Western Bat Working Group

WBWG NEWS

Volume 2, Number 2 November 2006

Feature Section: Bats and Wind Energy - Page 6

Wind farm in SW Alberta. See Erin Baerwald's article on page 7

Western Bat Working Group

NEWSLETTER

Volume 2, Number 2 **November 2006**

Table of Contents

PRESIDENT'S CORNER

It's fall - how did it arrive so quickly? It's a sneaky season, predictably showing up at the end of summer every year, yet always a little surprisingly. For me, fall symbolizes a time to slow down, even if it's only a little bit, and to reflect on where I've been and where I'm going. This feels true for the WBWG as well, as we move towards electing new officers, planning our biennial meeting in Tucson for April 11-14, and reviewing our Work Plan to make sure we're on track to meet the expectations of our members.

I'm thrilled with the members who have come forward to run as Officers of the Board for WBWG, I know whoever is elected will enjoy their time on the board and bring their own unique skills to the group so that we all benefit. While Toni and I would much prefer competition for the positions of Vice President and President, at the time of this writing it looks like we'll be running unopposed. This will be the last term either of us run, so please be thinking about who will be willing to run for these 2 positions in a couple of more years. For those of you in the U.S., if your mailbox and phone messages at home are anything like mine, you couldn't possibly forget to vote this year in the local and national elections - I even got a phone message from Bill Clinton reminding me to vote! Despite the deluge of voting propaganda many of you are getting for governmental elections, here's my plug to ask you to vote for the contenders of your choice that are running for the WBWG Officer positions. Your State or Provincial Representative will be asking for your vote soon, so please take the time to respond.

Our 2007 conference will be in Tucson April 11-14 this year with a number of potential topics of focus, including a field trip to review the WBWG mines and caves survey protocol, The Bat Grid inventory and monitoring strategy, banding of migrant species bats, and wind energy issues. Tucson is a delightful town and I know Angie McIntire is working hard to insure we have a good session. Toni has finalized a letter that is going out to the States and Provinces requesting financial support for the conference, so please do what you can to encourage your State or Province to contribute towards this important gathering.

Many of the emerging issues that we'll be looking at during the conference have instigated a need to revisit and update our Work Plan, so that it and the Board of Officers can be responsive to these issues. The Board of Officers has agreed to update the Work Plan for review and approval by the State and Provincial Representatives.

As usual, the highlight of my fall was the North American Symposium on Bat Research (NASBR) which was in Wilmington, NC this year. It was an international smorgasbord of information on bats from the work of students and professionals alike. The symposium was fun, stimulating, and overwhelmingly informative. There was a great field trip that included kayaking through the bottomland and a number of wonderful opportunities to network with new and old friends and colleagues. If you haven't attended one of these sessions I encourage you to do so as the rewards are numerous. Next year the symposium is in August in Mexico, in New York in 2008, and in 2009, Jan Zinck and I will be hosting the NASBR in Portland, OR and we hope WBWG also will be willing to help out to put on that session. In the meantime, Have a great holiday season and I look forward to seeing you all in Tucson in April!

Sincerely, Pat

Barbara Ogaard of Bats Northwest, kayaking in the North Carolina bottomlands on the 2006 NASBR field trip.

HEADLINERS

By Cori Lausen and Pat Ormsbee

Tucson WBWG Conference in April! Every 2 years the WBWG hosts a conference to bring bat management and research together. This year's conference is April 11-14, 2007. Check out the Upcoming Events section for more details.

Upcoming Elections! Well, 2 years has gone by quickly! Be sure to check out the special section WBWG Election of Officers for a list of candidates with their bios. According to the WBWG bylaws, new officers need to be elected by the end of the calendar year. Thanks to our election committee members, **Derek Hall, Chuck Harris, Brad Phillips**, and **Toni Piaggio**, for putting the elections together.

We are Non-Profit! The WBWG is now officially a non-profit organization! Thanks to **Brad Phillips** for doing all of the paperwork!

New WBWG Website Coordinator Slated for August. Special thanks to **Scott Pedersen** for agreeing to take over the WBWG website management and update in summer of 2007. Scott would like input from the members on what we'd like the website to include, so please give him your input. Special thanks to **Mike Herder** for his hard work to bring the web page to where it is today!

Moving Forward with AFWA. Thanks to **Angie McIntire** and **Tim Snow** for taking the lead to work with the Association of Fish and Wildlife Agencies (AFWA) to pursue leadership for a North American bat program.

Education Committee Off to a Great Start. Thanks to **Deborah Crough** for her leadership on the education committee. She has outlined a number of objectives, and has begun to implement some of her ideas. See the special section Education Committee for details and if you want to get involved with the educational committee, please contact Deborah directly: dannysgirltoo@yahoo.com.

WBWG Moms. Congratulations to **Joanna Wilson**, WBWG Representative from Northwest Territories on the recent birth of her daughter, Anya; **Jennifer Newmark** our Representative from Nevada on the recent birth of her son, Zander; and it is great to have **Lisa Wilkinson**, our Alberta Representative, back from her maternity leave!

Saskatchewan Rep. Receives Highest Honor at 36th NASBR. The Gerrit S. Miller, Jr. Award was presented to **Dr. R. Mark Brigham**, of the University of Regina in Wilmington, North Carolina last month.

The National Wind Coordinating Committee (NWCC) just held its 6th national wildlife meeting in San Antonio, TX. This meeting discussed up-to-date research being conducted to understand the interaction of birds, bats, and other wildlife with wind energy development; looked at what we've learned about ways to minimize or mitigate wind energy's impacts on wildlife; and identified gaps in knowledge and research needs. The proceedings will soon be posted on the NWCC web site: http://www.nationalwind.org. You can also find the proceedings of their past meetings on the web site, along with other useful links and resources related to wind energy development.

ABOUT THIS NEWSLETTER

The .pdf of this newsletter is available online at http://www.wbwg.org, or from your state/provincial representative; to receive notification each time a new issue is posted, please join the Listserv (instructions on home page). If you have news items you'd like to share with the newsletter, please contact the WBWG representative for your province/state (see listing at end of newsletter), or send an email directly to corilausen@netidea.com. We accept submissions at any time of the year! Thanks for making this networking opportunity possible.

Cori Lausen and Kristi DuBois, Newsletter Editors

WBWG ELECTIONS!

Submitted by Derek Hall

In accordance with WBWG bylaws, every 2 years there is an election of Officers. Elections for will be happening soon. Ballots will be e-mailed to each state representative by November 15th. A short bio of each candidate will be attached to the e-mail and will also be available on the WBWG website. It will be the responsibility of the state representatives to solicit input/votes from their respective members and then cast their single state vote based on this input (one vote per state, must represent majority of state members votes) by December 15th. Members will be voting for President, Vice President, Secretary, Treasurer, and two At-large Board positions. Please see below for list of candidates:

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.

FEATURE SECTION: BATS AND WIND ENERGY

The use of wind as an energy source is on the rise in the west: Alberta, B.C., Saskatchewan, California, Montana, Nevada, New Mexico, Washington, Wyoming, Texas, Oregon… In other words, wind turbines are dotting the western landscape! The impact these turbines are having on bats is currently being investigated and research is moving forth with understanding the problem and possible solutions. This special newsletter section highlights some of the work going on in this field. There is also mention of wind energy work (e.g. pre- and post-construction bat surveys/monitoring) scattered throughout the newsletter, also indicative of this increasingly widespread issue.

Wind Energy and BCI

Ed Arnett, Bat Conservation International

Bats and Wind Energy Cooperative: The Bats and Wind Energy Cooperative was organized in 2003 by BCI in collaboration with the USFWS and includes the National Renewable Energy Lab and the American Wind Energy Association. Goals of the cooperative are to ensure scientifically credible investigation and reporting of mortality events and to conduct collaborative research to find solutions to prevent bat kills at wind power generation facilities. The cooperative's peer reviewed research findings and summary recommendations are available at www.batcon.org under "conservation programs" and "bats and wind energy." Manuscripts from this work have been submitted, with two in press and others recently submitted. In 2005, research was refocused to evaluate pre-siting techniques used to assess risk at proposed locations for wind power facilities. In 2006, BWEC continued evaluating the use of acoustic detectors to assess risk at proposed locations for wind power facilities and began laboratory and field tests of potential deterrent devices. Reports from these studies are available for download on BCI's website.

BCI Wind-Related Activities: BCI developed a position statement in cooperation with several organizations highlighting key issues of mutual concern and encouraging investors in "green" energy to favor companies that cooperate with scientists and conservationists in accurately assessing threats to wildlife and finding solutions. The statement reads: "The undersigned groups support the development of clean, renewable energy sources. Minimizing and mitigating the harmful impacts to wildlife is an important element of "green energy." Developers of green energy sources should cooperate with independent scientists and natural resource agency specialists in developing and testing methods to minimize harm to wildlife. Investors should encourage this cooperation by investing in companies that support this research in all ways." To date, BCI, Defenders of Wildlife, Izaak Walton League, National Council for Science and the Environment, Ornithological Council, Society for Conservation Biology, Washington State Audubon, and The Wildlife Society have signed on as co-sponsors of this statement of joint concern. BWEC director Ed Arnett has testified before the National Research Council's wind-energy review committee, is a participating member of the International Association of Fish and Wildlife Agencies subcommittee on wind energy development, and is chairing a committee for The Wildlife Society charged with producing a technical review on wind energy impacts on wildlife. Ed will be preparing draft position statements on wind for the Western Bat Working Group and NASBR and also is working with BLM biologist Mike Herder to develop monitoring strategies and protocols for the Bureau of Land Management nationwide. Merlin Tuttle recently served as an expert witness for a legal action brought forward by TNC and others on a proposed wind project in Virginia.

Wind Farms Monitored in SW Alberta

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.

(Cover photo: Wind farm in SW Alberta. Although agricultural lands were predicted to have little bat activity, Erin Baerwald of the University of Calgary has been finding carcasses of migratory bats under wind turbines here. She presented her findings at the 36th NASBR last month.)

Wind Energy in California

Bronwyn Hogan

As in other parts of North America, wind energy development is booming in California. A recent monitoring report by a company in Solano County, California (High Winds) documented significant bat mortality, including (in order of numbers) hoary bats, Mexican free-tailed bats, western red bat, and silver-haired bat. The California Energy Commission (CEC) is preparing a document entitled Statewide Guidelines for Reducing Wildlife Impacts from Wind Development. The focus of these guidelines is avian and bat mortality issues. Bill Rainey and Bronwyn Hogan are part of the scientific advisory committee which is reviewing the document. The California Bat Working Group also wrote and submitted Guidelines for Assessing and Minimizing Impacts to Bats at Wind Energy Development Sites in California as a written comment to the CEC. The Public Interest Energy Research program of the CEC is holding the first workshop to develop a list of research priorities for avian and bat issues on November 2, 2006. Comments on the program are due by Nov 7, 2006 (for more information, go to http://www.energy.ca.gov).

