

A vertical wooden utility pole stands in a snowy forest. The pole is equipped with a small solar panel mounted on a wooden bracket near the top. Below the solar panel, there is a white light fixture and a white cylindrical component. A blue band is wrapped around the pole near the bottom. The background consists of snow-covered evergreen trees.

Western Canadian Bat Network
NEWSLETTER

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Western Canada Bat Network Newsletter

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Front cover photograph by Cori Lausen, Birchdale Ecological Ltd.

UPDATES BY REGION

Alberta

University of Calgary, Bat Lab Update



Robert Barclay

Robert Barclay will be heading to South Africa in July for a year-long sabbatical. He will be working with David Jacobs at the University of Cape Town on a couple of projects involving Egyptian fruit bats, including one on thermoregulation. Mark Brigham (University of Regina) is currently in Cape Town (or in the Winelands!) and will start the project. Robert also has a planned trip to Zambia to see the fruit bat migration and do a small genetics project with Erin Baerwald in November.

Jesika Reimer started her MSc with Robert in September and will be heading to Fort Smith, Northwest Territories to continue work on little brown bats in the North. Her research will focus on little brown bat populations around the South Slave Region (NWT) and Wood Buffalo National Park (AB).

Congratulations to Brandon Klug for successfully defending his M.Sc. thesis titled: Thermoregulation and roost selection by the solitary, tree-roosting hoary bat (*Lasiurus cinereus*).



Brandon Klug

Alberta Bat Hibernaculum Survey for Winter 2010/11

Dave Hobson

Fish and Wildlife Division

This winter, Alberta Fish and Wildlife Division, along with Cori Lausen, Alberta Provincial Parks, Parks Canada and the Alberta Speleological Society, attempted to survey three bat hibernacula as part of an ongoing population monitoring program along with monitoring for signs of WNS. The hibernacula we surveyed or attempted to survey were the Walk in Cave in Wood Buffalo National Park, Cadomin Cave in Whitehorse Creek Wildland Provincial Park and Procrastination Pot in Jasper National Park. Last winter we surveyed Wapiabi Cave, another bat hibernaculum, and found no sign of WNS.

The Walk In Cave in Wood Buffalo National Park was surveyed by Cori Lausen, Dave Hobson and Parks Canada staff Mike Vassel and Sharon Irwin. This cave does not appear to support a very large hibernating bat population due to its size but a few dozen little brown bats were counted along with a few carcasses of big brown bats. The carcasses were collected but there were no obvious sign of WNS. This was the first time the cave has been surveyed since the 1970s.

The Cadomin Cave hibernating bat population has been surveyed on a regular basis since 1985. The population has ranged from 380 to 806. Human winter visitations have been restricted since the cave was included within a provincial park in 1998 and has since seen an increasing population. In 2009, a banded little brown bat was found to be >34 years old having been banded as an adult in 1975. An attempt was made in February 2011 to survey the cave along with staff from Alberta Provincial Parks and the Alberta Speleological Society, however high avalanche danger in the area prevented the survey from being completed.

Procrastination Pot, a bat hibernaculum in Jasper National Park was surveyed in February 2011 by Greg Horne, Dave Critchley and Dave Hobson. This cave was last surveyed in April of 1994. The survey was hampered by insufficient lights with >266 bats observed. A more complete survey was conducted this winter and 700 bats were observed. There was no sign of WNS.

During the winter of 2011/12, we will be attempting to survey Cadomin Cave again and, possibly, Wapiabi Cave.

British Columbia

Large-scale Winter Monitoring to Begin Across Southern B.C.

Cori Lausen, Birchdale Ecological Ltd., Kaslo, B.C.

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As part of my upcoming NSERC Industrial Postdoc with Wildlife Conservation Society Canada, I will be looking at hibernation behaviour and locating hibernacula in B.C. Work will begin this fall. Project funding from Fish and Wildlife Compensation Program will facilitate mistnetting, radiotracking and intensive acoustic monitoring in the Kootenay region. Habitat Conservation Trust Fund will fund the bulk of the monitoring in the other parts of the province: the Okanagan, Boundary, Coastal and Vancouver Island regions. Acoustic monitoring will take place in these regions, with the long term goal of locating hotspots of activity and potential hibernacula for more intense capture and radiotracking efforts in subsequent years. This will be a large scale collaborative effort with BC Ministry of Forests, Lands and Natural Resource Operations and several independent bat biologists across the province.



