Western Canada Bat Working Group
NEWSLETTER

ISSUE NO. 9 **FALL 2006**

CONTENTS

FROM THE EDITOR

Happy fall everyone! A few notes and important announcements:

Important Website Address 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.

Upcoming Western Bat Working Group Elections: Every 2 years the WBWG elects new Officers. This election is slated for early December. Please see the WBWG Update section for a complete list with bios of candidates who are running.

3RD WBWG Conference in Tuczon, 11-14 April 2007: The WBWG conference is held every 2 years. This is a conference designed to bring bat management and research together. For full details, see Annoucements section of this newsletter.

Alberta Bat Action Team Meeting, 21 Nov. 2006: A big welcome back to Lisa Wilkinson! Lisa returned from her maternity leave this summer, and will be chairing the next ABAT meeting. Thank you to Robin Gutsell for acting as chair during Lisa's absence. The meeting will take place in Edmonton. See ABAT Update section.

WBWG Website Offers New "Gray" Literature Section: Mike Herder has started a new website page at www.wbwg.org for submission of bat-related materials that would otherwise be less readily available (e.g. government reports/summaries, protocols, etc.). This section can be accessed from the WBWG home page and is called "Papers of Interest in Bat Conservation". There is a caveat on the site stating these resources are not reviewed and not necessarily endorsed by the WBWG. Please send materials to Mike (Michael_Herder@blm.gov) for posting. For example, right now the following 2 wind energy protocol documents can be downloaded from this site:

"Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California"

"Bats and Wind Turbines - Pre-siting and pre-construction survey protocols (Alberta)"

WBWG – Officially a Non-Profit Organization: Brad Phillips, WBWG Treasurer, after much paperwork, has now succeeded in having the WBWG recognized as an official non-profit organization in the U.S. This will now allow bat folks to apply for funding of projects under the WBWG non-profit umbrella, and tap into new funding sources. It will also provide some funding for the organization itself. How Canadians will be able to take advantage of this resource is still being explored.

Moved to Manitoba! Our beloved Dr. Craig Willis has disappeared into that central void of Canada…not in the west, but not in the east. Craig, where are you? What were you thinking? Are there even bats in Winnipeg?? Dr. Willis has recently shifted home base from the University of Regina Bat Lab to Manitoba where he now holds a faculty position at the University of Winnipeg. Hmmm …leaving Regina for Winnipeg…is this a step up or down?? We look forward to hearing from Craig in future newsletter issues!

Gerrit S. Miller, Jr. Award Winner in Saskatchewan: Our very own Dr. Mark Brigham of the University of Regina received the North American Symposium on Bat Research's highest honor, the Gerrit S. Miller Jr. Award. He was awarded in Wilmington, North Carolina last month at the 36th NASBR; the presentation was made by Dr. Robert Barclay (winner of this award in 2002) of the University of Calgary, whom Mark did his post-doctoral work under many moons ago!

Kanuckian bat researchers receive highest honour. 2006 and 2002 award recipients of the Gerrit S. Miller, Jr. Award.

I am writing my PhD thesis this winter! I hope you all have more interesting winter plans…I will be living vicariously!

