of numbers of bats in all of our known hibernacula. We will also collect tissue samples for a M.Sc. project by **Felix Martinez-Nunez**, quantifying population genetic structure within and among hibernacula, as well as between hibernacula and summer roosts (to complement work being done by Hugh Broders' group at St. Mary's and Tom Kunz's group in Boston). **Mary Timonin** our intrepid Post-Doc, has left the lab to start a NSERC PDF at Cornell working with mammals that run around instead of fly but we will also be downloading data from the solar-powered "hot-boxes" that Mary designed and built to test the hypothesis that bats might make use of artificial warm spots to save energy during hibernation. As of January the bats hadn't read our paper or proposal but perhaps the last half of a Manitoba winter has convinced them. If they have, or even if they haven't, and despite the fact that it is a reasonably crazy idea, we will continue to test various prototype heated structures in 2010/11.

**Kristin Jonasson** is finishing her M.Sc. project using temperature telemetry and measurements of body condition to test her "thrifty female hypothesis" that male and female bats exhibit different hibernation strategies throughout the winter. As much fun as winter fieldwork in Manitoba can be, I think she is looking for a warmer PhD field site.

**Joel Jameson** is finishing up his project addressing tall structure attraction in migratory bats as an explanation for mortality at wind turbines and he'll be starting PhD work with Paul Faure at McMaster in January 2011.



**Kaleigh Norquay** will be continuing in the lab for her M.Sc. using fine-scale telemetry and IR camera traps inside caves to investigate differences in individual movements of little brown bats. She'll also use our PIT-tagged population of little browns and PIT-tag database to study factors influencing variation in over-winter survival before WNS.

**Allyson Menzies** has just completed her Honours thesis and will continue work she and Mary Timonin started in 2009 looking at links between personality variation and energetics in bats. She hopes to visit the Regina bat crew in the Cypress Hills this summer to quantify personality variation in big browns.

**Chantal Carriere** will join the lab as an Honours student this summer and look at factors influencing individual variation in torpor expression.

**Lisa Warnecke**, coming from Germany via Fritz Geiser's lab in Australia, will join us as a Government of Canada Post-Doctoral Fellow in August. She'll address questions about hibernation energetics and behaviour of little browns, applying her expertise in hibernation biology to questions about WNS.

I (**Craig Willis**) am just back from an outstanding week in Belize catching amazing bats (from *Desmodus* to *Chrotoperus* with lots in between!) with Brock Fenton and other great bat people and, after a busy winter of teaching, this has me psyched for some summer fieldwork.

## Saskatchewan

### UNIVERSITY OF REGINA, BAT LAB UPDATE

Mark Brigham

**Mirada Dunbar** finished her PhD (Diversity of hibernation and torpor use in North American Insectivorous bats). and has a job in New Haven CT, not at Yale. I think its souther CT State - check with her.

**Sam Skalak** finshed his M.Sc. thesis (Patterns of bat activity and effective acoustic sampling) and going back to Ash Meadows Nat. wildlife Refuge in NV to work for a year.

**Julia Kilgour** - about to hand in her M.Sc. thesis for defense by 17 June. Social behaviour in Big Browns.

**Yvonne Dzal** - about to hand in her M.Sc. thesis for defense by 17 June. Torpor use by reproductive females 5. Joe Poissant - about to begin first field season for PhD work

**Jody Rintoul** - will join lab formally as grad student 1 Sept. - will work for Joe for summer.

**Brigham** - bugging off to South Africa for the year - will work with David Jacobs and his Students at U Cape Town.



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## Alberta

### ALBERTA SUSTAINABLE RESOURCE DEVELOPMENT

Lisa Wilkinson

Alberta has amended its research permit requirements such that all bat research, including acoustic surveys and carcass surveys, require permits. This will improve provincial database on bats (important in light of WNS threat) and help with wind farm development and mitigation.

Alberta Sustainable Resource Development, Alberta Parks and Parks Canada are working cooperatively to address the threat of WNS, and are in the process of closing all known bat hibernacula (3) to public access. The group is working with the local speleological society to gain their support and provide alternate caves for people to visit. The largest known bat hibernaculum in the province (Cadomin Cave) will be gated this spring by Alberta Parks. Access will be by permit only.

Alberta hosted a Wildlife and Wind Symposium in February, with attendance from industry, consulting companies, government and universities. It was an opportunity to discuss various issues in an open forum. One of the items discussed was trying to identify “high risk” areas for wind farms based on known or suspected bat migration routes; this concept is in early development.

### MATRIX SOLUTIONS INC.

Delanie Player and Kirsten Pinney, Calgary, AB

#### Workshops and Conferences

This year started off great with another one of us taking part in the Bat Conservation and Management Workshop held by BCI. The field location was in the beautiful Chiricahua Mountains in Arizona, with amazing diversity from lowland deserts to coniferous forest. The intensive six-day course emphasized bat identification and habitat assessment as well as conservation, management, education and outreach, public health and artificial habitats.

