Western Bat Working Group

WBWG NEWS

Volume 5, Number 2 Fall 2009

Pallid bat, *Antrozous pallidus*. L. Andrusiak photo.

Western Bat Working Group

WESTERN BAT WORKING GROUP NEWSLETTER

Fall 2009 **Volume 5, Number 2**

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, the Provinces of British Columbia and Alberta, 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.

Andrusiak

WBWG OFFICERS

President	Rita Dixon
Vice President	Cori Lausen
Treasurer	Brad Phillips
Secretary	Heather Johnson
At-large representatives	Martin Grenier
	Dave Johnston
Presidential appointees	Tim Snow
	Angie McIntire

NOTE: Generally common names are used for bat species in the newsletter. Corresponding scientific names are listed below.

Common Name	Scientific Name
Allen's lappet-browed bat	*Idionycteris phyllotis*
Big brown bat	*Eptesicus fuscus*
Brazilian (Mexican) free-tailed bat	*Tadarida brasilensis*
California leaf-nosed bat	*Macrotus californicus*
California myotis	*Myotis californicus*
Canyon bat (formerly western pipestrelle)	*Parastrelleus hesperus*
Cave myotis	*Myotis velifer*
Fringed myotis	*Myotis thysanodes*
Hoary bat	*Lasiurus cinereus*
Little brown myotis	*Myotis lucifugus*
Long-eared myotis	*Myotis evotis*
Long-legged myotis	*Myotis volans*
Northern myotis	*Myotis septentrionalis*
Pallid bat	*Antrozous pallidus*
Pocketed free-tailed bat	*Nyctinomops femorosaccus*
Silver-haired bat	*Lasionycterus noctivagans*
Spotted bat	*Euderma maculatum*
Townsend's big-eared bat	*Corynorhinus townsendii*
Western mastiff bat	*Eumops perotis*
Western red bat	*Lasiurus blossevillii*
Western small-footed myotis	*Myotis ciliolabrum*
Yuma myotis	*Myotis yumanensis*

PRESIDENT'S CORNER

Our president Rita Dixon is preparing to defend her dissertation and was unable to prepare a column for this issue. We wish her the best of luck on her defense and look forward to her future contributions.

INTRODUCING THE EDITORS

The WBWG has two new co-editors!

Lorraine Andrusiak is a Registered Professional Biologist employed by Keystone Wildlife Research Ltd. in British Columbia, Canada. Lorraine completed a Master's thesis on Barn Owls before joining Keystone, where she now works on a variety of projects on everything from Terrestrial Ecosystem Mapping to conducting owl surveys. Her interest in bats was sparked by a recent hiking trip encounter with a beautiful hoary bat roosting in a shrub alongside the trail. Since then, she has participated in bat survey work in northeastern and southwestern BC, mentored by David Nagorsen, Mike Sarell and Mandy Kellner. Her hobbies include whippet racing and building needlefelted bats.

Julie York works as a wildlife biologist with the U.S. Forest Service in Central Oregon on the Deschutes National Forest. Julie works on both the Sisters and Bend-Ft. Rock Ranger Districts on a variety of projects including owl surveys and cave management. She has participated in winter hibernacula counts for Townsend's big-eared bats and Bat Grid surveys on the Forest.

We thank the outgoing editors Cori Lausen and Kristi DuBois for all their hard work!

WBWG ANNOUNCEMENTS

BOB BERRY DONATIONS REQUESTED

Pat Brown-Berry will again match donations up to $1,000 in 2009 for the Bob Berry Fund. The hope is to make an award every other year at the meeting of WBWG. The impetus behind the generous donations to this fund is to perpetuate Bob's legacy of assisting others. Bob used his engineering and computer skills to refine the tools used for bat-related field work, and to help people to understand the different and changing technologies. Bob worked best one-on-one and offered his expertise to many students and agency biologists. The goal of these awards is to facilitate research by providing current technology and training from the developers of the technology. Donations can be made by mail or via Pay Pal on the WBWG website at http://www.wbwg.org/business/donate.html.

