

# Western Canada Bat Working Group

# NEWSLETTER

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## FROM THE EDITOR

Thank you again everyone for your submissions that make this newsletter possible! A few improvements for this edition: bookmarks that correspond to the Table of Contents are available in the pdf to help navigate through the newsletter, and hotlinks have been added for easy access to websites referred to in the newsletter. The Alberta Bat Action Team has recently made all current and back-issues of the WCBWG Newsletters available on their website at: [www3.gov.ab.ca/srd/fw/bats/ABAT.html](http://www3.gov.ab.ca/srd/fw/bats/ABAT.html).

As many of you will already know, the Western Bat Working Group has also started an electronic newsletter; Kristi Dubois from Montana and myself are the Editors. The newsletter includes updates from all western states and provinces, and from northern Mexico, in addition to news from Bat Conservation International. Many of the updates from this WCBWG newsletter also appear in the WBWG News. If you would like to receive this new newsletter, there are 2 ways to do this: 1. Contact your provincial/state representative to be added to his/her distribution list (you will receive the pdf as an email attachment); 2. Go to <http://www.wbwg.org/> to view the newsletter, and if you would like to receive notification that the newsletter has been posted to the web, add your name to the ListServ (instructions are on the homepage). Don't know who your WBWG provincial/state representative is? Check out the "WBWG" section in this issue.

Warm wishes for the winter,  
*Cori Lausen*  
[corilausen@netidea.com](mailto:corilausen@netidea.com)

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# UPDATES BY REGION

## ALASKA

Submitted by Aaron Poe

### **Distribution and habitat ecology of bats in Southeast Alaska**

John Hayes & Julia Boland, Oregon State University, Dept. of Forest Science, 321 Richardson Hall, Corvallis, Oregon 97331, 541-737-8459 [Julia.Boland@oregonstate.edu](mailto:Julia.Boland@oregonstate.edu)

Julia Boland and crew recently completed the first of two field seasons examining distribution and habitat use by bats in six areas throughout Southeast Alaska. We surveyed from May-Sept 2005 in the areas around Yakutat, Juneau, Hoonah, Petersburg, Wrangell and Prince of Wales Island. We captured *Myotis lucifugus*, *M. volans*, *M. keenii*, and *M. californicus*. We also sighted and concurrently recorded the echolocation calls of *Lasionycteris noctivagans*. We established an echolocation call library of tethered bats using Petterson and Anabat II detectors and collected tissue and guano samples for DNA analysis. We used passive acoustic monitoring to document activity levels in four different habitat types (clearcut, muskeg, simple conifer, and complex conifer) and we began preliminary work documenting day roosts of bats on Prince of Wales Island. We will return to Southeast Alaska in May 2006 for a second field season.

### **The First Forest Service Bat Gates in Alaska**

Aaron Poe, Wildlife Biologist, Chugach National Forest, Glacier Ranger District, Girdwood, AK 99587, (907) 754-2345, [apoe@fs.fed.us](mailto:apoe@fs.fed.us)

Abandoned mines are common throughout lands managed by the US Forest Service and there are hundreds on the Chugach and Tongass National Forests in Alaska. This summer the construction of three bat gates was completed on the Chugach. Bat gates have been used in all other Forest Service Regions but these are the first to be completed in the Alaska Region. In Alaska few details are known about bats in general, but we do have evidence that at least some mines are hosting bats during winter and summer months. Forest Service biologists have conducted external surveys at abandoned mine sites on both the Chugach and Tongass using Trailmaster motion sensors placed at entrances to detect bat use. These three mines were closed with bat gates based on both detected roost and expected potential to support roosts. A night roost in the Case Mine on the Kenai Peninsula was documented during internal summer surveys conducted by the Forest Service and Christopher Newport University in 2003. Activity patterns recorded by motion sensor indicated that the Alaskan Homestake Mine, in western Prince William Sound was being used by bats during winter. The Culross Mine, also in the western Sound, was closed using a bat gate because the complexity of its internal workings was thought to be conducive to use by hibernating bats. These closure operations were accomplished by a combination of efforts including contracting with Holistic Wildlife Services and partnerships with the State of Alaska Department of Natural Resources and Christopher Newport University.



## The Alaska Bat Monitoring Program

David F. Tessler, Regional Nongame Biologist, Alaska Department of Fish and Game, 333 Raspberry Road, Anchorage, Alaska 99518, (907) 267-2332,  
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In 2004, the Nongame Program at the Alaska Department of Fish and Game lead the creation of the Alaska Citizen Science Program, a partnership that also includes U.S. Fish and Wildlife Service, Chugach National Forest, The Alaska Zoo, and The Alaska Natural Heritage Program. In 2005, the Partnership for Citizen Science launched the Alaska Bat Monitoring Program, a new citizen science project combining public education and outreach with enlisting volunteers to collect information on the distribution of the little brown bat (*Myotis lucifugus*) in South-central and Interior Alaska. The most common and widely distributed bat in Alaska, *M. lucifugus* is the only species found north of the southeast panhandle. Much of what is known about the Alaskan distribution of this species comes from 279 specimens collected at 54 sites dating from 1883 to the present. Their distribution and abundance during the summer months is poorly understood, and even less is known about where they go in the winter. This project relies principally on individual volunteer cooperators submitting their observations of bats and bat roosts along with the geographic location, and several general habitat and/or structure variables. Volunteers are organized through extensive radio and print outreach efforts, public and school programs, as well as the Alaska Bats website ([www.akbats.net](http://www.akbats.net)). We've developed a compact disk of educational materials for distribution to educators and other agencies and organizations that wish to participate in the program. The CDs include instructions for volunteering, data sheets, and two power-point presentations appropriate for different ages, and background materials for lecturers so anyone interested can present our program. Information generated from this project is envisioned to be the first step in a broader program to define the temporal and spatial distribution of *M. lucifugus*, identify its important summer habitats, migration routes, and potentially critical winter refuges. This year, after a late kickoff, over fifty volunteers submitted observations of roosting little brown bats stretching from Kachemak Bay up through North Pole, Alaska.