Hibernating Townsend's Big-Eared bat in mine near Nelson, B.C. This mine has been an active geocache site with documentation of mid-winter visitations.

Mitch Firman

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As part of ongoing work in the East Kootenays with the Fish and Wildlife Compensation Program, I will be updating the infra-red camera setup at the St. Eugene Mission Townsend's big-eared bat maternity colony. I will also be checking temperature loggers to see how additional insulation has reduced peak temperatures in the roost. There might also be some repairs on other maternity roost buildings in the valley.

Partnering with a resource company, I won funding to inventory caves and mines this year in the Thompson, Shuswap, Boundary and Kootenay regions to determine their value as winter hibernacula for resident threatened or endangered bat species. Based on habitat value and the level of threat from human interference, selected mine shafts will be gated to prevent human entry. Mike Sarell and Thomas Hill will be helping me with the work. I can give more details about the project after the funding agency makes their official announcement.

Some planned and potential work again with Golder Associates this year. Yet another all expenses paid vacation to the Boreal Forest: more netting and detector work for environmental assessments and monitoring of oil sands projects. If I had to guess, I would say it is my ninth year in row to this destination hotspot. All kidding aside, it is nice to catch hoary and red bats on a regular basis. There is also potential for some acoustic, netting and radar work for wind farm projects on BC coast and interior.

Out of my own interest, I'll be doing some netting and detector work in the Victoria area this summer. It will be interesting to see how the region's bats are surviving in this urban landscape. I've also been assisting the Nature Trust of British Columbia with Townsend big-eared bat colonies on their Vancouver Island properties.

I must apologize for not contributing more often to the newsletter but a new baby and old house have taken up more of my time than expected.



Townsend's big-eared bat hibernacula – East Kootenays

Does the Western Red Bat (*Lasiurus blossevillii*) Really Occur in BC?

David Nagorsen, Mammalia Biological Consulting



Kamal Khidas, Canadian Museum of Nature

The occurrence of the Western Red Bat (*Lasiurus blossevillii*) in Canada is based on a single historical museum specimen that was taken in the Skagit Valley of BC on 6 July 1905 and housed in the collections of the Canadian Museum of Nature in Ottawa. The specimen was originally identified and labelled as *Lasiurus borealis teliotis*, the western subspecies of the Eastern Red Bat. Until the late 1980s, all North American red bats were considered to be a single species- *L. borealis*. But, recent genetic studies have shown that the eastern and western North American populations are distinct species with the western form (formerly *L. borealis teliotis*) now classified as *L. blossevillii*. Based on the subspecies name on its tag, the Skagit specimen was presumed to be *L. blossevillii* by Nagorsen and Brigham in their Bats of British Columbia 1993 handbook and the basis for this species' listing by the BC Conservation Data Centre. Nevertheless, there have been nagging questions about the species identity of the Skagit red bat record. Moreover, its location is hundreds of kilometres beyond the known range of either *L. blossevillii* or *L. borealis*.

In 2010, with permission from the Canadian Museum of Nature and funding from the BC Ministry of Environment, a piece of wing tissue was taken from the Skagit study skin and submitted to Wildlife Genetics International in Nelson, BC for DNA sequencing. Remarkably, the lab was able to extract useable DNA from this 100 year old specimen and positively identify it as *L. borealis*-the Eastern Red Bat. With this new identification of the Skagit specimen, *L. blossevillii* will be removed from the provincial species list as there is no evidence for its presence in western Canada. The Skagit Valley record and the recent records from northeast BC (see WCBN newsletter 17) raise some interesting questions about the likely range of *L. borealis* in the province. A paper summarizing these recent red bat findings is now in preparation.