Documents/Guidelines

The following 2 documents are available for download from http://www.wbwg.org in the "Papers of Interest" section:
"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)"

USGS Research

Paul Cryan of USGS, Fort Collins Colorado and Ernie Valdez, paul_cryan@usgs.gov

Paul Cryan is involved in several projects that relate to bats and wind turbines including: using stable isotope analysis to track the origins of hoary bats killed at turbine sites; trying to establish a repository of bat carcasses recovered from wind turbines in North America; studying the influence of weather on the autumn migration of hoary bats; and studying the food habits and reproductive status of hoary bats during migration (with Ernie Valdez)

Banding Migratory Bats

Banded Hoary Found Under Turbine in SW Alberta

Last spring, a dead hoary bat with a band was recovered from under a wind turbine in SW Alberta. The band is made of cloth and had been placed around the bat's forearm by being threaded through a small slit in the wing membrane. The band material is white with the red number 143 written on it (see photo).

If you have information about this band, please contact:

Dr. Robert Barclay, Biological Sciences, University of Calgary, Calgary, AB T2N 1N4 barclay@ucalgary.ca.

Dr. Barclay's article about this band recovery appears in the Fall 2006 edition of Bat Research News; he also made a brief presentation at the latest NASBR putting forth the idea that banding of migratory bats may provide useful information about migration given the new "sampling method" of turbine mortalities (see NASBR Update Section). He stresses the importance of looking for bands on carcasses under turbines.

A Tribute to Fred Stabler

Submitted by Michael Herder

Donald Frederic "Fred" Stabler passed away on June 14, 2006 following a boating accident near his home in Gautier, Mississippi. Fred was 58. Fred retired from the Bureau of Land Management in January of 2005 after more than 30 years of service.

Fred demonstrated a real passion for bats and bat conservation projects. His accomplishments included promoting conservation of abandoned mines as bat roosts, funding the creation of training and resource materials for biologists and land managers, and developing directives for conducting bat inventories. Fred played a key role in establishing a working partnership between the BLM and BCI. The collaborative effort eventually led to the North American Bats and Mines Project, a program that led to protection of bats in more than a thousand gated mines. Fred was also a proponent of the North American Bat Conservation Partnership. BCI gave him their Distinguished Service Award in recognition of more than a decade of conservation progress on BLM public lands.

Fred operated in the realm halfway between research and management. He worked hard to provide managers with the best available information to make decisions. He knew that the only way to get that information was to support research. He was a genuinely nice guy and will be missed among the bat community.

STATE/PROVINCE UPDATES

ALASKA

Submitted by 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, 321 Richardson Hall, Corvallis, Oregon 97331, 541-737-8459, Julia.Boland@oregonstate.edu

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 99587, 907-754-2345, apoe@fs.fed.us

Abandoned mines are common throughout lands managed by the US Forest Service and there are hundreds on the Chugach and Tongass National Forests in Alaska. 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.

ALBERTA

Submitted by Cori Lausen

Update from University of Calgary Bat Lab

Robert Barclay's students had a busy summer once again. This past summer Jeff Gruver continued his PhD work on ground-roosting ecology and evaporative water loss in prairie bats. Preliminary results lend support to his hypothesis that rates of water loss differ between male and female *Myotis evotis*, and analyses in the near future will tie these physiological results to differences in roosting ecology.

Joanna Coleman completed her first season of field research on her PhD project, the effects of urbanization on prairie bats. Joanna caught a total of 585 bats, and from capture data, at least six species occur in her study area (Calgary, Alberta). *Myotis lucifugus* was the most common species captured 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. Joanna will be continuing to analyze her 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.

Erin Baerwald did her first field season of MSc work in SE Alberta acoustically monitoring wind farms and carrying out daily carcass counts. She presented her preliminary findings at NASBR last month (see Feature Wind Energy section for details).

Cori Lausen is in her final year of her PhD and presented some of her results of her population genetics work at last month's NASBR also. She has found that the *M. lucifugus carissima* and *M. l. lucifugus* subspecies are interbreeding in an area where their ranges overlap. Because overlap is extensive across these subspecies' ranges (Tanya Dewey, PhD Thesis), and morphological/ecological differences appear to be absent, the subspecies designations may be biologically non-relevant.

Jen Talerico and Lea Randall did their first year of MSc work in the Yukon (see Yukon section for details).

Bat Survey: Kakwa Wildland Provincial Park

Wayne Nordstrom, Parks & Protected Areas Division, Alberta Community Development.
Wayne.Nordstrom@gov.ab.caKaren Stroebel, stroebel@telusplanet.net

In July 2006 a biophysical survey of Kakwa Wildland Provincial Park (northern part of Rocky Mountains in central AB) took place. All 649 km2 of the Kakwa Wildland Park are within the Rocky Mountains Natural Region. The park is bordered by British Columbia on the west and the Willmore Wilderness Park on the south. We used Pettersson 200, 230 detectors, and mistnets. This survey could have been improved using remote detection systems (i.e., AnaBat).

We completed 4 sample nights (July17-21, 2006). Prior to our arrival, night-time temperatures had dropped below freezing for at least three nights. Standing water froze and there were heavy frosts. Maximum daytime temperatures during our survey varied between +6.0 C to +13.3C. We detected high and low frequency passes though we did not capture any bats. A Hoary Bat was detected 3 times at 20 kHz during one of the surveys. Incidental wildlife included a Northern flying Squirrel and Short Eared Owl which thankfully missed our nets. We would like to thank Lisa Wilkinson and Dave Hobson for the equipment loan. It was much appreciated.

Alberta's Energy Boom Keeps Consulting Companies Busy with Bat Surveys

Golder Associates Ltd., Calgary

Carol Stefan, cstefan@golder.com, Calgary, AB

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 (NE Alberta) 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.

AMEC Earth & Environmental, Calgary

Chris Godwin-Sheppard, christine.godwin-sheppard@amec.com, Calgary, AB

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 (NE Alberta), 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 (east Central). Echolocation data has not been fully analyzed, but preliminary results indicate the red bat was recorded in all three areas.

Jacques Whitford/AXYS Environmental Consulting
Scott Grindal, sgrindal@axys.net, Calgary, AB

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 (Alberta Research Council) with developing an approach for assessing the regional status of northern long-eared bats in northeastern Alberta.

ARIZONA

Submitted by Angie McIntire

Bat Foraging Ecology along the South Fork Eel River, Mendocino County, California

Beth Hagen, School of Life Sciences, Arizona State University, PO Box 874601, Tempe, Arizona 85287 (480) 727-7743, Elizabeth.M.Hagen@asu.edu and Bill Rainey, Departments of Integrative Biology and Earth and Planetary Science, University of California Berkley

During the summer of 2006, we measured bat and insect activity along the South Fork Eel River in Mendocino County, California. The purpose of this research was to address the following questions: 1) How do structural features of the riverine landscape influence bat foraging ecology? and 2) How do riverine derived food resources influence bat foraging ecology? We hypothesized that river channel geomorphology and vegetation structure will control the location and abundance of insect aggregations resulting in selective foraging by bats in these areas and that riverine derived subsidies will provide a critical food resource during parts of the year when terrestrial food resources are less available. To address these questions we acoustically monitored bat activity using Anabat detectors at 21 sites with varying channel geomorphology and riparian vegetation structure along the South Fork Eel River. Additionally, bat activity was acoustically monitored with lateral distance from the river at 9 sites in both the spring and summer. We measured aquatic insect emergence and lateral dispersal of aquatic and terrestrial insects 3 times throughout the summer in May, July, and August 2006. To determine bat diet composition, we mist netted bats several times throughout the spring and summer; and collected blood, hair, and fecal samples from captured bats.

Rates of aquatic insect emergence increased throughout the summer, generally peaking in July. Relative bat activity also tended to increase along the South Fork Eel River, May to August 2006. Forty bats were captured of species: *Myotis yumanensis*, *M. thysanodes*, *M. lucifugus*, and *Eptesicus fuscus*. Bat diet composition will be determined using stable isotope analysis on blood, hair, and fecal samples.

This research was funded by the National Center for Earth Surface Dynamics, Bat Conservation International, and Arizona State University's Graduate and Professional Student Association.

Maricopa County Bats and Bridges Survey Project

Nancy Renison, Arizona Game and Fish Department

During the month of September, Arizona Game and Fish Department (AGFD) Bat Conservation Project conducted two training sessions entitled, Bats and Bridges Survey Techniques at AGFD Phoenix campus. A total of 16 volunteers completed the course and selected survey areas within Maricopa County. AGFD partnered with Maricopa Department of Transportation (MCDOT) bridge engineering staff to conduct the surveys. The eager volunteers were issued highway safety equipment (hard hats and vests) on loan from Arizona Department of Transportation (ADOT). Volunteers will survey about 100 bridges in Maricopa County in the first phase of the project. The second phase to begin January 2007 will incorporate nearly 115 culverts.

Bridges and other massive concrete structures moderate extreme desert temperatures and may provide ideal bat roost sites. Surveying Maricopa County's bridges, tunnels and culverts will provide baseline data for AGFD and MCDOT. As we know more about spatial and temporal bat use of these structures, it will help to guide future construction, maintenance and repair of these concrete roosts. Efforts are underway to expand the bridge survey to other counties in Arizona.

Bat Habitat Mitigation - Bat House Project

Danny Markus, USDA - NRCS, Lower Colorado River Resource Conservation & Development

On June 26th the Hualapai Tribe, in partnership with the Lower Colorado River RC&D Council, installed two "Belfry" Sand Box II's on a pole mount adjacent to the Valentine Indian Boarding School in northwestern Arizona (between Kingman and Peach Springs). In mid-October work began on a Concrete Block Tower to provide habitat for Townsend's big-eared bats roosting in the school.

These habitat mitigation projects are the result of a grant awarded by Arizona Game and Fish Department. The Valentine School Building has been unoccupied for many years (by people anyway!) and is slated for renovation. Migrating bats have been using it as a roosting site. A joint survey by Arizona Game & Fish and the Hualapai Department of Natural Resources conducted on August 29, 2005 found various *Myotis* species as well as Townsend's big-eared bats (*Corynorhinus townsendii*) using the school. The hope is that when the school building is ultimately sealed up, the bat populations will discover the newly constructed habitat nearby and make themselves at home.

