

# WESTERN CANADA BAT WORKING GROUP

## WESTERN CANADA BAT WORKING GROUP

### NEWSLETTER

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## GREETINGS

Hello everyone. I hope you found the first issue of this newsletter informative. As I did not receive any suggestions for improvement I will continue to use the format of the first issue. Well, it is that time of year again when those of us fortunate enough are gearing up for our field seasons. This issue will summarize any research planned for this season as well as any research summaries that were unavailable at the time of the fall issue. Any comments and suggestions for future issues would be greatly appreciated and can be sent to [lasiurus\\_cin@yahoo.ca](mailto:lasiurus_cin@yahoo.ca). I would like to thank everyone for their contribution and interest in bats. Let's hope this season is better than it was for many of us last year!

Sincerely,

*Krista Patriquin*

WCBWG Newsletter Editor

## RESEARCH UPDATES

### **2003 Cadomin Cave Hibernaculum Survey Dave Hobson, Alberta Fish and Wildlife Division, Edson**

I conducted the Cadomin Cave hibernaculum survey this year on February 1<sup>st</sup>. Total number of bats counted in the cave was 460, down from 806 in 2001. This is the lowest count since the winter of 1996/97. Since the cave was incorporated into Whitehorse Creek Wildlands Park and the development of trail signage, human winter visitation appears to have declined significantly. The drop in number of observed bats does not appear to be related to winter visitations. Due to the difficulty in accurately counting bats in the Messhall cavern, which houses the largest number of hibernating bats, total number of bats may not provide the best trend data. The cave has been divided into smaller components and these provide a more accurate count. These areas also had reductions in the number of observed bats. The area of the cave that contains the second largest contingent of hibernating bats is the Turbine. This year 92 bats were counted compared with 117 in 2000/01. The West Gallery dropped from 84 in 2000/01 to 48 this year and the Pre-Messhall area declined to 39 from 58 in 2000/01.

Despite the declines, regression analysis suggests that there has been a significant increase in the West Gallery and no significant change in the Pre Messhall, Messhall, or the Turbine areas since 1983. Overall, there appears to be a significant increase in population trend for the whole cave since 1983.

The Cadomin Cave survey for the last few years has been done with the assistance of members of the Alberta Speleological Society.

## RESEARCH PLANS

### **BRITISH COLUMBIA**

#### **Lillooet Bats**

Vivian Birch-Jones, President, Lillooet Naturalist Society, Lillooet, BC

The bats are active again in the Lillooet area (and everyone is phoning to tell me that!) The presentation about Bats and Forests (sent last newsletter and available on request) went very well with the Forestry and Logging folks here in February 2003. It certainly increased their knowledge, interest and alarm about bat habitat and forestry practices locally. Sadly they have since closed our forestry office and turned over the forestry practices regulation to the industry in BC. On we progress. Anyone interested in doing inventory, monitoring or study on the Lillooet bats would be welcome by our tiny conservation group. A final note, we are thinking of a bat 'condominium' under the old bridge here across the Fraser River. Any Canadian projects of this nature that we could learn from?



### **Bat research on Haida Gwaii**

Doug Burles, Environmental Assessment Specialist/Resource Management Warden,  
Gwaii Haanas National Park Reserve and Haida Heritage Site, Queen Charlotte City, BC

Bats rely on their ability to echolocate to navigate at night and to detect flying prey, and because of this, their echolocation calls are often complex. A bat's echolocation call is often finely tuned to the environment within which it flies and to the type of organism that it preys on. By recording these echolocations and analyzing them with advanced computer software, it is sometimes possible to identify differences in behaviour between species that are morphologically very similar.

The primary objective during 2003 will be to work with Dr. Brock Fenton of York University to obtain recordings of echolocation calls from Keen's myotis from Gandll K'in Gwaayaay using sophisticated recording equipment provided by Dr. Fenton. Other researchers in Oregon will cooperate with us by obtaining echolocation calls of western long-eared and Fringed bats. Dr. Fenton will also record calls from northern long-eared bats in Ontario, and then will make comparisons using computer software.