Some excellent proposals were received and awards presented at the annual meeting of the WBWG in Austin April 17, 2009. The WBWG scientific research advisory committee reviewed the proposals. The following awards were given:

The Bob Berry Holohil Award

Elizabeth Braun de Torrez of Boston University for Foraging behavior, habitat selection and ecosystem services of bats in a Texas pecan agro-ecosystem. She received six transmitters donated by Holohil and a $1,000 cash award for receiver purchase or to cover research expenses.

The Bob Berry Titley Electronics Award

Tammy Branston and Eric Weiss of the California Department of Fish and Game for Acoustic monitoring of bats during the rewatering of the Lower Owens River. They received an SD1 receiver and Eric participated for free in one of the Anabat trainings donated by Titley Electronics.

The Bob Berry Binary Acoustic Technology and Sonobat Award

Janene Lichtenberg, Wildlife Biologist with the Confederated Salish and Kootenai Tribes for Bat survey of the Flathead Reservation based on the Montana Bat Grid Protocol. He received AR125 Ultrasonic Receiver, SPECT'R software and an FR125 field recorder donated by Mark Jensen, and a Sonobat full software suite donated by Joe Szewczak. Awards criteria were:

1) the need for specific equipment or technological training to further bat field research and/or conservation.
2) that the results of the research or project will help to perpetuate bat conservation in the Western U.S., and that the initial investment will continue to return benefits.
3) that sound scientific methods are integral to the proposed project.

BOB BERRY EQUIPMENT LIBRARY ESTABLISHED

Donations are now being accepted by the WBWG for the Bob Berry Equipment Library with the goal of "recycling" equipment and research supplies. When projects end, sometimes equipment is left "on the shelves" and could still be used to further bat research and conservation. Outright donations by private individuals and companies would be tax-deductible. Loans for specified periods are also encouraged, especially for government agencies. Examples of possible equipment (in usable condition) include bat detectors, radio-tracking equipment and transmitters, mist nets and poles, harp traps and night vision equipment. Fred Anderka has offered to refurbish any donated Holohil transmitters free.

A loan application and agreement will be required for "checking out" equipment. Oversight will be provided by the WBWG scientific advisory committee. The assumption is that the equipment be returned in the condition that it is received, although transmitter loss may be inevitable. The borrower would be responsible for replacing or repairing equipment that is lost or damaged and for shipping costs.

Greg Falxa has agreed to be the first Librarian with responsibilities of receiving and sending equipment and making sure equipment is functional when it's borrowed and that it's returned in good condition. Equipment donations/loans should be sent directly to him at Greg Falxa, 5230 Cushman Rd NE, Olympia, WA 98506 or if delivery confirmation signature is needed, to his (part-time) office: Greg Falxa, Cascadia Research, 218 1/2 W. Fourth Ave, Olympia, WA 98501, Greg's cell & message phone is: 360.870.8243. Transmitters should be sent to Holohil directly, earmarked for the Bob Berry Fund: Holohil Systems Ltd., 112 John Cavanaugh Drive, Carp, Ontario K0A 1L0, CANADA.

When sending donations or loans, please also notify Pat Brown (patbobbat@aol.com) or treasurer Brad Phillips (bjphillips@fs.fed.us) so that your contribution or loan can be acknowledged and a central list maintained. As donations arrive, a list of equipment and supplies available for check out will be listed on the WBWG website.

2011 WBWG LAS VEGAS CONFERENCE
Your Input is Requested

The WBWG Board is beginning to make plans for our next biannual meeting in Las Vegas (April 2011). As part of this initial brainstorming phase we are asking the membership to consider two questions:

1. Are there changes that you would like to see to the conference format/structure?
2. Do you have ideas for workshop topics? We traditionally hold a workshop on the last day of the meeting to create a "product" which the membership deems important.

