

# Western Canada Bat Working Group

# NEWSLETTER

ISSUE NO. 10

SPRING 2007

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## FROM THE EDITOR

*“If any of you happens to see an injustice, you are no longer a spectator, you are a participant. And you have an obligation to do something.” -  
June Callwood - 1924-April 2007*

*“I tell you, we are here on Earth to fart around, and don't let anybody tell you different.”  
Kurt Vonnegut - 1922- April 2007*

Greetings all!

Congratulations to Cori Lausen who was recently elected to the Board of Officers as a Member-at-large for the Western Bat Working Group. She joins Lisa Wilkinson and Laura Friis in representing the bats of Western Canada.

Congratulations also to Joanna Coleman and Erin Baerwald, who received Student Scholarships from Bat Conservation International for 2007-08 to support their ongoing graduate research!

Updates from recent ABAT meetings can be found below – the group successfully convened in Calgary twice in April with representatives in Edmonton and BC joining via conference call. Thank you Robert Barclay for arranging the meeting space and logistics and to Lisa Wilkinson for arranging

the call! Primary topics of concern and discussion included a proposal to push for banding of migratory bat species across North America in hopes of getting a handle on populations, movement patterns and mortality rates; Scott Grindal put together a paper summarizing what ABAT would approve as a "Qualified Bat Worker" to ensure some level of competency in the many field projects being conducted in Alberta; and, the pre-construction survey protocols for windpower developments will be reviewed at the next meeting.

Here are a few notable notes and upcoming meetings:



37<sup>th</sup> North American Symposium on Bat Research (NASBR) and the 14<sup>th</sup> International Bat Research Conference (IBRC): 19-23 August 2007, Mérida, Yucatan, Mexico. **New abstract submissions deadline May 31<sup>st</sup> 2007**; early registration deadline **15 May 2007 (extended)**. See <http://batconference.confhost.net> for details (or go to [www.nasbr.org](http://www.nasbr.org) and follow the links). Check out the number of

field trips being offered!

**Reminder of Website change:** Please update your web browsers with the new web address for Alberta Sustainable Resource Development where the Alberta Bat Action Team webpage is found (<http://www.srd.gov.ab.ca/fw/bats/index.html>). Back-issues of these newsletters can be obtained from this site. If you were looking to get your free copy of the Bats of Alberta poster, you may have noticed that this website change made it difficult to track this resource down. It can be ordered (and seen) at: <http://www.srd.gov.ab.ca/education.html>.

Susan [susanLholroyd@hotmail.com](mailto:susanLholroyd@hotmail.com)

& Cori, [corilausen@netidea.com](mailto:corilausen@netidea.com)



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# UPDATES BY REGION

## YUKON

### **Strange Things Done in the Midnight Sun**

Jennifer Talerico, University of Calgary

This summer I will be acoustically monitoring bat activity in Watson Lake Yukon. I am interested in learning how northern nocturnal mammals, specifically little brown bats (*Myotis lucifugus*), adjust their foraging behaviour and strategies where there is a short reproductive season, low temperatures and short nights. I will also be helping out with the Yukon bat survey occurring in Kluane National Park and around Watson Lake. Research will be conducted in conjunction with Thomas Jung, Yukon Department of Environment.

## ALASKA

Congratulations to Aaron Poe and his wife who just had a baby in November 2006! We will excuse Aaron this time around for not submitting anything to the newsletter as along with the new arrival, he has also completed his MSc! Congratulations Aaron – we look forward to hearing from you in the fall!

We also welcome to the Alaska “bat scene” Dave Schirokauer! Hopefully Dave will update us in the fall with his bat activities from this summer.

## SASKATCHEWAN

Submission from Mark Brigham, University of Regina

### **An Update from the U of R Bat Lab**

#### New Publications

Willis, C.K.R., C.M. Voss and R.M. Brigham. 2006. Roosting ecology of female big brown bats assessed using an alternative to the roost versus random tree approach. *J. Mammal.* 87:345-350.

Swystun, M.B., J.E. Lane and R.M. Brigham. Cavity roost site availability and habitat use by bats in different aged riparian cottonwood stands. In press *Acta Chiropterologica*.