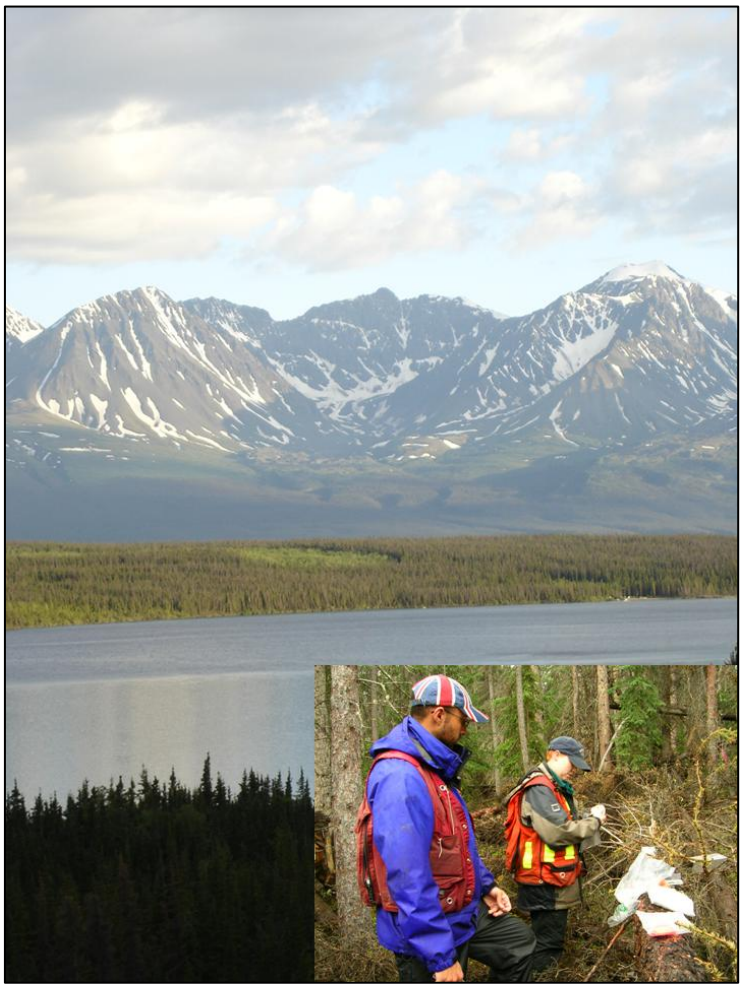
Cori, corilausen@netidea.com

UPDATES BY REGION

YUKON

Small Mammal Response to Disturbance in the Boreal Forest of Southwest Yukon

Lea Randall, University of Calgary



Large scale disturbances can have substantial impacts on small mammal demographics and activity. Our objective was to conduct a two year study (2006-2007) of the influence of spruce beetle (*Dendroctonus rufipennis*) infestation, logging, and forest fires on abundance, survival, recruitment, and species composition of small mammals such as deer mice (*Peromyscus maniculatus*) as well as monitoring little brown bat (*Myotis lucifugus*) activity approximately 10 years post-disturbance. We conducted a mark-recapture study of small non-volant mammals this summer (2006) as well as recorded and analyzed echolocation calls of little brown bats in the Haines Junction region of the Yukon. This area has been impacted by severe spruce beetle infestation and resulting forest fires and logging activity. 5 replicate sites of each disturbance type were studied. Deer mice were the only small mammals captured in the study area and were found in all disturbance types. The data has yet to be statistically analyzed but preliminary observation suggests that bat activity may be higher in Spruce beetle infested forests.
All work was done in cooperation with
Thomas Jung, Yukon Depart. of Environment.

Bats and the Midnight Sun

Jennifer Talerico, University of Calgary

This summer I spent four months up in beautiful Watson Lake Yukon conducting research for my MSc. I was interesting 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. My research was conducted primarily around two colonies of little brown bats that had approximately 200 and 75 individuals, respectively. I examined: (1) bat emergence and return time, (2) foraging habitat, (3) diet, (4) insect abundance and distribution (5) light intensity and (6) weather. Preliminary results indicate that little brown bats in the Yukon have a different feeding ecology than populations further south. During Solstice, the first bats emerged from the roost around midnight and the last bats returned at approximately 3:00 am whereas near the end of August bats were emerging at 10:00 pm and returning around 5:00 am. Bats were observed flying in snow, heavy rainfall and temperatures below zero. Research was conducted in conjunction with Thomas Jung, Yukon Department of Environment.

SASKATCHEWAN

Submission from Mark Brigham, University of Regina

An Update from the U of R Bat Lab

Kristin Bondo, Miranda Milam-Dunbar and I were at the North American Bat Meetings in Wilmington in October. For me that was followed by a trip to Greensboro NC where Jackie Metheny (a M.Sc student who I co-supervise with Matina Kalcounis-Rüppell) successfully defended her thesis. The gist of her work is that genetic relationships play not role whatsoever in social relationships among big brown bats in the Cypress Hills.

Kristin Bondo gave a neat poster on how to safely climb roost trees. She spent a lot of time learning and practicing arborist techniques this summer to climb trees in a manner that is safer for her and easier on the trees. She will be doing her second and last field season in Cypress Hills next summer, evaluating specific details about cavity structure in relation to bats roosting choices.

Miranda, who is a student representative on the Board of Governors for NASBR is about to take off for a winter of measuring metabolic rates across North America for her first field season as part of her PhD. Kristen Kolar is just about finished her M.Sc. (a wee thing called getting married has slowed her down just a bit). Devin Arbuthnott won a summer NSERC scholarship award and continued his foraging project in the Cypress Hills this past summer. He has submitted a manuscript based on that work before heading off to SFU to do his MSc on walking stick insects.

Perhaps the best thing to come out of the lab this summer is that we got Dr. Craig Willis to move. He is now gainfully employed at the University of Winterpeg in Manitoba.

My time has been taken up with a few minor tasks. I keep getting sent papers on bats to steer through the review process by the Journal of Mammalogy. I officially became Dept. Head on 1 July and promptly left for South Africa for a month (did some work on some feathered bats called Freckled nightjars which I talked about at the bat meetings) and spent the fall begging NSERC for more money so that we can do more work to uncover a few secrets.

NORTHWEST TERRITORIES

Submission from Cori Lausen

New NWT Citizen

Joanna Wilson has a very good excuse for not making a NWT submission this fall! Joanna and her husband Matt welcomed baby Anya into their lives last month. Congratulations!

Bat Survey of Nahanni National Park Reserve

Cori Lausen

I was lured north this summer. With the assistance of 3 Parks Canada employees (Kim Schlosser, Jarret Hardisty and John Waithaka), I carried out the first formal bat survey of Nahanni National Park Reserve, Northwest Territories (in SW NWT located along the South Nahanni River, 61-62 degrees latitude). Access into the park was by float plane and travel down the river was by whitewater raft. Additional travel by helicopter was necessary to survey the nearby Nahanni North Karst.

