

A photograph of a bat in flight, captured at night. The bat is positioned in the upper left quadrant of the frame, its wings spread wide. It is illuminated from the side, highlighting the texture of its wings and the shape of its body. The background is a dense forest of trees and foliage, mostly in deep shadow, with some leaves catching the light. The overall scene is dark and atmospheric.

Western Canadian Bat Network
NEWSLETTER

Issue No. 21
Autumn 2012

Western Canada Bat Network Newsletter

Autumn 2012

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Front cover photograph by Aimee Hart.

UPDATES BY REGION

Alberta

Baseline Bat Work in Northern Alberta Continues

Matrix Solutions Inc, Calgary Alberta

Delanie Player, Kirsten Pinney, Lynsey Spry, Katerina Makos, Patti Swan and Cori Lausen

It was another busy field season conducting bat surveys in northern Alberta. We surveyed bats near Fort McMurray, Conklin, Wabasca and Peace River. We spent just under five weeks working on five different baseline surveys for Environmental Impact Assessments.

Standard mist netting and acoustic surveys were conducted at all five Project locations. In total we set nets up at 26 sites and collected data from 150 acoustic detectors throughout northern Alberta.

In total we captured 95 individual bats belonging to six different species while netting:

- *Eptesicus fuscus* (big brown bat) (1),
- *Lasiurus borealis* (eastern red bat) (4),
- *Lasiurus noctivagans* (silver-haired bat)(25),
- *Lasiurus cinereus* (hoary bat) (3),
- *Myotis lucifugus* (little brown bat)(30) and
- *Myotis septentrionalis* (northern bat) (32).

We detected all the same species of bats with the acoustic detectors. Little brown, northern and silver-haired bats were detected at each of our study areas and at the majority of our detector locations. Hoary, red and big brown bats were not captured/detected as often.

In addition to our standard survey methods, Matrix has been swabbing each individual bat captured to collect DNA for species verification and to detect white nose fungus (*Geomyces destructans*). In certain cases, one swab and one wing punch are taken to compare the accuracy in determining species identification using the two methods. The hope is that in the future, we will only need to collect swabs from each individual and can have the same data with less invasive methods.

To detect the presence of *G. destructans*, bat wings were swabbed with duplicate sterile dry cotton-tipped applicators. After swabbing, the applicators were shipped to the lab in individual sterile cases. Fungal DNA was extracted from the applicator tip, and probed for two different DNA regions specific to *G. destructans*. These regions were amplified by PCR (Chaturvedi et al. 2011; Lorch et al. 2010). To confirm that DNA was isolated from the swabs, a positive control PCR was performed that detected all fungi. Fungi was detected on all swab samples indicating that swabs had been collected in an appropriate manner.

Along with testing for *G. destructans* from DNA, one set of swabs were used for plating on agar medium. Sabourad-Dextrose agar plates, supplemented with chloramphenicol and gentamycin antibiotics to suppress bacterial growth, were used for culture. Plates were streaked with the dry swabs then incubated at 4°C in the dark for 30 days. Plates were examined for fungal growth at 20 and 30 days. Where fungal colonies developed on the plates, samples of each colony were examined microscopically in water mounts, using a Zeiss Axiocam 200 or 400X brightfield. Fungi were identified based on conidial morphology.

To date (not all swabs have been analyzed), the following has been detected:

1. *G. pannorum*
2. *Penicillium/Aspergillus* sp.
3. One sample of the order Mucorales

Our identification of *G. pannorum* corroborates the results found by Vanderwolf, et al, that *Geomyces* species, which are not the pathogenic *Geomyces destructans*, are found on the external surface of bats.

An Update from Singapore...

