



WBWG NEWS

Volume 4, Number 2

Fall 2008

**Austin in April! 2009 WBWG Conference and
Bats/Wind Energy Workshop.**



WBWG Elections—Remember to Vote!



Western Bat Working Group

WESTERN BAT WORKING GROUP NEWSLETTER

Fall 2008

Volume 4, Number 2

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The Western Bat Working Group (WBWG) is a partner in the Coalition of North American Bat Working Groups. The WBWG is comprised of agencies, organizations and individuals interested in bat research, management, and conservation from 13 western States, western Canada, and Northern Mexico.

Membership in the WBWG is open to anyone who is interested in participating in bat conservation. There are no membership fees or dues. Funding for bat conservation work accomplished by the WBWG is generated by State and Federal land management agencies, non-governmental organizations, and by donations from individual members.

Visit our web page <http://wbwg.org> to contact us, find information on bat conservation and upcoming meetings, become a member, link to state or provincial bat working groups, or download previous issues of this newsletter.

PRESIDENT'S CORNER

I was at the North American Symposium on Bat Research in Scranton, PA in October. It was exhilarating, seeing old friends and colleagues and making new ones. The presentations were exceptional – there's all kinds of fascinating work going on in the world of bats. We had a luncheon to celebrate Bob Berry, Pat showed her great slide show of Bob's life and of course we had pizza, any ceremony about Bob without food would just be wrong. I "won" the first NASBR Biologist Open, a fund raiser for The Spallanzini Fund that is used to bring biologists to the NASBR meetings from third world countries. To win the tournament, you have to get the median score which for me was around 125, not so good for a par sixty-something course. Just the same, the golf was good fun even at 35-40 degrees F.



I had an epiphany during the NASBR meeting and no, it wasn't that I'd quit my day job to become a professional golfer. It was during the special session on White Nose Syndrome. I was sitting there listening to the dire facts associated with WNS. Eighty to ninety percent of hibernacula populations decimated by mid-winter starvation, likely triggered by a rare fungus that thrives in cold-temperatures. The fungus taking advantage of hibernating bats that are defenseless against it when in a torporous state and likely arouse at excessive rates from the mere irritation of the fungal invader. The excessive arousals being the hypothesized culprits causing the starvation in this biological nightmare that reads like a grade-b movie. Then there is the disturbing map of the Northeast reflecting the concentric circles as annually this Thing spreads like a plague. I found myself grasping at any of the presented material that might hold promise for a solution, after each talk, anticipating that the next speaker would be the one to provide the golden chalice holding a scientific solution. That talk never came and I found myself struggling emotionally and professionally to find a silver-lining.

That's when I had my epiphany. I often think of humans as being the biggest cancer of our planet – we grow and eat up natural resources just for the sake of growth. As a species, we are invasive and unless we change our ways we are likely to destroy our hosts and thus ourselves. Yet, the dichotomy that struck me during the WNS session is that I know of no other organism that will band together and go to heroic efforts to attempt to save another organism with which we have no obvious direct biological relationship that we depend on for our survival. It is compassion that is the silver lining in everything we do and the catalyst that turns our biological and scientific knowledge into fruitful actions for the sake of conservation. I'm really happy about this epiphany because it pretty much blows the whole human-race-as-cancer idea out of the water – cancer is anything but compassionate.

This morning as I write my little swan song, nearing the end of 4 years as your president, I'm wishing I had a magic wand so I could zap each one of you with the realization of how special and important you are to making not just the world of bats, but the whole frigging world, a better place. I want you too to have an epiphany that carries you forward to continue all your great work and collaboration and feel energized by it. Since I have no magic wand, I will leave you with a few aphorisms I keep on my radar screen to remind me how I want to be in the world: Give others the benefit of the doubt, we all want that. There is no sideline in life, our actions or nonactions effect our world and we all get to choose every moment of everyday what our footprint is going to look like, that's a pretty powerful place to be. Live as if the world is a finite system, oh wait a minute, it is! Focus on what works, look for solutions. Spend time with people you disagree with to find common ground, it is almost always there and only preaching to the choir does little to foster change. Build bridges not walls. And last but not least, "if it will be funny later, it's probably funny now", what we do is important, but it doesn't always have to be serious, humor is a great elixir. Hhmmm, it seems to me that all of these could be considered components for living a compassionate life.

With respect and compassion, your outgoing president, *Pat*

ACCOLADES FROM THE EDITORS

This has certainly been the fall for elections – US, Canada, and now WBWG! Two down, and one to go. So don't forget to vote! According to WBWG bylaws, our new Board must be elected by the end of 2008 (although their duties commence until the April conference). Therefore this is our last chance to say good-bye to our outgoing Board of Officers – we greatly appreciate all of the effort that the officers have put into the organization over the past two years. We'd especially like to send a great big thank you to Pat Ormsbee for being our fearless leader for the past 4 years -- the WBWG has certainly come a long way under your leadership, Pat. Thank you for your hard work and dedication to our organization.

Have a great winter everyone, and we hope to see all of you in Austin in April!

Cori Lausen and Kristi DuBois,
Newsletter Editors.

corilausen@netidea.com, kdubois@mt.gov

Thanks, Pat!



WBWG ANNOUNCEMENTS

Acknowledgements

The outgoing Board of Officers extend our special thanks to every one of you for the great work you do, for entrusting us with facilitating the WBWG, and for enriching our lives from the experience of it.

ELECTIONS—DON'T MISS YOUR CHANCE TO VOTE!

Submitted by Derek Hall

We are currently in the process of electing new officers according to WBWG bylaws. You should have received a ballot from your state/provincial working group representative with attached biosketches for each candidate. If you have not, please contact your representative. Please review the candidates and submit your individual vote to your respective state/provincial representative by 12 pm PST, **December 18, 2008**. The representatives will then compile all votes cast by their respective working group membership and send one final ballot per state/province to the Elections Committee Chairperson (halldb@nv.doe.gov). A great big THANK YOU goes out to all the candidates who volunteered to run and to those who nominated candidates. Your willingness to get involved is very much appreciated!

The following ballot was sent out by provincial/state reps. Biosketches of candidates are included at the end of this newsletter, and posted on the [WBWG website](#).

BALLOT:

President

_____ Rita Dixon

_____ Write In

Vice President

_____ Cori Lausen

_____ Write In

Secretary

_____ Heather Johnson

_____ Melissa Neubaum

Treasurer

_____ Brad Phillips

_____ Write In

At-large Board Representative

(Vote for two)

_____ Martin Grenier

_____ Dave Johnston

_____ Ron Spears

_____ Lauren Wilson

2009 WBWG BIENNIAL CONFERENCE

Radisson Austin Town Lake,
Austin, TX April 15-18, 2009

We will soon be soliciting abstracts for oral or poster presentations and on topics regarding conservation, management, or research associated with bats, with special interest in presentations relevant to bat species of western North America. We encourage presentations of either an applied or research nature so come share what you've been doing to further bat conservation whether that's a doctoral thesis or a local project. The official call for abstracts will begin mid-January. Check the website for updates!! Additional conference information will be posted as it becomes available.

If you are interested in donating to the fund-raising auction, contact Pat Brown (PatBobBat@aol.com), or if you interested in volunteering to help with registration, audio-visual, or other conference tasks, please contact Michelle Caviness (mcavine@cableone.net).