Please send a short description of your suggested change or workshop topic to Heather at heatherj@calweb.com.

STATE/PROVINCIAL UPDATES

CANADA

BRITISH COLUMBIA

New Provincial Bat Working Group

The newly formed B.C. Bat Working Group met for their first conference call on May 1, 2009. The call, lasting all day, was indeed a marathon, but was highly successful, involving 27 participants representing universities, consultants, government, the caving community, and the bat research community. Topics included prioritizing conservation, management, outreach, and research. Several committees were established, including the White Nose Committee, which worked furiously during the month of May to produce a brochure that the B.C. Ministry of Environment distributed throughout the province. The brochure is available at:
http://www.env.gov.bc.ca/wld/documents/wldhealth/WNS_factsheet_BC_2009.pdf

Permit guidelines for people doing bat work in B.C. were updated prior to the field season to include WNS prevention guidelines.

An educational outreach article was also produced for distribution within the B.C. caving community. The group voted on a name and decided on B.C. Bat Action Team (B.C.B.A.T.), to match the name of the neighbouring bat working group in Alberta (ABAT).

First Annual B.C. Bat Blitz held in Okanagan

BCBAT held its first Bat Blitz in an effort to capture *Parastrellus hesperus* in the southern Okanagan. This bat, formerly known as the western pipistrelle and recently renamed canyon bat, is thought to exist in the province because of acoustic recordings and a described capture from several years ago. However, conclusive evidence has yet to be gathered. If confirmed, this would add a new species to the list of Canada's bats. Only one night in September was spent conducting the Blitz, and while it was a great night, capturing several pallid and Townsend's bats, no canyon bat was captured. Another attempt will be made next season.

-Cori Lausen

Pallid bat (*Antrozous pallidus*) captured in south Okanagan, B.C. during first bat blitz. Photo by Rhonda Millikin.

ALBERTA

White Nose Syndrome Educational Materials Distributed by Alberta Sustainable Resource Development

Alberta Fish and Wildlife Division delivered a white-nose syndrome (WNS) public education program aimed specifically at cave users in AB, informing them of the risk to bats and potential role of humans in transferring the fungus. The strongest message was not to enter AB caves if you had been to a cave in the northeastern USA. This information was provided jointly between the Fish and Wildlife Division and Alberta Parks, and was posted on web pages, on signs at trailheads to caves, and in local media. Ideally, we have laid a foundation on which to build if there is a need to get more information to the caving public as WNS gets closer. Next steps may include total or partial closure (e.g., access by permit or with a guide) of caves. Alberta Fish and Wildlife also developed bat handling protocols to reduce potential spread of the fungus and is receiving feedback from researchers regarding the practicality and efficacy of the protocol. The fact sheet[1], amended bat handling protocols[2], and trailhead posters[3] can be found at the following URLs:

[1] http://srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/documents/White-NoseSyndrome-FactSheet-Jul2009.pdf

[2] http://srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/documents/AlbertaBatHandlingProtocol-WhiteNoseSyndrome-JUL2009.pdf

[3] http://www.srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/WhiteNoseSyndrome.aspx

-Robin Gutsell, Margo Pybus and Lisa Wilkinson; Alberta Sustainable Resource Development

Two New Alberta Bat Status Reports (and address change for ABAT)

In the last year or so, Alberta's Endangered Species Conservation Committee and its Scientific Subcommittee assessed the status of two of Alberta's bat species. In early 2009, the western small-footed bay (*Myotis ciliolabrum*) was formally designated a Species of Special Concern. The Scientific Subcommittee was concerned because this species occupies only a few locations in a small area of the province and relies on a habitat (riparian cottonwoods *Populus balsamifera*) that is in decline, suggesting that bat populations are likely also at risk of declining. Alberta Fish and Wildlife will develop a management plan that will recommend actions to minimize loss of this species and its habitat.