Saskatchewan

University of Regina, Bat Lab Update

The lab has been quiet without Mark around while he is on sabbatical in South Africa and the number of 'bird' students currently equals those studying bats! Jody Rintoul, a first year Masters student, is preparing for her field season in the Cypress Hills. Flooding last year made for a late start (July 12) and it is hoped that the snow this winter will not hamper access to the field station. She is planning on working with the big browns there and will be collecting data on torpor use and foraging behaviour of females depending on reproductive stage.

Joe Poissant, in the second year of his PhD, will be continuing to collect tissue samples from big browns across the Great Plains. He will be looking for colonies in Kansas and South Dakota – in that vein, if anyone knows of colonies in these states please contact him! He will also be collecting fur to determine if stable isotope analysis is realistic for predicting latitude with respect to short distance migrants. Further acoustic data will also be collected to determine bat distribution within the province of Saskatchewan. Very little data exists regarding *Myotis* distribution in the northern 2/3rds of the province, although limited data suggests these species are more widespread than previously known.

Several small projects involving overall bat activity and guano composition of little browns will also be done in the Cypress Hills. It will be interesting to see if the flooding within the park last summer affected the abundance of bat species on the Battle Creek.

Did you know...

that you can view presentations about bats given as part of the Royal Tyrrell Speaker Series. Visit <http://www.youtube.com/user/RoyalTyrrellMuseum> or go to the Museum's website, click on 'Speaker Series' then navigate to the Museum's YouTube site.

Royal Tyrrell Museum Speaker Series 2011

14 March 2011: Kevin Seymour, Royal Ontario Museum,
Evolution of Flight and Echolocation in Bats

18 February: Dr. Robert Barclay, University of Calgary,
Bats in the Prairies: Past, Present, and Future

WHITE NOSE SYNDROME

On a wing and a prayer: White-nose marches on....