Additional conference attractions include the Congress Avenue Bridge colony of *Tadarida brasiliensis* (Mexican free-tailed bats) visible from the conference hotel, and a field trip to Bracken Cave, the largest colony of *T. brasiliensis*, estimated at 20 million.

BATS AND WIND ENERGY WORKSHOP

Radisson Austin Town Lake,
Austin, TX April 13-15, 2009

In conjunction with the Biennial Conference, the WBWG is hosting a special workshop on wind energy and bats. This workshop targets land managers, government regulators, industry professionals and consultants who are charged with understanding the wind energy and bats issues. This workshop will provide the latest **information** and **training** for predicting risk and conducting surveys for bats at wind energy developments, and includes acoustics, field/study designs, pre- and post-construction protocols, and equipment instruction and demos. Instructors/presenters are professionals, academics, and equipment designers. There will be equipment and techniques demonstrations at the Congress Avenue Bridge free-tailed bat colony. WBWG biennial conference to follow. See www.wbwg.org for more details. Program schedule and registration anticipated mid-January. Registration will be limited and on a first-served basis.



Hoary Bat, by Cori Lausen

STATE/PROVINCIAL UPDATES

CALIFORNIA

Compiled by Betsy Bolster

Patterns of Bat Activity at a Southern California Wind Energy Facility

Ted Weller (tweller@fs.fed.us), USDA Forest Service, Pacific Southwest Research Station

Ted Weller recently completed his first year of echolocation monitoring at a wind energy facility in southern California. The project is aimed at characterizing year-round bat activity patterns in southern California deserts and determining the number and configuration of bat detectors required to achieve precise estimates activity at wind energy facilities there. Data collection will continue through November 2008. Preliminary analysis of data from October 25, 2007 thru July 31, 2007 revealed very low levels of bat activity which peaked at ~ 0.8 bat passes/detector between March 1 and May 15. Lower wind speeds were positively associated with higher bat activity levels in all seasons. Preliminary results suggest that 4-5 towers monitored at heights of 2, 22, and 52m were necessary to achieve precise estimates of bat activity for a facility of this size (forty 1 MW turbines), in this habitat and geographic area. Ted reported results at the NWCC Wind Wildlife Research Meeting in late-October 2008. The project was funded by the Public Interest Energy Research (PIER) program of the California Energy Commission with collaboration from the Bats and Wind Energy Cooperative and the developer, Iberdrola Renewables.



Dillon Wind Energy Facility, San Geronio Pass Wind Resource Area, near Palm Springs California

California Training Workshops and Graduate Student Studies

Dave Johnston, Ph.D. (djohnston@harveyecology.com) H.T. Harvey & Associates

We provided a number of bat workshops in California this past year. The [Bat Conservation International workshop on Northwestern Bats](#) was held at [Lava Beds National Monument](#). The first week (July 19 – 24) covered the conservation and management of bats and was led by [Janet Tyburec](#), [Dave Johnston](#), [John Chambers](#), and [Bronwyn Hogan](#). An acoustic workshop from July 24 – 29 followed and was led by Janet Tyburec, Chris Corbin, Joe Szewczak, Sybill Amelon and Ted Weller. Both workshops were filled to capacity well in advance for these rather intense programs.

The Wildlife Society Central Coastal California Chapter of the Western Section held a workshop on central California coastal bats (Carrizo Plains Bat Ecology and Field Techniques Workshop) at Chimineas Ranch from August 7 – 10 and was led by instructors Dave Johnston, Kevin Cooper, Bob Stafford, and Linda Angerer. This workshop was barely advertised before the program but it was still filled to capacity.

The Wildlife Society Western Section held their annual “Bat Ecology and Field Techniques Workshop” from September 4 – 7 again at the UC Berkeley Sagehen Field Station. Trip Leaders/Organizers were

Cynthia Perrine and Katie Moriety, and the instructors were Dave Johnston, Joe Szewczak and Stephanie Remington. This marked the fifth year for this workshop and the second year we held it at Sagehen. This workshop nearly filled to capacity this year and there is talk about rotating the workshop site in coming years.

Graduate student Susan Whitford will be defending her thesis on the Patterns of Bat Species Richness and Activity for Monterey County this December 2008. This work examined how landscape characteristics affect species assemblages in agricultural, rural, and urban situations in Monterey County. Graduate student Theresa Brinkley will begin her thesis research on the foraging strategies of Yuma myotis and Mexican free-tailed bats over the San Francisco Bay wetlands in 2009.



Jennifer Moonjen, CalTrans and Amy Kuritsuburo, BLM examine characteristics of a Myotis on the Carrizo Plains bat workshop.



Dr. Shane Fryer, Physical Scientist for Lava Beds National Monument, learns to use radio telemetry equipment on the BCI Conservation and Management Workshop for Northwestern Bats.

Status of California Bat Conservation Plan

Betsy Bolster (bbolster@dfg.ca.gov), California Department of Fish and Game

Under contract to CDFG, Dr. Dixie Pierson is leading the effort and working with other California bat experts to prepare the plan. With over 14,000 locality records compiled on California's 25 bats species, we are making good progress on our statewide database. In addition to their use in making species distribution maps for the plan, locality data will be used to update our Heritage Database and will ultimately be made available to other users, as appropriate, via an online database (<http://bios.dfg.ca.gov>). We have to extend our completion date one more time, however, to accommodate inclusion of records we have been unable to obtain to date, and allow a little more breathing room between our writing team and agency workshops and the final plan. Our new completion date for the finalized plan will be April 2010.

Additional tasks in the UC Berkeley contract include creation of a library of "known" Anabat files, establishing criteria for species identification based on the call library assembled, and creating filters for automated species identification for all call types in the call library found to be diagnostic. Emphasis will first be on bat species with special status. Chris Corben is the lead on this aspect of the contract.

The UCB contract will also provide survey protocols for all California species, which will become a part of the final plan.

CANADA

Submitted by Cori Lausen

Yukon – This past summer, bat biologists Tom Jung, Dave Nagorsen, Cori Lausen, Brian Slough, and Lea Randall surveyed several areas of southern Yukon, focusing on a new territorial park Agay Mene, and another remote territorial park that had not been surveyed for bats, Coal River Springs Park.

Additionally, Jen Talerico, of the University of Calgary completed her MSc entitled: The behavior, diet and morphology of the little brown bat (*Myotis lucifugus*) near the northern extent of its range in Yukon, Canada. Lea Randall, also a MSc student at the University of Calgary, is completing her thesis on Yukon bats and small mammals.

Saskatchewan – University of Regina graduate students continue to research bats in the Cypress Hills area, a unique high elevation forested ecosystem within the Alberta/Saskatchewan prairies, and the most southern maternity location for hoary bats in the two provinces. Additionally, Miranda Dunbar, one of Dr. Mark Brigham's students conducted research on thermoregulation of big brown and red bats in the eastern U.S. looking at latitudinal differences; she presented her work at the most recent NASBR, winning the BCI award.

B.C. – There has been much focus on long-eared bats in the province, with Dave Nagorsen, Doug Burles, Thomas Hill and Cori Lausen conducting research in several areas of the province. Laura Friis of BC Ministry of Environment, project lead, continues to fund-raise for this project, even in semi-retirement! There is interest in forming a BC Bat Working Group this winter...stay tuned!



Measuring M. keenii in SW B.C.