Arbuthnott, D. and R.M. Brigham. The influence of a local temperature inversion on the foraging behaviour of big brown bats, *Eptesicus fuscus*. In press *Acta Chiropterologica*. Jan. 2007.

## MANITOBA



## Submission from Dr. Craig Willis

### First Update from the University of Winnipeg

I began as a faculty member at the University of Winnipeg in July 2006 and was very happy to learn that the WCBWG would accept a new bat lab from “the far east” of its geographic range. My students and I will be working on a number of bat projects during the 2007 field season.

*Derek Donald* will begin M.Sc. work in my lab in September 2007 and will be based at the U. of Manitoba Field Station at Delta Marsh this summer. Delta Marsh was made famous for bats by the great work of Dr. Barclay and his students in the 80s and 90s and Derek’s project will follow from this. In particular, Derek will study links between thermoregulation, stress physiology and offspring growth in hoary bats. One exciting aspect of Derek’s project will be quantifying baseline levels and seasonal variation of circulating stress hormones (cortisol and corticosterone) in free-living bats. Understanding stress physiology of birds has been important for addressing questions about their ecology and conservation. For example, how do stress levels differ between habitats which vary in quality and what does this mean for reproductive fitness? Our understanding of stress physiology of mammals lags behind that of birds so Derek’s project will help fill this knowledge gap and set the stage for future projects addressing stress hormones, energetics and ecology in free-living mammals.

*Tracie Parkinson* (NSERC Undergraduate Scholar) will also be based at Delta Marsh and, for her Honours research, will use open-flow respirometry and temperature telemetry to quantify patterns of energy expenditure and body temperature under different conditions in silver-haired bats. In particular, Tracie will conduct an experiment to quantify the implications of solar heating and passive arousal from torpor on energy expenditure.

*Joel Jameson*. Having just completed his honours project at the U. of Manitoba on intraspecific variation in echolocation calls (co-supervised by Dr. Brock Fenton from U. Western Ontario), Joel will assist this summer with the first study of wind power impacts on bats in Manitoba. So far one wind farm is operational in the province with many more sites proposed for development. Mortality surveys for bats have not been conducted during fall migration but 14 hoary bats were found dead or dying at the operational wind farm, incidentally by maintenance staff, on one morning in August 2006. This suggests that wind turbine mortality may be a problem here as elsewhere in North America. We have received funding from the Manitoba Conservation Sustainable Development Innovation Fund to study the issue. Joel and one additional research student will conduct acoustic and capture surveys at the operational wind farm and at an adjacent proposed wind farm site, and also help coordinate local volunteers for mortality surveys during August and September.

*Other projects and collaborations:* We are also working with Dr. Jacques Veilleux (Franklin Pierce College) to study thermoregulation and roost selection by *Myotis leibii* in New Hampshire and with Dr. Matina Kalcounis-Rüppel (U. North Carolina, Greensboro) and the aforementioned Dr. Barclay on an analysis to address the influence of life history traits on variation in metabolic rates of bats vs. small fossorial rodents. In late May we will work with Dr. Jack Dubois of the Wildlife and Ecosystem Protection Branch of Manitoba Conservation to find suitable sites in the



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northern Interlake region of Manitoba for long-term studies of physiological variation in little brown bats.

## **MONTANA**

Submission from Bryce A. Maxell, Senior Zoologist, Montana Natural Heritage Program  
Helena, Montana

### **New Website for the MNHP**

The Montana Natural Heritage Program has released a website that displays distribution information for all animal species in Montana. You can link to the website off of the Montana Heritage Program's Home Page at <http://nhp.nris.state.mt.us/>. The public has the ability to see generalized distributions for species while agency biologists can see point level data and associated tabular information by logging in with a secure password. Distributional information can be seen in the context of a variety of base map layers overlaid with other map layers such as land ownership, public land survey system data, streams, lakes, and cities. Search tools allow users to search for named geographic features or enter a variety of map coordinates. Users can also enter their own observations online for review by Heritage Zoologists prior to acceptance into the central databases. The website is still under development so be sure to check out the beta version for the latest developments.