In October, Joanna Coleman, who did her Ph.D. in Robert Barclay's lab, moved to Singapore, where bats are plentiful year round. Joanna has taken a Lecturer position at the National University of Singapore, where she is teaching in its new Bachelor of Environmental Studies programme. Recently, she had the opportunity to join local researchers for a night of bat trapping. As if spending the night in a rainforest, with all the amazing sounds, sights (especially centipedes and millions of termites making their way up a huge tree) and smells (civet cats smell kind of like skunks) wasn't enough, Joanna was thrilled to get her first look at a horseshoe bat. "We captured a female Blyth's horseshoe bat (*Rhinolophus lepidus*) in a harp trap on a forest trail, and I can't say I didn't get extremely excited. I've been wanting to see these guys in real life for a very long time. She was a fairly small bat, slightly smaller than a *Myotis lucifugus*, a beautiful rich, red-brown in colour, with a face taken up nearly entirely by her nose. For me, the strangest thing was to hold a bat that kept its mouth closed most of the time (except when she was biting me – with some of the sharpest teeth I've seen), even though she was clearly echolocating. I was also quite surprised that instead of turning her head toward incoming sounds and echoes, she would rotate her huge ears individually, like little satellite dishes!" Joanna is really looking forward to going out again soon and seeing more of the 18 species of bats known to live in Singapore. She is especially hoping to see *Megaderma spasma*, the lesser false vampire bat, which, unlike Blyth's horseshoe bat, is rare.



British Columbia

South Coast Bat Action Team Update

Erin Rutherford

The South Coast Bat Action Team has had a great summer working to improve stewardship for bats in south coastal BC. Through providing bat conservation education in partnership with the BC Wildlife Federation Wetland Institute we were able to inform groups active in habitat restoration on bat habitat conservation and model protocols for White-nose Syndrome spread prevention. The SCBAT project also partnered with several land managers to install and monitor bat houses on their property, with Vancouver city golf courses, the Richmond Quilchena golf course and the Stave Lake Zajac Ranch instituting pesticide-free integrated pest management plans incorporating bat habitat enhancement.

Building on our monitoring work from the first year of our project the SCBAT project conducted Anabat monitoring and mist-net surveys across the south coast. The most species-rich area we surveyed was the Sunshine Coast Botanical Garden site in Sechelt BC, where we mist-netted long eared bats (*Myotis keenii/evotis*) as well as a Townsend's Big-eared Bat (*Corynorhinus townsendii*). Working in partnership with the Whistler Biodiversity Project we were able to assist Cori Lausen, Leigh Anne Isaac, Ruth Joy and Bob Brett in their work to conduct acoustic and mist-net trapping surveys in the Whistler area, as well as radio-telemetry tracking on Little Brown (*Myotis lucifugus*) and Keen's (*Myotis keenii*) bats. Continuing along the Sea-to-Sky corridor we partnered with the Squamish River Watershed Society and the North Shore Wetland Partners to monitor bats on several riparian restoration sites, extending our monitoring sites across the North Shore into the Metro Lower Seymour Conservation Reserve and Mount Seymour Provincial Park. Together with Metro Parks, A Rocha



South Coast Bat Action Team Update contined...

and the Ministry of Forests, Lands and Natural Resource Operations we were also able to survey sites across the Lower Mainland and Fraser Valley, including Wildlife Management Areas, regional parks and private lands. We are pleased to be able to sponsor student researchers from the University of the Fraser Valley and the British Columbia Institute of Technology conducting acoustic monitoring and winter bat research. Working in conjunction with the Stanley Park Ecology Society, the BCIT student team will focus on winter habitat of Little Brown Bats. Moving into our third year we are also excited to provide bat boxes to the community for our bat habitat enhancement program, for more information please contact erutherford@scbat.org.