Alberta – University of Calgary: Erin Baerwald recently completed her MSc thesis entitled: Variation in the Activity and Fatality of Migratory Bats at Wind Energy Facilities in Southern Alberta: Causes and Consequences. The Alberta Bat Action Team is currently revising their protocol, *Bats and Wind Turbines. Pre-siting and pre-construction survey protocols*, to reflect Erin's thesis findings.

For full details about Canadian bat work, refer to the Western Canada Bat Working Group newsletters, available on the [ABAT website](#).

COLORADO

Submitted by Kristen Philbrook

Bats/Inactive Mines Project - 2007 Mine Evaluations

Kirk Navo, Colorado Division of Wildlife, Monte Vista, CO K.Navo@state.co.us

In the 2007 field season 238 new mines were evaluated, and including those mines started in 2006, 305 mines were in the projects that year. A total of 324 surveys were conducted, including 59 detector, 76 capture, 30 video, 106 internal, and 53 pre-surveys. Of all the new mines evaluated that field season, 67 sites had verification of roosting by bats to species (approximately 28% of the new mines in the project). Bat gates were recommended for 41 features, approximately 17% of the total evaluated. (The number of mines is less, as some mine features have multiple openings.) We documented 203 bats, including 64 *Corynorhinus townsendii* (Townsend's big-eared bat), a State Species of Special Concern, during the

surveys of abandoned mines in the state. We documented 30 new *C. townsendii* roosts in 2007. The 2007 surveys resulted in 41 bat gate recommendations to the land management agencies and Division of Minerals and Geology. Volunteers again donated numerous hours to the project, and assisted with other administrative activities, contributing a total of 1457 hours to the project, resulting in an estimated savings to CDOW of \$18,828.

The 2008 field season is about finished, and year end reports will be completed soon. Additional roost sites for *C. townsendii* were documented this year, and additional bat gates will be recommended.

As a result of a partnership between the mine owner, the US Forest Service, and the Colorado Division of Wildlife, a bat gate was installed during early October at a large maternity roost for *C. townsendii* in western Colorado. Plans are underway for monitoring efforts next summer, and temperature and RH data loggers are collecting data to monitor any changes in the microclimate at this important roost site.



US Government Bat Banding Program

Laura Ellison, U.S. Geological Survey, Fort Collins, CO ellisonl@usgs.gov

Laura just completed a report on the US Government Bat Banding Program that occurred from 1932-1972. The report includes a detailed history of the program, summary of the literature, and a case study and analysis of a set of banding records on Townsend's big-eared bats from Washington. It will be available to download from the Fort Collins Science Center website in November 2008. Please contact Laura E. Ellison at ellisonl@usgs.gov for further information.

Bat research at the USGS Fort Collins Science Center - spring and summer of 2008

Paul Cryan, U.S. Geological Survey, Fort Collins, CO paul_cryan@usgs.gov

During the summer of 2008, USGS scientists based out of the Fort Collins Science Center worked on bats in Colorado and beyond. Ernie Valdez and Tom O'Shea traveled to the far reaches of the Pacific Ocean and spent an unforgettable month on Aguiguan (Goat) Island in the Northern Marianas studying the ecology of the Polynesian sheath-tailed bat (*Emballonura semicaudata*). Upon return to the mainland, Ernie dried out while helping Paul Cryan radiotrack long-nosed bats (*Leptonycteris yerbabuenae* and *L. nivalis*) around the Big Hatchet Mountains in the extreme southwestern corner of New Mexico. With the help of Apple Snider and Amy Englert, Paul also worked with hoary bats at a wind energy facility in Upstate New York, and with the marked population of big brown bats living in buildings around Fort Collins, Colorado. This autumn, collaborators from PRBO Conservation Science and the U.S. Fish & Wildlife Service again deployed a USGS bat detector on the lighthouse atop Southeast Farallon Island, California, with the hope of learning more about the behaviors of migrating hoary bats around prominent and highly visible landscape structures. Laura Ellison completed an analysis of, and report on, historical bat banding efforts in the United States that will be available soon as a USGS series publication.

White Nose Syndrome (WNS) emerged during the past winter as an issue of grave concern to several agencies within the U.S. Department of Interior (e.g., U.S. Fish & Wildlife Service, National Park Service). As the science research agency for the Department of Interior, USGS committed a portion of Paul's time toward helping coordinate the investigation into the cause of WNS and he served on the planning committee for the WNS Emergency Science Strategy Meeting that was held during June in Albany, NY.

Dolores Public Lands Office Bat Telemetry Project 2008

Jeremy Siemers and Rob Schorr, Colorado Natural Heritage Program, Fort Collins, CO assistance by the Dolores Public Lands Office Wildlife Crew, Dolores, CO rschorr@lamar.colostate.edu, jsiemers@lamar.colostate.edu, eric_freels@blm.gov



Bat being removed from mist net



*Silver haired bat (*Lasionycteris noctivagans*)*

From May 28 to June 13, 2008 the Dolores Public Lands Office (DPLO) Wildlife Program worked in cooperation with the Colorado Natural Heritage Program (CNHP) to capture and radio tag bats in managed sagebrush, shrublands and Pinyon/Juniper woodland habitat on BLM lands. Jeremy Siemers and Rob Schorr from CNHP and Kristen Philbrook, Paul Morey, Eric Freels, Michael Schmidt, Wyatt Nimitz and Nicholas Calvert from the DPLO conducted the trapping and tracking efforts. This project was attempting to trap, radio collar and track bats using telemetry inside the South Spud fuels reduction treatment area, north east of Egnar Colorado. The study was conducted to determine if sensitive bat species were roosting inside the hydromowed treatment area, and what type of roosting structures were being utilized. This area is predominately Pinyon pine (*Pinus edulis*) Juniper (*Sabina spp.*) with a variety of deciduous tree species such as Gambel's oak (*Quercus gambelii*).

During three nights of mist netting, several bat species were observed around the reservoir during netting but only one silver haired bat (*Lasionycteris noctivagans*) was caught and fitted with a receiver. During the mistnetting period, this area experienced unseasonably cold temperatures that were well below freezing. This was thought to be a major contributor to the low number of bats seen and caught.

The silver haired bat was located 9 times before the radio collar battery expired. All locations were confined to a fairly small area along the Dolores River. It was first located roosting in a large Juniper within a fairly deep canyon approximately 6 miles from where it was caught. In less than a week, the bat relocated to a small crevice on a sandstone face overlooking the Dolores River, less than 1 mile from the Juniper roost site. The bat stayed in this location for at least 3 days. For the next two days, the bat stayed in the same general location, possibly roosting in a juniper tree and large cottonwood. No visual confirmations were made at the last two locations. We had hoped to use the radio telemetry data to assist us in making management decisions that would provide suitable habitat for roosting bat species. Unfortunately the single bat that we captured was not roosting in the treatment area. Though we did collect data on where this individual bat was roosting, we would like to have more bats to collect data with. We believe that the weather during the netting was a key factor in our low bat capture. One other logistical problem may be attributed to the inexperience of our field crew when locating the bats in their roost. We found that we would be close to where we believed the bat to be roosting, but could not always 100% confirm this location. We hope to try this type of project again in the future, as we continue to implement habit improvement projects in potential bat roosting habitat.

Anvil Points Facility Bat Surveys

Ron Spears, URS Corporation Denver, CO Ron_Spears@urscorp.com

Ron Spears inspected mines for bats at the Anvil Points Facility and found a moderate amount of guano. Unfortunately it appears that whatever bats species were there have abandoned the site. There is construction activity going on as bat grates are being placed on the entrances to the mines. The bat species were not identified, but nice robust guano was found. These mines were at an elevation of approximately 7500 ft.