### Temperature and Humidity Monitoring in Alaskan Abandoned Mines

Robin Ives<sup>1</sup>, Jeff Frederick<sup>1</sup>, Aaron Poe<sup>2</sup>, and Rick Sherwin<sup>1</sup>

<sup>1</sup> Christopher Newport University, Newport News, Virginia; [rsherwin@cnu.edu](mailto:rsherwin@cnu.edu)

<sup>2</sup> Chugach National Forest, Girdwood, Alaska

Little is known about the association of bats with abandoned mines in Alaska, and it is largely supposed that subterranean habitat will not generally provide critical roosting habitat for bats. In this study we conducted internal surveys of seven abandoned mines on the Chugach National Forest looking for direct evidence of occupancy by bats. Additionally we installed data loggers throughout all surveyed mines and generated internal thermal profiles. Data-loggers were programmed to collect temperature data every 30 minutes from August 2003 – August 2004. Thermal profiles were then used to infer potential roosting habitat offered by each of the surveyed sites. Variation in climatic conditions was determined through standard descriptive statistics and internal conditions were compared with ambient temperatures to determine the degree of thermal buffering offered by each mine. Humidity was recorded at, or near, 100% inside



all of the mines, so relative humidity data for mine interiors was not used to infer climatic profiles. All of the mines surveyed during this project were cold and wet with average summer temperatures of 46° F. These cool, wet conditions are likely most conducive to hibernation and/or summer bachelor use. None of the mines included temperatures of sufficient warmth for use by maternity colonies. No bats were observed during the surveys, but evidence of night roosting activities was found in one of the mines (Case Mine). It is most likely that little brown bats (*Myotis lucifugus*) utilize abandoned mines in Chugach National Forest during winter hibernation and bachelor males and mixed-sexed groups probably use the mines as night roosts during the summer. Thermal profiles were used to make recommendations for abandoned mine reclamation, and these activities are now underway.

## YUKON

### **Bats of the Northern Boreal Forest: An Update**

Thomas Jung, Yukon Department of Environment, Whitehorse, Yukon

As in the past season, our work in the Yukon this past field season was focused on three broad themes: 1). preliminary investigations into the life-history strategy of the little brown bat in the northern boreal forest, 2). examining the response of bats to natural and anthropogenic disturbances in the northern boreal forest, and 3). assessing the diversity and distribution of the bat fauna of the Yukon. Also, we worked hard this past year to raise public awareness and appreciation of bats in the north. Updates of two specific field projects are below.

#### *Life-History Adaptations of the Little Brown Bat*

How do bats under the Midnight Sun make a go of it? To begin to examine this question we regularly monitored maternity colonies and obtained data on breeding chronology, activity patterns, and diet. Analyses are pending, but a couple of interesting findings are apparent: a) bats arrive and depart from northern colonies following a chronology similar to populations further south, suggesting canalization of the chronology, despite a shorter season North of 60, and b) activity patterns of female little brown bats appear to be synchronized with the period of relative darkness; the implications being that, in the north, the most time-constrained period for foraging is congruent with the period of highest energy demand (late-gestation and lactation). The intent is to further this work in 2006, in cooperation with several other researchers, primarily the Barclay Lab at the University of Calgary.

#### *Bat Activity in Burned Boreal Forest*

Fire is one of the most pervasive agents of change in the boreal forest. Yet, the response of bats to changes created by fire is not known. I used AnaBat II detectors to monitor activity of little brown bats in a recent burn and adjacent mature, unburned forest. I found that little brown bat activity was about 3 times lower at upland sites in the burn compared to upland sites in unburned forest. Activity at lacustrine sites in the burn, however, was similar to that in unburned boreal forest. Regardless of whether the forest was burned, activity was much greater at lacustrine sites than upland sites. In addition, I examined the use of edges created by burns. Activity was 9 times greater at



the burn-forest interface compared to at edges created by roads, but 3 times less than at lacustrine-forest edges. Subsequent investigations will examine patterns of use of burned forest in relation to fire intensity and time since the fire.

## **BRITISH COLUMBIA**

### **Kootenay Community Bat Project Continues for Second Year**

Juliet Craig and Mike Sarell

Last year, the Slocan Valley Bat Project was initiated as a pilot project to engage communities in bat conservation activities. The resounding success and support for that project provided the incentive for a larger scale outreach program and in response, this year, the Kootenay Community Bat Project was launched. The project is located in south-eastern BC, and this year covered the West Kootenays, from Creston to Trail and as far north as Galena Bay. The project's goals are to: 1) raise awareness about bats and bat conservation; 2) identify local bat species and roost sites; and 3) work with residents who have bats on their property to develop a roost conservation plan. Extension activities include numerous press releases, bat-house building workshops, interpretive programs and public mist-netting nights. Residents are encouraged to report their bats so that Project biologists can visit their roost sites, identify species present, and discuss and address their issues.

During the past two summers we have conducted 215 site visits and identified 180 roost sites for seven species of bats (COTO, EPFU, MYCA, MYEV, MYLU, MYYU, and MYVO). This number includes 96 maternity roosts, 48 day (non-maternity) roosts, 24 night roosts, and two unknown sites. As well, this year, we initiated the first "Annual Backyard Bat Count" to begin long-term data collection. Another project that began this year was to provide an addition to a home that has Townsend's big-eared bats living within it, to provide a quieter, less disturbed section for these bats. Funding has been acquired, and building will take place in 2006.