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. Temperatures in cave maternity roosts (15.7oC) were cooler and more stable than building roosts (19.3oC).

Cold season surveys have been limited, however TBEB were found hibernating in five abandoned mines (mean temp. 6.3oC) and one natural cave (1.2oC). Mean relative humidity was almost identical in both hibernacula (75.4%).

In 2006, foraging behaviour was examined using 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.

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 was initiated in 2004 as a community approach to bat inventory and conservation. 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.

This year was the final year of the project, although we will continue to respond to future bat reports and requests for information.

Pallid Bats in the Okanagan Valley, BC.

Mike Sarell, RPBio (ophiucon@vip.net) 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 year's work, 23 pallid bats were captured at 9 foraging locations. All were banded except volant young. 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. 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. 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.

CALIFORNIA

Submitted by Heather Johnson

California Bat Conservation Plan

Dixie Pierson

Funding has been obtained for the California Bat Conservation Plan and we will be holding a team workshop in May, 2007. At the workshop we will review the various matrices we have built for California bats based on the ones used in the 1998 WBWG workshop. We will also review draft chapters and species range maps. Currently Dixie is compiling locality data for bats considered California Department of Fish and Game Species of Special Concern.

Dave Johnston

H. T. Harvey & Assoc./ Dept. of Biological Sciences, San Jose State Univ.

Our volunteer group is in its third year of monitoring bats along Coyote Creek in Santa Clara County and Bear Creek at Pinnacles National Monument. We will extend the winter radiotelemetry studies of pallid bats in Central Coastal California into the spring and fall of next year for a better understanding of their roosting ecology and home ranges for each of four seasons. This fall we finished the first season of a three-year study on pallid bat habitat utilization in Plumas National Forest. One of the tree roosts has an extraordinary subterranean cavity.

With a full class of 25 participants, Joe Szewczak, Stephanie Remington, and I conducted another successful bat workshop in September for The Wildlife Society at U.C. Hastings Natural Preserve and Pinnacles National Monument. In collaboration with Luis Gerardo Herrera Montalvo and Jose Juan Flores Martinez, I looked at some morphological features of Myotis vivesi that may be adaptations for foraging over water.

Monitoring is conducted 12 months of the year in hopes of understanding movements and possible seasonal migratory patterns. We are now banding hoary bats and western red bats in hopes that we can learn more about seasonal distribution along the west coast. Additionally, we have decided to begin banding some Mexican free-tailed bats to better understand regional movements.

A Note from Belize, Central America
David Wyatt & Heather L. Johnson

Dave led an ecotour of Belize last June and Heather joined his exceptional group of biologists, teachers, and students. They did a few nights of mist-netting and captured the rare Spix's disc-winged bat (*Thyroptera tricolor*) which has evolved suction cups on its wrists and ankles to cling to the inside surface of curled leaves.

Bat Use of Abandoned Mines in California and Other Bat Projects
Patricia Brown and Robert Berry, Brown-Berry Biological Consulting

We continue to work with the California State Office of BLM to identify abandoned mines used by bats, especially those in areas of high off-highway vehicle use (OHV). Most of the mines are in the California Desert. Over 200 mine features were surveyed this field season. We are also surveying mines in the same area for the California State Office of Abandoned Mine Lands. A successful three-day workshop was conducted for state and federal biologists covering pre-survey and external survey techniques, as well as wildlife exclusion procedures when bat-compatible closures aren't feasible.

The Bureau of Reclamation continues to sponsor us in the inventory and monitoring of bats along the Lower Colorado River, using a combination of roost surveys, mist-netting and acoustic techniques. Similar surveys are commencing on the Pechanga Indian Reservation near Temecula, California.

We are working with the Naval Base of Ventura County, Pt. Mugu on the exclusion of Mexican free-tailed bats from buildings where they are not appreciated. To date, free-standing bat houses and a bat condo installed on the base have failed to attract bats, except for one house installed on a building with a large colony in residence. The temperatures of the bat houses are usually lower than the occupied building roosts.

We will teach the annual class on the Natural History of Southwestern Desert Bats (May 18-20, 2007) at the Desert Studies Center near Baker, California. Registration is through San Bernardino State University, Office of Extended Education.

COLORADO

Submitted by Kristen Philbrook

Big Brown Bat Ecology In Relation to Rabies Transmission
Tom O'Shea and Laura Ellison, USGS, Fort Collins, CO laura_ellison@usgs.gov
Submitted by Paul Cryan

Researchers with the USGS Fort Collins Science Center have had a busy bat year. Tom O'Shea and Laura Ellison are wrapping up their part of the 5-year investigation of big brown bat ecology in relation to rabies transmission in Fort Collins, conducted jointly with Colorado State University and the Centers for Disease Control and Prevention.

Bats of Mesa Verde

Tom O'Shea, Laura Ellison, Paul Cryan, Ernie Valdez (USGS Fort Collins, CO), Apple Snider (CO State University) paul_cryan@usgs.gov
Submitted by Paul Cryan

This spring Tom, Laura, Paul Cryan, and Ernie Valdez began a new project investigating the bats of Mesa Verde National Park. With the collaboration of Colorado State University graduate student Apple Snider and her crew, the Mesa Verde bat team has tracked spotted bats and several species of *Myotis* (*M. evotis*, *M. occultus*, *M. volans*) to roosting sites at Mesa Verde. Apple is also sampling insects and guano to gain a better understanding of where bats are feeding in the park, as well as taking a close look at the roosting ecology of *M. evotis*.

Bat Presence/Absence Surveys in Fuels Reduction Areas in The BLM San Juan Resource Area, Dolores, CO

Submitted by Kristen Philbrook , Dolores Public Lands Office kphilbrook@fs.fed.us

Presence/ absence surveys using Pettersson D230 ultrasound detectors were conducted for the second year on the BLM San Juan Resource Area in July and August of 2006. Kristen Philbrook, Carolyn Gunn, Eric Freels, Judith Franklin, and volunteer Ben Delin completed surveys of three project areas having 5 survey stations in each project area. Stations were surveyed two different times during the summer, and were conducted in piny-on-juniper habitat and gamble oak. Bat presence was detected at fourteen of the fifteen stations. Two of the project areas were hydromowed, a mechanical fuels reduction technique that mows down brush and smaller pinyon and juniper trees. Islands of untreated pinyon juniper were left on about 40-60% of the project area. Initially, it does not appear that the hydromowing is causing bats to avoid treated areas. Monitoring of bat presence/absence will continue in future years.

IDAHO

Submitted by Katie Miller

Ecological Correlates of Genetic Structure of Townsend's big-eared bat in Southeast Idaho

Katie Miller has completed the first year of field and lab work with her M.S. project at Idaho State University. This year, she has sampled 132 Corynorhinus townsendii from hibernacula, day roosts, and maternity colonies in southeast and central Idaho. Individuals have been genotyped and genetic analyses are underway. Preliminary results indicate high genetic diversity and high levels of gene flow among sites, even as far as 160 kilometers away. Temperature and relative humidity data loggers have been established in both occupied and unoccupied lava tube caves for the 2006-2007 hibernating season. Katie presented her preliminary results in a poster at NASBR last month.

Bats and Mines Surveys on the Lost River Ranger District in Central Idaho

The Idaho Department of Fish and Game and the US Forest Service Lost River Ranger District have completed the 2nd year of bats and mines surveys on the district. Thus far, 131 adits/shafts have had external surveys and 35 have had acoustic and/or mist-net surveys. This summer, three mine complexes were found to house Corynorhinus townsendii. Surveys will continue next summer, with increased funding from the Forest Service. This is a mine-ridden district with more than 600 known openings to survey.

Selway Wilderness Maternity Colony Discovery

The Idaho Department of Fish and Game and the US Forest Service conducted a 5-day pack trip to the Moose Creek Ranger Station, 32 miles into the Selway wilderness area. The Forest Service had concerns regarding a cookhouse apparently occupied by a large number of bats. Biologists investigated and discovered a maternity colony of 350+ *Myotis lucifugus* residing in the attic. Management recommendations have been given to the US Forest Service to maintain this colony.

Idaho Bat Conservation Plan

The Idaho Bat Conservation Plan was written by Katie Miller in 2003 and edited by Charles Harris and Rita Dixon (in continuation). The plan is still in its revision stages, but very near completion. Current revisions include updating the plan to better reflect the goals of the Idaho Comprehensive Wildlife Conservation Strategy. We hope to have the plan completed and up for finalization at the Idaho Bat Working Group meeting in March 2007.

Upcoming Work: Winter Hibernacula Surveys on the Southeast Idaho Desert

This winter, the Bureau of Land Management, Idaho Department of Fish and Game, and Idaho Cave Survey will continue their winter surveys of known *Corynorhinus townsendii* hibernacula. Surveys have been conducted annually, on a rotating basis, for the past 12-15 years at the lava tube caves of the Upper Snake River Plain. As of October, individuals are beginning to gather at hibernacula and are still very active this time of year. This year's survey results may prove interesting, as the 300,000 acre Crystal fire burned much of the area these bats occupy in the fall, winter, and spring months. Upon ground truthing the fire activity, we discovered that the fire managed to miss the entrance to each major hibernaculum, however, the habitat change could affect these hibernating bats.

MONTANA

Submitted by Bryce Maxell and Kristi DuBois

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.

Roost-site selection and potential prey sources after wildland fire for two insectivorous bat species (*Myotis evotis* and *Myotis lucifugus*) in mid-elevation forests of western Montana

Schwab, Nathan A., M.S., May 2006, U. of Montana, Missoula

Abstract: Wildland fire in mid-elevation forests commonly results in mixed-severity and stand replacement burns leaving behind many standing dead trees. Numerous wildlife species use these trees including bats. Little brown and long-eared myotis were tracked via radio-telemetry to specific roost sites within two fires from the 2003 fire season in western Montana. Two logistic regression models, a biological and a management model, were constructed from variables collected at multiple scales. The biological model included all variables collected and the management model included only variables easily manipulated by land managers. The biological

model contained the number of trees greater than 31-cm diameter at breast height and the number of linear stream meters within a 500-meter radius around the roost tree. The management model predicted an increase in the odds of use for trees larger in diameter, in plots of higher tree densities, and closer to water than randomly available plots. I suggest retaining large diameter trees, in stands of higher densities, and closer to water to minimize the negative effects of post-fire management practices on little brown and long-eared myotis. Potential prey sources within burned forest were sampled with ultra-violet light traps and compared to adjacent unburned forest. The first year post-fire insect communities included the highest family richness (n=77) and experienced a dramatic increase in Diptera, Coleoptera, and Trichoptera numbers while Lepidopteran numbers remained equal among years and between burned and unburned sites. Twenty-eight families were restricted to burned sites and 16 families were found only in unburned sites. This research suggests burned forest provides highly productive insect habitat and may attract insectivorous predators like bats.