#### Bat Work in Northern Alberta Continues

It was another busy field season for us bat girls. A few of us were lucky enough to spend the better half of our summer working in Northern Alberta with our furry buddies. We spent just under five weeks working on four different Environmental Impact Assessments.



In total we detected five different species of bats using acoustic monitoring (due to overlap in sonograms, some calls could not be distinguished to species), captured four different species in our mist nets (*Lasiurus noctivagans*, *Lasiurus cinereus*, *Myotis lucifugus* and *Myotis septentrionalis*) and caught over 125 bats in 2009. Our most exciting capture was when we discovered a female little brown with her pup on her back in one of our triple high nets; they were very quickly released.





Standard mist netting and acoustic surveys were conducted at all four Project locations. This year we had four ANABAT detectors and made efforts to deploy all of them every night at various locations in order to gain a better understanding of bat distribution in each Project area. In total we set nets up at 26 mist net sites and collected data from 86 acoustic monitoring sites throughout northeastern Alberta.

As in 2008, we caught silver-hair bats almost every night. This worked out great because we were collecting hair samples for Ted Weller to help with his project which aims to understand the migratory and wintering behavior of silver-haired bats. This year we came across a few male silver-haired with 'white dots' located on several areas of his wing membrane. We were concerned and unable to identify the 'white dots.' However, with the help of Rita Dixon and Amanda Lollar we were able to determine that they were mite egg sacks. Thank you to everyone who responded to my emails, your input is appreciated and put our minds at ease.

In addition to our standard survey methods we were able to conduct some radio telemetry for the Project located northwest of Fort McMurray. The proposed telemetry program examined which habitats are being used as roost sites by *Myotis septentrionalis*. The northern bat was chosen as a study species since it has a high listing in Alberta and there is uncertainty as to how WNS could affect their population.

The main objective of the study was not to examine specific tree roosts, but to characterize vegetation and aquatic attributes surrounding roost sites. We also attempted to determine whether individual bats switch roost trees over consecutive nights or if they are moving to different stands over short periods of time. We would like to extend a thank you to Dr. Robert Barclay and Dr. Cori Lausen for their support and help with the telemetry study.

Overall, the field season was great! A few lightning storms, some awesome Northern Lights, good company and, best of all, lots of bats!

*\*The Editor apologizes profusely for missing the above submission in the Fall issue!*

## **The Wildlife Society Conference – Alberta Chapter**

Red Deer Conference, 12-14 March 2010

The theme of this year's conference was *Wildlife Disease*. While the bulk of the conference was Chronic Wasting Disease, Margo Pybus was instrumental in getting White Nose Syndrome on the agenda. Margo, Dave Hobson and Lisa Wilkinson put together a WNS poster, and Cori Lausen gave a plenary talk about WNS and its implications for the West.



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**UNIVERSITY OF CALGARY BAT LAB**

A big congratulations goes out to **Erin Baerwald**, now officially a PhD Candidate in Robert Barclay's lab, who passed her candidacy exam in April. Erin will be starting the genetic lab component of her research this fall.

**Brandon Klüg** is back in the field this summer in Delta Marsh, Manitoba to collect more thermoregulation data for his MSc.

**Joanna Coleman** is finishing up writing her PhD dissertation, and will defend it this summer;

**Corey Olson** is back in the field in Lac La Biche this summer collecting little brown and northern myotis roosting and foraging data for his MSc.

## British Columbia

### BRIDGE COASTAL BAT FAUNA ASSESSMENT AND MANAGEMENT PROJECT - 2010

Francis J. Iredale

Environmental Stewardship Division, MOE Region 3, Kamloops, B.C.

The Ministry of Environment in partnership with the Lillooet Naturalist Society, the Lillooet Tribal Council and the Bridge River band have successfully obtained funding through the BC Hydro Bridge Coastal Fish and Wildlife Restoration Program (BCRP) to implement a bat fauna assessment and management project. British Columbia boasts the highest bat species diversity of all of the Canadian provinces and represents the northern range limit for many bat species, yet little is known with respect to the provincial



distribution and habitat use. This scenario has contributed to the Committee on the Status of Endangered Wildlife in Canada listing several bat species as data deficient. The Bridge River Basin to the west of Lillooet, BC, provides an excellent environment for conducting bat research and inventory. The basin features a mixing of both coastal and interior climates resulting in a mosaic of habitat associations that could harbour a diverse bat population. Very little bat inventory has occurred within the Lillooet Region on a broad scale and this project aims to provide a baseline understanding of the bat fauna in the area. One bat biologist's hope to encounter is the pallid bat (pictured above). This bat is suspected to occur in the valley dry