Margo Pybus

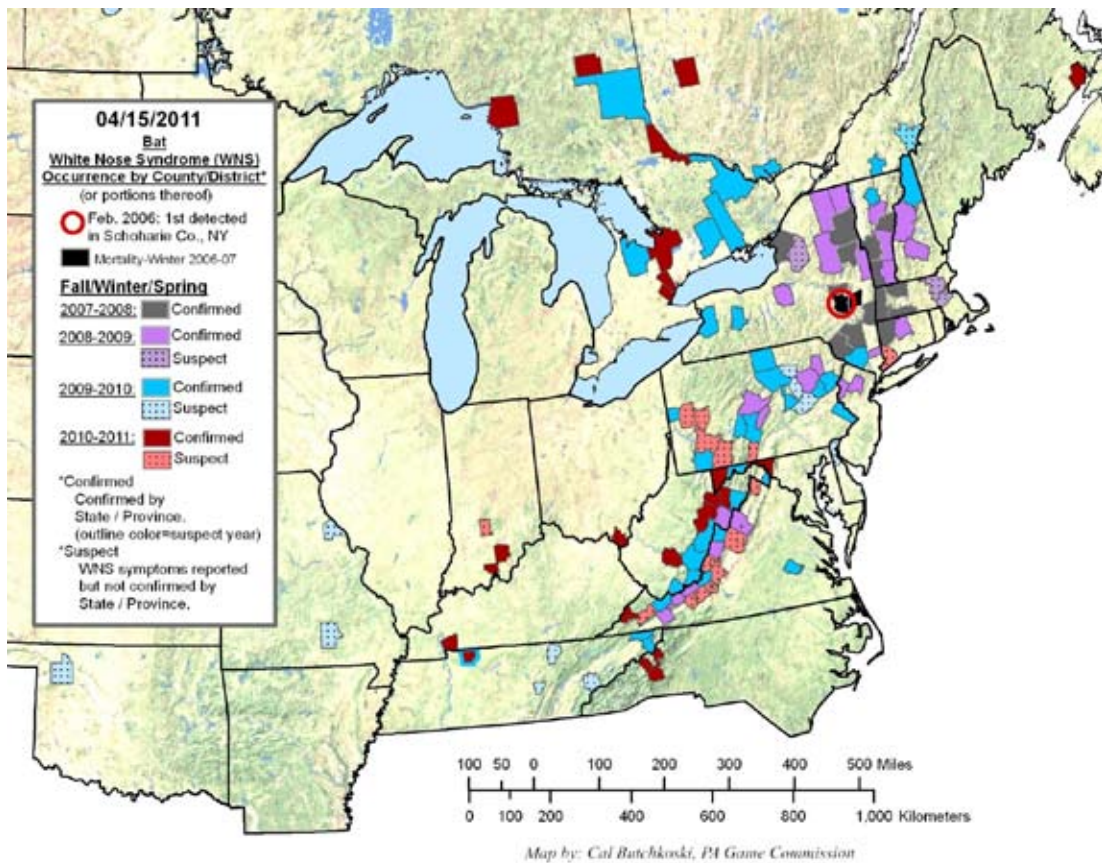
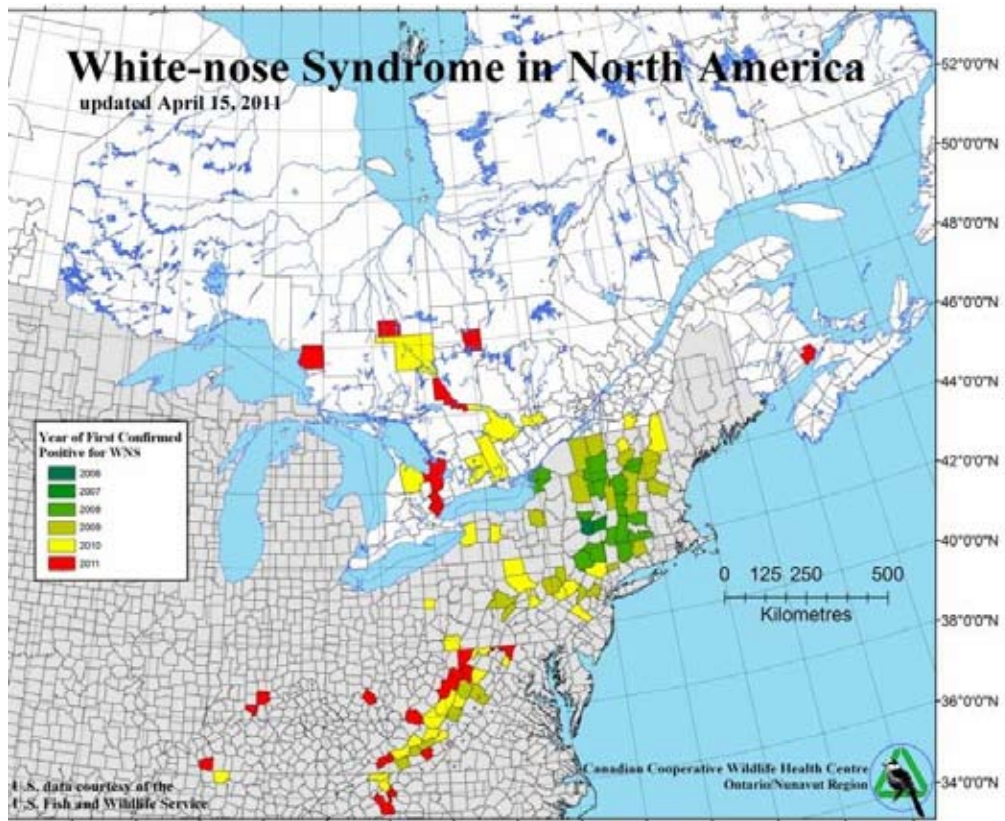
Alberta Fish and Wildlife, Edmonton

The picture just keeps getting worse. Results from winter bat survey activities contained more bad news in eastern Canada and the US. In Canada, the number of affected provinces increased to four as New Brunswick and Nova Scotia each confirmed WNS in hibernating bats this winter, with extensive mortality in some situations. Ontario and Quebec each reported expansion of the known distribution of WNS within their provincial boundaries. Although it remains to be seen how far north WNS will go, things do not bode well for local populations throughout southeastern Canada.

In the US, new state reporting confirmed cases of WNS include Indiana, Ohio, Kentucky, and North Carolina, with continued expansion to new hibernacula within states in the core areas of earlier WNS detection.