The response from this project has been overwhelming, with residents reporting roost sites, dropping off dead bats, volunteering to assist at events, and donate special skills such as website design and GIS mapping. One of the greatest values of this project is the education and awareness component that is integral to each of the project activities. As a result of this project, residents are conserving bats and their roosts, and collecting unique and valuable data that contributes to the understanding and conservation of local bat species. For more information on the project, see <http://www.kootenaybats.com/> or contact Juliet Craig at (250) 352-2260.





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## West Kootenay Townsend's Big-eared Bat Project – Update 2005

Thomas Hill, Aaron Reid, Ross Clarke and John Gwilliam, Columbia Basin Fish and Wildlife Compensation Program, Nelson, B.C.

In 2003, a conservation initiative was implemented in the West Kootenay region of British Columbia to fill information gaps regarding the distribution and roosting ecology of the Townsends Big-eared bat. Prior to this project, Townsend's Big-eared bats had only been documented roosting in three locations within the project area. Species distribution was determined through mist-netting and visual inspections of abandoned mines, buildings and natural caves. Mist-netting at night roosts (abandoned mines and caves) was undertaken to radio tag reproductively active females to locate maternity roosts. Due to the rugged mountainous topography within the project area radio tagged females (n=13) were tracked from fixed wing aircraft. Over three years Townsend's big-eared bats were documented roosting in 56 new locations (25 natural rock features, 16 abandoned mines and 15 buildings). Maternity roosts were located in three natural rock features and one building. Cold season surveys have been limited, however Townsend's big-eared bats were located hibernating in two of the three mines sampled. All roosts occurred in either the *moist-warm*, *dry-warm* or *very-dry warm* subzones of the Interior Cedar-Hemlock Biogeoclimatic zone. HOBO Pro high-resolution temperature and relative humidity loggers were placed in one of the hibernacula and one of the maternity roosts in a natural cave. Conservation strategies include working with the Ministry of Mines to develop a protocol that incorporates the needs of Townsend's big-eared bats into plans for mine entrance closures; as well as providing recommendations to modify current provincial forest practices legislation so that maternity colonies occurring in natural rock features receive adequate protection.

### Long-eareds in Coastal British Columbia

Doug Burles, Environmental Assessment Coordinator/Biologist, Gwaii Haanas National Park Reserve and Haida Heritage Site, P.O. Box 37, Queen Charlotte City, B.C. V0T 1S0, 1-250-637-2351, [doug.burles@pc.gc.ca](mailto:doug.burles@pc.gc.ca)

In late July-early August 2005, I re-visited a site northeast of New Hazelton where *Myotis septentrionalis*, *M. keenii* and *M. evotis* are all known to occur. The objective of this trip was to capture as many long-eared bats as possible to obtain physical descriptions, full spectrum echolocation call recordings for comparison amongst species, scat samples for diet analysis, and tissue samples to confirm species identity. Unfortunately, the weather did not cooperate, but in the end I did manage to capture 3 long-ears (one of each species I think). I also spent some time at the Keen's long-eared bat maternity colony at Hotsprings Island recording echolocation calls. All of these recordings were carried out using the "tether line" protocol described by Pat Ormsbee and Ted Weller, which as it turns out, is a rather exciting late-night activity. Preliminary analysis of the recordings indicate that there is considerable variation in echolocation calls so it may not be easy to identify long-eared bats by their calls. Tentative plans are to return again next year to try once again to obtain samples.



### **Ongoing Bat Conservation Work in B.C.**

Trudy Chatwin, Rare and Endangered Species Biologist, Ministry of Environment, 2080 Labieux Road, Nanaimo, BC V9T 6J9, (250) 751-3150, [Trudy.Chatwin@gov.bc.ca](mailto:Trudy.Chatwin@gov.bc.ca)

Monica Mather, Martin Davis and myself are continuing to revise our paper on temperature profiles and elevation of bat hibernacula on Northern Vancouver Island. Look for it in the Canadian Field Naturalist in about a year or so! We are still trying to iron out what to say about the taxonomy of Keen's Long-eared Myotis.

Vanessa Craig and myself accompanied Tony Norris, a forester from Island Timberlands (the private land forestry company that was Weyerhaeuser, was McMillan Bloedel), to a sedimentary rock cave maternity colony of Townsend's Big-eared Bats near Nanaimo. To our knowledge this is the only natural maternity colony location on Vancouver Island. There were some rather deep piles of decayed guano in the cave, which indicates long-term use. We were recommending buffers and timing windows for the colony. Fortunately the company is protecting a nearby wetland and will extend the wetland buffer along to make a 70m buffer away from the cave entrance. As well, we suggested a timing window for logging being from the end of September through April.

And while we are on the topic of Townsend's Bats...the Land Conservancy of British Columbia is probably the biggest supporter of Townsend's Big Eared Bats. They now own and protect 2 maternity colonies on Vancouver Island. Thank-you TLC!

Summer is the time for "bat calls" and this year was no exception. I provide advice and information from Bat Conservation International on Bat-friendly exclusion from houses and information about the threat of rabies.

### **.Pre-Construction Survey for Wind Farm**

David Nagorsen, Mammalia Biological Consulting, 4268 Metchosin Road, Victoria, B.C.

As an associate with Robertson Environmental Services, I carried out a pre-construction bat assessment in 2005 for a proposed wind farm of the Nomis Power Corporation that will be located on extreme northern Vancouver Island. Results including a draft report are now under review by the regulating agencies. The Nomis Power site is one of several wind farms now proposed for northern Vancouver where environmental assessments including some bat surveys have been done. Future wind farms are also proposed for northeastern British Columbia in the Peace River region.

In addition to this wind farm work, I have been monitoring daily temperatures in maternity and night roosts of *Myotis yumanensis* in 2 buildings and a maternity roost in natural tree roosts (hollow cedar), on Vancouver Island and the Vancouver region.