habitats. This large bat feeds on big insects that it often takes straight off the ground. Additional objectives include: 1) Confirm day or maternity roosts of tree and cave roosting bats through radio-tracking, 2) Provide artificial roosting for bats and provide restoration/enhancement recommendations, and 4) Community involvement through participating in an open night of mist netting and acoustic listening for bats. The primary field crew will be lead by experienced bat biologists Mike Sarell (Ophiuchus Consulting) and Thomas Hill. Francis Iredale and Jared Hobbs of the Ministry of Environment will be assisting with field work and coordinating outreach to local stewardship, First Nation, and community groups. Community engagement will be bolstered through the partnership with Vivian Birch Jones, long standing member of Bat Conservation International and Lillooet Naturalist, who has been instrumental in collaborating with government and non-government organizations on various wildlife conservation and educational projects within the Lillooet area. Aboriginal engagement is also an important aspect of this project and we welcome support from Matt Manual (Lillooet Tribal Council) and Gerald Michel, Land Resources Coordinator (Xwisten, Bridge River Band). We look forward to providing you with additional updates as the field season progresses.

### LONG-EARED MYOTIS PROJECT

Cori Lausen

Birchdale Ecological, Kaslo, B.C.

Cori Lausen, Dave Nagorsen, and Doug Burles will head to the field again this summer with Mike Sarell, and Thomas Hill to sample long-eared bats in the province. Genetic results to date indicate that definitions for *Myotis keenii* must be revisited. Skull measurements, mitochondrial DNA, and nuclear DNA, along with acoustics and morphology are being combined to better understand the taxonomy of this species. The goal of this summer's sampling is to fill in sampling gaps. Genetic work is likely to be completed in the fall by Mike Russello at the University of B.C., Kelowna. Funding partners have been *Forest Science Program, Habitat Conservation Trust Fund, and Columbia Basin Fish and Wildlife Compensation Program*.

### SUBSTANTIAL WINTER BAT ACTIVITY IN WEST KOOTENAYS

Cori Lausen

Birchdale Ecological, Kaslo, B.C.

As was the case across most of the Pacific Northwest, 2009-2010 winter in the Kootenay region was a mild one. I acoustically monitored locations across the west Kootenay region and found substantial bat activity throughout the entire winter. In January I radiotracked silver-haired bats after discovering a hibernaculum used by this species and *C. townsendii*. I also mistnet captured *M. californicus* and *C. townsendii* throughout the winter. Although I discovered several hibernacula, it was unclear where *M. californicus*



January 2010. Mine near Nelson



were roosting. Like all of us in the west, I am feeling an urgency to understand winter bat behaviour and discover hibernacula pre-WNS, so I have applied for funding to do a full-scale winter bat research project next winter.



*5 May 2010. Kootenay Pass, 1770 m. SM2BAT detector at right.*

In an attempt to understand local movement corridors for bats, I placed bat detectors in various valleys this spring. I also placed a bat detector in the Kootenay Pass at 1770m. This was no small feat given the 7+ feet of snow still on the ground April 19<sup>th</sup> when, by use of snowshoes and toboggan, I installed an SM2BAT in Stagleap Provincial Park. Interestingly, I was recording bats that night onwards. This makes me realize that I need to have a detector in place much earlier next spring; even though the landscape is engulfed with snow, this does not seem to keep bats from moving over these high passes.

I would like to thank my 2 volunteer field assistants this winter (Thomas Hill and my husband Michael Proctor) who trudged through the snow pulling toboggans of gear, carried extension ladders across snow and ice countless times, and rescued me when I ditched the truck. If I am successful at securing project funds, I'll be making substantial use of my snowshoes and snowmobile next winter!

### BAT CONDO BUILT IN CRESTON



Marc-Andre Beaucher, head biologist at the Creston Valley Wildlife Management Area, and Richard Dalon CEO of CVWMA, worked with Paul Van Deursen, a builder in Kaslo to construct the first bat condo in western Canada. Plans were obtained free of charge from Bat Conservation International; FortisBC donated poles on which to build the structure; and BC Ministry of Environment paid for the construction of the structure. This condo was built to replace an old dilapidated barn that has been a maternity roost for little brown and Yuma myotis for many years (thousands of bats). However, the barn was collapsing, becoming less ideal as a roost, and a safety hazard in the area. As such, this bat condo was built in its place. As of May 2010, the bats had taken up residence in a portion of the condo.

Cori Lausen and Thomas Hill are helping to monitor the use of this bat house and make slight adjustments to ensure ideal microclimates.