The survey started on 15 July and ended 5 August, with a total of 18 netting nights. The goal of the survey was to establish bat biodiversity in the park, and in the surrounding area of the park; an additional impetus for the work was to provide information to the Nahanni Expansion Working Group about bat species and habitat, to support their efforts to expand the park and determine placement of new boundaries.

Prior to this survey, 2 species were known from the park (*Myotis septentrionalis* and *M. lucifugus*). An additional species was known in NWT from a sight record of *Lasiurus cinereus*.

In this survey, we captured only a small number of bats due to *extremely* challenging netting conditions (ie. very short nights, constant twilight, extreme density of mosquitoes, over-abundance of standing water, open forest with no clear flyways, limited number of netting sites within hiking distance of river, and more!). But the thick mud and mosquitoes sure made the capture of a bat that much more rewarding! We captured 17 bats of 4 species (*M. lucifugus, M. septentrionalis, M. evotis* and *M. volans*). Using AnaBats, I monitored each night and acoustically identified an additional 3 species (*E. fuscus*, *L. cinereus* and *L. borealis*). *E. fuscus* and *L. noctivagans* are of course acoustically very similar, but on several occasions *E. fuscus* was visualized, confirming this species presence. *L. noctivagans* may be present in the park, and especially south of the park along the Liard River where excellent deciduous forest habitat exists. Further survey work is needed to confirm the presence of this species, and the other 2 migratory species. A few additional nights of acoustic monitoring were done in Ft. Simpson, on the Mackenzie River, and *L. cinereus* was also detected here. Several weeks following the park survey, a few park employees reported seeing an "orange bat" near an area where my AnaBat had detected a red bat pass, providing further support for the presence of this species in the NWT. This would be a substantial range increase for this species, and further west than previously recorded.

In total, 7 bat species were identified for the park, with an 8th (*L. noctivagans*) potentially present. This is the furthest north record of *M. volans* and *M. evotis* and expands their range several hundred kms north. This work was made possible by Canadian Parks and Wilderness Association (NWT), Parks Canada, and Mountain Equipment Co-op.

MONTANA

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

The Montana Heritage Program conducted mist net and acoustic surveys for the USFS and BLM across a large portion of Montana during the 2006 field season. We added several new county records for species. We hope to do additional survey work for the USFS, BLM, and Montana Fish, Wildlife, and Parks in 2007 in order to add survey information for regions still lacking baseline information. These areas include the Bob

Marshall Wilderness area, large portions of Beaverhead and Madison Counties in SW Montana, and large portions of eastern Montana north of the Yellowstone River. We will try to get partners to work off of a common grid for these surveys with the wildlife grid used for the Region 1 USFS bat surveys being the most likely candidate.

A couple of hoary bats found dead just south of Dillon in August were sent to the state health lab and according to Kristi Dubois they have been confirmed to be positive for rabies.

BRITISH COLUMBIA

West Kootenay Townsend's Big-eared Bat Project – Update 2006

Thomas Hill, Aaron Reid, Ross Clarke and John Gwilliam, Fish and Wildlife Compensation Program – Columbia Basin, Nelson, British Columbia, Canada

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 Townsend's Big-eared bat (TBEB). Prior to this project, TBEB had only been documented roosting in three locations in 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=17) were tracked from fixed wing aircraft. Over three years TBEB were documented roosting in 58 new locations (27 natural rock features, 16 abandoned mines and 15 buildings) and three new populations were identified.

Maternity roosts were located in four natural rock features and one building. Cold season surveys have been limited, however TBEB were found hibernating in five abandoned mines and one natural cave. All roosts occurred in either the *moist-warm, dry-mild, 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 two of the hibernacula and five of the maternity roosts. Temperatures in cave maternity roosts were cooler and more stable than building roosts. Mean maternity roost temperatures were 15.7 ^{0}C +/- 0.028 SE in the natural caves and 19.3 ^{0} C +/- 0.067 SE in the buildings. The mean hibernacula temperature was 6.3 ^{0}C +/- 0.014 SE in the mine and 1.2 ^{0} C +/- 0.03 SE in the natural cave. Mean Relative humidity was almost identical in both hibernacula (75.4% +/- 0.257 SE) only differing by 0.3%.

In 2006, foraging behaviour was examined in the Creston Valley through radio-telemetry. Foraging home ranges averaged 36.6 km2 with centers of activity averaging 4.7 km2. The maximum distance travelled from the maternity roost to foraging areas was 8.9 km. Bats followed a predictable pattern each night, returning to the same areas to forage. Centers of foraging activity are dominated by mature black cottonwood stands bordering large river channels, which occur at an interface with wetland ecosystem complexes. Foraging habitat associations were evaluated following a use / availability design. Our best supported model identified three habitat parameters of significance (mature black cottonwood, open water and upland coniferous). Associations for both upland coniferous and open water were negative, with lower observed use of these types compared to random. The most significant parameter of our best supported model, which has a higher observed use than random, is mature black cottonwood.

Conservation strategies include working with the Ministry of Mines to develop a protocol that incorporates the needs of TBEB 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 on forested landscapes receive adequate protection.