A second objective will be to record and analyze echolocation calls of the other 3 species found on Haida Gwaii in order to develop a key for the identification of species by their call structure. Development of such a key will prove to be valuable for other bat researchers wishing to work on the islands.

A third objective will be to examine the foraging behaviour of Keen's myotis. This will be done by conducting an experiment to determine if they can actually detect and glean insects by simply listening for their movements on a substrate. This will be done by observing a captive bat allowed to fly in a tent. If any individuals large enough to carry a radio tag are captured, a tag will be attached to them and their movements followed to determine where they are foraging on Gandll K'in Gwaayaay.

If time permits, an effort will be made to determine the level of bat use of the mine adits at Ikeda Cove. This will involve radio tagging bats and then following them to see where they are roosting, as well as searching the mine for evidence of roosting bats.

The work on Gandl K'in Gwaayaay will be carried out between May 27<sup>th</sup> and June 8<sup>th</sup>. Work at Ikeda cove would be carried out during August.

### **Bat Research on Vancouver Island**

Vanessa Craig, Ph.D., R.P.Bio, EcoLogic Research, Gabriola Island, BC

I am continuing two of the projects that I mentioned in the last WCBWG newsletter, both focusing on Townsend's big-eared bats (*Corynorhinus townsendii*).

- 1) The 3-year study focused on identifying the distribution of, and roost selection criteria of, Townsend's bats on Vancouver Island and four northern Gulf Islands is wrapping up. The final component of the project is the building of two roost structures. This study is being carried out in association with the BC Ministry of Water, Land and Air Protection (originally Susan Holroyd, presently Don Doyle) and the Heron Rocks Friendship Society, and is funded by the BC Habitat Conservation Trust Fund and BC Public Conservation Assistance Fund. Construction of the first bat house is well underway and both bat houses should be built by late spring.
- 2) This winter, with support from Bat Conservation International, I collected temperature data at *C. townsendii* hibernacula along the BC coast. I will be removing the data



recorders shortly, and will place them at maternity roosts on Vancouver Island to collect temperature data for a second summer.

### **Habitat Use and Roost Selection by Pallid Bats (*Antrozous pallidus*) in British Columbia**

D.A. Rambaldini, MSc candidate, University of Regina, Regina, SK

Pallid bats (*Antrozous pallidus*) reach the northern limit of their range in the Okanagan Valley, British Columbia. They are considered rare in Canada and are classified as Threatened by COSEWIC. In collaboration with the Pallid Bat Recovery Team formed by the B.C. Ministry of Land, Water and Air Protection, I am investigating habitat requirements of Pallid bats in the Southern Okanagan Basin. Since development is increasing in this region, it is important to determine whether modified land is still suitable roosting and foraging habitat. Results from my first field season in 2002 differ from a study conducted in 1991, suggesting that Pallid bats in the Okanagan Valley may have changed their behaviour and/or are undergoing a spatial shift. In the second field season, May to September 2003, my fieldwork will focus on catching more bats, determining whether orchards and vineyards are also used as foraging areas, and following bats to their winter hibernacula. Additionally, I will be monitoring the use of torpor to evaluate how this thermoregulatory strategy helps Pallid bats cope with variable temperatures and unpredictable prey at the northern extremes of their distribution.

### **Insectivorous bats as predators in forest pest outbreaks**

Joanna Wilson, MSc candidate, University of Calgary, Calgary, AB

This summer I will be going back out to Merritt, B.C., for a second field season. I am studying the predator-prey interactions between the bat community and western spruce budworm, *Choristoneura occidentalis*, an important pest of Douglas-fir forests. I have two main objectives: to understand the response of bats to pest outbreaks, and to determine whether bat predation can have an impact on a pest population. I will be comparing insect abundance, bat diet and bat activity in both space (between outbreak and non-outbreak sites) and time (before the emergence of budworm adults, and during the budworm moth flight period). My preliminary results from 2002 indicate that bats, especially the western long-eared bat *Myotis evotis*, switched to eating mostly moths when the budworm moths started flying. Interestingly, I have also found caterpillar remains (which appear to be budworm) in the feces of several bats. As a new part of my study this summer, I will perform behavioral observations of *Myotis evotis* and budworm interacting in a flight cage. I will attempt to visually confirm whether *M. evotis* eats budworm and to discern the prey capture method.