On a somewhat positive note, many states and provinces have developed WNS action plans primarily focused on increased surveillance and public communication, and both Canada and the US are wrestling with national coordination efforts and strategies. Cave and/or mine closures have been enacted in some jurisdictions. A limited working group of researchers and managers will meet in May 2011 with the goal of 'advancing WNS research and management through communication, facilitated discussion, and collaboration'. Information gained will be shared through the ongoing WNS networks. Check the primary WNS web pages www.fws.gov/WhiteNoseSyndrome for future updates or summaries.

Also of benefit to bats and wildlife managers, the ongoing contribution of ecological services provided by bats has been addressed in two publications: 1) Bats worth billions to agriculture: pest-control services at risk as populations decline. 2) Study highlights importance of bats to ecosystem, agriculture. Links to these and other helpful materials are available on the USFWS web pages.



Maps can also be viewed on www.fws.gov/WhiteNoseSyndrome

WBWG

2011 Biennial Meeting, Las Vegas Nevada
Bob Berry Memorial Awards

Canadians Come Out on Top!

Every two years, the Western Bat Working Group hosts a conference, and awards are given in memory of Bob Berry a dedicated WBWG member and active bat biologist from California. Bob's widow, bat biologist Pat Brown presented the awards at this year's conference in Las Vegas on 5 April. Applications are accepted from across western US and Canada; awards are granted based on need, scientifically sound research, and long term benefits to bat conservation. The 4 award categories with their winners this year are:

Titley Scientific – one SD2 Anabat detector and a free seat in a Techniques Training Course.
Winner: Marc-Andre Beaucher, Creston Valley Wildlife Management Area, B.C.

Sonobat – one full suite version of Sonobat software and \$1000 cash to go towards purchase of a bat detector.
Winner: Purnima Govindarajulu, B.C. Ministry of Forests, Lands & Natural Resource Operations.

Holohil – Six radiotransmitters and \$1000 cash to go towards purchase of a receiver.
Winner: Greg Falxa, Cascadia Research, Washington.

Binary Acoustic Technology – one bat detector system (AR125 + FR125), plus a copy of SCAN'R analysis software.
Winner: Barb Johnston, Waterton Lakes National Park, Alberta.



Kim Livengood and Pat Brown. Kim is showing the certificate from Titley that provided a new Anabat and a seat in a training workshop . Marc Andre-Beaucher of Creston Valley Wildlife Management Area was not there to accept award.



Pat Brown at podium to give out Bob Berry awards and she spoke briefly in memory of Bob.



Barclayites soak up a bit of Vegas at the WBWG wind energy workshop

(People: Lisa Wilkinson, Cori Lausen, Jeff Gruver, Erin Baerwald, and Donald Solick).

Results of WBWG elections:

President

Angie McIntire

Secretary

Rob Schorr

At-large Representatives

Amie Shovlain

Vice President

Dave Johnston

Treasurer

Brad Phillips

Donald Solick

Upcoming Workshops

Upcoming Canadian Bat Acoustics Training Courses:

Acoustics Techniques:

Creston, BC, May 30, 10:00 am – June 2, 1:00 pm (canoe trip to follow).

Creston Valley Wildlife Management Area. Lunch each day included. Nestled between the Selkirk and Purcell Mountain ranges, this world-renowned wetland is foraging grounds for 11 bat species. Two hour canoe trip included. <http://www.crestonwildlife.ca/> Registration \$998 USD. This training focuses on use of Anabat, however, SM2Bat will be addressed upon request.

Acoustics Analysis:

Edmonton, AB, 27 Sept. 9:00 am – 29 Sept. 2011 2:30 pm at Providence Renewal Centre.

Zero-crossing analysis using AnlookW (Anabat and SM2Bat bat detectors produce zero-crossing files for use with this software). Filters, autoID, data management. Especially useful for biologists dealing with large amounts of acoustic data. Some experience with Anlook (Windows or DOS) prior to this course is recommended but not essential. Registration \$1200 USD, includes three nights accommodation and all meals (registration only \$985). Some single rooms available on a first registered basis.

Discounts Available: Register for both courses and save \$190 off your registration for the Edmonton Analysis Course. Please direct inquiries to info@batsrus.ca or visit <http://www.batsrus.ca/training.html>. Agency, student and group discounts – please inquire.