Saskatchewan

Brandon Klug
University of Regina

After travelling the world, conducting research across the globe from Alberta to Zambia, and a brief stint as a wildlife biologist in the consulting world, I decided that I'm not quite done in academia. I started a PhD at the University of Regina this September. I'm looking forward to working with Mark and Cori Lausen on a project investigating the ecology of bats overwintering in the Canadian prairies. I have a lot planned for this project, from behaviour to physiology. Much of what we know comes from studying cavernicolous species that hibernate in environments with relatively stable temperature, high humidity, and space for activity and numerous individuals. Things in the prairies are much, much different. Preliminary work done by Cori suggests bats in the prairies hibernate in small rock crevices, which are likely drier, smaller, and less thermally-stable. I'll be working in Dinosaur Provincial Park (DPP), capturing, tagging, and following bats throughout the winter. My research will focus on identifying and characterizing roosts used by bats in DPP during the winter, monitoring body-temperature patterns and arousal frequencies to model energy use, and investigating reasons for mid-winter, subzero flight by bats in this area.



Big brown bat in the NWT
Photo by: Jesika Reimer

Centralized PIT tag database needed

Joe Poissant, University of Regina



Photo by: Joe Poissant

The movement of animals at continental scales has intrigued researchers for centuries, but in the last century this research has increased dramatically. Tens of millions of birds have been banded and tracked across continents and around the world, but as many scientists know, recapturing banded birds can prove difficult (the birds themselves are elusive). Luckily, many members of the public routinely provide records of banded waterfowl that are shot during the fall migration, but a similar organized network does not exist at a large scale for bats.

In the last decade, research into the effects of wind turbines has resulted in the collection of thousands of dead bats. Although it is valuable to understand how bats are being killed at turbines, the problem is that many of the bats are being collected by third parties, identified and put in a freezer or disposed of completely. While forearm bands are easily seen, and research notes and emails exist reflecting the discovery of

While forearm bands are easily seen, and research notes and emails exist reflecting the discovery of these banded individuals, I am not aware of a protocol for examining carcasses for PIT tags. While it is true that many of the dead bats are decomposed, there is still a chance that some individuals may have retained a PIT tag following death.

Unfortunately, a two-fold problem exists. One, few people collecting bats at turbines have the equipment needed for scanning for PIT tags and second, there is no central database for PIT codes. To further complicate the issue, there are multiple manufacturers of PIT tags and not all readers may scan for all types of transponders.

I propose that at the very minimum, bats that are or have been collected at turbine sites be checked for PIT tags. Second, a database or website documenting the deployment of PIT tags is created to link researchers using PIT tags. Third, if a bat is found with a PIT tag, it should be removed and sent to a central place for scanning and providing the PIT tagger with the relevant information. These data are particularly relevant in the plains where multiple researchers (both the Brigham and Willis labs in Canada) PIT tag animals that likely migrate to the southern US, including hoary, red and silver haired bats. By connecting researchers in different areas, we could potentially link summer and winter sites and migratory corridors. For example, I PIT tagged almost two dozen silver haired, half a dozen red and twenty hoary bats in the 2012 summer alone.

This is a much needed and easy to implement service and if anyone is interested in discussing the creation of a centralized database please contact me at ayresx@gmail.com. I would be willing to collate PIT data and also to receive PIT tags, scan them and provide the data to the relevant parties.

Northwest Territories

Jesika Reimer
University of Calgary

Jesika Reimer (MSc student in Robert Barclay's lab, University of Calgary) completed her second, and final, field season in the South Slave region of the Northwest Territories. Her research this summer focused on radio tracking female little brown bats to assess colony and individual foraging behaviour. Ana-bat detectors were deployed at various locations to conduct species surveys and to determine bat activity levels with night length. Hobo data loggers were replaced in the Wood Buffalo National Park hibernaculum and data from the 2011 winter season were collected. No whitenose syndrome was detected in the area. Laura Kaupas, who is working on an honours project in the Barclay lab, accompanied Jesika in the field this summer. Laura will be looking at morphological and dietary comparisons between *Myotis lucifugus* and *Myotis septentrionalis*.