**ALBERTA****Bat Surveys in Northeastern Alberta**

Chris Godwin-Sheppard, Senior Wildlife Biologist, AMEC Earth & Environmental, Calgary T2E 6J5 and Delanie Player, Wildlife Biologist, Komex International Ltd.

Komex International Ltd. recently conducted two bat surveys in northeastern Alberta in August 2005 in support of environmental impact assessments for proposed oil sands projects north of Fort McMurray. Surveys included mist netting and echolocation call detection at selected sites over four nights in each lease area. A total of 45 bats were captured in the combined study areas but of particular note was the capture of an adult male red bat. In addition to the capture, one red bat was also detected using the echolocation call detector. This species has been detected rarely in the region, and is considered an infrequent visitor to Alberta. Red bats are more commonly found in eastern Canada. Other bats captured during the surveys included northern long-eared, silver-haired, and little brown bats.

**Impact Assessments in AB and BC**

Scott Grindal, Axys Environmental Consulting, Calgary, AB

I was involved with 3 bat projects during the 2005 season. Two bat projects were to support environmental impact assessments for proposed oil sands developments in the Fort McMurray, Alberta region. Baseline conditions for bat echolocation and capture data were collected at sample stations across the study areas. DNA tissue samples will be analyzed to confirm northern long-eared bats.

The third bat project was part of an environmental impact assessment for two proposed wind energy development in northeastern British Columbia. Similar to the above projects, bat echolocation and capture data were collected at sample stations across the study areas.

**Bat Surveys in Northeastern Alberta**

Carol Stefan, Golder Associates Ltd., Calgary

We conducted pre-development bat surveys for 10 wind farm projects throughout the prairie provinces. Using AnaBat systems, we monitored the distribution and relative abundance of bats during spring and fall migration. The surveys were conducted at five prairie and one aspen parkland site in Alberta, one prairie site in Saskatchewan and three boreal shield sites in Manitoba. All programs were in support of environmental impact assessments. One 80 MW project (37 turbines) is pending approval and one 30 MW project (20 turbines) has been approved. The monitoring work will continue in 2006.





## Update from the University of Calgary Bat Lab

This summer, Dr. Robert Barclay returned from his one year sabbatical. He has several new students in his lab, including, Erin Baerwald, who will begin her MSc field work this spring looking at the impacts of wind turbines on bats. The following are updates from ongoing students:

### Evaporative Water Loss in Prairie Bats

Jeff Gruver

It was a very busy summer. Highlights of this past field season included the augmentation of an ever-growing set of data regarding EWL and torpor in prairie bats and the capture of 4 red bats near Drumheller, AB. This winter will see me analyze said data and suffer my Candidacy Exams. Happy Holidays!

### Bat Surveys and Acoustic Monitoring

Cori Lausen

Much of my summer was spent doing bat survey work in the forests of Montana and New Mexico, and in the Parkland of Alberta. As a costshare project between BCI and the USFS, I surveyed the Helena, Lewis and Clark, and Gallatin Forests in MT, using the Oregon Bat Grid framework. Erin Baerwald and myself were very successful in our 30 nights of netting, capturing 700 bats and 10 species. I was also part of the *Idionycteris phyllotis* survey team led by Lyle Lewis, New Mexico Fish and Game(?????); in June, using pack horses, we surveyed a remote area of the Gila Forest, capturing 400 bats, and 13 species, including *Idionycteris*.

To make sure that I didn't lose track of my Alberta roots, Erin and I spent 10 days surveying Dry Island Buffalo Jump and Big Knife Provincial Parks and area (funded in part by Alberta Natural Heritage Information Centre). Although we ended up working in some very cold rainy weather, we still managed to catch 100 bats (6 species); the most noteworthy capture being a *Myotis septentrionalis* at Content Bridge on the Red Deer River. Once genetically confirmed, this will be the most southerly record of this species in Alberta, and its first occurrence on this river.

Record flooding inhibited acoustic monitoring along the Red Deer River, however, I did manage to get some late summer activity, and was surprised to find a large number of red bat passes! This species is listed as accidental in AB, however, my 80 red bat passes together with the red bat captures this summer (see Jeff's update above) suggests that this bat is indeed not accidental! (for actions taken to change the status of migratory bats in AB, see the minutes from the last ABAT meeting below)

I received some funding from Alberta Sport, Recreation Parks & Wildlife Foundation for winter work; I have three bat detector systems (AnaBat/CFZcaims on solar power) on the Red Deer River again this winter, with focus on Dinosaur and Dry Island Buffalo Jump Provincial Parks. Stay tuned in the spring for another winter bat activity update!



## Other Bat Work in Alberta

*Doug Collister, URSUS Ecosystem Management Ltd., Calgary, AB:* Doug did some reconnaissance netting in the Conklin area during August this year, and we look forward to hearing from him about this bat work in a subsequent issue.

*Acoustic Monitoring and Carcass Counts:* VisionQuest/TransAlta Energy Corporation, together with TAEM Ltd., and University of Calgary documented bat activity this season at several windfarms in SW Alberta. Hats off to VisionQuest who spent the time and money to experiment with turbine feathering and impact on bats. TAEM calibrated and tested the efficiency of their carcass count procedures, and U of C analyzed the acoustic data revealing increased migratory bat activity during times of high carcass counts. Further data will be forthcoming.

## SASKATCHEWAN

### Update From the University of Regina Bat Lab

Dr. Mark Brigham

A summary of some of our recent work in the Cypress Hills appeared in the Bat Conservation International Publication "BATS" spring 2005. Student projects updates are as follows:

*Kristen Kolar:* MSc. project. Testing the Fission-Fusion Hypothesis for social interactions between big brown bats in the Cypress Hills (SW Saskatchewan). Kristen is using PIT tags to mark all individuals in roosting areas in order to assess the validity of telemetry data (small sample size and short term monitoring) suggesting Fission-Fusion. Kristen plans on defending her thesis by early 2006.