Acknowledgements

A special thank you to Kirk Navo, CDOW biologist, and his crew and volunteers for the many years of surveying for bats and providing vital information on bat species in the state of Colorado. As a result of their work, thousands of bats have been identified and located, many hundreds of mines have been preserved for habitat, and the work load for federal biologists has greatly been reduced as a result of their efforts.

IDAHO

Compiled by Rita Dixon

BLM Abandoned Mine Lands Bat Surveys

Rita Dixon, Idaho Department of Fish and Game (rdixon@idfg.idaho.gov)

This summer, we continued our collaboration with the Idaho BLM Abandoned Mine Lands program to examine the suitability of and use by bats at selected priority abandoned mines proposed for safety closures. This year, we completed surveys at 26 mines: 5 mines in the Silver Valley of the Idaho Panhandle, 9 mines in the Poison Creek and Castle Creek areas of the Owyhee Uplands, and 12 mines along the lower Salmon River, Idaho. We will continue this project in 2009.

Idaho Panhandle National Forest

Jenny Taylor, Coeur d'Alene River Ranger District (jctaylor@fs.fed.us)

We conducted 2 mine surveys for bats this summer, and our regional bat crew spent all but 1 week in Montana. In addition, Clearwater National Forest staff conducted bat surveys, and on 1 night, they caught a *Corynorhinus townsendii*.

Nutrient Mitigation Project

Scott Florin, Washington State University (scott.florin@vandals.uidaho.edu on behalf of sflorin@wsu.edu)

As part of a stream nutrient mitigation project involving the Idaho Department of Fish and Game, Bonneville Power, Idaho Power, Idaho State University, University of Idaho, University of Alaska Fairbanks, and Washington State University, we will be conducting a cost-benefit analysis of two different management strategies (fish carcass additions and fish analog additions), on bat foraging activity and species diversity in the greater Boise River watershed. Historically, anadromous fish runs played an integral role in the Boise River ecosystem, but the construction of dams on the Columbia River in the 1940s extirpated these runs from most of Idaho. As a result of the loss of anadromous fish in the Boise National Forest, questions have arisen regarding potential effects on bat activity and ecology. Spawned out salmon and steelhead play host to numerous species of insect larvae, which eventually emerge and become prey for foraging bats. Because the presence of salmon carcasses increases aquatic macroinvertebrate biomass and taxonomic richness in freshwater ecosystems, they can provide more food and indirect benefits to riparian dependent and insectivorous wildlife such as bats. Although relatively little is known about the relationship between bats and fish, salmon could potentially be an important predictor of not only bat abundance, but also bat diversity and activity. Through experimental supplementation, we hope to gain a better understanding of the relationship among salmon, stream nutrients, aquatic insects and bats.

Beginning in May 2009, we will deploy Anabat SD1s at each of our treatment streams to passively monitor and record activity throughout the night and index calls into either search, approach, or terminal phases. In addition to our acoustic monitoring, we will capture bats using mist nets in order to physically identify bats to species, and draw blood for isotope work. We hope to see an increase in insect densities, and therefore, more bat activity and potentially higher diversity within our treatment areas. For comparison, we will also monitor and net bats in the Clearwater National Forest, where anadromous fish runs still exist. A brief pilot study in 2008 proved to be successful, with our capture rates exceeding our expectations. This project will continue through 2012.

Upper Snake Field Office (BLM)
Theresa Mathis (Theresa_Mathis@blm.gov)

We trapped bats on 2 nights in the Upper Snake Field Office (BLM) during the summer of 2008 (24 Jun 2008 and 9 Jul 2008). All trapping was carried out using mist nets over water. We caught 15 *Myotis evotis*, 6 *M. yumanensis*, and 4 individuals that were identified as either *M. yumanensis* or *M. lucifugus*. Next year, we plan to coordinate with the Idaho Department of Fish and Game's Upper Snake Region to examine summer bat use of allotments being assessed for rangeland health.

MONTANA

Submitted by Kristi DuBois

Pallid Bat found during Natural Heritage Program bat work

Bryce Maxell, Montana Natural Heritage Program, P.O. Box 201800, 1515 East Sixth Avenue, Helena, Montana 59620-1800, (406) 444-3655, bmaxell@mt.gov

While conducting surveys for reptiles at 98 south facing rock outcrops in Rosebud and Powder River Counties in southeastern Montana we detected bats in day roosts at 10+% of the rock outcrops. Most observations were of Long-eared Myotis, but Little Brown Myotis, and a Pallid Bat were also observed (see photo below). Clearly these south-facing rock outcrops are important for providing day roosts for these species and should be protected from disturbances. The BLM has been provided this information and has already altered some coal-bed-methane development plans as a result.

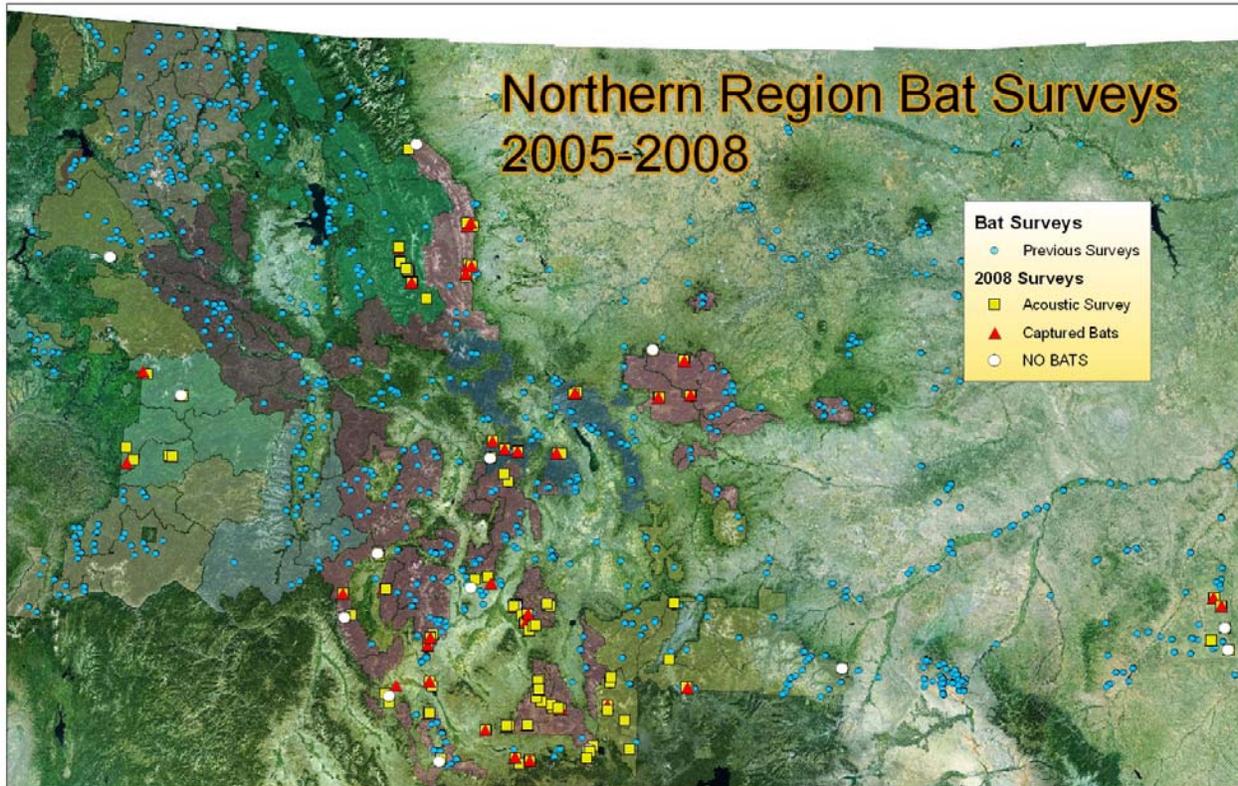
You can query out distribution information for bats in Montana on the Montana Natural Heritage Program's [TRACKER](#) website.