NEVADA

Submitted by Derek Hall

Nevada Bat Working Group

The greatest accomplishment of the NBWG since the last newsletter is the completion of the Revised Nevada Bat Conservation Plan which was officially signed by the major federal and state natural resource agencies in Nevada. This is a very important document that will guide the management and conservation of bat populations in Nevada for the next decade. The document provides biological profiles of each of Nevada's 23 species. Following the biological profiles are habitat guilds including various roosting sites, foraging sites, and water resources. Each guild includes specific goals and actions for species that may occur in that guild. Education and research needs are also addressed in the plan and the appendices provide technical information on a variety of subjects relating to the tenets of the plan.

Other News From Nevada

Dr. Rick Sherwin and his students spent the summer near Lovelock, Nevada studying a number of things, including roost switching by Townsend's big-eared bats (Corys), conducting acoustic surveys of Pinyon-Juniper (P/J) habitat, and documenting alternate roost structures used by Corys. They found some interesting patterns of P/J use by Corys in that they were repeatedly flying 16 miles one-way across an alkali flat valley to forage in a specific P/J area when there were other unused P/J areas closer. Their use of P/J concurs with Pete Bradley's (NDOW biologist) telemetry study a few years ago. Results from several of these studies will be published hopefully in the near future.

The Nevada Department of Wildlife (NDOW) finished up a long-term acoustic survey of some areas in east-central NV proposed for wind generation. The report documented bat activity at each site with a total of 11 species documented. NDOW has also secured a decent chunk of monies for bat gates in Nevada and are eager to work with anyone needing gates. Contact Jason Williams (NDOW Biologist) if you would like a copy of the report or are interested in bat gates in Nevada. Additionally, there is a need in Nevada to develop an official program to address bat needs regarding abandoned mine closures. Several NBWG members and agency personnel will be working on developing this program during the upcoming year.

The BLM Winnemucca Field Office contracted with Brown-Berry Biological Consulting to conduct habitat surveys. Internal and external surveys of several mines in the West Humboldt Range, Trinity Range and Winnemucca Mountain were conducted. Significant results include 114 bats exiting Long Canyon Mine and a maternity cluster of about 40-50 Corys found when the mine was entered after dark; considerable pallid bat

guano found in 9 of 12 adits surveyed in the Jessup mining area; and a maternity colony of at least 400 *Yuma myotis* and about 75 Corys were found at a mine in the Trinity Range.

Dr. Mike O'Farrell wrapped up four projects on bats in Nevada most of which contained long-term acoustic monitoring including the following: USDA Forest Service, Bat Survey at Selected Water Sources and Three Stationary Monitoring Sites within the Humboldt-Toiyabe National Forest in the Spring Mountains, Clark County, Nevada; Southern Nevada Water Authority (SNWA), Long-term Acoustic Monitoring of Bat Populations Associated with an Extensive Riparian Restoration Program in Las Vegas Wash, Clark County, Nevada (2004-2005); SNWA, Baseline Acoustic Monitoring of Bat Populations within the Muddy and Virgin River Drainages Associated with the Surface Water Project, Clark County, Nevada; and SNWA, Baseline Acoustic Monitoring of Bat Populations within the Southern Nevada Water Authority Groundwater Project, East Central Nevada and West Central Utah.

Long-term acoustic monitoring station at Camp 17 Pond, Nevada Test Site (south-central Nevada), February 2004.

Bat monitoring continued on the Nevada Test Site in south-central Nevada, including: monitoring three maternity roosts of Corys and fringed myotis to establish baseline data for long-term population trends; gathering continuous acoustic and climatic data for the third year in a row at a perennial well pond in P/J-sagebrush habitat; conducting exit surveys at two tunnel systems that will be closed and made recommendations for installing bat gates at one of the tunnel systems with two entrances; and responding to numerous calls about nuisance bats after a rabid bat was found flying around a worker's head.

NEW MEXICO

Submitted by Trish Griffin

New Mexico Bat Working Group

The NMBWG met at Sevilleta National Wildlife Refuge in September 2006. A good variety of agencies attended, including the Bureau of Land Management, Forest Service, National Park Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, University of New Mexico, Kirtland Air Force Base, White Sands Missile Range (Army), New Mexico Dept. Game and Fish, and a representative from a caving club. The Working Group is making good progress on the NM Bat Conservation Plan. We have completed the first draft of 18 of our 28 bat species accounts. The next meeting of the New Mexico Bat Working Group will be at the Annual Meeting of the Arizona/New Mexico Chapter of The Wildlife Society in February 2007. Information on the NMBWG, our projects, and meetings, can be found on our web site at http://members.bluefrog.com/elli-cat/ .

Myotis occultus, Ectoparasites, and Bat Diets

Ernie Valdez, United States Geological Survey (ernie@usgs.gov)

Ernie Valdez has successfully defended his dissertation research and received his doctoral degree from the University of New Mexico (UNM). His research focused on the occult bat (Myotis occultus) and included investigations into geographic variation in cranial morphology between New Mexico and southern Colorado, food habits of the species; and a detailed look at its ectoparasites. Highlights of this work included uncovering seasonal and geographic patterns in the diet of *M. occultus*, the first documentation of economic pests (e.g., bark beetle) consumed by *Myotis* from New Mexico, and the discovery of more than 10 ectoparasites that were not known to parasitize this species. Ernie continues to work for the USGS at the Arid Lands Field Station, located on the UNM campus, and since the completion of his doctoral degree has taught the first of many mini-courses on analyzing bat diet. His current research includes a collaborative effort with Paul Cryan (USGS) in examining the diet of hoary bats (Lasiurus cinereus) during migration, particularly as it pertains to bat mortality at wind turbines. Ernie is also examining the food habits of big brown bats from Colorado, as well as other species of bats throughout the western United States (e.g., Mesa Verde National Park). Ernie's areas of particular interest include the impact of bats on insect pests (i.e., problem species on agriculture and forest lands), as well as temporal and spatial changes in the feeding habits of bats.

Ongoing Nectar Bat Studies In Southwestern New Mexico

Paul Cryan, United States Geological Survey (paul_cryan@usgs.gov)

Mike Bogan, Paul Cryan, Christa Weise, and Angela England from the USGS and UNM recently completed a 4-year study into the roosts and nocturnal movements of endangered long-nosed bats (Leptonycteris curasoae and L. nivalis) in southwestern New Mexico for the Bureau of Land Management. With the completion of the tracking project, Mike took a turn on to the golden road of retirement. Congratulations Mike! Many of us would not be where we are without your wisdom and kindness. This summer Christa and Paul continued to monitor the occupancy of roosts of Leptonycteris in southwestern New Mexico for the BLM, with a focus on a newly discovered day roost (the largest in New Mexico). Angela began new work on the biology of the food plants (i.e., *Agave* spp.) of *Leptonycteris* in the region and is focusing her dissertation work on the relationships between bats and *Agave*.

Pollination Studies of *Agave palmeri* in Southern New Mexico

Angela England, Graduate Student, University of New Mexico (aengland@unm.edu)

For my dissertation research I am studying the pollination ecology of Palmer's agave in New Mexico. The 2006 research took place on the Diamond A Ranch (a.k.a. Gray Ranch). Fruit set peaked during late July after nectar bats and high numbers of rufous hummingbirds had arrived but the monsoon rains had not yet brought new flowers as alternate nectar sources. In 2007 I'll be working with the BLM to map agave patches throughout the boot heel region, and will move to 1-2 new sites a little further from the known range of *Leptonycteris* spp. to see if they are there, and how the pollination patterns change if they are not.

Bat-Mine Surveys

J. Scott Altenbach, University of New Mexico (batmine@unm.edu)

Dr. Altenbach continues to conduct biological surveys of mines throughout the state, and elsewhere, to survey for bat habitation prior to mine closures. More information on the New Mexico Abandoned Mine Lands program can be found at http://www.emnrd.state.nm.us/EMNRD/Mining/AML/AMLmain.htm.

Gila Wilderness Bat Study

Lyle Lewis, U.S. Fish and Wildlife Service (lyle_lewis@fws.gov)

Lyle and a group of biologists from U.S. Fish and Wildlife Service, U.S. Forest Service, and Canada spent 18 nights in 2004-6 surveying in the Gila Wilderness in southwestern NM. The surveys were partially funded through a New Mexico State Wildlife Grant. Although the focus of the survey was to detect Allen's lappet-eared bats (*Idionycteris phyllotus*), a great deal of information was collected about the bat species assemblage in the Gila Wilderness. Approximately 400 bats were captured and released using mist nets, and AnaBat systems were used for acoustic surveys. The western portion of the Gila Wilderness surveyed in 2005-6 provides maternity roosts for Allen's big-eared bat, southwestern myotis, big brown bat, Arizona myotis, fringed myotis, long-legged myotis, and long-eared myotis, as was apparent from the capture of pregnant bats. This area appears especially important for big brown bats, Arizona myotis, and Allen's lappet-eared bats.

Bats And Mines Surveys on National Forests Throughout New Mexico

Marikay Ramsey, U.S. Forest Service (mramsey02@fs.fed.us)

Marikay continues to conduct internal and external surveys for bats in abandoned mines on National Forest System lands. She is surveying multiple workings across several National Forests in New Mexico and Arizona, and will provide management recommendations.

Winter activity of Brazilian free-tailed bats (*Tadarida brasiliensis*) at Carlsbad Cavern

Keith Geluso, University of Nebraska at Kearney (gelusok1@unk.edu)

Abstract-The Brazilian free-tailed bat (*Tadarida brasiliensis*) generally is considered a migratory species in western North America. Throughout the southwestern United States, however, winter records are known from many scattered locations. Here I report on *T. brasiliensis* exiting and entering a cave in southern New Mexico from November to March. I observed that a winter colony of Brazilian free-tailed bats at Carlsbad Cavern was comprised of males and females of different ages, and numbers of individuals inhabiting the cavern in February and March were much higher than previously reported. Nearly all individuals returning to the cavern fed in November, about half fed in January and February, and none fed in early December and late March. I suspect that individuals wintering in the cavern consume insects during all colder months in the region, and lack of observations of bats feeding in December and March only reflect extremely windy conditions on nights of sampling. From December to March, body masses of individuals exiting the cavern declined about 15%. Although this study adds to our understanding of the natural history of *T. brasiliensis* in winter, why some individuals remain in such northerly areas and do not migrate farther south is not yet understood. Keith is also studying spotted bats and Allen's big-eared bats in New Mexico. This summer he caught 1751 bats in 42 nights. He documented *Euderma* at 75% of historical sites and *Idionycteris* at 100% of historical sites. He also documented both species at a number of new locations for the state. It was a good summer for catching bats; Keith captured 21 of the 29 known species in the state.