Upcoming US Bat Acoustics Training Courses:

Acoustics Techniques:

Boise, Idaho. 21 – 24 June 2011.

Brazil, Indiana. 27 -- 30 June 2011.

Inquire about prices and registration: Kim (kim.livengood@gmail.com)

Conferences

- 41st North American Symposium on Bat Research 2011. 26-29 October 2011. Toronto, Ontario.
- The Wildlife Society Annual Conference. 5-10 November 2011. Waikoloa, Hawaii (<http://www.wildlifesociety.org/>). Includes a Wind Energy and Wildlife symposium.
- 42nd North American Symposium on Bat Research 2012. Dates TBA. San Juan, Puerto Rico.
- 43rd NASBR and 15th International Bat Research Conference, Costa Rica, dates and city TBA.

Recent Literature

Theses

Klug, B.J. 2011. Thermoregulation and roost selection by the solitary, tree-roosting hoary bat (*Lasiurus cinereus*). Biological Sciences. University of Calgary, M.Sc. thesis, Calgary, AB, pp. 96

Recently Published

Dunbar, M.B., and R.M. Brigham. 2010. Thermoregulatory variation among populations of bats along a latitudinal gradient. *J. Comp. Physiol. B.* 180:885-893.

Gillam, E.H., T.J. O'Shea, and R.M. Brigham. Non-random patterns of roost emergence in big brown bats, *Eptesicus fuscus*. *J. Mammal: in press*.

Jung, T.S., and B.G. Slough. 2011. Body condition of a free-ranging little brown bat (*Myotis lucifugus*) with a broken humerus. *American Midland Naturalist* 166: 234-238.

Jung, T.S., C.L. Lausen, J.M. Talerico, and B.G. Slough. 2011. Opportunistic predation of a little brown bat (*Myotis lucifugus*) by a great horned owl (*Bubo virginianus*) in southcentral Yukon. *Northwestern Naturalist* 92(1): 69-72.

Klug, B.J., A.S. Turmelle, J.A. Ellison, E.F. Baerwald, and R.M.R. Barclay. 2011. Rabies prevalence in migratory tree bats in Alberta and the influence of roosting ecology and sampling method on reported prevalence of rabies in bats. *Journal of Wildlife Disease* 47(1): 64-67.

Randall, L.A., R.M.R. Barclay, M.L. Reid, and T.S. Jung. 2011. Recent infestation of forest stands by spruce beetles does not predict habitat use by little brown bats (*Myotis lucifugus*) in southwestern Yukon, Canada. *Forest Ecology and Management* 261: 1950-1956.

Field Notes

Cori Lausen, Birchdale Ecological,
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An Overview of Bat Detectors and Acoustic Analysis

ABSTRACT from WBWG conference for acoustics talk:

There are many bat detectors on the market these days and if you are new to the field of bat acoustics, it is hard to know which ones do what. I present an overview of the detectors and software packages most used in North America. There are basically 2 types of bat detectors suitable for monitoring passively at wind development areas: full spectrum and zero-crossing. The former method digitizes the ultrasound by sampling at high rates (>190 kHz), retaining all aspects of the sound including multiple harmonics and amplitude. Popular full spectrum detectors currently being used in North America include Pettersson D500x (Pettersson Elektronik), AR125 with FR125/iFR4 (Binary Acoustic Technology), and SM2Bat (Wildlife Acoustics); subsequent visualization and analysis of this digitized sound can be done in software such as Sonobat (Joe Szewczak), Scan'r (Binary Acoustic Technology), BatSoundPro (Pettersson Elektronik), Songscope (Wildlife Acoustics), etc. The three above-listed bat detectors record in real-time; in the not too distant past, full spectrum recordings employed time expansion, a way of slowing down the sound to hear or record, causing periods of 'deafness' during the recording down-time. Technological advancements now allow for real time direct digital recordings, although time expansion units are still available (e.g. Pettersson D240x, D1000x). The main disadvantage of recording full spectrum is that sound files are very large (1-2 megabytes per bat pass). Most full spectrum detectors provide an option for compressing the wave files during recording, but when uncompressed during downloading, memory demand remains high.