## **ALBERTA**

### **Bats in the Fort McMurray Region**

Chris Godwin-Sheppard, P.Biol., AMEC Earth & Environmental Ltd.

AMEC Earth & Environmental Ltd. has been commissioned to undertake the preparation of two Environmental Impact Assessments in the Fort McMurray region. Field programs include the collection of data on bat species that may be using habitat in each study



area. Data will be used to determine impacts on bat species from proposed project development activities. The field surveys will be conducted according to the recently established Alberta protocols. Sampling for both projects will be conducted from early to end of July 2003, and will occur over a total of 25 nights.

**Investigating metabolic savings associated with clustering for big brown bats,  
*Eptesicus fuscus*.**

Lydia Hollis, University of Calgary, Calgary, Alberta

Although there are many studies on growth and development of bats, little is known about the development of thermoregulation and the use of torpor (i.e. when an endothermic animal allows its body temperature to drop below its active homeothermic level). Although adult bats benefit from torpor use (i.e. great energy savings), juvenile bats experience disadvantages at low body temperatures (i.e. reduced growth rates). The purpose of my study is to investigate changes in thermoregulatory ability and use of torpor with age in temperate-zone bats.

Overall, field data indicate that juvenile big brown bats (*Eptesicus fuscus*) frequently use torpor, suggesting significant energy savings. However, metabolic measurements show that juveniles have substantial energy requirements (i.e. high metabolic rates despite low body temperatures) at low ambient temperatures. Although prevolant big browns use torpor more than fledged young within the roost, they are able to keep warm while their mothers forage by clustering together. Thus, clustering may provide substantial savings in metabolic expenditure for thermoregulation.

In my final field season (Summer 2003), I will measure metabolic rates of groups of bats to determine energetic savings associated with clustering. To determine energetic savings of clustering at different ages, I will measure body temperatures (with temperature-sensitive radiotransmitters) and metabolic rates (i.e. oxygen consumption) of individuals and groups of 4 captive big brown bats at six different ambient temperatures (i.e. from 10°C to 35°C increasing in 5°C increments) for four different age classes (i.e. early prevolant, late prevolant, volant juveniles, and adults). By combining field data with metabolic measurements, the benefits of torpor use and metabolic savings of clustering will be revealed.

**Movement and Distribution of Prairie Bats**

Cori Lausen, PhD candidate, University of Calgary, Calgary, AB

This is my second official PhD field season and I will continue to sample prairie bats in southern Alberta and northern Montana. I am taking wing tissue biopsies from *Myotis ciliolabrum* and *M. lucifugus* in 8 main sampling areas along river valleys. This year I will be sampling mainly in Montana near Havre on the Milk River and near Fort Benton on the Missouri River. Some sampling may continue in the Onefour area of the Milk River and Bow Island on the South Saskatchewan. All sampling will occur in June and July. I will then head back to the field in early October. I will be netting and using ANABAT in Dinosaur Provincial Park. My goal is to determine what species are using the park as a hibernation area, and what structures (caves, deep crevices, etc.) are being used as hibernacula. I hope to attach radiotransmitters to several species prior to any major snowfall. This work will continue into November most likely, although this will depend on weather.



**Bat Surveys at Fish Creek Park, Calgary, Alberta**

Carol Stefan, Wildlife Ecologist, Golder Associates Ltd., Calgary, AB

The wildlife group at Golder Associates Ltd. in Calgary will be continuing to do volunteer bat surveys this summer in Fish Creek Park. Mitch Firman will be the lead for this project. At present, Golder has no other bat work planned.