Two artificial bat houses were constructed by the department of Industry, Tourism and Investment, at Lady Evelyn Falls campground near Kakisa, NT, where a little brown bat colony resides in the shower building each summer. Bats did not appear to use the artificial houses this year, but attempts will be made to patch holes in the shower building this winter/spring to encourage the use of the artificial houses next summer. Numerous presentations were given to the public throughout the summer/autumn, including talks to regional biologists, in-field capture events with summer students and local residents, and evening presentations through Parks Canada.

Jesika participated in the student paper competition at NASBR in Puerto Rico (October) and won the Bat Research News Award for her paper entitled "Foraging behaviour of female little brown bats at northern latitudes in Canada". She is now in the writing stages of her MSc and plans to defend this spring.

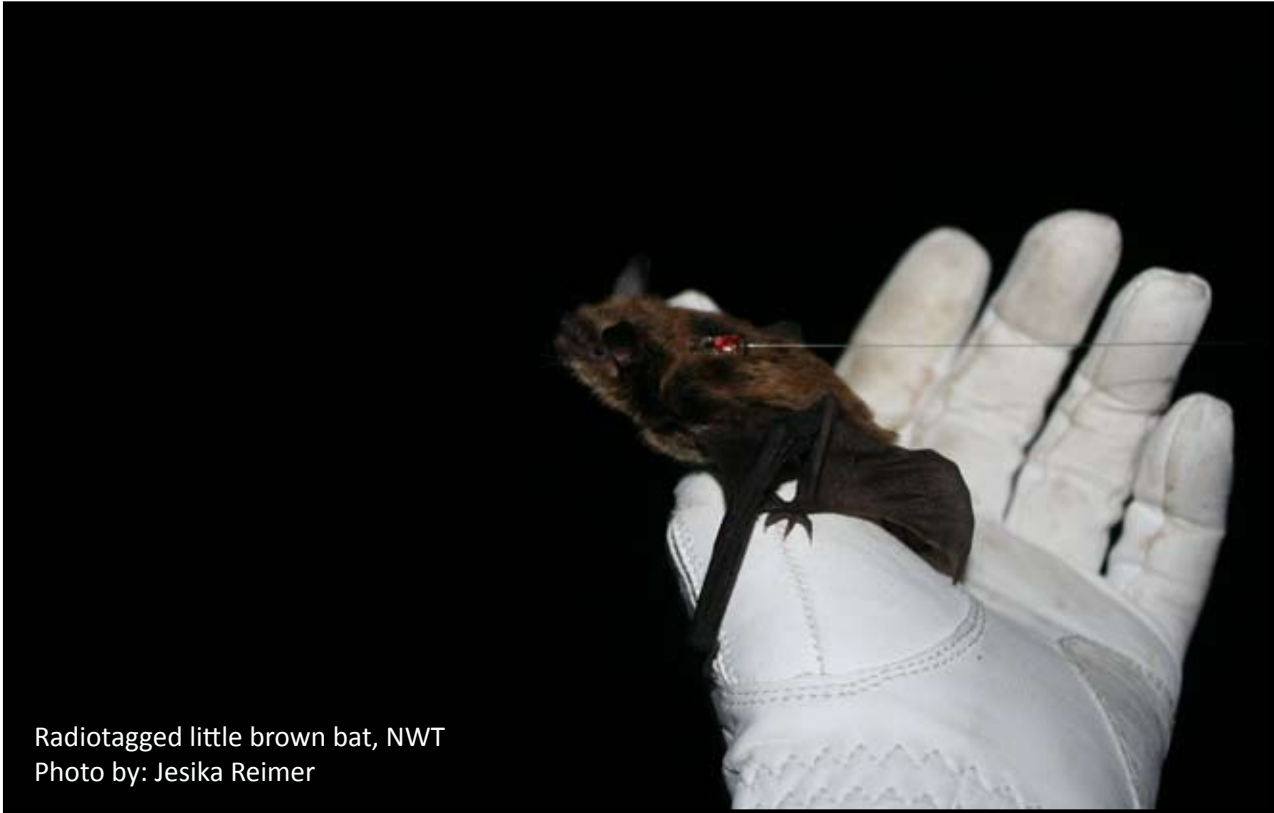
Jesika's summer research was funded through scholarships from Bat Conservation International and Alberta Conservation Association. Additional logistical support and funding came from the NWT departments of Industry, Tourism and Investment, and Environment and Natural Resources. A special thank you goes out to the Fort Smith Metis Association, Salt River First Nation and the community of Kakisa who continue to support our research on their land and in their communities. Additional thanks go out to Parks Canada and ENR staff who continue to help with data collection and assistance in the field.