The status of the northern bat (*Myotis septentrionalis*) was assessed later in 2009. There are also concerns about this species' old growth boreal habitat; however, the Scientific Subcommittee found that the degree to which this species depends on old trees in Alberta is not clear enough to assign it a risk category. They declared it a Data Deficient species and recommended that more research be done to clarify the extent to which this species depends on old forest features in Alberta.

A reorganizing of website materials has resulted in new website addresses:

Species accounts: http://srd.alberta.ca/BioDiversityStewardship/WildSpecies/Mammals/Bats

ABAT and other bat information:
http://srd.alberta.ca/ManagingPrograms/FishWildlifeManagement/AlbertaBatActionTeam

For full details about Canadian bat work, refer to the Western Canada Bat Working Group newsletters, available on the above ABAT website.

ARIZONA

Barbara Garcia (Mogollon Rim RD) and Roger Joos (Tusayan RD Kaibab) weighing a bat collected from a mist net.

Barbara Garcia and Janie Agyagos, two biologists from the Coconino National Forest, obtained an Arizona Game and Fish Department grant and secured two complete sets of mist nets and infrared videography equipment. Three pairs of night vision goggles were also purchased. Multiple water sources or caves across the Forest were mist netted. At known and suspected roost sites, emergence counts were conducted using the infrared binoculars and videography.

Bat efforts are largely localized or lacking in most National Forests. The data collected on the Coconino included information on 16 species across the three districts including two USFS sensitive species: Townsend's big-eared bat and Allen's lappet-browed bat. The data collected highlighted important (already known) roost sites, identified new roost locations, foraging areas, and important habitat associations.

This data will not only enable Coconino biologists to ensure habitat is provided for bats but also to identify new and important sites. The data will also be used to educate the local public on bat biology and conservation. In the future, the Coconino wildlife biologist group hopes to have all six wildlife biologists and seasonal wildlife technicians vaccinated to improve geographic coverage.

Flag Center Wildlife Crew, Mogollon Rim Wildlife Crew, Red Rock Wildlife Crew, Janie Agyagos, Barbara Garcia and Jill Oertley conducting exit counts with IR videography and night vision goggles along with strategically placed mist nets. Crucifixion Cave, Flag Center.

Barbara and Janie would like to thank the following individuals for their assistance in the field and/or advice on the equipment and survey techniques used this summer: Angela McIntire and Susan MacVean (AZGFD), Jason Corbett (Bat Conservation International, *BCI*), Dr. Carol Chambers (NAU), Liz Merring (NAU), Roger Joos and seasonal (USFS Kaibab NF), Jill Oertley, Cary Thompson, Henry Provencio, Brian Trittle (USFS Coconino NF), Mogollon Rim Wildlife Crew: Laura Brown, Dan Cavanaugh, Loren LeSuer, Mark Nigrelli and Christian Clark, Red Rock Wildlife crew-volunteer Brandon McPhail and the Flag Center Wildlife crew.

-Angela McIntire, AZGFD

Pallid Bat Observations from Catalina Regional Park, Pima County, AZ

During the summer of 2009, several pallid bats were observed taking giant mesquite bugs (*Thasus gigas*) from mesquite trees in the backyard of Catalina Regional Park. The bats' peak feeding activity seemed to be around an hour to two hours after dark and continued throughout the night. These pallid bats seemed to be only interested in the mesquite bugs and hunted them during July, August, and September. Using night vision equipment, several bats were seen flying into the trees in search of the mesquite bugs. Then, at least two of the bats would fly under a covered porch, to a specific night roost, where they would sit upright, cradle their prey in their tail membrane and dispose of the bugs. The bats normally consumed the fleshy parts of the bug, and discarded the wings and legs (a good indicator of pallid feeding activity). Once the mesquite bugs were no longer available, the bats no longer night roosted under the porch. One pallid bat was found dead under a mesquite tree one morning. The cause of death was unknown. It had several tears on its wings that would have made it difficult to fly.

-Don Carter

Pallid bat (*Antrozous pallidus*) feeding with head up.