Included on the website is a large volume of bat data including some large recent survey efforts paid for by the Bureau of Land Management and U.S. Forest Service. Some recent exciting updates for distribution information include: (1) a 260 km northwest range extension for Western Spotted Bat to the Beartooth Wildlife Management Area north of Helena; (2) a 200 km southeast range extension for California Myotis to the Tendoy Mountains in southwest Montana; and (3) numerous new county records for a variety of species. Numerous large areas of public and private land still lack any bat distribution information across the state, but monitoring of grid cells with acoustic and mist net surveys is an ongoing effort funded by the U.S. Forest Service and State Wildlife Grants. The Montana Natural Heritage Program is archiving all bat call information in call library.

## **BRITISH COLUMBIA**

Submission from Susan Holroyd, Holroyd Consulting, Calgary, Alberta  
[susanLholroyd@hotmail.com](mailto:susanLholroyd@hotmail.com)

### **Status of the Bat Conservation Strategy for British Columbia and Alberta**

The Bat Conservation Strategy is slowly coming together. Vanessa Craig, EcoLogic Research, Gabriola Island, BC produced the section dealing with bats and Forestry issues. I have completed the sections dealing with bats and Oil and Gas issues, and bats and Hydroelectric issues. The latter section was produced from material put together as a report for the Bridge-Coastal Restoration Program, BC Hydro (Holroyd, SL. 2005. Impacts of hydroelectric activities



on bats and their habitats (part of the British Columbia and Alberta Bat Conservation Strategy) prepared for BC Environment and the Bridge-Coastal Restoration Program, BC Hydro). I also have put together a section reviewing the issues surrounding bats and Wind Energy developments, however, given the current rate of new research in this field, this section already needs to be updated and revised.

Working with Laura Friis, BC Environment, Victoria, and Juliet Craig, Silverwing Ecological Consulting, Nelson, BC, we prepared material for a website dealing with bat issues in urban areas for BC Environment. The material covers general information about bats, bat houses and what to do with bats in houses. Hopefully it will soon appear on the BC Environment website and this material will be used as part of the Bats and Urban issues section of the Bat Conservation Strategy.

I am currently working on two sections that deal with bats and Mines and bats and Cave and Crevice Management. I also have recently completed a final report for HCTF summarizing the work I did with Vanessa Craig as part of a coastal survey for Townsend's big-eared bats (COTO) ("Townsend's Big-eared Bat (*Corynorhinus townsendii*); Inventory and habitat enhancement in coastal British Columbia, Canada – Surveys of Denman, Hornby, Quadra and Cortes Islands and parts of Vancouver Island north of Comox – draft March 2007 for HCTF and BC Environment"). The COTO paper also includes some of the management recommendations that will ultimately appear in the Bat Conservation Strategy, especially for sections dealing with bats and Urban issues, as well as Mines and Cave and Crevice Management.

## **ALBERTA**

Submission from Scott Grindal, Jacques Whitford-AXYS, Calgary, AB

For the 2007 season, we will continue or start work with various wind energy projects, including pre-construction monitoring for proposed developments in NE BC (Dokie Wind Project, Wartenbe Wind Project), as well as some undisclosed wind energy projects in BC, Alberta, and Ontario. In the oil sands region of Alberta, we will continue long-term monitoring surveys, as well as conducting some baseline surveys for undisclosed projects. In Labrador, we will begin an inventory survey to support a proposed hydro development.

Submission from Carol Stefan, Golder Associates Ltd., Calgary, AB  
cstefan@golder.com

I am currently working on a collaborative paper with Scott Grindal and Chris Godwin-Sheppard summarizing the diversity, distribution and relative abundance of bats in northeastern Alberta. We recently presented preliminary results at the Alberta and Northwest Chapter of the Wildlife Society.

Golder is planning on conducting six baseline bat surveys in northeastern Alberta this summer. All surveys are in support of environmental impact assessments for oil sands projects. Surveys will involve capture and echolocation call detection at study sites throughout the lease areas. Golder will also be conducting pre- or post-development monitoring for five wind farm projects



in Alberta, two in Saskatchewan and three in Manitoba, plus additional projects in Ontario. Pre-development surveys include site assessments and echolocation call detection. Carcass surveys will be completed for operating wind farms.