Another Summer of USFS Bat Surveys in MT (Part of Northern Region)

Amie Shovlain, USFS, Dillon, MT 59725, ashovlain@fs.fed.us

We had a great crew (and many, many assistants) chasing around bats across the region this summer. They conducted 144 acoustic surveys and 68 capture surveys on over 73 quarter quads and caught over 500 bats! The acoustics surveys have yet to be analyzed by Joe Szewczak at Humboldt State Univ. Once that happens Montana Natural Heritage Program will be writing a final report. Thanks so much for those who helped make this possible! A special thanks to the BLM for funding.



Jen Talerico (left) and Alisha Shah, Jen Talerico and Cori Lausen (right) processing bats in the Beaverhead-Deerlodge Forest August 2008 (photos by Amie Shovlain).



NEVADA

Submitted by Jason Williams

Jason Williams (Nevada Department of Wildlife), Rick Sherwin (Christopher Newport University & Bat Conservation International), and Mike Herder (BLM Ely, Nevada) hosted a five-week study of movements and habitat use patterns of Mexican free-tailed bats (*Tadarida brasiliensis*) in Spring Valley, Nevada, near Great Basin National Park. The purpose of the study was to document whether Mexican free-tailed bats using a local cave are a migratory population and whether the bats forage in an area of Spring Valley proposed for wind generation development. The proposed wind farm would be located on the valley floor within two miles southwest of the cave. The study used a combination of radar and radio telemetry to track emergence and dispersal of the species from the cave. Preliminary study results indicate:

- The cave is a migratory stopover for Mexican free-tailed bats with use occurring from early August to early October.
- Upon emergence each evening, a majority of the free-tailed bat population gained altitude above the valley floor and flew south. We assume these bats continued on their southward migration. Other individuals descended into the valleys north and south of the cave, presumably to forage.
- Several of the radio-telemetered bats were detected in the area of the proposed wind farm. We suspect these bats were foraging and/or watering, though some may have been traveling as they spent only minutes in the area. These bats were observed from just above ground level to over 5,000 feet above ground, which is the maximum height the radar was configured to sample.
- Some of the telemetered bats that foraged to the south traveled more than 30 miles during the evening and were detected in the vicinity of a second proposed wind farm. Just twenty-four hours after application of transmitters, some bats were found over 100 miles south of the trapping location.
- Most telemetered bats did not return to the cave. Detections from diurnal telemetry flights indicate that many tagged bats continued their southward migration, foraging en route, and day roosting singly or in small groups along the way.
- Average residency times for bats at the cave were typically less than three days. This suggests that initial estimates of population size at the cave may be much lower than anticipated.

We anticipate continuing data collection next year, shifting our focus from telemetry to radar and thermal infrared imaging.

NEW MEXICO

Submitted by James Stuart

New Mexico Bat Working Group

Update on New Mexico activities from the 17 Oct 2008 meeting

Jennifer Foote has been conducting cave and mine surveys on land managed by BLM in southeastern New Mexico. Jennifer and others have a manuscript in review regarding new records of the eastern pipistrelle (*Perimyotis subflavus*) for New Mexico, in part, from these surveys. Keith Geluso, assistant professor at University of Nebraska at Kearney, had 2 papers published in 2008 on the Brazilian free-tailed bat (*Tadarida brasiliensis*) and spotted bats (*Euderma maculatum*) in New Mexico, with a third paper regarding bats and bridges in New Mexico that is currently in review.

Amber Bennett and others at White Sands Missile Range (WSMR) monitored colonies of Brazilian free-tailed bats using highway underpasses near WSMR and reported that individuals dispersed about 8 Oct 2008. Also, Amber, Greg Silsby, and Trish Griffin, also of WSMR, are investigating the possible impacts to bats and birds on acoustic testing towers used by the military. Biologists at WSMR conducted an inventory and assessment of abandoned mines with the assistance of Jason Corbett of Bat Conservation International (BCI). Jason also assisted with mine assessments at Kirtland Air Force Base (KAFB).

Gregg Dunn (KAFB) reported on the continued radio-tracking efforts of bats at KAFB. A final report is pending on the KAFB surveys.

Ernie Valdez (USGS) assisted Paul Cryan (USGS) and his field crew with radio-tracking and roost monitoring of *Leptonycteris nivalis* and *L. yerbabuena* in the southwestern corner of New Mexico. This effort was assisted by Mark Hakkila of BLM, and funded by USFWS. Mark is interested in the effects of grazing and management of agave plants in the area used by the nectar-feeding bats.

Multiple proposals for alternative energy development, including wind and solar energy, have been reported for across the state in 2008, and several existing wind energy facilities have been built in the last few years. However, information is lacking on the effects of alternative energy on wildlife in the state. As discussed at our meeting, pre- and post-construction monitoring are needed to assess what impact these projects may have bat populations, although such monitoring is not required for projects implemented on private lands.

The NMBWG will have a bat information booth at the annual Festival of the Cranes (18-23 Nov 2008) at Bosque del Apache National Wildlife Refuge in central New Mexico. Volunteers from the NMBWG will provide general information on bats, including some handout materials provided by BCI, USFS and BLM.

The New Mexico Bat Conservation Plan will be developed as a living document and, with the permission of the Colorado Bat Working Group, major portions of their conservation plan will be incorporated and revised into New Mexico's plan. A deadline for committee members working on chapters of the plan has been set for 17 Nov. 2008.

Larry Cordova (US Forest Service) has been developing designs for a NMBWG pin that includes a stylized bat image.

Bud Starnes of the New Mexico Department of Agriculture reported that he has received several inquiries about bat houses and noted that there is an interest in rural parts of New Mexico about building and installing bat houses.

The NMBWG meets at least twice annually. The next meeting will likely be held in conjunction with the meeting of the AZ/NM Wildlife Society in Gallup, NM in February.

SOUTH DAKOTA

Submitted by Brad Phillips

The South Dakota Bat Working Group '**Bat Book Fund**' continues to provide bat books to elementary school libraries across South Dakota. Each 12-volume set of books highlights a different bat species from around the world. The books target 3rd-5th grade students. Complete sets are provided to school libraries at no cost and are sponsored by local individuals or businesses. To date, 25 sets have been placed in schools across SD with a total student enrollment approaching 10,000. For more information about the project or the books, see the SDBWG website or contact Brad Phillips (bphillips@rushmore.com) or Joel Tigner (batworks@rushmore.com).



WASHINGTON

Compiled by Gerald Hayes

Identification of Species (*Myotis yumanensis*) and Maternal Genetic Lines of a Myotis Maternity Colony, and the Utilization Strategy in a Deactivated Filtered Water Storage Structure.