Photo by: Laura Kaupas



Artificial bat house, Lady Evelyn Falls, NWT
Photo by: Jesika Reimer



Radiotagged little brown bat, NWT
Photo by: Jesika Reimer



Photo by: Dave Hobson, NWT

WHITE NOSE SYNDROME

Canadian White Nose Committee Meets to Draft National Action Plan

Cori Lausen, Wildlife Conservation Society Canada

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On 16 – 18 Oct. 2012, just over 20 participants gathered in Ottawa to work on the first draft of the Canadian National Action Plans as outlined in the National Management Strategy, a document that was accepted by the Canadian Wildlife Directors last spring. These implementation plans mirror those of the US Plan with 6 working groups: Communications, Conservation and Recovery, Data Management, Diagnostics, Epidemiology, and Surveillance.

Attending this workshop were 3 members of the US WNS Committee : Jeremy Coleman, WNS Coordinator USFWS; Scott Darling, Vermont Fish and Wildlife; Katie Gillies, Bat Conservation International, Imperiled Species Coordinator. Canadian participants included representatives from B.C., Northwest Territories, Manitoba, Ontario, Quebec, PEI, Nova Scotia, Newfoundland, CWS, CCWHC, Canadian Wildlife Federation (who provided financial sponsorship for the workshop), Wildlife Conservation Society Canada, Parks Canada, University of Winnipeg, and St Mary's University.

Ted Leighton, Director of Canadian Cooperative Wildlife Health Centre (CCWHC), will present the Action Plans to the Canadian Wildlife Directors in November 2012. As part of these plans, the group is requesting from the Wildlife Directors (provincial and federal directors) that a Canadian WNS Coordinator position be created at the CCWHC.



Photo by: Michelle Jauvin



Alberta Speleological Society Invites WNS Speaker
 Cori Lausen, Wildlife Conservation Society Canada
 clausen@wcs.org

The Alberta Speleological Society (ASS) had their AGM in Kananaskis Country 17-18 Nov. The group had invited Cori Lausen to present on the latest updates on White Nose Syndrome (WNS). The group was very receptive to hearing about new decontamination techniques (ie. Hot water and ZEP Aqua San as alternatives to Formula 409 and bleach). The group was also very inquisitive of the research that Dr. Lausen is doing in relation to finding cave hibernacula for bats in western Canada, in particular in the BC Flathead, where AB cavers are spending a great deal of time these days (see July issue of Canada Geographic for a special issue on the work these cavers are doing in the Flathead). Several ASS members came forth with ideas of where to place bat detectors (the new Titley RoostLoggers -- RLs), and there was even discussion of fundraising to buy some RLs for AB caves for long term trend monitoring. Several cavers will be placing RL's into Flathead caves, including the deepest cave in Canada.

42nd NASBR

San Juan, Puerto Rico

October 24-27, 2012

Brandon Klug, Erin Baerwald, and Mark Brigham

This year's NASBR took a tropical twist, hosted by Mandy Rodríguez Durán (InterAmerican University of Puerto Rico) in San Juan, Puerto Rico. The meeting was held at the Conrad, a great venue with its retro-styling, unbelievably helpful and friendly staff, and close proximity to the beach (and pool-side bar!).