Kootenay Community Bat Project: A Community Approach to Bat Inventory and Conservation

Juliet Craig, Silverwing Ecological Consulting, Nelson, BC and Mike Sarell, Ophiuchus Consulting, Oliver, BC

The Kootenay Community Bat Project (which started as the Slocan Valley Bat Project) was initiated in 2004 as a community approach to bat inventory and conservation. The success of this project led to its expansion to the West Kootenay in 2005, the East and West Kootenays in 2006. The goals of the project were to promote education and awareness of bats, identify bat roost sites (particularly on private land), and assist landowners with roost conservation planning.

Extension activities included numerous press releases, bat-house building workshops, interpretive programs and public mist-netting nights. Residents were encouraged, through posters and the media, to report their bats so that project biologists could visit their roost sites, identify species present, and discuss and address their issues. As well,

we provided strategies to conserve and enhance roosts, and encouraged residents to monitor their bat populations.

In the past three years, the project biologists visited almost 400 actual or suspected roost sites, and identified more than 285 roosts for seven species of bats including California myotis, western long-eared myotis, little brown myotis, Yuma myotis, long-legged myotis, big brown bat, and Townsend's big-eared bat. Two of these roost sites were maternity colonies for the threatened Townsend's big-eared bat, and two other potential maternity roost sites have been reported for this species but not confirmed.

One of the greatest values of this project was the education and awareness component that was integral to each of the project activities. In 2006 alone, the project received over 300 phone calls to report bats or request information, and has had hundreds of participants at local programs. This year was the final year of the project, although we will continue to respond to future bat reports and requests for information. A webpage is being maintained to facilitate ongoing community involvement.

Pallid Bats in the Okanagan Valley, BC.

Mike Sarell, RPBio and Ron Hall, Osoyoos Indian Band

This project continued research on Pallid Bats, primarily on lands within the Osoyoos Indian Reserve at the southern portion of the Okanagan Valley, British Columbia. This area is the northernmost extent of the range of the Pallid Bat. During this years work, twenty-three Pallid Bats were captured at nine foraging locations. All were banded except young that were just learning to fly. Two adults of both genders were radio-tagged during the summer and tracked to their respective roosts. Unfortunately both of these bats appeared to vacate the study area prior to end of the transmitter life.

Roosts observed in previous years were also used this year, supporting the belief that day roosts are learned and repeatedly used within a population. Emergence counts revealed similar population sizes as previous years. Three new roosts were also identified. Late season netting revealed only juvenile bats. Two juvenile males were radiotagged and tracked during this latter period. Both continued to forage during the early evening until at least the 17th of October, 2006. Foraging bouts ceased at least until 25th of October, after which time they were not detected. We are still trying to determine whether there was a sudden relocation or the bats retreated into deep fissures in the bedrock. Despite being netted at the same location and initially roosting together, these bats ultimately roosted at separate locations, one in a warm aspect cliff and the other on a cool aspect. These observations represent the latest Pallid Bats detections in Canada. Field work was led by Jamie Squakin of the Upper Similkameen Band and the project was funded by the Interdepartmental Recovery Fund (IRF). This project built on the previous success of four consecutive years of Pallid Bat research, led by Daniela Rambaldini.

ALBERTA

Bat Work in B.C. and Alberta

Scott Grindal, Jacques Whitford/AXYS Environmental Consulting

During the summer and early fall 2006, I was involved in three bat projects in Alberta and British Columbia. I conducted an inventory-level bat survey in northeastern Alberta for a proposed oilsands development. I also was involved in a similar inventory-level survey of bats in southern British Columbia, as part of a pre-construction assessment for a proposed mine. I also developed and implemented a pre-construction survey for a proposed wind energy development in northeastern British Columbia.

I am currently assisting Steve Bradbury (ARC) with developing an approach for assessing the regional status of northern long-eared bats in north eastern Alberta.

Ground-Roosting Ecology and Evaporative Water Loss in Prairie Bats

Jeff Gruver, University of Calgary

This past summer saw me and my crew back in Drumheller, Alberta for my third field season. Armed with a completely new array of equipment with which to measure oxygen consumption and evaporative water loss, I set forth to add to my collection of data that I hope will help me unravel the ecophysiological mysteries of the western long-eared bat (*Myotis evotis*). I'm pleased with how the season went, and now have only to finish compiling and analyzing my data (no problem!). Preliminary results lend support to my hypothesis that rates of water loss differ between males and females, and analyses in the near future will tie these physiological results to those on differences in roosting ecology.

The Effects of Urbanization on Prairie Bats

Joanna Coleman, University of Calgary

I completed the first season of field research in my PhD project, entitled, The effects of urbanization on Prairie bats. I collected acoustic and capture data at urban and non-urban sites in and around Calgary. I caught a total of 585 bats, and from capture data, at least six species occur in my study area. *Myotis lucifugus* was the most commonly caught species at both urban and non-urban sites. The other species include *Eptesicus fuscus, M. volans, Lasiurus cinereus, L. borealis* and *Lasionycteris noctivagans*. It also appears that *M. lucifugus* females in the city give birth earlier than their non-urban counterparts. I will be continuing to analyse my data to look for differences between urban and non-urban populations in terms of productivity, as well as differences between urban and non-urban bat community composition.