**ASSOCIATION OF PROFESSIONAL BIOLOGISTS APPLIED BIOLOGY CONFERENCE**  
**-BAT TALKS-**  
**Kelowna 5-8 May 2010**

*Abstracts:*

**Robert Barclay. Bats & Wind Turbine Management** -- Bat fatalities far outnumber bird fatalities at many wind energy facilities in North America; with migratory bats being most affected in late summer and early fall. We recommend several strategies to reduce bat fatalities in both design phase and during operations for wind energy developments. The implications of cumulative effects of such facilities along bat migratory routes are discussed.

**Rhonda Millikin. Remote Sensing of Night Migrant Bats and Birds.** One of the potential impacts of wind turbine developments is to bats. This paper discusses observations from wind project impact assessments across Canada *viz-a-viz* the risk factors for bats. Night time flight paths for birds and bats (generated from automated radar-acoustic fusion data) in relation to landscape and weather patterns is presented. These are discussed within the context of regulators' guidelines for wind development in BC.

### Northwest Territories

Joanna Wilson

Species at Risk Secretariat, Department of Environment and Natural Resources

NWT is planning to increase monitoring of bats. Cori Lausen will be up to Wood Buffalo National Park in September to survey around some caves that were reported to have bats hibernating in them in the 70's (Alberta and NWT sides of park). There is also some interest in the communities of Fort Smith and Fort Simpson for surveying for hibernating bats. Cori is planning to work with some community members to set up and use bat detectors to collect information on bat species and movements.

### Yukon

#### CONTINUED BAT WORK IN YUKON

Brian Slough, Whitehorse, Yukon

I am continuing to monitor little brown bat population dynamics at several long-term study roosts (both natural and man-made, since 1997), as well as movements between roosts. In collaboration with Tom Jung, Yukon Department of Environment, we are installing bat houses at several locations in the southern Yukon to serve as both population research and public education sites.

I am also beginning passive acoustic monitoring of full spectrum ultrasound, using a Pettersson D500X ultrasonic recording unit. Efforts by Yukon researchers using the D240X have been short-term and results have been inconsistent to date.



**YUKON BIODIVERSITY FORUM, YUKON COLLEGE**

10 April 2010, Whitehorse

The following bat presentation was made by Tom Jung:

*Strange things done under the midnight sun: the life-history strategy of the little brown bat at the northern edge of its range.*

This talk summarized the bat work that Tom, Brian Slough, Jen Talerico, Lea Randall and Cori Lausen have done over the past few years in the Yukon.

**Idaho****TREE BAT USE OF CAVES ON THE SNAKE RIVER PLAIN**

Bill Doering

POWER Engineers, 2041 S. Cobalt Point Way, Meridian, Idaho 83642,

[bill.doering@powereng.com](mailto:bill.doering@powereng.com)

During late summer and fall of 2009, Bill Doering began a study of stopover habitat used by tree bats crossing the Snake River Plain. His study is predicated on the assumptions that tree bat species will seek concentrated food sources, utilize alternate roosting habitats, and traverse atypical habitats during migration. The tree-less “sagebrush sea” of the Snake River Plain would appear to present a significant obstacle to tree bat migration. Volcanic features, such as lava tubes, craters, and fissures, provide valuable habitat and concentrated food sources for resident bat populations. Very limited field observations from Bill’s graduate work on Townsend’s big-eared bat suggested that migrating tree roosting bat species might opportunistically avail themselves of these same resources. To investigate the role caves might play during migration in tree-obligate bat species, passive acoustical monitoring stations were established at the entrances of several lava caves on the Idaho National Laboratory and Big Desert of Eastern Idaho. Anabat systems were deployed to automatically record the echolocation calls of bats from approximately 30 minutes before sunset to 30 minutes after sunrise during sampling evenings. No direct capture methods were employed. A total of 42,978 echolocation call files were collected during this first field season. Initial analysis reveals that late season bat communities at caves are a mix of 1) summer residents, 2) swarming pre-hibernators, and 3) transient migrators. Intensive foraging was evident at all caves. Results documented the presence of hoary bat at two of three monitored caves as well as the likely occurrence of silver-haired bat, and the possible occurrence of red bat. The occurrence of the red bat would present a new species for the state of Idaho and a significant range extension. During 2010, Bill plans to expand his study, develop a call library, better describe bat communities active at cave entrances, and investigate proximate variables influencing bat activity and occurrence at caves. Ultimately, he would like to understand how migrating bats locate and utilize stopover habitat. This information would seem critical for addressing the problem of bat mortality at wind turbines. In addition, the potential importance of caves to



migrating tree bats is currently unrecognized and warrants greater research and management attention.

Bill would like to thank Bruce Haak with Idaho Fish and Game for allowing him to borrow Anabat equipment. He also wished to thank Roger Blew senior ecologist with S.M. Stoller for granting access to the Idaho National Laboratory and its wonderful caves.