Jon Lucas, AREVA Federal Services, Richland, WA 99354, jonathan.lucas@areva.com (cell-509-302-7579).

Jon Lucas (AREVA Federal Services employee and WSU-TriCities graduate student) has been conducting a study for about a year on a maternity colony (estimated 2000 or more) of myotis bats that have been utilizing a deactivated filtered water holding structure on the Hanford Site in eastern Washington.

The purpose of the study was to determine species, how the bats are using the structure, and maternal genetic lines. The bats were determined to be *Myotis yumanensis* (yuma bat) by conducting genetic analysis on wing membrane tissue punches. This colony was also compared genetically (results pending) with another nearby maternity colony (estimated 200) of yuma bats, to determine if the maternal lines are unique between the two colonies. Literature indicates some temperate species have a tendency toward very closed maternity colonies, as indicated by unique maternal lines between sites of the same species that are close to each other geographically. This could have significant management implications because of the potential that if the roosting habitat of a colony is destroyed, it may not be necessarily incorporated into another nearby colony. Therefore individual maternity colonies may need to be protected as unique gene pools.

The yuma bats at the study site utilized different portions of the structure at different times of the year. This indicates how important various aspects of the structure is for roosting needs. Further study would be required to determine more aspects of the structures use by the yuma bats.

Acoustic monitoring during the fall and winter of 2007 was conducted at the site outside the structure, to determine when the yuma bats would leave the area for the winter. Surprisingly, some yuma calls were record all through the winter, with the lowest temperature being approximately 18 degrees F when a call was recorded.

NASBR Meeting Highlights for some Washington State Participants

Jon Lucas, AREVA Federal Services, Richland, WA 99354, jonathan.lucas@areva.com (cell-509-302-7579) and Greg Falxa, Cascadia Research, PO Box 1621, Olympia, WA 98507. gregf-at-efn.org 360-870-8243

The special sessions for bats and wind power, and for white nose syndrome (WNS), have special importance in Washington State. As with most western states, we have little knowledge of the hibernating habits of most of our bats, making monitoring for WNS pretty close to impossible. Knowing this hidden portion of the life history strategies of Pacific Northwest bats would be most valuable should WNS become an epizootic among populations across western North America. Knowing hibernation locations and behavioral patterns have allowed rapid response to the syndrome in the northeastern states. Similarly, we lack information regarding the migration routes of hoary and silver-haired bats. They may migrate through parts of Washington state -- large wind farms have been installed, with many more on the way. The evidence presented from studies in Alberta suggests that we are behind on monitoring requirements to ensure that pertinent data will be gathered at the wind generation sites in our state.

Fort Lewis Bat Survey and Townsend's Big-eared Bats

Greg Falxa, Cascadia Research, PO Box 1621, Olympia, WA 98507. gregf-at-efn.org 360-870-8243

In collaboration with The Nature Conservancy, I conducted bat surveys at Fort Lewis Army base during the summer of 2008. The army base, located near Tacoma, WA, has unique lowland conifer woodlands and remnants of historic oak prairies. After 50 net-nights of capture effort, and over 80 acoustic surveys, all species of bats that were presumed to be in the region were conclusively documented, except for Townsend's Big-eared bats. September 12 marked the end of the field effort. On the final day of surveys, while checking for guano around structures in a training area, I encountered a single, day-roosting male *Corynorhinus townsendii*. It was roosting in a concrete tunnel system constructed from 4 ft. diameter concrete sewer pipe. A lucky last-minute find at 5:30 pm on the final day of the field work!

In the 1990s there had been a maternity colony adjacent to Fort Lewis, but it has been missing for over 10 years. Because of this, we were prepared to radio tag a female Townsend's, if encountered. This late season find was a male, and the fieldwork budget was spent, but my teammates and I decided that valuable information might be gained by tracking it. A week of radio-tracking him helped refine a search image for Townsend's night roosts in this area, and I was able to locate a night roosting juvenile male and 2 post-lactating female Townsend's Big-eared bats. All 3 bats were found within 3 km of the 1990's colony location. I radio-tagged and closely monitored one of the adult females, and found it occasionally day-roosting at a location that had been used by the missing colony, as well as roosting alone in a barn.

This experience of *almost* missing these Townsend's bats during the survey is probably not unique to this study, with implications for other bat research in the western states: 1) we captured no Townsend's bats among the 150 bats captured while mist-netting this summer, but apparently we were sampling in occupied areas; and 2) although I had identified one *possible* Townsend's call among the 12,000+ samples, I had little acoustic evidence that Townsend's bats were present at this large area of suitable habitat. We were using Pettersson D240x time-expansion detectors with SonoBat 2.6 analysis software.

I have started re-analyzing the call samples collected at Fort Lewis this summer. With modified settings in SonoBat, I've identified several more calls from our *whispering* big-eared bats, buried behind more dominant calls in the recordings. I suspect that failing to identify their calls using the standard collection and review methods may be common. Compounding this hidden call problem, the bat detectors rarely *auto-trigger* on their low-amplitude calls. The calls I found in these second pass analyses made it on the call files because a louder bat caused the device to trigger the recordings. I'm currently working on some tricks for increasing *Corynorhinus* detections, and I hope to have something to present at the WBWG meeting next spring.

Now that we have confirmed Townsend's Big-eared bats in the area of the historic colony, we are working out plans with Washington State Fish and Wildlife biologists for continued monitoring and investigation of this local population.



Long-eared Myotis, by Cori Lausen

OTHER NEWS

NASBR UPDATE

With nearly 300 registered participants, the North American Symposium on Bat Research in Scranton, Pennsylvania this past October (22-25th) was a huge success. In fact, there was such a great turnout that for much of the time there were four concurrent sessions. Single sessions included the student presentations, as is typically done, and two special sessions: Wind Energy and Bats, and White Nose Syndrome. The latter symposium presented new research findings on the cold-loving fungus associated with WNS. Concurrent session topics included: Genetics, Foraging Strategies, Habitats and Behavior, Activity Patterns, Biogeography, Population Ecology, Ecological Hazards, Pathology, Morphology, Echolocation, Evolution, Local Conservation, Physiology, Techniques, Flight, and Evolution. The program can be viewed on the [conference website](#).

Some attendees that came a day early were treated to some harp trapping of a local mine where bats were captured, including a few *Myotis sodalis*. A number of folks also participated in the First Annual Biologists Open golf event, raising \$200 for the Spallanzani award. A full report of this golf tourney is available on the [NASBR website](#).

The society has officially changed its name from the North American Symposium on Bat Research to: ***North American Society for Bat Research***.

The 2009 NASBR will be held in Portland, Oregon.