**SASKATCHEWAN****News from Saskatchewan**

Mark Brigham, Professor, University of Regina, Regina, SK

I am planning to take a sabbatical leave beginning 1 July 2003 and return to Australia for a year with my family. I will be working with Dr. Fritz Geiser at the University of New England. At this juncture, I expect that the focus of my work will be trying to conduct some experiments to elucidate the mechanisms which prompt individual Australian Owlet-nightjars to use torpor on any given night. This will most likely happen near Alice Springs in the center of the continent and I am hoping to team up with Dr. Chris Pavey who has done some really neat work on Australian bats and is now working for the Park's service. I expect that there will be some bat work done along the way.

**There was no news submitted from others in Saskatchewan, Manitoba, Yukon or Northwest Territories.**

**WINTER BAT**

The following is a letter submitted to a birding newsletter, which was then passed on to Carol Stefan who thought it would be of interest to many of you:

This is my first posting to this forum. My name is George Newton; I live in Edmonton. I own a dog (oops!). Though well past 50, I am a very 'young' birder ... at it only 3.5 years ... but each year I seem to become more hooked ... naturally, I appreciate any help I can get. This time of year I don't venture too far, so most my birding is in and around Edmonton (I live next to Millcreek Ravine). Tho' partially deaf, I am captivated by songbirds, and their songs; so, when spring comes, my birding preference is to be north of Edmonton in the Boreal (... or in the cottonwoods along our southern rivers, ... or the Montane west of Pincher ... or ...).

On New Year's Day I went (again) to Goldbar to see if I could find the elusive Long-tailed Duck everyone was seeing but me. And I did, finally, but missed the Pintail and American Widgeon. Anyhow, while there I bumped into Betty Fisher, and a few moments after that we were rewarded with an unusual (for this time of year, this time of day) aerial display: we clearly witnessed, not twenty yards from us, a bat, fluttering by and then away from us ... headed across the river (?). Don't know what kind of bat. It was biggish, for an Alberta bat. Aware I am now probably in violation of this bird forum's rules, I'll end the bat talk here. But isn't that very strange? An omen? Maybe a biologist could throw some light.



## ABAT MEETING MINUTES

I have highlighted items from the meeting minutes of the 7<sup>th</sup> ABAT meeting. If you would like the detailed meeting minutes, please contact Lisa Wilkinson.

### Red Deer Lodge, Feb. 27, 2003

Attendants: Cori Lausen, Lisa Wilkinson, Abbey Dennis, Krista Patriquin, Dave Hobson

The following action items were discussed:

- WIND ENERGY PROJECT: Consensus that we need to get on this right away.
- BAT SAMPLING PROTOCOL: Maarten Vonhof is still working on the revisions. Lisa Wilkinson may take on this task if he is unable to complete it as there is considerable interest in the document and we would like to see it on a website ASAP.
- WEBPAGE FOR CANADIAN WESTERN BAT WORKING GROUP: Mike Herder will put any material on the web that we want. The group felt it would be easier to locate the ABAT website through a link on the WCBWG website.
- EDUCATION KIT: Some materials have been ordered. We missed the deadlines to apply for any funding for this endeavor. Cost recovery was discussed, it was suggested perhaps we could accept donations to the ABAT group and have this money funneled through some other organization as we do not possess a bank account.
- BSOD AND BANDING DATABASE: Bat-specific elements have now been included in BSOD. The Alberta Provincial Museum (D. Gummer) will look after storing the banding data, because we cannot fit it into BSOD.
- DISTRIBUTION MAPS: Dave reminded us that the goal of these maps was to help direct future bat work in the province. Dave has put these together and has only to add the river and city layers.
- BAT CONSERVATION PLAN: Mitch was going to look into this re: B.C. conservation plan. Not sure if he has.
- NEWSLETTER: Krista emailed the first newsletter prior to Christmas, and the next one will be sent out at the start of April. The goal is to allow networking before the summer.
- LOGOS: Robert is going to contact Steve McNalley about logos for ABAT and WCBWG but has not had a chance to do so as of yet.
- FUNDING SOURCES: Last meeting ACCRU was mentioned as a possible new funding source, but it looks like this is not a source of money...potentially a source of inkind support instead.
- Lisa reported that BCI is really strapped for cash and therefore the WCBWG won't be guaranteed a set amount of money from them (we originally thought we'd get a set amount as this was the case when BCI was doing well). BCI (Dan Taylor) mentioned to Lisa that we might want to think about an Industry Education Workshop (Forest Managers Workshop) that would promote bat awareness in northern industrial areas in Alberta.