## WNS Bulletin Board









-  **2010 WNS Symposium 25-27 May in Pittsburg.** Limited attendance; conference call and webcast opportunities for others to participate.
-  **Canada's first White Nose Syndrome national conference call** took place 17 May 2010. This meeting was organized by John Dungavell ON MNR, and was an introductory meeting of representatives from all provinces and territories. A subsequent call to address national strategies will be scheduled for sometime mid-summer.
-  **Margo Pybus**, Provincial Wildlife Disease Specialist, AB Fish and Wildlife Division now sits on the Association of Fish and Wildlife Agencies (AFWA) White Nose Syndrome Subcommittee.
-  Vikram Misra, Dept. Veterinary Microbiology, Western College of Veterinary Medicine, **University of Saskatchewan**, Saskatoon, SK has established a lab for testing bats for WNS.
-  **WNS Jumps West.** An updated list of states (14) and provinces (2) WNS is as follows:  
*Eastern US:* New Hampshire, Vermont, New York, Massachusetts, Connecticut, New Jersey, Pennsylvania, West Virginia, Virginia, Maryland, Tennessee  
*Mid-West US:* Missouri                      *West South Central US:* Oklahoma  
*Canada:* Ontario, Quebec
-  **Canadian Section TWS** has posted a WNS support letter on their website <http://joomla.wildlife.org/canada/index.php>. This letter can be used as needed to show support for WNS efforts. A similar letter was also produced by the AB Chapter of the TWS, and is available upon request.
-  BCBAT and ABAT worked together to produce materials for the **CanCaver website** on WNS. The Canadian Caver website has posted these materials:  
<http://www.cancaver.ca/bats/BatsWNS.htm>  
 Alberta Speleological Society also posts WNS materials on their website.  
[http://www.caving.ab.ca/white\\_nose](http://www.caving.ab.ca/white_nose)
-  For **current WNS news:**  
<http://www.fws.gov/WhiteNoseSyndrome/index.html>

Photo: Virginia  
Dept. Cons and Rec



# BCBAT UPDATE

## BC BAT ACTION TEAM MEETS TO TACKLE MINES, WIND AND WNS ISSUES



BCBAT committees had several conference calls over the winter. The **Mines Subcommittee** has begun to work collaboratively with representation from Ministry of Energy, Mines and Petroleum to require that bats be considered in all mine closures/reopening in the province. Because abandoned mines are under the jurisdiction of Ministry of Agriculture and Lands, our next step is to establish a working relationship with this ministry also.

The **Wind Energy Subcommittee** met to discuss details of pre-construction and post-construction guidelines for the province. Some funding was received this spring by Habitat Conservation Trust Fund to produce these guidelines, and it is anticipated that a set of best management practices will be in place within one year. The subcommittee also discussed their reaction to the draft wind energy guidelines produced by Ontario Ministry of Natural Resources. Some comments were submitted to ABAT to include with their official response to MNR. BCBAT shared the same concerns as ABAT regarding Ontario's focus on residential bats instead of migratory bats. Commenting deadline is 28 May 2010.

On **26 May 2010** BCBAT will have their **spring conference call**. On the agenda includes WNS strategies, such as posting educational signs at bat caves in the province where human access is significant.

BCBAT displayed a poster at the **Association of Professional Biologists annual applied biology conference** in Kelowna 5-8 May 2010. Thanks to Lorraine Andrusiak for putting together this poster. It can be viewed at: <http://media.tripod.lycos.com/2061897/891718.jpg>

# ABAT UPDATE

## HIGHLIGHTS OF SPRING CONFERENCE CALL

22 April 2010

### 1. Wind turbines

- a. Post-construction protocol
  - progress occurring this spring
- b. Identifying high risk areas for bats
  - need to be able to link pre and post-construction
  - at some point we won't need to collect pre-construction data, just use zones; need more post-construction data to help confirm migratory routes



- c. Data and permits
  - all bat research, not just handling, requires a permit
  - submission of acoustic data in FWMIS – clear categories will be included in protocol
- d. Ontario guidelines
  - reactive instead of proactive – build windfarms based on habitat assessment only, and mitigate pending intense post-construction monitoring (acoustic monitoring no longer suggested)
  - little attention paid to migratory routes – admit to not knowing much about routes, but not attempting to learn more about them
  - threshold of 10 bats/turbines/year – doesn't take into consideration the number of turbines at a site; cumulative impact could be significant on large windfarms
  - ABAT will submit comments to MNR by 28 May commenting deadline
- e. Monitoring protocol
  - can we determine a minimum percentage of turbines that need to be monitored (as discussed at workshop)? – further consideration needed