Zero-crossing bat detection, specifically the Anabat detector (Titley Electronics), works by counting each time a sound wave passes the zero point (imaginary line drawn through the middle of a sound wave); at a preset number of crossings (called Division Ratio, often 8 or 16), a time measurement is made (allowing frequency to be recorded). This provides a time-frequency output of the ultrasound, recording only one frequency, the most intense one. As such, only one harmonic is displayed at any one time, and no amplitude data are retained. The main advantage of this system over full spectrum is that file sizes are significantly smaller (2-5 kilobytes per bat pass), requiring small memory cards in detectors, short download time in the field, and storage of files does not generally require back-up hard-drives; additionally, zero-crossing detectors use less energy during operation than full spectrum units. However, the primary reason to use full spectrum over zero-crossing in some situations is that full spectrum may allow for better species differentiation given that all properties of the original sound are recorded. Unfortunately, there are currently no published studies comparing these two types of detectors' abilities to resolve species, and until this happens, it is difficult to conclude how much detail about of the original ultrasound needs to be recorded to sufficiently meet various monitoring goals.

As passive monitoring of wind development areas continues to generate extremely large datasets of files, automated identification of files (noise vs. bat and file labels indicating bat species or species groups) is being sought.

Field Notes

Bat Detectors and Acoustic Analysis Continued...

Two popular software packages currently offer auto-ID options: Analoow (for zero-crossing data) and Sonobat (for full spectrum data). Only one bat detector, the SM2Bat, produces files that can be analyzed in either software package. Auto-ID is in its infancy and does not come without a set of inherent problems: bats use ultrasound as a functional tool to navigate and find insect prey, and as such, similar sized bats in similar environmental situations (degree of clutter) can produce similar echolocation calls, making differentiation difficult. However, used cautiously, auto-ID software can provide bat biologists with substantial time-savings by not having to view each file. Sonobat uses discriminant function analysis (DFA) and other hierarchical decisions to arrive at labels for files, while Analoow uses filters that match pulses in files to a set of criteria that describe the shape and frequency of bat pulses. Other auto-ID software packages are on the horizon (e.g. BCID [Bat Call Identification Inc.], SongScope [Wildlife Acoustics]).

Note: This .ppt presentation will be posted on the WBWG and Bats R Us websites in the near future.



Pettersson D500x



Wildlife Acoustics
SM2BAT



Binary Acoustic
Technology,
AR125
(+FR125 or iFR4))



Titley Scientific
Anabat SD2

Triple High Net Tips

Using Bat Conservation and Management triple high nets? I find that using elastic bands at one end of my nets to attach them to the carabineers does two things:

1. Allows nets that are slightly longer or shorter in length to be used together.
2. Provide enough elasticity that if you a lot of tension on some trammels, the trammel does not break.

Very durable elastic bands of uniform length are sold through Avinet in packs of 10. You need 15 for one end of a triple high net set. I leave the elastics in place on the carabineers when I pack up my poles, so they are in place and easily looped through each trammel string the next time I erect the nets.

Another thing that I tend to do is use black thread to tie the bottom of the top net to the top of the middle net, and tie the bottom of the middle net to the top of the bottom net. I tie them in 4-6 spots which effectively makes this net set a solid wall of net with no gaps between the nets. During take down this thread easily breaks, as it is much stronger than the trammel, so giving a good tug will pull the nets apart.



New Equipment Announcement

At the WBWG conference, Mark Jensen, Binary Acoustic Technology, announced a new product line: iFR Generation4. This new integrated Field Recorder has an internal battery and uses SD card data storage (with optional attachment of additional USB storage). Additionally, iFR-Ext is on the horizon and this unit will get rid of the need for the digitizer in the AR125, incorporating it into the FR. This new integrated Generation 4 line will have substantial (up to 1/8th) the power consumption of the current AR/FR-125 system. It is best to email Mark Jensen about this new system if you are interested as it currently is not listed on his Binary Acoustic Technology website.

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/BioDiversityStewardship/AlbertaBatActionTeam/ABATProgramsPublications.aspx>



WCBN Newsletter Submissions

Please submit all newsletter submissions to
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Submissions can be made at any time.

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