Glowing reports were heard about the pre-conference tours, which included a Bats and Boas tour, a trip to a bioluminescent bay, and netting expeditions in the city. All were well attended and lots of critters were had during the netting campaigns. The conference commenced with a great opening social graciously sponsored by Wildlife Acoustics that included authentic Puerto Rican food, free drinks, and a performance by the university samba band. Spirits were high and the scene was set for a great meeting.



Photo by: Aimee Hart.

NASBR contined...

Student honours presentations filled the first day and set the bar high with abarrage of quality talks. Canadian highlights included award-winning presentations from Jesika Reimer (MSc, University of Calgary) and Lynne Burns (PhD, St. Mary's). Other notable talks were by Hannah O'Neill (BSc Honours, American Museum of Natural History) and Alana Wilcox (BSc Honours, University of Winnipeg).

Talks continued with a jam-packed program*, including a considerable focus on white-nose syndrome. Overall, the University of Calgary, the University of Regina, and the University of Winnipeg were well represented at the meeting. Everything ran smoothly save for limited space for viewing the extensive collection of posters, and the inherent lack of context in 10-minute speed talks; but these were minor bumps in the road that will hopefully be addressed for future meetings.

Next year's NASBR is coupled with the International Bat Conference in San Jose, Costa Rica and is scheduled for 12-15 August 2013. Hope to see many of you there!

*Conference abstracts can be found online at:

<https://custom.cvent.com/6617CEC09A47484FA6AE8D57DF33CE01/files/b536c02afca64c578757d-d76a34c7c3e.pdf>



Photo by: Aimee Hart.

CONFERENCES

- 2 to 4 April 2013: WBWG Biennial Meeting, Santa Fe, New Mexico.
- 9-11 January 2013: NEBWG Meeting, Albany, NY.
- August 11-15 2013: NASBR 43 & 16th International Bat Research Conference. San Jose, Costa Rica
- 2014: NASBR 44, Albany, NY, USA
- 2015: NASBR 45, Monterey, CA, USA

RECENT LITERATURE

Chaturvedi, V. and S. Chaturvedi. 2011. Editorial: What is in a name? A proposal to use geomycosis instead of white nose syndrome (WNS) to describe bat infection caused by *Geomyces destructans*. *Mycopathologia*. 171 (4):231-233

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Hendricks, P. 2012. Winter records of bats in Montana. *Northwestern Naturalist* 93:154-162.

Lorch J.M., Gargas A., Uphoff Meteyer C., Berlowski-Zier B.M., Green D.E., Shearn-Bochsler V., Thomas N.J. and D.S. Blehert. 2010. Rapid polymerase chain reaction diagnosis of White-Nose Syndrome in bats. *Journal of Veterinary Diagnostic Investigation*. 22: 224-230

Olson, C. R. 2011. The roosting behaviour of little brown bats (*Myotis lucifugus*) and northern long-eared bats (*Myotis septentrionalis*) in the boreal forest of northern Alberta. University of Calgary Calgary, AB.

Reimer, J, Baerwald, E.F. and R.M.R. Barclay. 2012. Echolocation activity of migratory bats at a wind energy facility: testing the feeding-attraction hypothesis to explain fatalities. In Review.

Skalak, S.L., R.E. Sherwin, and R.M. Brigham. 2012. Sampling period, size and duration influence measures of bat species richness from acoustic surveys. *Methods in Ecology and Evolution* (3) 490-502. doi: 10.1111/j.2041-210X.2011.00177.x

Toussaint, D.C., R.M. Brigham and A.E. McKechnie. 2012. Thermoregulation in free-ranging *Nycteris thebaica* (Nycteridae) during winter: No evidence of torpor. *Mammalian Biology*. In Press.