## 2. WNS

- Lisa provided update: AB Parks is considering gating Cadomin; Wapiabi on crown land and hope to have it closed (not necessary for physical closure); develop signs for popular and easy-access caves to warn about WNS; message to cavers
- Not sure how reliable wing damage is, perhaps only useful in spring
- Handling protocol – will be modified to allow more flexibility at the discretion of the researcher – needs of bats being handled should be priority

## 3. 10<sup>th</sup> Species of Bat in AB?

- Joanna Coleman's acoustic work suggests another myotis species – *yuma* or *californicus*, with *yuma* the most likely because of physical similarity to *lucifugus*
- Cori and Joanna trying to get funds to capture bats to verify new Alberta bat species (currently short ~\$2000)

## 4. Fall meeting in person?

- General consensus that it is still worth having conference calls twice a year
- Meeting in person may not be as important as in the earlier stages of ABAT when we were doing a lot of brainstorming

# WBWG UPDATE

WBWG hosted a conference call with members of various agencies and interested groups to discuss the captive breeding program that took place this winter for Virginia Big-Eared bats at the Smithsonian Institute. Check out the spring issue of their newsletter on [www.wbwg.org](http://www.wbwg.org) for a feature article on this topic.





# ANNOUNCEMENTS

## WORKSHOPS

### 2010 Anabat Techniques Workshop

For current or new Anabat users. AnalookW instruction, mobile monitoring, passive and active monitoring, species identification, incorporating GPS data, and more. Most workshops run mid-Tuesday to mid-Friday, with evening field components.

*Confirmed Workshops:* Warsaw, Illinois, 27 – 30<sup>th</sup> April + Casper, Wyoming 7 – 10<sup>th</sup> June 2010

*Tentative workshop* scheduled for British Columbia in late summer 2010. Check <http://www.batsrus.ca/training.html> for details.

### NEW! Anabat Analysis Workshop

This workshop focuses on analysis of large acoustic datasets. Anahead, Filters, Labels, Pivot Tables and more. Thorough understanding of basic call identification in AnalookW prerequisite. At least one workshop will be offered in western Canada in Fall 2010. Minor field component. Location and dates TBA: check <http://www.batsrus.ca/training.html> for details.

### 2010 Field-training Workshops for Bat Conservation International

<i>Portal, Arizona</i>	May 28 – June 2 and June 3 – 8.
<i>Tulelake, California</i>	July 30 – August 4 + acoustic monitoring workshop 5 – 10 Aug.
<i>Barree, Pennsylvania</i>	August 27 – Sept. 1

For information or to register visit [www.batcon.org/workshops](http://www.batcon.org/workshops) or contact Rebecca Patterson [workshops@batcon.org](mailto:workshops@batcon.org)

## CONFERENCES

**40<sup>th</sup> North American Symposium on Bat Research 2010.** 27 – 30 Oct. Denver, Colorado.

**41<sup>st</sup> North American Symposium on Bat Research 2011.** Dates TBA. Toronto, ON.

**42<sup>nd</sup> North American Symposium on Bat Research 2012.** Dates TBA. San Juan, Puerto Rico.

**15<sup>th</sup> Annual International Bat Research Conference** 23-27 August 2010 Prague: [link](#).

**17<sup>th</sup> Annual Conference -- The Wildlife Society.** Snowbird, Utah. Oct. 3 – 7, 2010.

**Wind Energy and Bats Workshop. WBWG.** Las Vegas, Nevada. 4-6 April 2010.

**Western Bat Working Group Biennial Conference.** Las Vegas, Nevada. 6-8 April 2010.

**2010 International Congress for Conservation Biology: Conservation for a Changing Planet.**

July 3-7, 2010, Edmonton, Alberta. <http://www.conbio.org/activities/meetings/2010/>



# RECENT LITERATURE

## THESES

Randall, L.A., 2009. The Effect of Forest Disturbance on Bats of the Southwestern Yukon. Biological Sciences. University of Calgary, MSc thesis, Calgary, AB, p. 88.

## IN PRESS

Dunbar, M.B. and R.M. Brigham. Thermoregulatory variation among populations of bats along a latitudinal gradient. J. Comp. Physiol. B. In press.

Jung, T.S., C.L. Lausen, J. M. Talerico, and B.G. Slough. Opportunistic Predation of Little Brown Bats (*Myotis lucifugus*) by a Great Horned Owl (*Bubo virginianus*) in South-Central Yukon. Northwestern Naturalist. In press.

## RECENTLY PUBLISHED

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## Pages from the field book...

### A FOCUS ON ACOUSTICS

#### NEW SM2BAT DETECTOR FROM WILDLIFE ACOUSTICS – TESTIMONIALS FROM USERS

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We have placed as SM2 mic on the 50m cable and mounted it to the top of a water tower overlooking a flood plain of the Big Sioux River in eastern SD. The calls collected were of very good quality and the detector worked precisely as programmed. Very good coverage. A separate comparison test was done side-by-side with



the Pettersson 240X. This should be prefaced by saying that this in no way should be considered a criticism of the Pettersson. In a sense, it is a comparison of apples and oranges but still worthwhile noting. I have my Petterssons set to be less sensitive in order to trip recording of calls where bats are in closer proximity to the unit. (More sensitive settings and the resulting early tripping of the calls coupled with the offline download period often results in poorer quality calls.)