PIT Tag Technology Applied to Cave Myotis in southern Arizona, 2008-2009

In the summers of 2008 and 2009, we conducted a pilot study at Kartchner Caverns State Park (KCSP), Arizona, for work we had dreamed about in 1988 during our baseline biological inventory before this premiere show cave opened to the public. At that time, using low disturbance techniques, we had identified 8 bat species in the park, 4 species in the cave, and most importantly, a maternity colony of 1,800 cave myotis in the cave. Netting bats away from the cave and using bat bands with reflective tape, we showed that reproductive female cave myotis at Kartchner cattle tank were indeed the ones using the big cave. However, four years of effort yielded only one recapture from 136 tagged cave myotis. (A second recapture two years later was made for us by a ringtail!)

A small grant in 2008 enabled us to purchase 200 passive integrated transponder (PIT) tags, a hand reader, and a reader/antenna to use at the cave. Currently, PIT tag readers work best when the tags pass within a few inches of the reader/antenna. Kartchner Caverns is beautifully suited for the use of PIT tag technology because the bats enter and exit the cave through a small opening within inches of the reader. Each uniquely tagged bat is read as it passes through the opening over the antenna. Of 9 bats tagged in late 2008 at KCSP, there were multiple recaptures of 7 cave myotis in 2009. In 2009, we also had 3,000 records for 31 of 35 newly tagged cave myotis. Most importantly, all of these data were the result of handling each bat only once, away from the cave, so that zero disturbance was done at the roost.

PIT tag reader antenna.

Individual identification of these bats over time can provide basic life history data that are conspicuously absent for bats in Arizona and elsewhere. From PIT tag data, we hope to determine the activity patterns of cave myotis during their reproductive cycle, and information about their lifespan, their survivorship/mortality rates, and indirectly, their fecundity.

- Ronnie Sidner (sidner@email.arizona.net) and Debbie Buecher (dbuecher@comcast.net)

Arizona Bat Grant Program 2010 Projects

For the 8th year, the Arizona Game and Fish Department made funds available to partners in support of bat conservation projects in Arizona. An average of $50,000 has been made available each year for surveys, research studies, and equipment purchases to assist partners with establishing monitoring programs. For 2010, funded projects include: a winter and spring emergence survey of Mammon mine (California leaf-nosed bat roost); a study of the effects of urbanization on bat community structure in the Phoenix metro area; monitoring equipment purchase to assess roost sites on the Kaibab National Forest; bat gate to protect Dacite Mine, an important roost for 5 different bat species; equipment purchase to support monitoring and surveys of bat habitats in Pima County; a feasibility study for evaluating the colony size of Brazilian free-tailed bats at Eagle Creek Cave; and development of microsatellite markers to assess and monitor spotted bat populations.

- *Angie McIntire, AZGFD*

Cave myotis (*Myotis velifer*).

CALIFORNIA

California Update

Drew Stokes of the San Diego Natural History Museum is conducting numerous projects including:

- locating/verifying Western mastiff bat roosts and assessing potential impacts from a proposed major transmission line;
- developing a management strategy for the City of San Diego to minimize impacts to Pocketed free-tailed bat roosts from rock climbers in a local city park;
- assisting the City of Del Mar to temporarily relocate a Brazilian free-tailed colony from of bridge that is being retrofitted in 2010;
- assisting the City of San Diego water authority to relocate a Yuma myotis colony from a reservoir maintenance building into artificial bat houses;
- assessing the bat population of a proposed state OHV-use area near the Salton Sea and helping to develop a management strategy for the area, particularly for avoiding impacts to bat roosts;
- assessing the current bat population at Camp Pendleton Marine Corps Base; and
- assisting with development of a management strategy for bats on the base including protocols for dealing with "nuisance bats" in buildings.