Hibernating Bat Surveys for the BLM Roswell Field Office

Dan Baggao, Bureau of Land Management (Dan_Baggao@nm.blm.gov)

The Roswell Field Office continues to monitor bat populations throughout the field office area, and more intensive surveys are being planned to include mist netting. In February, hibernating bats were counted in six caves

in eastern New Mexico (De Baca, Chavez, and Lincoln Co.) by BLM volunteers Jennifer Foote, Laura Stark, Brian Kendrick, Steven Ball, Jim Sturrock, and Brady Anspaugh. Some of the sites have been surveyed periodically since the late 1980s or early 1990s. Species reported were *Myotis velifer*, *M. ciliolabrum*, *Corynorhinus townsendii*, *Pipistrellus hesperus*, and *Eptesicus fuscus*. The caves are closed to recreation during the hibernation season from November through April. Previous data indicated that they change locations in the cave periodically during the winter.

Bat Surveys and Management at White Sands Missile Range

Trish Griffin, White Sands Missile Range (trish.griffin@us.army.mil)

White Sands Missile Range (WSMR) is continuing a baseline survey effort to identify bat species and their distribution at WSMR. We also continue to investigate and monitor structures throughout the range for use by bats. WSMR has over 100 water sites developed for livestock and big game species, and plans to work with Bat Conservation International in 2007 on a water development demonstration project and possibly an escape-ramp workshop in NM.

Daisan Taylor-Glass inspects a large bat roost beneath a historic launch site at WSMR.

NORTH DAKOTA

Joel Tigner, batworks@rushmore.com

Survey Dates: 8/14/06 - 8/31/06. Acoustic (Pettersson 240X detectors / SonoBat call analysis) and mist net surveys were conducted at Little Missouri National Grasslands in western North Dakota and in three ND counties: Billings, Golden Valley, and Slope.

Seven species were captured: *Corynorhinus townsendii*, *Lasionycteris noctivagans*, *Lasiurus cinereus*, *Myotis ciliolabrum*, *Myotis evotis*, *Myotis septentrionalis*, and *Myotis volans*. Echolocation calls for these seven species were also recorded at their respective capture sites.

Additionally, echolocation calls for three other bat species were recorded during the survey. These three include: *Eptesicus fuscus*, *Myotis lucifugus*, and *Myotis thysanodes*. These three bring the total number of species identified during the surveys to ten.

Reproductively active females and a juvenile were also documented for three species. These include *Myotis evotis*, *Myotis septentrionalis*, and *Myotis volans*.

A fourth reproductively active female, *Lasiurus cinereus*, was also captured. It is considered separately as it is a migratory species and, given the seasonally late timing of the survey, may have been captured during its annual southerly migration.

NORTHERN MEXICO

Submitted by Arnulfo Moreno

Conservation Priorities for Northern México Bats

Arnulfo Moreno1, David Waldien2, Ali García1, Vilma Asencio1, Juan Vanoye1, Omar Martínez1, and Cat Kennedy2
1Instituto Tecnológico de Cd. Victoria, 2Bat Conservation International

Funds from the Fondo Mexicano para la Conservación de la Naturaleza, A.C. are supporting the second year of a multi-year field survey, consisting of four phases that are, for the first time, documenting bat status trends, threats and conservation needs for an area of northern Mexico that shelters some of the largest remaining bat populations in our hemisphere. Since 1 April, our field team has conducted phase I rapid assessments that have documented 56 roosts with combined historic populations roughly estimated to exceed 28 million bats. In this phase, we are documenting exact locations and ownership, approximate past versus present population sizes, species diversity, and obvious threats. We also are educating owners, managers and local communities regarding their bats' values and most obvious needs.

The two most commonly identified threats were careless guano mining techniques that sometimes killed large numbers of bats in single incidents and vegetation overgrowth that impeded or blocked entry to roosts. Owners, managers and community leaders were promptly informed of these problems, and they were uniformly cooperative. Eight of the ten largest bat roosts identified had been mined for guano, and 24 roost entrances had become partially or wholly blocked by vegetation. Our team has already removed offending blockage, greatly aiding millions of bats by these simple acts alone. Advice to improve guano mining requires additional site-specific investigation of seasonal bat use.

Combined, our education activities reached 681 people, including 16 land owners and community leaders who received copies of our book, Murciélagos Cavernícolas del Norte de México, Su importancia y problemas de conservación. Experience to date suggests enormous potential for land owner and community education, and the data gained thus far will form a solid foundation for long-term collaboration. We also reached 17 educators, 580 school children and 68 parents in affected areas.

In the next six months, leadership education will be expanded through workshops, and field work will gradually switch to phase II documentation of key sites already identified in phase I. These sites are mostly large caves where stains and guano must be mapped in detail at each major roosting area (sometimes dozens in one cave) in order to assess past populations versus current population trends, a prerequisite for prioritizing conservation actions and monitoring success.

By identifying and prioritizing the last remaining refuges of Borderlands bats, Bat Conservation International, Pronatura Noreste A.C. and other Mexican partners are taking the first strategic steps toward a long-term conservation program for bats of this critical area.

TAMux-BCI collaborative agreement

The Natural History Museum of Tamaulipas, TAMux and Bat Conservation International signed a collaborative agreement on October 3, 2006. TAMux is located in Victoria the capital city of the Mexican state of Tamaulipas. The museum is visited by 150,000 people a year; children's bat workshops, lectures and other bat related activities are planned to be held in the coming months.

New Bat Exhibit at Bioparque Estrella

On October 14th the first permanent bat exhibit in northern Mexico was opened to the public. The exhibit is located at Bioparque Estrella, 56 miles south of Monterrey, Mexico. The park, which is visited by 400,000 children annually, now hosts a prominently located bat exhibit that includes a bat education theater and a demonstration of live bats pollinating cactus flowers. Scientific advice for this project was provided by Bat Conservation International, Nelly Correa (Monterrey Tech), and Arnulfo Moreno (Victoria Tech).

La Boca

In 1991, BCI contracted with Arnulfo Moreno to conduct the first status surveys of the largest known populations of cave-dwelling bats in Northern Mexico. This study found that half of 10 largest sites had seen a decline in population between 95-100%. Cueva la Boca was one of the most important bat caves identified in the survey conducted by Dr. Moreno. After more than a decade of tireless efforts led by Eugenio Clariond the cave is finally owned and protected by PRONATURA Noreste and a local NGO. You can read more about this in a media story published by The Washington Post on October 16, 2006.
http://www.washingtonpost.com/wp-dyn/content/article/2006/10/15/AR2006101500584_pf.html

The story was also reproduced by other News papers:
The Seattle Times:
http://seattletimes.nwsource.com/html/nationworld/2003325577_bats20.html
The San Francisco Chronicle:
http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/10/22/MNGTILRMVN1.DTL&_feed=rss.news
The Daily Herald:
http://www.heraldnet.com/stories/06/10/20/100wir_a4bat001.cfm
The Hartford Courant:
http://www.courant.com/news/nationworld/hc-mexicobats1023.artoct23,0,687835.story?coll=hc-headlines-nationworld

Also a Mexican News paper translated this story El Diario de Yucatán:
http://www.yucatan.com.mx/noticia.asp?cx=90$9204000000$3407791&f=20061026

Three day Ecology and Conservation Bat Workshop in Baja

A three day Ecology and Conservation Bat Workshop was held at University of Baja California. The workshop was hosted by Dr. Roberto Martínez. Lectures included bat study and capture techniques, bat ecology and conservation, how to identify bats with special emphasis on Baja species, and the use of Anabat. The workshop was attended by 20 people including graduate students, Federal and State Conservation Agencies, and people of three NGO´s working at protected areas. Workshop instructors were Dr. Arnulfo Moreno from Instituto Tecnológico de Cd. Victoria, and Bat Biologists Aldo Guevara and Emma Gomez from University of Baja California.

NORTHWEST TERRITORIES

Submitted by Cori Lausen

With the assistance of 3 Parks Canada employees, I carried out the first formal bat survey of Nahanni National Park Reserve, Northwest Territories (NWT; park located along the South Nahanni River, in SW NWT, 61-62 degrees latitude), and surrounding areas. Travel was by float plane, whitewater raft, and helicopter. The survey started on 15 July and ended 5 August, with a total of 15 netting nights. The goal of the survey was to establish bat biodiversity in the park, and in the surrounding area; 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 a small number of bats due to extremely challenging netting conditions; we captured 17 bats of 4 species (*M. lucifugus*, *M. septentrionalis*, *M. evotis* and *M. volans*). Using AnaBats, we acoustically identified an additional 3 species (*E. fuscus*, *L. cinereus* and *L. borealis*). *Lasionycteris noctivagans* may be present, but further survey work is needed to confirm the presence of this species given its acoustic similarity with *E. fuscus*. *E. fuscus* was sighted several times during the survey; and several weeks later, a few park employees reported seeing an "orange bat" near an area where my AnaBat had detected a red bat pass. This work was supported by Canadian Parks and Wilderness Association (NWT), Parks Canada, and Mountain Equipment Co-op.

OREGON

Submitted by Pat Ormsbee

The USFS and BLM has put together a team to address priority work for special status species of bats in Oregon and Washington, providing funding to accomplish target priorities identified each year.

The Northwest Bat Cooperative (NBC; Oregon, Washington, Idaho) is supporting Mike Lacki and Mike Baker to assess the 6 summers of radio telemetry data they have collected from eastern Washington, Oregon, and western Idaho, under a contract with the NBC.

Hollie Ober, Doctoral student at OSU, defended her project that focused on comparison of bat use in coniferous versus deciduous riparian areas in the Oregon Coast Range. Her study found higher insect richness and presence in deciduous riparian areas and higher bat activity and species richness.

Darryl McKenzie (Proteus Inc., New Zealand), Larissa Bailey (Patuxent Wildlife Research Center, USGS), and Jim Hines (Patuxent Wildlife Research Center, USGS) put on a 3 day workshop in Portland, Oregon, Modeling Patterns and Dynamics of Species Occurrence. The workshop was based on the book 'Occupancy estimation and modeling: inferring patterns and dynamics of species occurrence' and focused on the use of "Presence" software. It was excellent and filled to capacity including several individuals who regularly work with bats.