Submission from Cori Lausen, Ph.D. Candidate, University of Calgary

**PhD thesis done -- now what?!**

Cori Lausen, Bats R Us, Kaslo, B.C. [www.batsRus.ca](http://www.batsRus.ca)

I have spent the winter finishing up my PhD thesis and will defend it in early June. I have a few minor chapters on use of Anabat for long-term monitoring, and elucidating activity patterns from capture records, but my main chapters are: Winter Bat Activity in the Canadian Prairies (CJZ, 2006); Beyond mtDNA: Nuclear Gene Flow Refutes Cryptic Species of Little Brown Bats (*Myotis lucifugus*); Roosting Ecology of Prairie Bats; and Landscape Ecology of Prairie Bats.

Since the Landscape Genetics chapter is a new one that I have just put together over the winter, I here provide a brief overview of my findings:

I tested the hypothesis that bats, like terrestrial mammals and birds, vary in genetic structure according to their relative mobility. I also examined what effect roost selection and landscape features had on genetic structure. I examined genetic structure of three species (*M. lucifugus*, *M. ciliolabrum*, *Eptesicus fuscus*) of bats differing in wing-loading and roost specificity in the AB and MT prairies. I found that *E. fuscus*, with its large wing-loading and consequently greater capacity for long distance flight, was less structured by rivers than the other two species, although females showed fidelity to their natal rivers. *M. ciliolabrum* was the species most structured, with females completely fractured by a long stretch of river valley (> 500 km) on the Milk river devoid of suitable rock crevice roosting habitat -- despite the fact that this unsuitable stretch of river could be by-passed with a 60 km over-prairie flight! Like females, males remained close to their natal area in the summer, with short dispersal distances (~70 km) within rivers. Gene flow during autumn mating was extensive, although gene flow between the Missouri River and northern rivers was limited. *M. lucifugus* followed a complex isolation-by-distance pattern of gene flow with river distance, and its gene flow also appeared to be limited by the long grassy stretch of Milk/Missouri river valley. I concluded that building-roosting may have minimized the genetic structure in this species, although structure associated with rivers is still evident.

Plans are still coming together for the summer, but tentatively include bat surveys in the Yukon, Montana, and the B.C. coast. I may start an industrial or university post-doc from my Kootenay home-base within the next year. In an attempt to leave my options open, I have set up a website ([www.batsRus.ca](http://www.batsRus.ca)) to see if I can make a (partial) living specializing in bat-related work!



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Submission from Joanna Coleman, Ph.D. Candidate, University of Calgary

### Impacts of Urbanization on Prairie Bats

My PhD project (at the University of Calgary, under Robert Barclay's supervision) focuses on the impacts of urbanization on Prairie bats. Summer 2006 was my first field season and, coming into this with a background studying raptor ecology, adapting to working with bats involved a fairly steep learning curve! Still, my field assistant, Erin Swerdfeger, and I had a very productive summer (not to mention a wonderful time). We used Anabats to compare bat activity between urban and non-urban areas and collected 42 nights of acoustic data (which I am still analyzing). Having completed more than half of the analysis, I can see that bat activity varies widely among sites. For example, during "peak season", i.e. after juveniles have become volant, total passes over an entire night (22h00-05h00) range from 88 (at a non-urban site in a provincial park) to 3374 (at an urban site in a provincial park). The most commonly recorded bats at most sites were *Myotis* spp., followed by *Eptesicus fuscus*/*Lasionycteris noctivagans*, followed by *Lasiurus cinereus*. We used mist nets to trap bats, and caught a total of 585 individuals, which exceeded my expectations. My capture data seem to confirm the distribution of species I can infer from my Anabat data, although we were (obviously) able to identify all captured individuals. At least six species occur in my study area, in order of occurrence: *Myotis lucifugus* ( $\approx 70\%$  in non-urban,  $\approx 80\%$  in urban sites), *E. fuscus* ( $\approx 10\%$  in non-urban,  $\approx 9\%$  in urban sites), *L. cinereus* ( $\approx 10\%$  in non-urban,  $\approx 5\%$  in urban sites), *L. noctivagans* ( $\approx 9\%$  in non-urban,  $\approx 4\%$  in urban sites), *M. volans* (1 non-urban individual), *L. borealis* (1 urban individual, which netted us a bottle of champagne!). These distributions are not significantly different. *M. lucifugus* was the only species of which I obtained a large enough sample size to analyse potential fitness differences. While reproductive rates did not differ between urban and non-urban populations, urban populations gave birth earlier, but began to undergo spermatogenesis later than non-urban populations did. Non-urban adult females were in better body condition than their urban counterparts, but this is mainly due to reproductive status. In other words, we trapped a higher proportion of pregnant females in non-urban sites, a result I believe is attributable to the fact that we could not access those sites as early as we were able to get into urban sites. Finally, we collected 200 fecal samples from trapped individuals – these are going to have to wait until next fall to be analysed. In mid-March 2007, I presented my preliminary results at the annual meeting of the Northwest Chapter of the Wildlife Society, and plan to present again at the International Bat meeting in August. I am currently preparing for my second field season. Erin is coming back to work with me and will take on a side project investigating the ectoparasite loads of urban and non-urban populations. I hope to have two more field assistants, find additional field sites further away from the city of Calgary, increase my acoustic monitoring and mist netting effort, and sample nocturnal insects.