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## BAT-MOTH CONFERENCE



Following several conversations, Cori Lausen and John Acorn came to realize that a meeting between bat and moth researchers would be extremely beneficial. They discovered that bat researchers often catch moths in our nets and that some of these moths are highly sought after by moth researchers. As well, they believed that a better understanding of moths, often a major component of a bat's diet, would be of interest to bat researchers. Therefore, Cori and John coordinated a meeting of minds, which took place at the University of Alberta on February 15, 2003.

**Cori Lausen and Lydia Hollis** began the meeting with an overview of the bats of western Canada, summarizing their roosting and foraging habits. They were followed by **Gary Anweiler** who summarized the Noctuid moths (owlet moths), providing some general biology and an idea of the diversity of this group of moths. Following Gary's summary **Robert Barclay** briefed us on echolocation in bats. **Chris Schmidt** then provided a glance at Arctiid moths (tiger moths), where he summarized several hypotheses about the function of the ears, coloration and sound production of these moths. **Robert Barclay** summarized echolocation, which was followed by a summary of the diversity of micro-moths by **Greg Pohl**. **Joanna Wilson** summarized her work, which deals with the response of bats to outbreaks of spruce budworm. **John Acorn** gave us some insight into the more 'charismatic' moths and beetles, some of which are considered the 'holy grail' to moth researchers. **Krista Patriquin** then wrapped things up with an overview of bat research taking place in western Canada. Before breaking for dinner, Dr Felix Sperling, Curator of the University of Alberta EH Strickland Entomological Museum, gave a summary of the museum's virtual collection, and demonstrated how species information and photos could be accessed online.

Many interesting conversations developed from these presentations; the evolution of moth scales in relation to bat predation pressure was explored, and the feasibility of identifying moths in fecal pellets by identifying moth genitalia was discussed. One of the goals of this conference was also to put bat and moth researchers in touch with one another so that bat researchers could potentially collect moths that they come across during their travels. To this end we provided a copy of the distribution list for the WCBWG newsletter. So don't be surprised if you receive an email from a moth-type looking for a helping hand.

## BAT WORKING GROUP-4 CORNERS

A copy of the abstracts from the 1<sup>st</sup> WESTERN BAT WORKING GROUP/ 2<sup>nd</sup> Four Corners Regional Bat Conference, held January 29, 2003 in Durango, Colorado will be available at: <http://www.batworkinggroups.org/calendar.html> The following is a brief summary provided by Lisa Wilkinson at the last ABAT meeting:

About 200 people attended. Very management oriented, and not as science oriented as NASBR. A lot of cave and mine work was discussed as this is a big issue in many states. There was a bat inventory protocol workshop where attendees broke up into groups representing different bat 'roosting groups'. Dixie Pearson made a matrix of survey techniques for each of the types of bats and these were discussed. The Species Matrix will be incorporated with bat inventory protocols and be posted on the WBWG webpage. The EcoRegion Map associated with the Species Matrix was finally finished.





The protocol document will be a large evolving document providing protocols applicable to ALL bats. The document will be underscored with the requirements in each state/province so that people reading it know they can't just go out and do this stuff without permits.

Next conference is in Oregon in March 2005. (The Four Corners conference will be every 2 years from now.) WCBWG is going to try to secure enough money each time to send 3 Canadians.

At this conference, Lisa was given an award for her contribution to the WCBWG and getting the ABAT and WCBWG off the ground.

## **REQUESTS**

### **ANABAT REFERENCE CALLS**

I am responsible for compiling a list of reference calls collected with Anabat detectors. Originally this list was to include Alberta, however, now that we have created the WCBWG, I feel the list should be more exhaustive. If any of you have reference calls, could you please notify me and include the geographic region, species, number of individuals per species and habitat in which the calls were collected as well as your contact information.