*Devin Arbuthnott:* Hons. Project. Devin is testing the idea that big brown bats take advantage of temperature inversions that occur due to elevation changes in the Cypress Hills. He predicted that bats would forage in the places that remained warmest. He will complete his thesis by April 2006.

*Kristin Bondo:* MSc. Project. Kristin has just begun her M.Sc. and will continue our long term focus on the roosting ecology of big brown bats in the Cypress Hills. The PIT tag technology and reader system appears to provide us with an opportunity to address the question of how and perhaps why bats choose the specific sites to roost in that they do. Kristin has some preliminary evidence of "prospecting" behaviour by individuals which she hopes to learn more about.

*Miranda Milam:* PhD project. Miranda has just begun her doctoral work and intends to focus on geographic variation in the physiology of hibernation. As yet she has not chosen a focal species but a migratory bat is likely.

*Jackie Metheny:* MSc. project. Jackie is a student at Univ. North Carolina – Greensboro supervised by Dr. Matina Kalcounis-Rueppell. Jackie is evaluating whether or not the preferred social interactions between individual big brown bats in the Cypress Hills can be explained on the basis of genetic relationships. Jackie intends to complete her thesis by late summer 2006.



# WESTERN BAT WORKING GROUP

## Who is the WBWG?

### Officers

(2-yr term from April 2005- March 2007)

<b>President</b>	Pat Ormsbee	pormsbee@fs.fed.us
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### Latest WBWG news:

- The WBWG is in the process of attaining nonprofit status in the U.S.
- Negotiations are beginning for the location of the next Conference For The Management and Conservation of Bats, to take place in spring 2007. Venues currently being considered include Tucson, Phoenix, and San Diego.
- Next WBWG conference call is Dec. 14, 2005 at 10:00 PST. Feedback to the WBWG is always welcome; contact your provincial/state representative.
- The first e-newsletter is being produced Dec. 2005. To access the WBWG Newsletter, see Letter from the Editor section (above).

For more information, to become a member, to access resources such as species accounts, or to view their newsletter, visit: [www.wbwg.org](http://www.wbwg.org).



## BC/AB Bat Conservation Plan

The hydroelectric power section of this plan is finished (funded by BC Hydro). Susan Holroyd (Alberta) is currently working on the wind turbine section, but has completed the Oil and Gas section. Vanessa Craig (B.C.) is doing some habitat modeling as part of the Forestry section; the Impact of Forestry section of the plan has been completed. Vanessa is trying to address the bark beetle issue in her modeling. There are still 4 sections of the plan that are to be written, but funding has not been secured for these sections. Hopefully funding from a mining company will allow the Mining Section to proceed next. This Conservation Plan will eventually be posted on the BC Environment website.

## NASBR Update

The 35<sup>th</sup> Annual North American Symposium on Bat Research, 10-22 October 2005 in Sacramento, California was the largest conference to date, with nearly 350 registrants. A wide variety of bat research was presented in almost 100 oral papers and over 50 posters. Special emphasis was again placed on the bats and wind turbines issue with an evening meeting and conference presentations.

The Centre for Disease Control and Prevention held a blood-giving clinic as part of a new study to determine whether the SARS-related coronavirus found in bats can infect humans or not. Mark Brigham gave a session entitled "Emulating real scientific writing for biology undergraduates: second drafts of term papers" in the special evening session organized by Brock Fenton, "Innovative Techniques in Teaching". And there was an extra special treat at the banquet this year when Jackie Metheny was presented with the University of Regina Bat Lab's "Oops Award".

Margaret Griffiths, Illinois Wesleyan University, Bloomington, IL, organized this year's and last year's NASBR, and has helped her husband Tom organize these conferences for many years. After this year's NASBR, Margaret stepped down as Program Director, and her replacement has not been secured.

## CLASSIFIEDS

### WHILE YOU ARE IN THE FIELD...

**Samples Wanted: Keen's myotis, western long-eared myotis, and fringed myotis samples requested.** Tissue samples are needed for an effort to better understand the genetic and ecological differences among these three long-eared myotis species. Tissue samples (3 mm wing biopsy) are most valuable when accompanied by echolocation information (full-spectrum), habitat information, roost-tracking data, and faecal samples for dietary analysis. These results will be used in an international effort (U.S. and Canada) to better understand the ecological requirements and differences of these three sensitive species. If you will be working in areas where these bats occur, please consider helping to complete a synthesis of genetic and ecological information that will be used in the conservation and management of long-eared myotis. Contact Tanya Dewey ([tdewey@umich.edu](mailto:tdewey@umich.edu)) or Laura Friis ([Laura.Friis@gov.bc.ca](mailto:Laura.Friis@gov.bc.ca)).



**Band Returns Wanted!** Little Brown Bats from the Yukon, Thomas Jung, Yukon Department of Environment, Whitehorse, Yukon. Brian Slough and I have been banding little brown bats in the Yukon for several years; hundreds have been banded thus far. Among other questions, we are interested in where bats summering in the Yukon hibernate; we suspect it's not in the Yukon. Bats we've banded have either red or gold alloy lipped-bands (Lambournes, UK) punched with UAF and 4 numbers (e.g. UAF 2953) or silver alloy bands (Geys, Pennsylvania, USA) punched with YTG and 3 numbers (e.g. YTG 078). Please contact me ([thomas.jung@gov.yk.ca](mailto:thomas.jung@gov.yk.ca)) should you encounter a bat banded in the Yukon.