Bats and Wind Turbines

Erin Baerwald, University of Calgary

From June through September 2006, I used a combination of methods to address my research questions. I monitored the echolocation calls of flying bats, using Anabat ultrasonic microphones at several wind farms in southwestern Alberta. To provide an accurate estimation of bat activity at blade height, I placed Anabats on the nacelles of selected turbines (67m from ground level) with a sister system at ground level (~1m off the ground) to provide a measure of activity detected from the ground. I used six Anabats (three pairs) at Summerview wind farm and monitored continuously from June through September.

Daily carcass searches, together with nightly acoustic monitoring, will allow me to correlate nightly weather with activity and mortality. Marine radar sampling was conducted from 1 – 31 August. Radar sampling will help us determine the number of bats moving through the area, as well as their height, speed and flight direction. Radar sampling combined with acoustic monitoring and daily/weekly carcass searches will help me determine what proportion of bats moving through the area were killed by the turbines.

Using a second field team, I conducted acoustic monitoring at three proposed and three existing wind farms. Monitoring used a combination of Anabats mounted on meteorological (Met) towers and at ground level. The Anabats mounted on Met towers were positioned ~30m from the ground. Monitoring at various sites in the region will help address regional variation in activity levels and mortality rates.

In 2005, 532 bat carcasses were found at Summerview and in 2006, 611 were found. Preliminary data from 2005 and 2006 indicate that mortality varied considerably from day to day and week to week. The majority of mortalities were hoary and silver-haired bats. Both adult and juveniles of both sexes were killed. Migratory bat activity in the fall was highest at wind speeds below about 6 m/s, suggesting that there may be potential operational actions that would reduce bat mortality. I will spend the winter and spring of 2006/2007 analyzing and interpreting the data.

Subspecies Designations for Little Brown bats: A thing of the past?

Cori Lausen, University of Calgary

C. Lausen, I. Delisle, R.M.R. Barclay: Little brown subspecies were originally defined using morphology and geography; *M. l. carissima* was thought to have a shorter forearm and lighter fur colour than *M. l. lucifugus,* and thought to be a western subspecies, versus *M. l. lucifugus*, found in the east and north. Interestingly, these original definitions have never been revisited.

We have shown that forearm increases significantly moving from south to north (Montana up to northern AB) within the *M. l. lucifugus* subspecies. And this same pattern is found *M. ciliolabrum* and *E. fuscus*, suggesting forearm length in bats can be clinal, and may not a reliable diagnostic trait. We also found that fur colour in little browns (and *M. ciliolabrum*) does NOT correspond to subspecies designation when genetically tested. In other words, *M. l. lucifugus* and *M. l. carissima* do not appear to be differentiable using the morphological differences used in the original subspecies definitions. Additionally we found that females of both "subspecies" were roosting together in maternity colonies!

Therefore, the ONLY thing differentiating these 2 supposed subspecies is mtDNA. However, mtDNA is only "part of the picture", because it is passed on only by *females* from generation to generation. When we looked at nuclear DNA (which is inherited from *both* parents), it turns out that *M. l. lucifugus* and *M. l. carissima* are actually *one breeding population*. Of course, we have only shown that these bats are interbreeding in one overlap zone in southern AB and north-central Montana. Do they interbreed elsewhere? According to Tanya Dewey (PhD Thesis, University of Michigan), *M. l. lucifugus* is found throughout the range of *M. l. carissima*, so we hypothesize that this interbreeding is likely to be happening on a large scale. If this is the case, then the subspecies designation of *M. l. carissima* should be dropped, as it does not appear to be biologically meaningful. A similar study of the other little brown subspecies is needed.

Bat Surveys in Northeastern and Southern Alberta

Carol Stefan, Golder Associates Ltd., Calgary T2P 3T1

We conducted three baseline bat surveys in northeastern Alberta in the summer of 2006. All surveys were in support of environmental impact assessments for oil sands projects. Two projects were in the Fort McMurray region and one in east central Alberta. Surveys included capture and echolocation call detection at study sites throughout the lease areas. Golder also conducted pre- and post-development monitoring for several wind farm projects from spring through fall of 2006 in southern Alberta. Pre-development surveys included site assessments and echolocation call detection. Carcass surveys were completed for operating wind farms. Data analysis and reporting is still being completed for all projects.

Surveys in NE Alberta

Chris Godwin-Sheppard, Senior Wildlife Biologist, AMEC Earth & Environmental, Calgary T2E 6J5

AMEC Earth & Environmental conducted bat surveys for three projects in northeastern Alberta during July and August 2006. Two surveys were in support of environmental impact assessments for proposed oil sands projects north and east of Fort McMurray, and the third was conducted as part of a monitoring program in the Cold Lake region. Surveys included mist netting and echolocation call detection at selected sites over five nights in each of the lease areas. A total of 56 bats were captured in all three study areas, including four red bats. Two adult males and one adult female were caught north of Fort McMurray, including two on the same night. An adult female red bat was also captured near Cold Lake. Echolocation data has not been fully analyzed, but preliminary results indicate the red bat was recorded in all three areas. To our knowledge, this species has only been captured on two other occasions in northeastern Alberta. Other bats captured during the surveys included northern long-eared, silver-haired, and little brown bats. An adult male hoary bat was also captured near Cold Lake.