Thanks for your help,  
Krista Patriquin  
lasiurus\_cin@yahoo.ca

### **VOLUNTEER(S) NEEDED**

Volunteer needed for fall bat work. Dinosaur Provincial Park, approximately early October to early November, depending on weather. It was determined recently that bats are hibernating in this area (this is the first natural prairie hibernation area found in western Canada). Using netting, radiotelemetry and ANABAT remote detectors, we will determine what species are using this park during the winter and what 'rock structures' are used as hibernacula. Potential exists for publication of these hibernation data. Accommodation will be provided in the park. Stipend provided based on experience. For more information, contact Cori Lausen, [corilausen@hotmail.com](mailto:corilausen@hotmail.com).

### **QUALIFIED BAT BIOLOGIST LOOKING FOR WORK**



I am presently working on data analysis and write-up for my M.Sc. thesis at the University of Calgary, and I will be defending in June 2003. I am looking for either part-time work, so that I can continue to work on my thesis, or full-time employment/contract work from June onwards.

The objectives of my thesis research were to determine bat diversity, distribution, and habitat use in forests of different ages and biogeoclimatic zones in the Skagit watershed of southwestern British Columbia. Besides publishing a thesis and scientific papers, I will be writing a management plan for bats in the Skagit to aid in their conservation in managed forests (in cooperation with a BC forest company). My thesis research provided excellent experience in developing, conducting and supervising scientific studies as well as data analysis and interpretation. I have extensive experience studying bat ecology, including mistnetting, radio-telemetry, acoustic monitoring, and echolocation call identification using multivariate statistics. I used a variety of techniques to quantify the structural complexity of my various sites, such as fixed radius plots and the point-quarter method for estimating tree density.

Before starting my M.Sc. degree, I worked as a biologist, where I gained a diverse range of experience both in Canada and in South America. Some of my relevant skills include:

- Mistnetting experience with bats and birds
- Extensive handling of bats, other small mammals, birds and fur seals
- Acoustic monitoring of bats using ANABAT II systems
- Acoustic identification of bats using Anabat/Analook software and multivariate statistics
- Radio-tagging and tracking experience with bats, woodpeckers and fur seals
- Vegetation plots associated with studies of bat habitat use/roost selection
- Plant identification (trees, shrubs and herbs)
- Ungulate, carnivore and small mammal track identification
- Survey experience (use of map, compass, hipchain, clinometer, GPS)
- Extensive leadership and supervisory experience
- Excellent oral and written communication skills
- Exceptional organizational skills and high motivation
- Ability to work well independently and in group situations

I would be happy to provide a copy of my resume at your request.

Sincerely,

**Tanya Luszc**

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## ANNOUNCEMENTS

## AWARDS



Lisa Wilkinson was presented with an award at the 1<sup>st</sup> Western Bat Working Group/ 2<sup>nd</sup> Four Corners Regional Bat Conference, held January 29, 2003 in Durango, Colorado. This award recognized her extensive involvement and contribution to the Western Bat Working Group as well as her initiative in establishing the Alberta Bat Action Team.

## **MEETINGS AND CONFERENCES**

### **34<sup>TH</sup> ANNUAL NORTH AMERICAN SYMPOSIUM ON BAT RESEARCH**

To be held in Lincoln, Nebraska, 8-11 October 2003.

### **7<sup>th</sup> ABAT MEETING**

TBA: probably sometime in October/November

### **2<sup>ND</sup> NORTH AMERICAN SYMPOSIUM WORKSHOP ON BAT CONSERVATION AND FOREST MANAGEMENT**

To be held in Hot Springs Arkansas, 9-12 March 2004. There will be invited speakers on topics ranging from The ecological role of bats in forests, Roosting ecology of forest-dwelling bats, Foraging ecology of forest-dwelling bats, to Relationships between forest management and bats, Inventory and monitoring for forest bats, and Bat conservation and forest planning. There will also be a call for contributed papers and poster presentations. Much of the final day will be devoted to specific workshop sessions designed to produce a "technical handbook" aimed at forest managers who want to include bats in their inventory, monitoring and forest planning. More information and contacts will come later.



## DISTRIBUTION LIST

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