WHITE NOSE FUNGUS UPDATE

David Blehert and others presented at NASBR in Pennsylvania this fall at a special symposium on White Nose Syndrome. Here they described the fungus associated with White Nose Syndrome. This fungus thrives at cold temperatures when bats are in torpor with suppressed immune function. For more information, and to keep updated on WNS, visit the [WBWG website](#), the [US FWS website](#), and the USGS [newsroom](#) and the [National Wildlife Health Centre](#) websites. At this latter website, you can download the following latest publication:

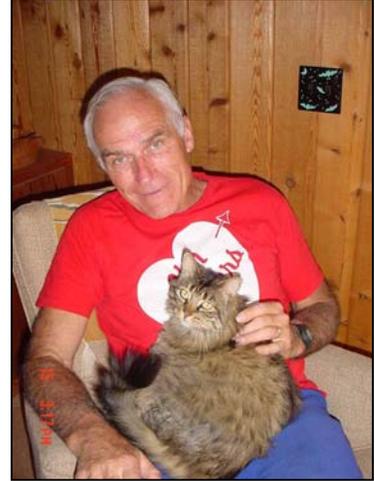
D. S. Blehert, A. C. Hicks, M. Behr, C. U. Meteyer, B. M. Berlowski-Zier, E. L. Buckles, J. T. H. Coleman, S. R. Darling, A. Gargas, R. Niver, J. C. Okoniewski, R. J. Rudd, W. B. Stone. 2008. **Bat White-Nose Syndrome: An Emerging Fungal Pathogen?** *Science Express*, Brevia. Published Online October 30, 2008.



BAT BULLETIN BOARD

BOB BERRY SCHOLARSHIP FUND

We are now accepting donations for the Bob Berry Fund. Patricia Brown will match contributions up to \$1000. The impetus behind this fund is to perpetuate Bob's memory in the way that he assisted aspiring bat biologists the most. He used his engineering and computer skills to refine the tools of bat field work, and to help people to understand the different and changing technologies. Bob worked best one-on-one and patiently offered his expertise to students and agency biologists. He loved challenges.



The criteria for the award are:

- The demonstrated need for specific equipment (i.e. bat detectors, telemetry equipment, night vision, etc.) or technological training to further bat field research and/or conservation.
- The probability that the results of the research or surveys will help to perpetuate bat conservation in the Western United States, and the initial investment will continue to return benefits.

Selection of recipient:

Application information will be announced in January. The recipient will be a student or an agency biologist that needs a “grubstake” to begin or sustain bat research or surveys. The first award will be given at the biannual WBWG meeting in Austin in April 2009. Depending on the amount of donations, we hope to continue the award beyond this year. The award can be in cash, training or equipment. If the application is for equipment, it's possible that we can have vendors donate part to leverage our award. A future goal could be to establish a lending “library” of bat research equipment, if we can find the librarian to maintain it. The funds could be used for equipment maintenance.

Auction Items Needed for April Meeting

In Tucson in 2007, we had a fun, fund-raiser thanks to the generous donations of our members and vendors. To keep this great tradition going, we need your help. Please contribute an item or service for our raffle and/or auction for April 2009 meeting in Austin. Contact Pat Brown (patbobbat@aol.com) and Michelle Caviness (mlcaviness@fs.fed.us) with a description of what you can contribute. We have an address in Austin that you can send the item to in March if you don't want to bring it to the meeting. Thanks in advance for your generosity.



Yuma Myotis, by Heather Johnson

WBWG EVENTS



WBWG 2009 CONFERENCE

Mark your calendars!

BATS AND WIND ENERGY WORKSHOP

Western Bat Working Group

Austin, Texas
Radisson Austin Town Lake

April 13 – 15, 2009

- Latest **information** and **training** for predicting risk and conducting surveys for bats at wind energy developments
 - acoustics
 - field/study designs
 - pre- and post-construction protocols
 - equipment instruction and demos
- Targeted at land managers, government regulators, industry professionals and consultants
- Instructors/presenters: professionals, academics, and equipment designers
- Come witness the emergence! *Congress Avenue Bridge Free-tail bats* – technology and tools demonstrations (e.g., acoustic systems, infrared)
- WBWG Biennial Conference and Meeting to follow
- www.wbwg.org for more information

WBWG BIENNIAL CONFERENCE

Austin, Texas
Radisson Austin Town Lake

April 15 – 18, 2009

- Current bat conservation, management and research
- Experience the free-tailed bat emergences!
 - Field trip to Bracken Cave
 - Congress Ave Bridge visible from conference hotel
- Discounted student registration fee
- Saturday workshop
- www.wbwg.org for more information



OTHER UPCOMING EVENTS

American Society of Mammalogists Annual Conference. June 24-28th, 2008. University of Alaska Fairbanks, Fairbanks, Alaska. Contact Link Olson (link.olson@uaf.edu) or Kris Hundertmark (ffkh@uaf.edu), or check <http://www.mammalsociety.org/whatsnew/meetings.html> for details.

10th International Mammalogical Congress. Aug. 9 – 14th, 2009. Mendoza Convention Center, Mendoza Province, Argentina. Official language: English. For more info: <http://www.cricyt.edu.ar/imc10/>

Symposium on Conservation and Management of Big-Eared Bats (*Corynorhinus*). Southeastern Bat Diversity Network. Athens, Georgia. March 9-11, 2010. Presentations covering the three taxa of big-eared bats (Ozark Big-eared Bat, Virginia Big-eared Bat, and Rafinesque's Big-eared Bat). Oral presenters may submit a manuscript for possible Publication in the Symposium Proceedings. For more information: http://Warnell.Forestry.Uga.Edu/Big_Eared_Bats/

1st International Symposium on Bat Migration. 16-18 January 2009. Berlin, Germany. For more information visit the [website](#).

39th North American Symposium on Bat Research 2009. Nov 4-7, 2009. Portland, Oregon. www.nasbr.org

40th North American Symposium on Bat Research 2010. Dates TBA. Denver, Colorado.

The Wildlife Society Annual Conference - September 20-24, 2009. Monterey, California - Upcoming deadline: December 5, 2008, call for proposals: http://joomla.wildlife.org/documents/Call_Proposals_2009.pdf

Society for Northwestern Vertebrate Biology and Washington Chapter of the Wildlife Society. Joint annual meeting. Feb. 18 – 21, 2009, Skamania Lodge, Stevenson, WA. Temporal issues in ecological science: implications for research, management, and conservation in the Pacific Northwest. Abstract deadline: Jan. 10, 2009. For more info: Aimee McIntyre mcintam@dfw.wa.gov.

BIOSKETCHES FOR THE WBWG ELECTION

President—Rita Dixon

I am currently the Biodiversity Program Leader for the Idaho Department of Fish and Game's Conservation Sciences Division. As such, I endeavor to converge plant, animal, and systems ecology. Selected projects include: determining the location and condition of quaking aspen (*Populus tremuloides*) stands in southeast Idaho; a collaborative project with NatureServe and Forest Capital Partners LLC (FCP) to field validate models for selected rare animal species on FCP lands; and, among others, working with adjacent northwest states to support the Northwest Regional Gap Analysis Project (NWReGAP). In addition, I work with the Idaho BLM Abandoned Mine Lands (AML) program to evaluate abandoned mines for their suitability to and use by bats. I recently led the development of Idaho's Comprehensive Wildlife Conservation Strategy (CWCS; available at <http://fishandgame.idaho.gov>) and continue to serve as technical lead for ongoing updates and revisions. I served as Vice President and President of the Idaho Chapter of The Wildlife Society from 2004 to 2008, chair the Idaho Bat Working Group, and serve as Idaho's representative to the Western Bat Working Group. I received a B.S. in Biology from the University of California at Riverside, a M.S. in Wildlife Resources from the University of Idaho, and am

completing a Ph.D. at the University of Idaho, where I studied the ecology and metapopulation biology of White-headed Woodpeckers. My professional interests include bat community ecology, avian ecology, captive care and rehabilitation of insectivorous bats, geostatistical modeling, conservation planning, and critical thinking.