**Water Trough Information Needed!** Bat Conservation International is seeking measurements and descriptions for livestock water tanks across North America to assess their potential for bat use and risk of mortality. If you own or live near a stock water tank, could you please take a few minutes to measure it. The information needed is listed on the online form available at: [www.batcon.org](http://www.batcon.org) (click on Conservation Programs, Water for Life, then "Participate"). For Canadians filling in the form online there is no place to enter Province or Territory, so simply leave that blank and include it into another entry such as Notes or Range/Management Unit. Alternative to online submission, you can print and fax the form to 619-280-0202 or mail to Dan Taylor, BCI, 4251-46<sup>th</sup> St, San Diego, CA 92115. Word document forms are available that can be filled in as an email attachment from Dan Taylor at [dtaylor@batcon.org](mailto:dtaylor@batcon.org) or Cori at [corilausen@netidea.com](mailto:corilausen@netidea.com). BCI is eager to get a widespread sampling of troughs; your help is greatly appreciated!

## SCHOLARSHIP/STUDY OPPORTUNITIES

**2006 BCI Student Research Scholarship Program:** Bat Conservation International's Scholarship Program supports student research anywhere in the world that adds new knowledge and is relevant to bat conservation. The goal is to help nurture a new generation of bat science and conservation leaders. For 2006 awards have been increased to a maximum of **\$5,000** and normally are used to leverage matching funds from other sources. Scholarship applications are reviewed and ranked by some of the world's most respected bat researchers and must be complete, well-planned and clearly related to bat conservation. For more information visit BCI's website: <http://www.batcon.org/schol/schol.html> or contact Andy Moore [amoore@batcon.org](mailto:amoore@batcon.org), or 512-327-9721. Deadline for applications is **December 15, 2005**.

**Graduate Research Assistantship (GRA) in Northern Arizona.** The School of Forestry at Northern Arizona University will fund a Masters-level graduate assistantship starting in July 1, 2006 (or as early as May). This 2-yr project has the objectives of describing bat communities in the wildland urban interface around Flagstaff Arizona and assessing the impacts of forest restoration treatments on bats.

The ideal candidate will have:

- excellent bat identification skills for the 28 species of bats that occur in Arizona
- experience or familiarity sampling bats including mist netting, radio telemetry, use of Anabat detectors
- experience or familiarity sampling vegetation and habitat elements
- experience or familiarity sampling bat prey (for example, insect sampling using light traps)
- rabies pre-exposure shots and titer check
- demonstrated quantitative, verbal, and writing skills
- ability to maintain consistent focus on detail-intensive tasks



- ability to work well with other field crew members
- ability to conduct field work on rough terrain during inclement weather
- ability to drive 4WD vehicles in a safe and careful manner

This GRA is funded at \$14,708 per year. Health insurance is provided as an additional benefit.

For additional information contact Dr. Carol Chambers: Telephone 928/523-0014 or E-mail: [Carol.Chambers@nau.edu](mailto:Carol.Chambers@nau.edu)

## **BAT JOB OPPORTUNITIES**

**Honduras Volunteer Opportunity!** Operation Wallacea is currently accepting applications from enthusiastic and experienced bat scientists to join their survey teams in Parque Nacional Cusuco, northern Honduras for their 2006 field season. These teams will contribute data towards a long-term monitoring study of the biodiversity within the region using a standardised protocol whilst working closely with the protected area authorities.

The survey teams operate out of a variety of remote forest camps assisted by student volunteers. This is an opportunity to contribute towards a valuable conservation management study and also to publications arising from data collected.

Applicants need to have extensive experience of mist netting for bats within a forest habitat (preferably within the Neotropics), as well as evidence of leadership skills and an ability to work in remote areas as part of a small friendly team. Previous experience working within a developing country and a working knowledge of Spanish are desirable attributes.

This is a voluntary post, however all food and accommodation costs in country are covered by the project. Various dates available:

Full Position 27 June - 8 September, Part 27 June - 9 August, Part 25 July - 8 September

Location: We have surveys operating out of ten sites within the highland forests of Parque Nacional Cusuco, northern Honduras.

Applications to be made by email to [info@opwall.com](mailto:info@opwall.com). Applicants should enclose a 1 to 2-page CV and a covering letter identifying how they meet the attributes, skills and experience requirements listed above. Please put 'Bat Scientist – Cusuco Forest' in the email subject field.

Closing date: **23rd December 2005**. Please see <http://www.opwall.com/> for further details about our work.





# ANNOUNCEMENTS

## MEETINGS AND CONFERENCES

**14<sup>th</sup> International Bat Research Conference**, Merida, Yucatan, Mexico, Late August 2007. For more information: [14ibr@ecologia.unam.mx](mailto:14ibr@ecologia.unam.mx), or check [www.nasbr.org](http://www.nasbr.org) for details.

**Bat Conservation and Management Workshops**: Arizona June 12-17 and June 17-22, 2006; Pennsylvania August 7-12, 2006; Kentucky August 16-21, 2006. For information and applications, visit <http://www.batcon.org/> or contact Kari Gaukler, Bat Conservation International, PO Box 162603, Austin, TX 78716, 512-327-9721; [kgaukler@batcon.org](mailto:kgaukler@batcon.org)

**Conference Announcement: Windpower and Wildlife in Colorado**. January 23-25, 2006. Ramada Inn, Fort Collins, CO. In conjunction with the Colorado Chapter of TWS.

*Symposium Goals:*

To make available up-to-date information about the effects of windpower development on wildlife and ways to minimize impacts in Colorado; To make available information about applicable laws, regulations and guidance associated with windpower and wildlife in Colorado; To foster an open dialogue between the wildlife conservation community and the wind industry in Colorado.

For More Information contact David Klute, Bird Conservation Coordinator, Colorado Division of Wildlife (303) 291-7320; [david.klute@state.co.us](mailto:david.klute@state.co.us); or visit the website for Colorado TWS: <http://www.wildlife.org/chapters/co>.