The North American Symposium on Bat Research voted to have their 2009 symposium in Portland, Oregon to be hosted by Jan Zinck and Pat Ormsbee.

SASKATCHEWAN

News from the University of Regina Bat Lab

The students are working like slaves in the U of R Bat Lab!…Miranda Dunbar begins her 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. and Devin Arbuthnott won a summer NSERC scholarship award and continued his foraging project in the Cypress Hills this past summer.

Dr. Mark Brigham, fearless leader of the U of R Bat Lab, 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 he talked about at the bat meetings). The highlight of the summer, according to Mark was getting "Dr. Craig Willis to move"! "He is now gainfully employed at the University of Winterpeg in Manitoba", or University of Winnipeg, as the rest of Canadians tend to refer to it!

Dr. Brigham was awarded the prestigious Gerrit S. Miller, Jr. Award, The North American Symposium on Bat Research's Highest Honor. Congratulations Mark!

SOUTH DAKOTA

Submitted by Brad Phillips

Black Hills National Forest Enters into a Participating Agreement withBatWorks

The picture is of an abandoned mine gated under the Agreement. Four species of bats are known to use this site as a winter roost.

In an effort to more fully utilized the expertise of a local private business that specializes in bat habitat protection and public education, the Black Hills National Forest and BatWorks (Rapid City, SD) recently signed an agreement that will allow the two to work together on widening public education opportunities and could speed the protection of bat habitat such as abandoned mines found on National Forest. This agreement concluded a process that was first conceived over two years earlier. South Dakota Bat Working Group assisted in coordinating continued correspondence between the BHNF and BatWorks.

TEXAS

Submitted by Meg Goodman, Texas Parks and Wildlife Department

Bats and Bridges

McNeil Bridge- Round Rock, Texas

The McNeil Bridge in Round Rock, Texas -- just north of Austin -- is home to at least 1.5 million Mexican free-tailed bats (*Tadarida brasiliensis*). Although this site is not advertised as a public bat viewing site due to lack of infrastructure, the public is starting to come out by the hundreds to view this impressive site. Thanks to the help of generous volunteers from the Master Naturalist group, and local citizens, who "staff" the site on the weekends and holidays, the public has a chance to learn more about the bats. Texas Parks and Wildlife Department (TPWD), Texas Department of Transportation (TXDOT), Bat Conservation International (BCI) and local businesses are working on establishing better signage and implementing safety measures to accom-

modate the growing numbers of visitors. Louise Allen of Boston University is studying the bats at this colony for part of her dissertation research which she will provide a summary for in the spring newsletter.

Waugh Drive Bridge- Houston, Texas

The Waugh Drive Bridge, located near the heart of downtown Houston, Texas has an estimated 250,000 Mexican free-tailed bats (*Tadarida brasiliensis*) and is one of our newest public bat viewing sites. During the summer of 2006 Lyondell Chemical Company generously donated a viewing platform at the site. The City of Houston Parks and Recreation Department sponsored a media day to unveil the new platform in which Lyondell, TPWD and BCI all participated. This new platform will allow visitors to view the bats from a safe location. Interpretive signage is also in the works for the viewing platform.

The Houston Bat Team, which includes members from Texas Parks and Wildlife Department, Texas Master Naturalists, Bayou Preservation Association, Buffalo Bayou Partnership, City of Houston Parks and Recreation Department, and Houston Zoo Staff and docents, has been actively involved in researching the colony and educating the public. In the summer of 2006 they discovered the site was a maternity colony. The team also "staffed" the bridge on Thursday- Saturday evenings throughout the summer educating an estimated 1,500 people. This education and outreach was invaluable as Houston has had a string of negative bat press this past summer.

Another great outreach and viewing opportunity is on a pontoon boat tour with the Buffalo Bayou Partnership. They have been offering these tours since December of 2005 and currently operate the tours on the 2nd Friday of each month- March-November. For more information about these tours you can contact Trudy Smith at tsmith@buffalobayou.org or 713-752-0314.

Bats and Bridges Database

TPWD, TXDOT and BCI are in the process of building a "Bats and Bridges" database so that we can have a central location with updated information for all to use. We need your help. If you come across bats roosting in a bridge in Texas please contact Meg Goodman (meg.goodman@tpwd.state.tx.us) with the following information:

Location of bridge including GPS coordinates if known
Description of bridge- dimensions and roost location
Description of surrounding area (i.e. urban, rural, agricultural, presence of body of water)
Threats to the roost- (i.e. potential for flooding, accessible by people from below)
Types of bats (if known)
Emergence time (if known)
When are bats present (i.e. summer, year round??)

East Texas Rare Bats

In May of 2006 the annual East Texas Rare Bat Surveys were conducted by Texas Parks and Wildlife Dept. with help from SFA State University and private landowners. All known roost sites for Rafinesque's big-eared bats and Southeastern myotis were investigated. Unfortunately three known tree roosts for Southeastern myotis at a state park near Beaumont were destroyed by Hurricane Rita in 2005. However, one new roost site for Rafinesque's big-eared bats was discovered in an old barn in Franklin County (NE Texas) making this a new county record.

Dr. Chris Comer at SFA State University was awarded a State Wildlife Grant to study these rare bats and we look forward to reporting some of their results over the next couple of years.

In July 2006 the second meeting of the East Texas Rare Bat Working Group was held at SFA State University in Nacogdoches, Texas. At least 40 people were in attendance from ten different agencies including Texas Parks and Wildlife Dept, Bat Conservation International, SFA State University, Texas A&M University, US Forest Service, National Park Service, US Fish and Wildlife Service, The Nature Conservancy, Jesse Jones Park and Nature Center, and Sierra Club. This meeting was intended to provide further training in bat survey techniques as well as set the structure for the working group. It was decided that the group should not only focus on rare bats but all of the bats in the area so the name was changed to the East Texas Bat Working Group. The group also decided upon yearly informal meetings to continue to provide training opportunities, share information and discussion of key bat issues in the area.

Some exciting work is being done with the artificial tree roosts for Rafinesque's big-eared bats. The cinder block towers at Trinity River NWR near Liberty, Texas have done quite well with up to 50 Rafinesque's big-eared bats using one tower during the summer of 2006. More information about these roosts will be included in the spring newsletter.

Education and Outreach

The Texas Master Naturalists group (http://masternaturalist.tamu.edu/) is an incredible help with bat related issues in the state from education to research. Each year special bat workshops are conducted for this group throughout the state. At one such workshop in the summer of 2006 in Tyler, Texas, representatives from the Department of Public Health were in attendance. They have asked TPWD and BCI to conduct a special bat workshop for their animal control officers and vets which is scheduled for December of 2006. We hope this will be a model for further training of public health officials in other regions of the state.

Cave Myotis: Population Declines Analyzed With Population Genetics

Julie A. Parlos, Texas State University - San Marcos

Population genetics may help us determine the severity of observed population declines of the cave myotis (*Myotis velifer*). Many migratory and/or continental bat species exhibit no genetic differentiation across large geographical distances. However, with population declines and isolation, populations are more likely to experience genetic differentiation. Furthermore, small, isolated populations become more susceptible to inbreeding depression, with alleles unselectively removed from the population. Regardless of current consequences, documenting the underlying structure of such populations using high resolution genetic markers is a priority for long term conservation.

Currently, wing punches (n 20) have been obtained from M. velifer colonies throughout Texas (North Texas = 3 colonies; Central Texas = 5; West Texas = 6). Microsatellites, supplemented by mtDNA haplotypes, will be used to ascertain differences among regions. This genetic information can be compared to previous analyses, which used allozymes, to see if current distribution differs from historical distribution.

To obtain a more accurate depiction of the current population genetic structure, samples need to be obtained from outside of Texas. Therefore, if one has a permit to obtain wing punches, or finds a dead M. velifer, I would greatly appreciate the opportunity to increase my sample distribution (please contact me at jparlos@txstate.edu).

These genetic analyses will be used to help set guidelines for the cave myotis, and may be applied to species with similar ecology, before the observed declines become observed endangerment.

Bats on Padre Island National Seashore

Gerrad D. Jones and Jennifer K. Frey, Department of Fishery and Wildlife Sciences
New Mexico State University Las Cruces, New Mexico 88003

Padre Island is part of the Texas barrier island chain in the Gulf of Mexico. It is the largest barrier island in the world and remains largely undeveloped. Padre Island National Seashore (PAIS) comprises a majority of the island and preserves 130,434 acres of both aquatic and terrestrial environments. As part of a comprehensive mammal inventory of PAIS funded through the National Park Service, we conducted literature searches, museum searches, and field surveys to document bats in the park. Habitat in PAIS is predominantly coastal prairie. Trees, including live oak (*Quercus virginiana*) and black willow (*Salix nigra*), occur as small, scattered stands, especially along the Laguna Madre at the northern end of the park. There are 4 permanent fresh water ponds at the northern end of the park, although during wetter periods, several large ephemeral ponds appear and can extend for several kilometers.

Literature searches revealed 3 species previously documented from buildings and other manmade structures, including *Pipistrellus subflavus* (Zehner 1985), *Lasiurus intermedius* (Miller 1897, Bailey 1905), and *Tadarida brasiliensis* (Baker and Rabalais 1975, Harris 1988). During summers of 2005 and 2006, we deployed mist nets over freshwater ponds and amongst trees but did not capture (or observe) any bats (~30 hrs netting). Attempts to capture bats have been hindered by constant high winds. Mist netting was limited to localities where protection could be found within vegetation, alongside buildings, or behind large sand dunes. Passive acoustic surveys were conducted using an Anabat II bat detector in 2006 (ca 45 hrs recording), during which only 8 calls were recorded. Observations of bats were few. Perhaps bats pass over Padre Island temporarily during spring and fall migration, but are less common or absent during summer periods.

Comments are welcome and can be directed to Gerrad Jones at gdjones@nmsu.edu.

UTAH

Submitted by George Oliver and Adam Kozlowski

Great Basin Bat Cooperative-Funding and Progress

Adam Kozlowski, Utah Division of Wildlife Resources

The Great Basin Bat Cooperative (GBBC) continues to pursue funding to achieve its objectives of (1) providing a cooperative mechanism for state, federal, and private entities to share resources, coordinate inventories, and conduct research to manage bats proactively, (2) providing a mechanism by which current information regarding bat ecology, distribution, and research techniques can be readily consolidated and disseminated, and (3) maintaining a web site to provide information to interested parties about current research, conservation, and management of bats with primary focus on the Great Basin. The group has recently been wrestling with applying for nonprofit status to broaden its accessibility to funding sources. With nonprofit status being recently awarded to the WBWG, new opportunities for the GBBC may exist.