The San Jacinto Mountain Centennial Resurvey - the San Diego Natural History Museum is re-tracing the path of Grinnell and Swarth's 1908 research expedition to the San Jacinto Mountains. We are documenting current wildlife populations, how they compare to what was found in 1908, and hypothesizing what factors (climate change, fire suppression, loss of habitat, etc) are contributing to observed changes in the wildlife communities. Very little bat information was collected in 1908 so the 2008-2011 expedition will be instrumental in establishing baseline bat information for the area.

Allen Calvert reports that the Bureau of Land Management (BLM), Lower Colorado River Multi-Species Conservation Program is currently creating riparian habitat (cottonwood, willow and mesquite) on the Palo Verde Ecological Reserve (owned by CA Dept. of Fish and Game) just north of Blythe, CA. As part of the monitoring on the site, we are conducting quarterly Anabat surveys within the new habitat as well as the nearby Tamarisk and agricultural areas to determine differences in bat activity between the newly created habitat and existing dominant vegetation. We have confirmed that western red bat are using the new habitat during migration. Mist-netting will be conducted starting the summer of 2010 to compare this site to similar habitat creation sites on the AZ side of the river.

- *Heather L. Johnson*

COLORADO

Compiled by Kristen Philbrook
USFS/BLM

BLM Bat Surveys

Mark Hayes of the University of Northern Colorado (UNC) conducted mist netting and acoustic inventories in the Gunnison Gorge NCA, a river corridor, and the Escalante NCA for the Uncompahgre Field Office out of Montrose.

- *Missy Siders, BLM*

Arapaho Roosevelt National Forest

A pilot program for bat surveys was started on the Sulphur District of the Arapaho Roosevelt National Forest (AR). After consultation with Kirk Navo and Michelle Cowardin of Colorado Division of Wildlife (CDOW), volunteers helped to gather presence/absence data in different locations across the District. U.S. Geological Survey employees did some trapping, and UNC has a telemetry project looking at roosts on

the Canyon Lakes District of the AR. Bat inventories consisting of auditory sampling and mist netting by the CDOW for abandoned mine lands (AML) work occurred on the Boulder and Clear Creek Districts.

- *Doreen Sumerlin, USFS*

The Colorado Bats/Inactive Mines Program

The Colorado Bats/Inactive Mines Program completed bat surveys of 103 mines. To accomplish this, 226 surveys, including video surveys occurred. Of all the mines surveyed, only two mines had Townsend's big-eared bats. There was one Townsend's big-eared bat in each of these two mines. Post-gate monitoring occurred at a Townsend's big-eared bat maternity roost. This site was gated in 2008, and mentioned in the report last year. Bats continue to use the mine, and currently it appears that the gating was successful.

- *Kirk Navo, CDOW*

NEVADA

Compiled by Katie Miller

Nevada Bats and Mines Projects

Cooperative partnerships between state and federal agencies, as well as private landowners, have continued the successful closure of AML sites across Nevada. Some of the largest projects are occurring in Clark, Elko, Eureka, and White Pine counties. The protection of important bat resources continues to be a high priority in these programs and have allowed for the protection of several important Townsend's big-eared maternity roosts and hibernacula, including the largest gate the USFS has built in the state.

-Nycole Burton-BLM, Ken Maas-USFS, Katie Miller-Nevada Department of Wildlife (NDOW), Chris Ross-BLM, Jason Williams-NDOW

Nevada Bat Working Group 2009 Bat Blitz

The Nevada Bat Working Group held its 2009 Bat Blitz in the remote Jarbidge Mountains in northeastern Nevada. Volunteers from the USFS, BLM, University of Idaho, NDOW, NNHP, the Audubon Society and the Nevada Museum spent a week trapping forest bats to determine which are reproducing in the area. 114 bats were trapped from 8 species; six species were reproductive. Additionally, radio-transmitters were placed on reproductive silver-haired bats. We were able to identify 6 maternity roosts for this species in aspen snags. The presence of silver-haireds, as well as reproductive hoary bats, was important to note, as a large-scale wind farm has been proposed just east of the Jarbidge Mountains.