Vice President—Cori Lausen

I completed my PhD at the University of Calgary Dec. 2007. My research focused on prairie bat hibernation, roost selection, and landscape genetics. In a former life, I was a high school science teacher in Saskatchewan. I now live with my husband in Kaslo, B.C., Canada, a small mountain town on Kootenay Lake, where I work as an independent bat biologist. Each summer I conduct bat work throughout northwestern North America, and plan to continue this field work; I may also pursue a postdoctoral position in the future. I am currently the editor of the Western Canada Bat Working Group newsletter, co-editor of the WBWG newsletter, an active member of the Alberta Bat Action Team, and am in the process of initiating a BC Bat Working Group. I am the lead author of the Alberta Bats and Wind Energy Guidelines, and co-chair the WBWG Wind Energy Committee.

Secretary—Heather L. Johnson

I am an environmental consultant in Sacramento, California and my business cards say “bat specialist”. I am co-chair of the state working group and responsible for a portion of the state conservation plan. At a workshop for the state plan I took all the notes and comments on my performance included “excellent”, “thorough”, and “not a morning person I suspect”. I have been keen on bats for about 15 years since I met my first bat in Sydney, Australia where I flew over to a mammal conference thinking I wanted a career with marsupials but flew home a love-struck batto. My Master’s degree was on the ecology of bats in a little mountain range in the middle of the Sacramento Valley- the first bat research done in the area. I have been taking notes at WBWG meetings since the 1998 workshop and was volunteer secretary years ago. My worthiness may also be measured based on my having seen the Bracken Cave outflight and been bitten by a vampire bat (I had a glove on- I am not mental).

Secretary--Melissa Neubaum

I received both my BS and MS in wildlife biology at Colorado State University. My MS focused on genetic and natural history traits of big brown bats in an area of overlap between divergent mtDNA lineages along the Colorado Front Range. I am currently working as a biological laboratory technician in the wildlife genetics lab at the National Wildlife Research Center in Fort Collins, CO. I have worked with bats since 2000 and have spent many more years working in the field with a variety of species.

Treasurer—Brad Phillips

I am currently a District Wildlife Biologist, Black Hills National Forest (US Forest Service) in Custer, SD. I also serve as the Forest Service Rocky Mountain Region (R2) contact person for issues related to bats and bat habitat. I have a B.S. degree in Wildlife Management (1980) from Humboldt State University, Arcata, CA. My professional bat-related activities include Chairperson for *South Dakota Bat Working Group* (1998-present), and Treasurer for WBWG since 2004. My professional interests include bats, cave management issues, reptiles, amphibians and songbirds. I am seeking re-election because our first reporting period to the IRS is in 2009, and I would like to see WBWG thru that experience.

At-large Representative—Dave Johnston

I am a Senior Wildlife Ecologist at H.T. Harvey & Associates and have worked with California bats since 1992 when I began my Ph.D. thesis on pallid bats through York University under Dr. Brock Fenton. I have since collaborated with Fenton and others on several papers involving the biology of bats in Africa and Central America. Through H. T. Harvey & Associates, I have worked on many scores of transportation-related projects involving mitigation measures for bats, and have also conducted large scale surveys for bats on federal lands for many agencies. I taught Mammalogy and Ecosystems of the San Francisco Bay Area as a part-time lecturer at Santa Clara University and am now an Adjunct Professor at San Jose State University. My students and I are investigating the foraging ecology of bats in the Coyote Creek and Guadalupe River watersheds, the winter ecology of pallid bats in central California, changes in bat assemblages as they relate to land use changes in northern Monterey County, Calif., population

genetics of Yuma myotis, and swimming behavior in bats. I teach workshops on bats through the California Academy of Sciences, The Wildlife Society, and Bat Conservation International. I serve, or have served, on the scientific advisory committee for San Francisco Bay Bird Observatory, as a peer reviewer for the journal *Mammalia*, and on the grant review team for environmental grants through the City of San Jose, CA, and in other advisory capacities. I am currently working on a three-year project with Dixie Pierson and others to write a Conservation Plan for Bats of California through the Museum of Vertebrate Zoology at UC Berkeley. I also have on-going bat projects in Belize and Baja California.

At-large Representative—Martin Grenier

I received my Master's degree in Zoology and Physiology from the University of Wyoming in May 2008 and my Bachelor's degree in Wildlife Management from Humboldt State University in December 1999. I have been employed by the Wyoming Game and Fish Department, as the Nongame Mammal Biologist since 2000. In my current position, I am responsible for setting management and conservation objectives for all nongame mammals, including many threatened, endangered, and Species of Greatest Conservation Needs, like bats. I have chaired the Wyoming Bat Working Group since 2001 and led the development of "A Conservation Plan for Bats in Wyoming" which was completed in 2005. I have a wide array of experience surveying for bats in Wyoming (e.g., acoustic, capture, roost surveys), have been involved with bat roost protection projects, and guiding educational outreach efforts. I am also an avid waterfowler, mountain biker, and backpacker.

At-large Representative—Ron Spears

I am a Certified Ecologist with a B.S. degree in Biology and an M.S. degree in Ecology. I bring more than 14 years of experience in ecological investigations and research. I have specific experience in site reconnaissance to collect data on the occurrence of various protected flora and fauna species. I also provide Section 7 consultation and currently hold a range-wide federal permit for both the Indiana bat and Gray bat. I have been involved with bat research since 1993 while working at the LuBee Foundation near Gainesville, Florida. While at LuBee, I participated in research projects with Dr. Tom Kunz looking at nutritional values of Old World fruit bat milk. Additionally, I have been involved with roost selection studies of Rafinesque's big-eared bats and the Southeastern Myotis as well as numerous other bat related projects throughout the Southeastern U.S. Most recently, I have been involved with several bat projects in the Western U.S. related to wind energy and mining.

At-large Representative—Lauren Wilson

I have spent the past 2.5 years at the U.S. Army Dugway Proving Ground (DPG) (Dugway, Utah) as an ORISE (Oak Ridge Institute for Science and Education) Intern and then a federal employee as a Natural Resources Specialist, Biologist working within the Natural Resources Office, Conservation Preservation Division, Directorate of Environmental Programs. My experience stretches from field work relating to NEPA surveys, small mammal trapping, pitfall traps, and mist netting bats to winter raptor surveys and vegetation transects. I manage the NEPA review process for our office as well as several on-going studies to include a bat study on several DoD installations in Utah and a herpetofauna study looking at reptile populations on training and non-training land. I have assisted with DPG's Legacy funded Utah Bat Initiative over the past two years with much involvement in ANABAT file review (limited knowledge), deliverable creation and review, meetings, and contract management. I am a member of the Utah Bat Conservation Cooperative, the Bonneville Basin Conservation Cooperative, Utah Chapter of The Wildlife Society (UTWS), and the National Military Fish and Wildlife Association (NMFWA). I have presented the Legacy Initiative at UTWS and NMFWA conferences. Previous experience remains mostly within the Animal Behavior field although I do have some experience in wildlife rehabilitation. I completed an undergraduate thesis on lion tamarin intergroup encounters while completing my Bachelors and worked as an Animal Behavior Intern for Disney's Animal Kingdom after graduating from college. I transitioned into natural resources management after this seeking a larger meaning. NR management gives me the opportunity to work on a broader scale within nature and to enjoy the ever-changing responsibilities that come with working for the military! I have a Bachelor of Science degree in Zoology from the University of Maryland, graduating Summa cum Laude with Honors in 2004.