ALASKA

Submission from Aaron Poe

Distribution and Habitat Ecology of Bats in Southeast Alaska With Emphasis on *Myotis keenii*

Julia Boland and John Hayes of Oregon State University, Department of Forest Science, Oregon State University, Corvallis, Oregon

We returned to Prince of Wales Island in May 2006 to continue surveys of bats and radio-track *Myotis keenii* to day-roosts. The results of our surveys lead us to believe that *M. keenii* occur in Southeast Alaska from Juneau (ca. 59° N latitude) to Prince of Wales Island (ca. 55° N latitude). We captured 19 *M. californicus*, 34 *M. keenii*, 23 *M. lucifugus*, and 8 *M. volans*. We radio-tagged 19 *M. keenii* (13 female, 6 male) and we tracked them to 108 day-roosts. We located 97 roosts in live trees or snags, 6 in stumps, 3 under loose rock in a quarry, and 1 in a rock crevice. We examined characteristics of trees where roosts were located and the habitat surrounding each roost on multiple spatial scales. We will compare these characteristics to randomly selected trees and their surrounding areas to determine which roost and habitat characteristics are selected for by *M. keenii*. This was our final season of data collection.

Bat-Friendly Mine Closure on the Chugach National Forest

Aaron Poe, wildlife biologist, Chugach National Forest, Girdwood, Alaska

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. 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 the Chugach and Tongass using Trailmaster motion sensors placed at entrances to detect bat use. These efforts combined with a year of monitoring internal temperature and humidity conditions led us to believe that the Granite Mine in the western Prince William Sound offered potential habitat for hibernacula. This is one of the largest and most structurally diverse mines in the region with over a mile of intact workings across seven levels. It is also a popular, though remote, destination for curious sea kayakers and power boaters in the western Sound. We were able to mitigate a potential safety concern with a bat gate closure which will allow for the protection of important potential habitat for bats. This closure operation was accomplished with contracted assistance from Holistic Wildlife Services from Newport News, Virginia.

Rabid Bat Found on Prince of Wales Island

Mary Rabe, Nongame Program Coordinator, Alaska Department of Fish and Game, Division of Wildlife Conservation, P.O. Box 115526, Juneau, AK 99811-5526, 907-790-1927, mary_rabe@fishgame.state.ak.us

A Keen's long-eared bat collected in mid-July on Prince of Wales Island near Whale Passage by Julia Boland tested positive for rabies, infected with a red bat rabies virus variant. Although relatively common in the continental 48 states, this is only the second incidence of rabies in bats recorded in Alaska. In 1993 a Little Brown Bat with rabies was collected near Ketchikan, about 40 miles from the one collected in 2006. Since the 1970s, the Alaska State Virology Laboratory has evaluated over 150 bat brain specimens for rabies. Bats from other regions in Alaska, including the Kenai Peninsula and the Anchorage-Mat-Su Valley areas, have all tested negative for rabies. In general migratory patterns of bats in Alaska are not well-documented. It is reasonable to assume that rabies circulates among bat populations in southeast Alaska, although the possibility that either of the rabies-infected bats were imported cannot be excluded.

ABAT UPDATE

ABAT Meeting, 21 Nov. 2006. 10:00 am. Edmonton, 5th Floor, O.S. Longman Building. Please contact Lisa.Wilkinson@gov.ab.ca for details. Tentative agenda:

1. Updates on bat work, 2. Updates on WBWG, 3. Highlights from NASBR
4. Bat protocol update, 5. Wind turbines, 6. Banding migratory bats
7. Certification for consultants working with bats, 8. Website and education
9. Other business

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

NASBR UPDATE

This year's North American Symposium on Bat Research was held 18-21 Oct. in Wilmington, North Carolina. Participation was about average with over 300 attendees.

There was a huge range of talks, posters, and product displays including:

- Wind energy impacts (including results of new acoustic deterrent experiments carried out by Joe Szewczak and Ed Arnett)
- Evaluation of waterproofing technique used on Anabats
- Discussion of whether banding of migratory bats should be encouraged given the "recapture" data provided by wind turbine mortalities.
- New fully automated software to extract and analyze echolocation calls and identify species
- New hardware for long-term recording of full spectrum acoustic data
- New system for long-term echolocation monitoring storing frequency division data
- Water troughs and bat mortalities
- Automated detection and tracking of bats in flight using thermal infared videography
- Winter ecology, behaviour and physiology of bats
- Predicted effect of climate change on bat distributions
- And many papers on Ecology, Genetics, Taxonomy, Behaviour, Rabies, etc.

Abstracts will be published in the next issue of Bat Research News, available at www.batresearchnews.org.