Submission from Lea Randall, MSc Candidate  
Supervisors: Robert Barclay/Tom Jung/Mary Ried  
Biological Sciences Department  
University of Calgary  
[lrandall@ucalgary.ca](mailto:lrandall@ucalgary.ca)



I will be headed up to the Yukon for the second field season of my MSc. I will be examining the effect of spruce-beetle infestation, logging and forest fire on bats (*Myotis* spp.) of the boreal forest near the community of Haines Junction in the southwest Yukon.

## ABAT UPDATE

ABAT met twice in Calgary during April 2007, the first meeting covered general issues, the second meeting was used to review the current "Pre-construction survey guidelines for windpower developments" document produced by and available at <http://www.srd.gov.ab.ca/fishwildlife/guidelinesresearch/inventoryguidelines.aspx>.

The group will continue to press for the banding of migratory bat species throughout North America, but until consensus is reached, the Alberta and BC bat researchers affiliated with ABAT plan to band any migratory bats captured in the upcoming field season. Plastic size XB numbered bands (with the corners carefully filed smooth) will be used for red bats and silver-haired bats; metal-lipped bands with numbers and identifier will be used on hoary bats. Dr. Robert Barclay is currently coordinating band information.

Further detailed information will be available from the minutes of the meetings.

**ABAT Meeting, 24 April 2007.** 10:00 am. Calgary, BioSci 120. Please contact [Lisa.Wilkinson@gov.ab.ca](mailto:Lisa.Wilkinson@gov.ab.ca) for details. Tentative agenda:

1. Review of preconstruction protocols for bat surveys at windpower developments.
2. Highlights from Tucson Meetings.



3. Bat Worker Qualifications finalized.
4. Other business

Meeting minutes will be available at <http://www.srd.gov.ab.ca/fw/bats/index.html>

## WESTERN BAT WORKING GROUP UPDATE

### 3<sup>rd</sup> Biennial Meeting of the WBWG

The Western Bat Working Group successfully met in Tucson, Arizona, April 11-14, 2007. The conference focused on wind energy issues and abandoned mine management, bat species inventory and monitoring, banding migratory bat species, and identifying ways WBWG can support states and provinces in their bat conservation/management efforts. This venue was also used for the WBWG Biennial Meeting. Keep checking [www.wbwg.org](http://www.wbwg.org) for information and minutes of the meeting.

### WBWG Newsletter

The next WBWG Newsletter will be compiled by Kristi Dubois while Cori Lausen is on "thesis leave". It will be a compilation of the abstracts and meeting notes from the Tucson Conference and should be posted soon at [www.wbwg.org](http://www.wbwg.org) or will be available through your provincial/state WBWG representative. Please be patient with the WBWG website as it is currently going through a reconstruction process!

### Would you like to get more involved with the Western Bat Working Group?

As the new officers begin their two year term, a number of new committee positions are available. There are plenty of opportunities for involvement – contact your state/provincial representative for more details. Want to know who your representative is? -- check [www.wbwg.org](http://www.wbwg.org).