Utah Bat Conservation Plan and Critical Bat Habitat Map for Utah

Adam Kozlowski, Utah Division of Wildlife Resources

The Utah Division of Wildlife Resources is poised to write its Bat Conservation Strategy in early 2007. This presents our state managers and researchers with an excellent opportunity to establish a standardized survey methodology and inventory program. Pilot grid surveys conducted here in Utah have found that, given limited

resources, one of the greatest weaknesses of grid surveys is their inability to stratify logically and thus to prioritize which cells should be surveyed. To address this, the GBBC has obtained funding to explore ways to help prioritize Utah's sampling grids. The effort will focus heavily on developing a Critical Bat Habitat Map for Utah to rank landscape pixels according to their contribution to supporting bat diversity. Methods are based heavily on survey prioritization work in the Greater Yellowstone area by Doug Keinath, Wyoming Natural Heritage Program, with additions from expert opinion meetings to help drive the model's parameters. Ancillary benefits of the critical bat habitat model approach would include quantifying the amount of critical habitat that each resource management agency (e.g., BLM, USFS, DOD) is responsible for in a state and providing leverage for them to incorporate area-specific bat conservation into their funding framework and increase participation in local working group efforts. The Utah Critical Bat Habitat Model is scheduled to be finished in spring 2007.

Townsend's Big-Eared Bat Hibernaculum Surveys

Adam Kozlowski, Utah Division of Wildlife Resources

Hibernaculum surveys of Townsend's big-eared bat (and associated species) conducted last winter in northwestern Utah will be expanded to two other sites in the state in an effort to develop more robust trend data related to the population health of this state sensitive species. A major component of the study is to quantify observer effects on behavior and microsite selection resulting from the survey efforts.

Field Key To Utah Bats

Adam Kozlowski, Utah Division of Wildlife Resources

A dichotomous key for the bats of Utah was finalized this year and tested in the field. In addition to the paper version, an interactive electronic key is also being developed for use in the field that provides a method to score the identification of an unknown bat, provide photographs, and natural history, and notify the researcher if their particular species in hand is being found outside its known distribution in Utah. Particularly useful for identifying *Myotis*, it allows a researcher to associate a confidence score with the species' identification. The digital key is being modeled on the paper version. We have been very pleased with the field performance of the couplets used to separate *Myotis lucifugus* from *Myotis yumanensis*, and *Myotis californicus* from *Myotis ciliolabrum*, when acoustic tools are not available. The framework the key is programmed within would allow it to be very easily modified to incorporate the bat fauna of any state or any species. The electronic key is very user friendly and will be available early in the new year.

Combined meeting of UBWG and GBBC

Adam Kozlowski, Utah Division of Wildlife Resources

There will be a combined meeting of the Utah Bat Working Group and the Great Basin Bat Cooperative on 8 November 2006 at Southern Utah University, Cedar City, Utah, to discuss how to plan for the future. The meeting will primarily address two issues, (1) coordination of the groups' efforts and (2) development of a basic inventory framework and database for Utah that resource management agencies can help cooperatively fund, implement, and maintain. GBBC partners spent the summer conducting basic inventory work, in particular expanding our knowledge of roost sites (USFS, UDWR) and community structure and use of extremely arid environments in Utah's West Desert (DOD, Hill AFB).

WASHINGTON

Submitted by Pat Ormsbee

John Lucas is looking at doing a MSc project studying roost use of underground water storage tanks at Hanford Nuclear Site where hundreds of bats have been documented roosting in late summer. Proposed wind energy development projects are on the rise in eastern Washington and Oregon. The Colville Tribe wildlife biologists are interested in exploring ways to begin inventorying bats on their tribal lands in eastern Washington and are interested in how The Bat Grid project may apply to those lands.

YUKON

Bats and the Midnight Sun

Submitted by 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.

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

Submitted by 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, Canada. This area has been impacted by severe spruce beetle infestation and resulting forest fires and logging activity. Five 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 Department of Environment.

NEWS FROM BAT CONSERVATION INTERNATIONAL

Submitted by Dan Taylor

Water for Wildlife Project

Dan Taylor

The Water for Wildlife Project is demonstrating how livestock watering sources can be easily and economically transformed from potential wildlife deathtraps into safe, accessible, and critical resources for bats and other wildlife. Recent accomplishments include:

Education and Outreach- papers on this issue were presented at the recent 2006 national meeting of The Wildlife Society (delivered by co-author Stu Tuttle of the USDA-NRCS) and the North American Symposium for Bat Research in Wilmington, NC. Project Director Dan Taylor has organized a special four-hour symposium to be held at the Society for Range Management's 2007 national conference in Reno, Nevada, and recently discussed the issue to a gathering of range conservationists and wildlife biologists from the Humboldt-Toiyabe National Forest from across Nevada at the invitation of Michelle Caviness, WBWG member and Humboldt-Toiyabe NF biologist. In June, the Project held two wildlife-escape ramp-building events in Arizona, bringing together local ranchers associations, civic groups, and state and federal partners to learn about bats and build, distribute, and install more than 200 wildlife-escape ramps in livestock troughs on private and public rangelands. Partners included the USDA-NRCS and Forest Service, the Arizona Game & Fish Department, the USDI-BLM, the Diablo Trust and Hay Mountain Watershed ranchers groups, and the El Coronado Ranches. A senior reporter from the National Wildlife Federation attended one event and is doing a story on the project for their national magazine. The Project is nearing completion of a comprehensive interagency manual on increasing access and safety for bats and other wildlife at livestock water developments. The manual will be distributed to all of the major public and private agencies and organizations responsible for rangeland management.

Research and Management--The Project Director is currently planning for several "bat waters" demonstration projects where existing livestock and wildlife water sources that allow minimal bat access will be monitored for bat use, then reconstructed to create ideal bat drinking sites, and re-monitored to demonstrate how livestock water developments can be made more valuable for bats and other wildlife. Partners and sites include the Humboldt-Toiyabe and Coronado National Forests and the DOD's White Sands Missile Range in New Mexico with NM Bat Working Group Chair, Trish Griffin.

Artificial Roosts Program

Mylea Bayless

During the past 6 months (April-October 2006) our new coordinator, Mylea Bayless, has been assessing current projects, visiting field sites, and working with collaborators to move current projects forward. In addition, she has begun establishing relationships developing new ideas for the future of the artificial roosts program. Program highlights for this season include the continued research on 22 artificial tree hollows installed by BCI and partners (Angelina National Forest, Bar-M Plantation, Lower Suwannee National Wildlife Refuge, Lumber River State Park, Mammoth Cave National Park, Pebble Hill Grove, Saint Catherine Creek National Wildlife Refuge, Shangri La Botanical Gardens and Nature Center, South Mountains State Park, Texas Parks and Wildlife Department, Trinity River National Wildlife Refuge, and Alison Sherman of Mississippi Museum of Natural Sciences) in six states. The roosts are designed specifically to meet the needs of Rafinesque's big-eared bats and Southeastern myotis, both of which are threatened in many areas from loss of traditional roosts in extra large tree hollows. Twenty of the 22 roosts have successfully attracted Rafinesque's big-eared bats,

though only a few have so far attracted nursery colonies. This past summer local biologists identified two of our artificial hollow tree roosts with large (>40) groups of female bats and their volant young which had moved from nearby buildings where the pups were born. Project Coordinator Mylea Bayless conducted site visits to 12 roosts in 6 locations between May and November, 2006, and is working with university, federal, and state cooperators to establish a region-wide monitoring protocol for existing structures with recommendations for the installation of new structures.

Training Workshops

Kari Gaukler

More than 1,300 land management and wildlife professionals and serious bat enthusiasts from over 20 countries have attended BCI's field workshops since the first one in 1990.

2006 Workshops-- two Bat Conservation and Management workshops in Arizona; one each in Pennsylvania and Kentucky; plus an Acoustic Monitoring workshop in Arizona. The 80 participants at the 2006 Workshops represented 12 biologists from federal agencies, 12 from state agencies, 13 university personnel, 11 consultants and 12 representatives from other conservation organizations.

Small Grants Program

Some of BCI's most effective investments come through its small grants program.

North American Bat Conservation Fund--The NABCF has funded 102 research proposals for a total of $350,595 since 1998, and these have been matched at an average ratio of more than 9:1 for a total research value of some $3.25 million. These grants are for conservation work in North America and the matching funds typically come from federal and state agencies and other conservation organizations. Projects have been funded in 31 U.S. states, 6 Mexican states and 2 Canadian provinces. For the current fiscal year, we are funding projects in Jalisco, Mexico; British Columbia, Canada; and New Jersey in the United States.

Educational Publications

Dan Taylor

Forest Management & Bats, a BCI publication to help owners and managers of forestlands maintain and enhance vital bat habitat, was published in June. With support from NFWF and the USDA-Natural Resources Conservation Service, we produced and printed 15,000 copies of the information-rich publication. More than 12,000 were distributed immediately to federal, state, NGO and industry offices around the country, and requests from others are still being received.

Bats and Mines Program Update

Dave Waldien, Bat Conservation International, (dwaldien@batcon.org)

BCI is collaborating with private, state and federal partners to identify and protect important mine roosts throughout the western United States. Primary efforts include: In California, Rio Tinto Minerals (formerly U.S. Borax) and BCI, with funding from a USFWS Private Stewardship Grant, reopened the Lower Biddy Mine complex in 2004 in the Furnace Creek drainage. Rio Tinto Minerals has been monitoring the mine to ensure optimal environmental conditions for bats and to better understand how to manage this and other abandoned mines for bats. The installation of the third and final gate at that the mine is scheduled for November 2006. In Arizona, the Yuma BLM and BCI, with funding from Arizona Game and Fish are collaborating to protect a regionally significant colony of *Macrotus californicus*. Pre-gate construction surveys were made this year, and

construction is scheduled for spring 2007. BCI is working to build broad collaborations to proactively manage abandoned mines for bats at larger spatial scales. BCI is also working on a new bats and mines handbook. The Handbook for Effective Management of Bats and Mines will be authored by Drs. Rick Sherwin and Scott Altenbach and edited by Kim Vories of the Office of Surface Mining. We anticipate its publication in early 2007.