WESTERN BAT WORKING GROUP UPDATE

3rd Biennial Meeting of the Western Bat Working Group

Angie McIntyre, Bat Management Coordinator, Arizona Game and Fish Department
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Tucson, Arizona, April 11-14, 2007 at the Tucson Hilton East Hotel. The conference will offer wildlife researchers and wildlife managers who are responsible for or interested in bat ecology, management and conservation the opportunity to exchange information and ideas with others in western U.S, Mexico and Canada. The conference will focus on wind energy issues and abandoned mine management, bat species inventory and monitoring, and identifying ways WBWG can support states in their bat conservation/management efforts. Keep checking www.wbwg.org for information.

WBWG Newsletter

The WBWG Newsletter, issue 3 (Fall 2006) is soon to be released and can be viewed at www.wbwg.org. This issue includes a **Feature Section on Wind Energy and Bats**. If you would like this newsletter to be sent to you as a .pdf, please contact your

provincial/territorial representative. If you would like to be notified when the newsletter is available for download from the WBWG website, join the ListServ (instructions on the homepage).

WBWG Election Candidates

The following candidates are running for the 6 elected officer positions. For a full Bio of each candidate visit www.wbwg.org. Each province/territory/state is allowed one vote, therefore, to make your candidate preference known, please contact your WBWG Representative (list of representatives in NW North America follows). Elections will take place in early December.

POSITION	CANDIDATE	BRIEF DESCRIPTION (*see website for full Bios*)
President	Pat Ormsbee*	Bat Specialist, US Forest Service, Region 6 (Oregon & Washington)
Vice-President	Toni Piaggio*	Research Molecular Biologist USDA/APHIS/National Wildlife Research Center Ft. Collins, CO
Secretary	Michelle Caviness	Wildlife Biologist, Humboldt-Toiyabe National Forest, Santa Rosa Ranger District, Nevada
	Aimee Hart	Seasonal 1040 USFS Willamette NF SO Bat Technician
	Heather Johnson	Bat researcher and consultant working in California.
Treasurer	Brad Phillips*	District Wildlife Biologist, Black Hills National Forest (US Forest Service) in Custer, SD
At – Large (Vote for 2)	Linda Angerer	California Region 5 Bat Program Coordinator and Wildlife Biologist, Mendocino National Forest, Grindstone Ranger District
	Pat Brown	Consulting biologist (Brown-Berry Biological Consulting); Research Associate, Physiological Sciences, UCLA.
	Mark Hayes	Graduate Student, School of Biological Sciences, University of Northern Colorado
	Cori Lausen*	PhD student at University of Calgary, Alberta and Contract Biologist.
	Melissa Neubaum	Biological Science Technician at the Wildlife Genetics Lab (National Wildlife Research Center), Fort Collins, CO
	Daniela Rambaldini	Stewardship and Outreach Programme Coordinator, Biology Research and Conservation Department, Toronto Zoo
	Jason Williams	Non-Game Wildlife Biologist, Nevada Department of Wildlife

***** Currently on the Board of Officers.

Who is YOUR WBWG Representative?

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Education Committee

Deborah Crough (dannysgirltoo@yahoo.com)

The Education Committee is working hard to "get bats into schools". If you are interested in joining the Education Committee, please contact either Deborah or Pat Ormsbee (pormsbee@fs.fed.us).

The following is a summary of the committee's objectives to date:

1. A **curriculum unit** is currently undergoing a rewrite/update and *translation into Spanish*. This bilingual unit is expected to be complete by the end of November. The unit is written for a middle school/high school classroom and is to be made available online. Please forward requests for translation of education materials to Deborah Crough. It would be useful if anyone has National Standards or Benchmarks for **Canada** and **Mexico** or web addresses for *curriculum guidance*; please forward that to the education committee.

2. It was recommended that an **online list** of people be created as a resource within the group and a second list be developed for the public (educators primarily). It would be useful to know who is available in what region and what they are willing to offer the rest of the group or educational services. It would be useful to have a comprehensive list by state/region.

3. A **PowerPoint presentation** is to be created consisting of 10-20 introductory slides with photographs and script notes attached. These slides would be made available to educators to download for classroom use only. Rational: Often what stops a teacher from using curriculum is the supportive instructional materials required to complete the lesson. Hosting a PowerPoint slideshow on the WBWG web site would be of great assistance to the classroom teacher who does not have supplemental slides or audiovisual materials. **If you have photos that you would like to donate to this cause, please contact Deborah.**

4. Offer 2 short workshops at the **regional National Science Teacher Association conference** in Denver Colorado in the fall of 2007. This is a powerful forum for information gathering and networking with educators.

CLASSIFIEDS

SCHOLARSHIP/GRANT OPPORTUNITIES

2007 BCI Student Research Scholarship Program. Each year, BCI awards 10 to 15 scholarships. Most awards are for $2,500, but some may be as high as $5,000. Projects should be focused on the roles bats play in providing ecosystem services (such as pollination, seed dispersal, pest control or maintenance of biodiversity) and/or on habitat requirements that are critical to conservation. These scholarships are competitive and research proposals will be evaluated by a distinguished international panel of peer reviewers. The deadline for applications is Dec. 15, 2006. For more information or to apply, visit BCI's website at: www.batcon.org/bcigrants/scholarintro.asp or contact Bob Locke at grants@batcon.org.