**Have experience writing grants? Willing to help the WBWG with this process?**  
The WBWG is looking for members that have experience writing grants. Please contact: Brad Phillips, (605)673-4853, [bjphillips@fs.fed.us](mailto:bjphillips@fs.fed.us)

## CLASSIFIEDS

### BAT JOB/VOLUNTEER OPPORTUNITIES

Volunteers needed for field research on bat assemblage structure and effects of predation by insectivorous bats on arthropod populations in shade coffee plantations in the Soconusco region of **Chiapas, Mexico**. I am looking for mature, motivated individuals with a background in ecology, conservation biology, agroecology, or a



related field to assist with data collection. Primary responsibilities involve assisting with surveys of bat populations in shade coffee plantations using a variety of methods (netting, trapping, acoustic monitoring). Volunteers will be responsible for their own airfare and their meals while not in the field site. Food and lodging costs in the field will be paid by the investigator. Start date in November 2006 (or mid-May 2007 for second field season) preferred; two month commitment required. Send curriculum vitae or resume, letter of interest (describing your background, experience, why you want to participate, and future goals), and names and email addresses of two references to [kimwilliamsq@gmail.com](mailto:kimwilliamsq@gmail.com); please email me if you have further questions. See <http://www.sitemaker.umich.edu/kimwg> for more details.

## **ANNOUNCEMENTS**

### **MEETINGS/CONFERENCES/WORKSHOPS**

**14<sup>th</sup> International Bat Research Conference and 37<sup>th</sup> North American Symposium on Bat Research**, Merida, Yucatan, Mexico, 19 – 23 August 2007. Fiesta Americana Hotel. All details are posted at <http://batconference.confhost.net>. All the information needed for registration, submission of articles, transportation and arrival to the conferences is available on this website. If you have any questions, please contact [batconference@ecologia.unam.mx](mailto:batconference@ecologia.unam.mx).

**1<sup>st</sup> International South-East Asian Bat Conference. Phuket, Thailand**, 7 – 10 May, 2007 at the Club Andaman Resort Beach Hotel, Patong, Phuket, Thailand. It will be jointly hosted by the Faculty of Science, Prince of Songkla University, Hat-Yai, Thailand; Texas Tech University, USA; and The Harrison Institute, U.K. For further information contact: Associate Professor Chutamas Satasook, Prince of Songkla University at [chutamas.p@psu.ac.th](mailto:chutamas.p@psu.ac.th); Dr. Paul Bates, The Harrison Institute, [hzm@btinternet.com](mailto:hzm@btinternet.com); or Dr. Tigga Kingston, Texas Tech University, [SEABatConference@hotmail.com](mailto:SEABatConference@hotmail.com). <http://www.sc.psu.ac.th/bats>



# RECENT LITERATURE

Arbuthnott, D. and R.M. Brigham. The influence of a local temperature inversion on the foraging behaviour of big brown bats, *Eptesicus fuscus*. In press *Acta Chiropterologica*. Jan. 2007.

Barclay, R.M.R., E.F. Baerwald and J.C. Gruver. 2007. Variation in bat and bird fatalities at wind energy facilities: assessing the effects of rotor size and tower height. *Can. J. Zool.* 85:381-387.

Barclay, R.M.R., L.E. Barclay and D.S. Jacobs. 2006. Deliberate insectivory by the fruit bat *Rousettus aegyptiacus*. *Acta Chiropterologica* 8(2): 549-553.

Jacobs, D.S., R.M.R. Barclay and M.H. Walker. 2007. The allometry of echolocation call frequencies of insectivorous bats: why do some bats deviate from the pattern? *Oecologia* 12 pp.

Swystun, M.B., J.E. Lane and R.M. Brigham. Cavity roost site availability and habitat use by bats in different aged riparian cottonwood stands. In press *Acta Chiropterologica*.

Willis, C.K.R., C.M. Voss and R.M. Brigham. 2006. Roosting ecology of female big brown bats assessed using an alternative to the roost versus random tree approach. *J. Mammal.* 87:345-350.



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