Vanderwolf, K., McAlpine, D.F., Forbes, G and Malloch, D. 2012. The Pre-white-nose Syndrome, Mycological Flora Associated with Cave Hibernating Bats in New Brunswick, Canada (abstract). 41st Annual Meeting of the North American Society for Bat Research. Royal Ontario Museum, Toronto, Canada, October 26-29, 2011

FIELD NOTES

Acoustics Update

Cori Lausen, Wildlife Conservation Society Canada
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ACOUSTICS

Titley Scientific. If you heard rumours that Titley has closed its doors, be rest assured this is not actually the case; the company has changed ownership and the Australian office has thus moved locations within Australia, but it is business as usual. The US office remains in Columbia, Missouri, and can supply all Anabat related products with short lead time, and they offer a full repair service. By the way, they also retail Titley's radiotelemetry gear (and no, I am not getting any kick-backs, so I can honestly I tell you that I love their collapsible 3-prong yagi antennae!).

New this fall!! The RoostLogger (I like to call them "Roost'ers"!) is Titley's latest product. For \$400 this detector offers something never before available – cheap and easy long-term monitoring, up to 6 months on internal batteries. Myself, with the help of other biologists and cavers, have placed 16 of these units in potential bat hibernacula (mines and caves) across B.C. this winter. These units run on 4 D alkaline batteries, or 2 D Lithium batteries, and one 4GB SD card. Data are zero-cross and read directly into AnalookW or Kaleidoscope autoID. Titley also has new Equalizer software and a hardware Jig for calibration of Anabat detectors.



Photo by: Cori Lawson

Roost Logger strapped to a beam in an abandoned mine housing Townsend's Big-eared bats in B.C. The round metal piece on the unit is the microphone and the D batteries are easily inserted inside by opening up the pelican case. It can be locked if desired. There is a small LED light on the front of the unit that does not flash unless you hold a magnet near it – this provides you with a way of checking that it is functioning without drawing attention to the unit, or wasting power on a flashing light.

WILDLIFE ACOUSTICS

WA continues to add accessories to their detector line. Recent new products include SMX-UT microphone introduced for those who would like to record more of the higher frequency components of calls; directional horn introduced in response to the eastern US protocols requiring a directional rather than omnidirectional mic; and the calibrator which enables you to test your microphones to ensure they maintain performance. Firmware advancements in the Sm2Bat+ and EM3 now make it far more feasible to record directly to .wav format without the traditional problem of using up large amounts of memory; this is due to a built in noise scrubber and frequency filters.

A new piece of software was also recently released: Kaleidoscope replaces Wac2Wav. This new software converts files far more quickly than Wac2Wav had, and it converts .wac or .wav files to either .wav or zero-cross formats. This allows flexibility to record in any file format you'd like. Retained in Kaleidoscope is the optional built in noise scrubber. In Beta Test as of fall 2012, is an auto-ID component to this software. As you convert your files, you can optionally have Kaleidoscope identify the species recorded in the file. Due to the newness of this software, it is not yet clear how this autoID software compares to other zero-cross autoID software (e.g. E. Britzke's EchoClass, R. Allen's BCID), or how it compares to full spectrum autoID (e.g. Sonobat).... Stay tuned for more.



SM2BAT+ recording at Bowman Lake, Glacier National Park. Because of their waterproofness, you can just strap these detectors to a tree. For ease of strapping and locking, I've mounted the detector on a piece of plywood using small screws, as recommended on their website. The microphone is draped over a branch getting it higher above the ground. Because of its low energy consumption in zero-cross mode, this detector can record for a month on internal D batteries (requiring less than 4GB of SD memory).

Photo by: Cori Lawson.

Classified

FOR SALE

AnaBat II bat detector, with AnaBat storage CF ZCAIM, cables, case, spare microphone, and wiring for external 12V battery and solar panel, all for \$1000. Contact Brian: slough@northwestel.net.

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/FishWildlife/WildlifeManagement/AlbertaBatActionTeam/ABATProgramsPublications.aspx>



Photo by: Aimee Hart.

WCBN Newsletter Submissions

Please submit all newsletter submissions to Jen Talerico:

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Submissions can be made at any time.

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