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 kimwilliamsg@gmail.com; please email me if you have further questions. See http://www.sitemaker.umich.edu/kimwg for more details.

OTHER NOTICES

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

Know of Bats Killed by Glue Traps? A recent account of Victor mouse glue traps with 2 dead little brown myotis (*Myotis lucifugus*) stuck to the adhesive was brought to the attention of Idaho Fish and Game. Apparently, bats have been caught in the glue traps "numerous times." To get a sense of whether this is a widespread phenomenon, please contact Chuck Harris at charris@idfg.idaho.gov if you have a similar report.

2007 Conference Raffle – Request for Donations: The WBWG is looking for folks to donate 'items of quality' that can be used for WBWG fund raising at the April conference in Tucson. Specifically, merchandise for auction, silent auction or raffle. Contact Angie McIntire (AMcIntire@azgfd.gov), Pat Brown (PatBobBat@aol.com) or Brad Phillips (bjphillips@fs.fed.us) if you have an item to donate.

ANNOUNCEMENTS

MEETINGS/CONFERENCES/WORKSHOPS

3rd Biennial Meeting of the Western Bat Working Group Tucson, Arizona, April 11-14, 2007 at the Tucson Hilton East Hotel. The conference will focus on wind energy issues and abandoned mine management, bat species inventory and monitoring, and identifying ways WBWG can support states in their bat conservation/management efforts. Keep checking www.wbwg.org for information.

14th International Bat Research Conference *and* 37th 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. *Note*! There has been confusion about the international conference. Please ***disregard*** old websites advertising the international conference for earlier in August at Oaxaca, Mexico.

Ecology and Management of Bats session at the **TWS Monterey California Conference,** Jan 31 - Feb 2, 2007. http://www.tws-west.org

12th Annual Meeting of the Southeastern Bat Diversity Network and 17th Colloquium on Conservation of Mammals in the Southeastern United States. February 15-16, 2007 Destin, Florida. Deadline for submitting abstracts and early registration is January 29, 2007. Additional information about the meeting will be presented via the links on the SBDN website www.sbdn.org or contact the local host jeff.gore@myfwc.com.

1st International South-East Asian Bat Conference. Phuket, Thailand, 7 – 10 May, 2007at 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; Dr. Paul Bates, The Harrison Institute, hzm@btinternet.com; or Dr. Tigga Kingston, Texas Tech University, SEABatConference@hotmail.com. http://www.sc.psu.ac.th/bats

RECENT LITERATURE

2006 Published Papers by Western Canada Bat Biologists

Camaclang, A.E., L. Hollis, and R.M.R. Barclay. 2006. Variation in body temperature and the isolation calls of juvenile big brown bats (*Eptesicus fuscus*): consequences for individual recognition. Animal Behaviour. 71: 657-662.

Jung, T.S., B.G. Slough, D.W. Nagorsen, T.A. Dewey and T. Powell. *In press.* First records of the Northern Long-eared Bat, *Myotis septentrionalis*, in the Yukon. Canadian Field-Naturalist.

Lausen, C. and R.M.R. Barclay. 2006. Winter bat activity in the Canadian prairies. Canadian Journal of Zoology 84: 1071-1078.

Lausen, C. and R.M.R. Barclay. 2006. Benefits of living in a building: big brown bats (*Eptesicus fuscus*) in rocks versus buildings. J. Mammalogy 87:362-370.

Lloyd, N., J. Wilson and R.M.R. Barclay. 2006. Behaviors of western spruce budworm moths (*Choristoneura occidentalis*) as defences against bat predation. J. Insect Behav. 19:533-544.

Psyllakis, J.M. and R.M. Brigham. 2006. Characteristics of diurnal roosts used by female *Myotis* bats in sub-boreal forests. Forest. Ecol. Manage. 223:93-102.

Solick, D.I. and R.M.R. Barclay. 2006. Morphological differences among western long-eared bat (*Myotis evotis*) populations in different environments. J. Mammalogy 87:1020-1026.

Solick, D.I. and R.M.R. Barclay. 2006. Thermoregulation and roosting behaviour of reproductive and non-reproductive female western long-eared bats (*Myotis evotis*) in the Rocky Mountains of Alberta. Canadian Journal of Zoology 84:589-599.

Willis, C.K.R., R.M. Brigham and F. Geiser. 2006. Deep, prolonged torpor by pregnant, free-ranging bats. Naturewissenschaften. 93:90-83.

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. Mammalogy 87:345-350.

Wilson, J. and R.M.R. Barclay. 2006. Consumption of caterpillars by bats during an outbreak of western spruce budworm. American Midland Naturalist. 155:244-249.

"Gray" Literature

Gruver, J.C. and D.A. Keinath (2006, October 25). Townsend's Big-eared Bat (*Corynorhinus townsendii*): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/townsendsbigearedbat.pdf [date of access].

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