Both detectors were placed side by side approx. 1.5m from the ground on separate tripods. The detectors were facing a river bend corridor which we considered to be a likely bat flyway. As it turned out, the majority of the bat activity was above the adjacent tree canopy and behind where the detectors were facing ("facing" a more appropriate description for the Pettersson rather than the omni-directional mics of the SM2). As we had other Petterssons covering the higher activity area, we elected to leave the detectors as originally placed. The result was 6 bat calls of high quality by the 240X and 112 calls by the SM2. The SM2 unit was run in stereo mode with two mics and both recorded nearly identical calls. While all of the calls were not of the quality of those recorded on the Pettersson, the number of calls gave a better feel for the level of activity. There were only two species identified during the survey (EPTFUS and LASNOC) so distinguishing between similar *Myotis* species was not an issue. Again, the most important points for me were that the SM2 provided full-spectrum calls in numbers representative of the level of bat activity and was more forgiving regarding detector placement with a broader coverage than was provided by the 240X. This, coupled with its ability to be deployed for long periods of unattended monitoring, make it an excellent choice for surveys of bat activity.

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I field tested the SM2BAT this winter, and overall I was impressed with the unit. I did have some data blackouts, but mostly due to my rewiring of the 12V adapter and wiring through a low voltage disconnect that was too low of an amperage setting. A minor firmware glitch was corrected and the company is planning to increase wire diameter and lengths for the 12V adapters in the future, which will alleviate the housing configuration challenges that I was encountering.

Here is my top 10 list for why I like this detector for passive monitoring:

1. The company is *extremely* responsive, quickly updating and tweaking firmware, software and hardware in response to feedback.
2. The unit recorded for months using a solar-charged battery; never once did my SD cards fill. In fact, in most cases I didn't even fill the first 32 GB card. With 4 cards available, the detector will record for a tremendously long time. There are 6 compression settings for the wave files, and I opted to record on a lower compression just because there was so much storage space and not enough bat activity to come anywhere near filling the cards.



3. Worry-free. I used housings as I was concerned about overwhelming the system with heavy rain and snow, and I was concerned about theft; but my housings were not waterproof and didn't need to be because of the inherent waterproofness of the detector and microphones.
4. Sign of life. When the detector is in standby mode, there will be a little green light that flashes to tell you it is still working. I like this better than the Anabat SD1 and SD2 that show no sign of life once they go into standby mode.
5. Flexible programming. The daylight hours vary tremendously over the winter here in B.C. This unit allows you to start programming in relation to sunrise and sunset. I also like that a program can be made on a computer and uploaded via an SD card.
6. Dual microphones. I wanted to know whether bats were going into a mine at dusk, or coming out, so I set one mic 20' from the mine and the other right at the mine's entrance. This 2 in 1 feature will be very useful for monitoring 2 heights at once for wind turbine work also.
7. Omnidirectional mic allowed me to point the mic pretty much straight at the ground in some extreme weather conditions to avoid heavy rain or snowfall on the mic. Placement of the mic pointing at the potential flyway was less of a worry as it seemed to pick up bats from all around.
8. The WAC2WAV software (free download from the Wildlife Acoustics website) allows the recordings to be processed in many different ways; I specify files I want files that are 15 s long so that they record the same length of time as Anabat files. You can also make Anabat (zero crossing) files with the WAC2WAV software, allowing the bat passes to look like they had been recorded by Anabat, and can thus be viewed/analyzed in Analook.
9. WAC2WAV now has a built-in noise scrubber. While I found that SM2BAT generates a larger number of noise files than I am used to recording with Anabat and Pettersson, it is easy to pull bat files from noise files using WAC2WAV. And it does so quite well with an appropriate degree of conservativeness. For example, I scrubbed an SM2BAT dataset containing 15,155 files using Sonobat Scrubber which found 2024 potential bat files; Anabat 'allbats' filter pulled out 434 potential bat files; Wildlife Acoustics WAC2WAV identified 1062 potential bat files. There were actually 94 files that contained bat calls, and all software pulled these out. (I must confess that I only did a random sampling of noise files to check for missed bats rather than going through all 15,155 -- I found no bat files that had been missed.)
10. WAC2WAV has an option to digitally compensate the output to closely match that of the Pettersson mic. Therefore, even though Pettersson and SM2 microphones have different frequency response curves, the output can be compensated to mimic Pettersson for use in Sonobat 3 automated identification software, much the same way that the Binary Acoustics System does.