**Alberta Chapter of The Wildlife Society Conference** 9 - 11 March 2006, Lethbridge, AB. A special Wind Turbines and Bats Symposium is currently being negotiated. Keep checking <http://www.albertadirectory.net/actws/> for details.

**36<sup>th</sup> Annual North American Bat Symposium**, 17-21 October 2006. The original venue for this conference has recently changed. It will now be in Wilmington, North Carolina, hosted by Mary Kay Clark. See <http://www.nasbr.org/> for details.

## NEWS ON THE HOMEFRONT

**Baby Kieran Arrived June 14!** Congratulations to Lisa Wilkinson and Steve Bradbury of Edson, Alberta on the birth of their son Kieran Darwin. Already a world traveller, Kieran accompanied his mom and dad to Europe this fall!

**Retirement just around the corner?** Rumour has it Laura Friis' name desk plate may disappear in the new year. We hope you enjoy retirement from the world of government Laura, and look forward to you keeping your "wings" in the bat world!



# RECENT LITERATURE

## "Gray" Literature

- Holroyd, S.L. 2005. Impacts of hydroelectric activities on bats and their habitats (part of the British Columbia and Alberta Bat Conservation Strategy). Prepared for the BC Ministry of Water, Land and Air Protection, Biodiversity Branch, Victoria, British Columbia. 102 pp.
- Rambaldini, D.A. 2005. Protecting Threatened Pallid bats (*Antrozous pallidus*) in the Okanagan Valley, British Columbia. Unpublished report prepared for the Osoyoos (Nk'Mip) Indian Band. Oliver, B.C.
- Rambaldini, D.A. 2005. Foraging activity of Pallid bats (Chiroptera: *Antrozous pallidus*) in native habitat and vineyards in British Columbia. Unpublished report prepared for the Osoyoos (Nk'Mip) Indian Band (Oliver, B.C.), British Columbia Ministry of Land, Water and Air Protection (Penticton), and Canadian Wildlife Service (Delta, B.C). 32 pp.

## Papers

- Fisher, J.T. and L. Wilkinson. 2005. The response of mammals to forest fire and timber harvest in the North American boreal forest. *Mammal Review* 35 (1), 51-81.
- Jung, T.S., B.G. Slough, D.W. Nagorsen, T.A. Dewey, and T. Powell. 2005. First records of the northern long-eared bat, *Myotis septentrionalis*, in the Yukon. *Canadian Field-Naturalist*, 119:in press
- Jung, T.S., and B.G. Slough. 2005. Mortality of 53 little brown bats, *Myotis lucifugus*, in a rodent trap in the boreal forest. *Canadian Field-Naturalist*, 119:in press.
- Jung, T.S., I.D. Thompson, and R.D. Titman. 2004. Roost site selection by forest-dwelling male *Myotis* bats in central Ontario, Canada. *Forest Ecology and Management*, 202:325-335.
- Kalcounis-Rüppell, M.C., J. M. Pysllakis and R.M. Brigham. In press. Tree roost selection by bats: An empirical synthesis using meta-analysis. *Wildlife Society Bulletin*.
- Lausen, C.L. 2005. First record of hosts for the bat tick, *Carios kelleyi* (Acari: Ixodida: Argasidae) in Canada and Montana. *Journal of Medical Entomology* 42(3): 497-501.
- Pysllakis, J.M. and R.M. Brigham. In press. Characteristics of diurnal roosts used by female *Myotis* bats in sub-boreal forests. *Forest. Ecol. Manage.*
- Willis, C.K.R. and R.M. Brigham. 2005. Physiological and ecological aspects of roost selection by reproductive female hoary bats (*Lasiurus cinereus*). *J. Mammal.* 86:85-94.
- Willis, C.K.R. and R.M. Brigham. 2004. Roost switching, roost sharing and social cohesion: Forest-dwelling big brown bats (*Eptesicus fuscus*) conform to the fission-fusion model. *Anim. Behav.* 68: 495-505.
- Willis, C.K.R., C.M. Voss and R.M. Brigham. In press. Roosting ecology of female big brown bats assessed using an alternative to the roost versus random tree approach. *J. Mammal.*
- Willis, C.K.R., J.E. Lane, E.T. Liknes, D.L. Swanson and R.M. Brigham. 2005. Thermal energetics of female big brown bats (*Eptesicus fuscus*). *Can. J. Zoology.* 83:871-879.
- Willis, C.K.R., R.M. Brigham and F. Geiser. In press. Deep, prolonged torpor by pregnant, free-ranging bats. *Naturewissenschaften*.



### **Theses/Dissertations**

Rambaldini, D.A. 2005. The ecology of torpor use by Pallid bats (*Antrozous pallidus*) at the northern extreme of the species' range. Unpublished M.Sc. thesis. University of Regina. Regina, SK. 120 pp.

### **Books/Chapters**

Barclay, R.M.R. and A. Kurta. In press. Ecology and behavior of bats roosting in tree cavities and under bark. Proceedings of the 2<sup>nd</sup> Bats and Forests Symposium. Hot Springs AR

Barclay, R.M.R. and R.M. Brigham. 2004. Geographic variation in the echolocation calls of bats: a complication for identifying species by their calls. Pp. 144-149 In: Brigham, R.M. et al. (eds.) 2004. *Bat Echolocation Research: tools, techniques and analysis*. Bat Conservation International. Austin, TX.

Brigham, R.M. In press. Forest-living Bats: What we know and what we need to learn. Proceedings of the 2<sup>nd</sup> Bats and Forests Symposium. Hot Springs AR.