Northern Mexico (Borderlands Program) Update

Cat Kennedy, Bat Conservation International, (ckennedy@batcon.org)

In 2005, in collaboration with partners in northern Mexico, BCI began new initiatives to expand its Borderlands Program. Our goal is to identify key bat caves and other roosts, assess population status and conservation needs, and to develop and implement long-term conservation plans. Through our partnerships on both sides of the border we will increase protection for at least 14 species of bats, including restoration of previously large populations that are ecologically and economically vital. The approach:

1. Expand our documentation of the region's most important remaining bat roosts and assist in setting conservation priorities.
2. Protect and restore key bat colonies by developing and implementing long-term conservation plans.
3. Educate cave owners and managers, community leaders and educators about the value and needs of bats.

In pursuit of these goals, BCI, through its partners -- Dr. Arnulfo Moreno, Program Coordinator, Mexico and his team, and a group of scientists from Zara Environmental, LLC -- has visited and documented more than 144 locations in remote areas in all six northern Mexico States. As a result, BCI determined that these sites may have contained historic populations in the tens of millions of bats.

Cat Kennedy, Borderlands Program Coordinator, US, and Dr. Moreno will direct our future efforts to identify important bats roosts in northern Mexico, prioritize known sites by size, importance and viability of restoration efforts and to continue to develop plans that protect the bats and enhance the local community. Teams will return to the most important roosts to conduct thorough data collection, photo documentation and to explore potential partnerships with each landowner or manager. Conservation and management plans will be collaboratively drawn up and BCI will work with local partners to implement changes and to monitor the successful return of previous population levels.

BCI would like to gratefully acknowledge the assistance and support of several organizations who have made this effort possible and have contributed to the success of the Borderlands Program: Comisión Nacional de Areas Naturales Protegidas, Disney Wildlife Conservation Fund, Fondo Mexicano para la Conservación de la Naturaleza, Grupo IMSA, Toyota Innova, TAMux, Offield Family Foundation, Proyecto Bio-regional de Educación Ambiental, A.C., Bioparque Estrella, Pronatura Noreste, Punto Verde, San Diego Museum of Natural History, University of Baja California at Encenada, Technological Institute of Ciudad Victoria, Texas Parks and Wildlife, and The U.S. Fish and Wildlife Service.

Memorandum of Understanding Between Dept. of Defense and Bat Conservation International

Submitted by Trish Griffin

A Memorandum of Understanding (MOU) between the Department of Defense (DoD) and Bat Conservation International (BCI) was signed by both parties in October 2006. The MOU allows for cooperation and coordination between DoD and BCI to identify, document, and maintain bat populations and their habitats on DoD installations.

The purpose of the MOU is to establish procedures for planning and conducting cooperative efforts by BCI and DoD on DoD lands. It establishes policies and procedures for BCI to provide technical assistance to DoD to maintain or increase the productivity of bats and their habitats on DoD lands; to keep once-common bat species from being Federally-listed as threatened or endangered; and to work to recover presently listed species of bats and prevent species extinction. The MOU allows DoD to receive technical assistance for improving management of bat populations and their habitats, and to gain access to a nationwide network of data and support that can be used to assess the significance of bat populations and habitat on DoD lands.

The MOU recognizes that both BCI and the DoD have responsibilities and interests in the management of wildlife and their habitats. Both parties recognize that wildlife habitats should be conserved and managed to protect wildlife and to meet the growing public demand for wildlife conservation and related scientific opportunities. BCI and DoD may assist each other in conducting inventories, monitoring, and research; initiating actions which will increase the productivity of bats and enhance their habitats; and educating the public about the roles and values of bats in ecosystems on lands managed or used by the DoD.

For further information about the MOU, please contact Chester Martin (Chester.O.Martin@erdc.usace.army.mil), Trish Griffin (trish.griffin@us.army.mil), or Peter Boice (Peter.Boice@osd.mil). The Point of Contact for BCI is Dan Taylor (dtaylor@batcon.org).

OTHER WBWG NEWS

WBWG Education Committee
Submitted by Deborah Crough

Progress Notes regarding curriculum development and teacher training

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. It is very possible that additional translating needs of the group could also be completed. 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.

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. Rational: This could be the start of creating a bridge between members and create a bridge between scientists and the general public. There are many small educational groups and bat workers (rehabbers) who offer educational programs to the public. It would be useful to have a comprehensive list by state/region.

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.

California Native Bat Conservancy along with the WBWG educational committee have submitted an online proposal to present 2 short workshops at the regional National Science Teacher Association conference in Denver Colorado in the fall of 2007. It was recommended that the proposal for presentations be completed early, as NSTA has strict deadlines and require early submissions. The committee recommends a vendor table be reserved for the distribution of WBWG materials and possibly fundraising items. Materials from the website and resources accumulated between now and next fall will Rational: NSTA conferences attract huge audiences from public schools, Universities and the private business sector. Typically these are powerful forums for information gathering and networking.

NASBR UPDATE

Submitted by Toni Piaggio

This year's North American Symposium on Bat Research was held in Wilmington, North Carolina from October 18-21, 2006. It was a really nice conference and that was due to a real amazing effort on the part of Mary Kay Clark, the Southeastern Bat Conservation Director. From the WBWG perspective we had a really good turnout to a WBWG meeting. There were about 50-60 people at the meeting, which was exciting and people hung in through the meeting even though the room was really hot and uncomfortable. At our meeting we discussed the 2007 meetings in Tucson, AZ, feedback on the Officer's Action Plan, information about elections, and the current status of our umbrella organization, NABCP. NABCP is the organization that unites the regional working groups but it has not been operable in recent years. Tim Snow and Angie McIntire of Arizona Fish and Game are working with the Association of Fish and Wildlife Agencies to find a way to make that organization work and possibly have a funded position at that level.

Besides the WBWG meeting there was a whole other conference that occurred at NASBR. There were many interesting talks, including one that had really clear video of a Townsend's big-eared bat maternity roost, including babies being born, and fallen babies being rescued by adults (courtesy of Kiera Freeman, a graduate student in Joe Szewczak's lab, Humboldt State CA.). Some of the main themes at NASBR were focused on wind turbine issues. Dr. Robert Barclay spoke to the NASBR participants about the possibility of banding migratory species in the hope of being able to gain information about their ecology when they are collected as kills at wind sites. Many interesting issues came up during this discussion. One was whether or not bands could be standardized to be recognized as being part of this specific effort. Another issue was about managing a database of banded bats that could be accessed easily by those finding dead bats with bands. There was not resolution on this issue but the door was certainly opened by this discussion to an interesting possibility of incorporating research into this field of monitoring bat mortalities at wind sites.

This year's Gerrit S. Miller, Jr. Award winner was Dr. Mark Brigham from the University of Regina, Saskatchewan, Canada. Rodrigo Medellin gave us an update on next year's NASBR which is shaping up to be really interesting and fun - it will be in Merida, Yucatan, Mexico August 19-23, 2007!! Hope to see you there.

THE BAT BULLETIN BOARD

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.

Scholarships, Grants, Awards

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: http://www.batcon.org/bcigrants/scholarintro.asp or contact Bob Locke at grants@batcon.org.

Other Bulletin Items

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

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.

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 charris@idfg.idaho.gov if you have a similar report.

New BLM Abandoned Mine Lands (AML) web site: http://www.blm.gov/aml/index.htm. This site has interesting information about the BLM AML Program. There are also links and information about bats on the web site as well as forms that BLM recommends for AML inventory. The BLM AML employees are also currently reviewing an AML Program Policy Handbook. When completed, this will be a public document.

WBWG Website Offers New "Gray" Literature Section. Mike Herder has started a new section on the web-site for members to submit materials that would otherwise be less readily available (e.g. government reports/summaries, protocols, etc.). This section can be accessed from the 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.

UPCOMING EVENTS…

3rd Biennial Meeting of the Western Bat Working Group will be held in 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 http://www.wbwg.org for information. For fundraising item donation, please contact Angie McIntire (AMcIntire@azgfd.gov), Pat Brown (PatBobBat@aol.com) or Brad Phillips (bjphillips@fs.fed.us).

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 http://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

WHO'S WHO IN THE WBWG

Officers

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

President	Pat Ormsbee	pormsbee@fs.fed.us
Vice-President	Toni Piaggio	batchaser@gmail.com
Secretary	Alice Chung-MacCoubrey	achungmaccoubrey@fs.fed.us
Treasurer	Brad Phillips	bjphillips@fs.fed.us
At-Large Rep.	Cori Lausen	corilausen@netidea.com
At-Large Rep.	Tim Snow	TSnow@azgfd.gov
Elected Rep.	Michael Herder	michael_herder@blm.gov
Elected Rep.	Ted Weller	tweller@fs.fed.us

Board of Directors

Alaska	Aaron Poe	apoe@fs.fed.us
Alberta	Lisa Wilkinson	lisa.wilkinson@gov.ab.ca
	Robin Gutsell	robin.gutsell@gov.ab.ca
Arizona	Angie McIntire	AMcIntire@azgfd.gov
British Columbia	Laura Friis	Laura.Friis@gov.bc.ca
California	Betsy Bolster	bbolster@dfg.ca.gov
	Heather Johnson	heatherj@calweb.com
Colorado	Kirk Navo	K.Navo@state.co.us
	Kristen Philbrook	kphilbrook@fs.fed.us
Idaho	Charles E. Harris	charris@idfg.idaho.gov
	Rita Dixon	rdixon@idfg.idaho.gov
Montana	Kristi DuBois	kdubois@mt.gov
Nevada	Jennifer E. Newmark	jnewmark@heritage.nv.gov
	Derek Hall	halldb@nv.doe.org
New Mexico	Trish Griffin	trish.griffin@us.army.mil
North Dakota	Patrick Isakson	pisakson@state.nd.us
Northern Mexico	Arnulfo Moreno-Valdez	leptonycteris2000@yahoo.com.mx
Northwest Territories	Mike Fournier	mike.fournier@ec.gc.ca
	Joanna Wilson	Joanna_Wilson@gov.nt.ca
Oregon	Steve Langenstein	steve_langenstein@or.blm.gov
	Marylou Schnoes	marylou_schnoes@or.blm.gov
Saskatchewan	R. Mark Brigham	mark.brigham@uregina.ca
South Dakota	Brad Phillips	bjphillips@fs.fed.us
Texas	Meg Goodman	meg.goodman@tpwd.state.tx.us
Utah	George Oliver	georgeoliver@utah.gov
Washington	Gerald Hayes	hayesgeh@dfw.wa.gov
	Howard L. Ferguson	ferguhlf@dfw.wa.gov
Wyoming	Martin Grenier	martin.grenier@wgf.state.wy.us
Yukon	Thomas S. Jung	Thomas.Jung@gov.yk.ca

Education Committee

Deborah Crough (California) dannysgirltoo@yahoo.com

Listserv Manager

Joe Szewczak joe@humboldt.edu