*An Experimental Comparison with Anabat:*

From 24 March – 1 April I conducted a comparison of SM2BAT vs Anabat with the detectors side by side in weather resistant housings on the shore of a river, facing the river. The Anabat II (with CZCAIM) was set at its highest sensitivity (just short of squelch point). The SM2BAT was set at 15 SNR, with jumper at 48 dB (60 dB is the highest setting). SM2BAT was set with a 1 second trigger, so I downloaded Anabat data with CFCRead TBC 1 s rather than the default of 5.



The noise filter in WAC2WAV was used with a 15 s file setting and a minimum call length of 0.0015s. An allbats.dbf filter was applied to the Anabat data.

SM2BAT Files were viewed in Sonobat, and Anabat files were viewed in Analook.

A caveat to these results: Recall that CFCRead automatically produces files containing more than 1 bat call; triggered events containing only one bat call (pulse) are seen only in ZCA files, not in Anabat files. WAC2WAV produces files for all triggered events, including those containing just one bat call (pulse).

Here are the results:

<i>Detector</i>	Total Files	Total Noise Files	Total 'Potential' Bat Files After Filtering /Scrubbing	Files that Actually Contained at Least One Bat Call
Anabat	1922	135	1787	307
SM2BAT	12,961	12,332	629	608

*Next on my 'test list':* **Song Scope.**

Wildlife Acoustics sells software called Song Scope. This software uses Hidden Markov Models, which is less CPU intensive than other call matching software such as OmniBat, and is more forgiving of variation in vocalization syllables. If you are so inclined to read about this stuff, Wildlife Acoustics explains their system at [this link](#). Wildlife Acoustics thinks this is going to be a great software package for automated ID of bats. Currently they do not offer premade packages for species identification, but the software is set up for you to enter your own set of reference calls; these become the 'recognizer' to which the software compares unknown bat passes for identification.

I have yet to work with this software, but I think it holds a lot of promise because, unlike Sonobat (DFA done on individual calls) and Analook (filters using individual call features) which focus on automatically identifying bats based on individual calls, I am told that you can build a recognizer in Song Scope out of several calls so that the model gets a sense of the timing and variation of the calls – this would mean that call pattern is used in the algorithm, adding a higher level parameter for species identification that currently does not exist with the other systems. I like the flexibility of entering my own reference calls so that I don't have to depend on premade packages of species and calls that might not fully reflect the diversity or foraging scenario of my area. Hopefully I'll have something to report about this software in the fall issue.





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WHAT'S NEW OR ON THE 'ACOUSTICS' HORIZON?

**Wildlife Acoustics.** Some biologists have expressed the desire to have better recording sensitivity above 50 kHz than what the SM2BAT currently provides. As such, Wildlife Acoustics is working on a 384kHz unit that samples at twice the rate of their current 192kHz unit. Paired up with this 384 unit will be a new 'electrostatic' (Polaroid) mic with a higher frequency response. With the 384 unit you will lose the ability to record to 2 channels at one time like you can with the 192kHz SM2BAT; it will, however, allow for an impressive range of higher frequencies to be recorded. I am told this new unit could be available within a month.

**Anabat.** Titley Electronics recently released their new SD2 units. Many of you will be very excited to learn that they now provide a USB option for plugging into computers, rather than just the 9 pin. Unfortunately this aspect of the new unit is not yet functional. There have been a few minor changes in the way it looks (smaller and taller volume knob and the Cal Tone button now says Save). Unfortunately, the microphones do appear to be less sensitive than the older ones (a lower 'squelch point'), and this is due to the new manufacturer and I am told that the problem is being rectified. All in all, SD2 is not tremendously different from the SD1 (which is no longer available), except for the cost. Titley is now charging US dollars instead of Australian dollars, so units bought in North America are more expensive. Their 'introductory rate' for these detectors is \$2200 USD, and they have not responded to my emails regarding what their standard rate for these detectors will be as of June.

Titley plans to release a new *BatChirper* as early as the fall. This device is for calibrating detectors. Their current Chirper is not as useful as this new one will be. You will need to make your own 'jig' in which to place your detector and chirper to ensure the angle and distance is always constant. Eventually the company plans to have a premade jig that can be purchased with the chirper.

**Want to contribute to this "Field Notes" section of the newsletter?** Please send to the editor your personal notes about field equipment, lessons learned, techniques, new technology, interesting field observations, etc.

## 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://www.srd.alberta.ca/ManagingPrograms/FishWildlifeManagement/AlbertaBatActionTeam/Default.aspx>

Currently ASRD is behind in the posting of these newsletters, so if you require any recent issues, please contact [corilausen@birchdalebc.ca](mailto:corilausen@birchdalebc.ca) directly.



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