Willis, C.K.R., J.E. Lane, E.T. Liknes, D.L. Swanson and R.M. Brigham. 2004. A technique for modelling thermoregulatory energy expenditure in free-ranging endotherms. Pp. 209-220 In B.M. Barnes and C.M. Carey (eds.). *Life in the Cold: Evolution, Mechanisms, Adaptation, and Application. Twelfth International Hibernation Symposium*. Biological papers of the University of Alaska, number 27. Fairbanks, AK, USA: Institute of Arctic Biology, University of Alaska.

## **ABAT MEETING**

Summary of Alberta Bat Action Team (<http://www3.gov.ab.ca/srd/fw/bats/>) Meeting, 2 November 2005, University of Calgary. The focus of this meeting was the issue of bats and wind turbines.

**In attendance:** Jeff Gruver (University of Calgary), Chris Godwin-Sheppard (AMEC), Carol Stefan (Golder), Susan Holroyd, Scott Grindal (Axys), Robert Barclay (U of C, chaired the meeting), Cori Lausen (U of C, recording secretary); *First-time attendees:* Richard Quinlan (Species at Risk Biologist with Sustainable Resource Development), Greg Wagner (Athene Consulting -- currently doing pre-construction survey for proposed Cypress Hills wind farm), Jack Shier (Athene Consulting), Jason Edworthy (VisionQuest -- which is now part of TransAlta), Erin Baerwald (U of C)

**VisionQuest presentation:** Jason gave a presentation on the wind energy development that VisionQuest (VQ) has undergone in Alberta. He introduced the group to wind turbine construction and terminology and discussed the bat and bird mortalities experienced at VQ's Alberta windfarms. When bat mortalities were noticed to be high at one of their farms, VQ did an experiment turning every second turbine onto low speed shut down so that only half of their turbines were turning at low wind speeds. This was monitored for the last half of migration and they found that not all turbines that were shut down showed reduced bat mortality, but most did.

VQ did pre-construction baseline surveys for all of their wind farms. They tried using radar to improve observations. A discussion of radar ensued, including discussion about Rhonda Millican, who has modified military radar to get 3D digital images, and acoustic recordings, and can determine to some extent bat vs. bird and types of birds flying in an area. Jason felt cost of radar may be prohibitive (approx. \$25,000/week) to other companies, but Scott mentioned that because both birds and bats are searched for using radar, he felt this made it worth the cost.

Radar units (cost >\$100,000/unit) - Robert has applied together with Brock Fenton and Hugh Broders to order 3 of these -- one unit would be here, one in ON and one in Atlantic Canada.



**Robert's update on carcass counts at an AB windfarm:** Hoaries - more adult males, Silver-hairedreds - more adult females, and overall more adults than juveniles are being killed by turbines.

Robert and Jason discussed the amount of time recommended for preconstruction surveys-- in the US they are suggesting a 3 year preconstruction period. Suncor and VQ agree that when the first MET tower is put up, preconstruction baseline surveys SHOULD start because MET monitoring and Baseline surveys take the same amount of time (need at least a year).

**Richard Quinlan's presentation:** Richard explained to the group how the approval process of wind energy development occurs. As of March 2005, wind energy proposals must first be run through Alberta Fish and Wildlife *prior* to going to the Energy and Utilities Board. Because the local biologist was being approached in each area, energy companies complained of a lack of consistency dealing with too many biologists. As such, Richard has become the main contact person in SRD regarding wind turbine proposals, and together with Carita Bergman, John Taggart, Terry Kosinski, and Lisa Wilkinson they have formed a committee to develop protocol for bats and turbines (and they want to consult with ABAT regarding guidelines for wind energy developments in AB). It is in the pre-application stage that energy companies approach Fish and Wildlife, and then apply to EUB. Their committee is trying to get the EUB to work more closely with SRD so that the energy companies need to report back to Fish and Wildlife.

Greg and Richard discussion: a big misconception that private lands are exempt from any environmental assessments. Richard stressed that SRD's jurisdiction is not just on public but also private lands and indicated this realm of jurisdiction is poorly understood, even within SRD itself. Richard pointed out that a Public Lands Policy is in the works - stimulated by turbines proposed for a crown grazing lease (native grasslands).

Richard went through the Draft Guidelines (Wildlife Guidelines for Alberta Wind Energy Projects) that his committee has put together and asked ABAT to establish a protocol that they will include in this draft. Robert volunteered the University of Calgary Bat Lab to complete this task prior to the end of 2005.

Greg and Susan said they would like to see all bat data acquired by consultants to be put into FWMIS (Fisheries and Wildlife Management Information Services -- used to be BSOD). Carol said acoustic data currently isn't required. The group agreed that we need to require these data too. Jason said that disclosure is a big concern, and Greg thought maybe the data could just be released a few years later, but Richard assured the group that confidentiality is in place in FWMIS. Robert said it is important all data come in to pull out patterns and understand things better and faster. Robert told group about the intention of himself, Cori and Jeff to put together a "migratory bats of Alberta" paper outlining what we know about bat migration in the province to date.

Richard stated it is important that qualified consultants do the bat work for pre-site construction of wind turbines. A discussion ensued about training people to properly assess an area for turbine suitability with regards to bats.

**Updates:** Robert, Cori, and Erin, gave a brief summary on the wind turbine information presented at NASBR in Sacramento last week. Susan Holroyd updated group on the BC/AB Conservation Plan.

**Robert discussed the Status of Migratory Bats in AB:** Current status of red bats 2000-accidental/vagrant. Based on recent red bat captures, wind farm carcasses, and acoustic detection, the group passed a motion that "ABAT recommend the status of the eastern red bat in Alberta be changed from accidental/vagrant, to either undetermined or sensitive". Robert pointed out that the migratory bats are at risk from turbines, and Susan pointed out that cottonwood stands are at risk and red bats depend on these for roosting. As such the group felt we should try to get the status as "sensitive".



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