- *Katie Miller – NDOW, Kyra Walton – USFS*

Nevada Division of Minerals AML Inventories

During the last year the Nevada Division of Minerals staff, summer interns and contractors inventoried 1,059 new abandoned mine features throughout Nevada. Preliminary wildlife assessments, made externally, are now recorded in addition to the routine hazard criteria and location information. Of the 1,059 features, 747 were recorded as having the potential for bat habitat, 29 contained guano or other sign of bat use, and actual bat presence was noted in four others. This information is shared with state and federal partners to facilitate continued investigation and protection of critical bat habitat.

-Mike Visher – NDOM

Brazilian free-tailed bat Migration Study

The Nevada Department of Wildlife, Christopher Newport University, and BCI finished a second year of studying flight and activity patterns of a migratory population of Brazilian free-tailed bats in Nevada. The focal cave is used as a migratory stopover each fall by a few million free-tails, and the cave lies within close proximity to numerous proposed wind generation developments in east-central Nevada. Research goals this past fall were two-fold. We continued our ground-based radar efforts in the local area to

understand flight characteristics as they relate to proposed local development. We also used radio-telemetry to study long-distance migration patterns with researchers searching from the roost cave south into Utah, Arizona, and southern Nevada for transmittered bats. While our radar efforts were quite fruitful, results from our long-distance radio-telemetry study were remarkable, remarkably negative that is. Our research team has decided to refocus our efforts on lobbying the telemetry industry to develop satellite transmitters small enough for 10 gram bats before we retire.

-Jason Williams – NDOW, Rick Sherwin – Christopher Newport University

Bat Monitoring on or Near the Nevada Test Site (NTS) 2009

Post-closure surveys were conducted at two sites (Figures 1 and 2) where bat-compatible closures were installed. Several species were detected using the gated tunnels and results from video images revealed bats flying in and out of the tunnels through the gates. It is obvious from the pictures that these are not typical bat gates. Due to budget constraints and the existing framework in the tunnels, it was determined

Figure 1. 16A tunnel.

Figure 2. N tunnel.

that these closure designs were the most cost-effective way to satisfy the requirements to close the tunnels and still allow bats to utilize these important biological resources. Survey results indicate that these closure designs appear to be “bat-friendly” and have not restricted bat use at these sites.

Exit surveys were conducted at a mine adit and shaft near the northeast corner of the NTS in August. Four fringed myotis were captured including one adult female and three juveniles. This adit was determined to be a maternity roost and based on the video results, at least 69 individuals were estimated to be using the roost. This is the third known fringed myotis maternity roost on or near the NTS.

Data collection continued this year at Camp 17 Pond where continuous acoustic monitoring has occurred since 2003, as well as climatic data collection. We are in the process of writing a paper that correlates bat activity with different weather variables (i.e., temperature, wind speed, barometric pressure, and relative humidity) for the data that have been analyzed.

A limited, spring-time bat survey of the Hidden Forest area (Desert National Wildlife Range) was conducted on May 16, 2009, as part of Shawn Hall's Eagle Scout Project. Mist netting and acoustic monitoring was conducted for one night (Figures 3 and 4). Six bats were captured including three long-eared myotis, 2 pallid bats, and 1 silver-haired bat. Eight species were detected acoustically including pallid bat, Townsend's big-eared bat, hoary bat, California myotis, western small-footed myotis, long-eared myotis, fringed myotis, and long-legged myotis. These results are the first records of bat use in this area during the spring timeframe.

- Derek Hall – Nevada Test Site

Figure 3. The bat crew, Hidden Forest bat survey (May 16, 2009).

Figure 4. Shawn (front) and Derek Hall with pallid bat in hand, Hidden Forest area (May 16, 2009).

NEW MEXICO

Compiled by NMBWG co-chairs, Trish Griffin (trish.griffin@us.army.mil) and Jim Stuart (james.stuart@state.nm.us)

The New Mexico Bat Working Group (NMBWG) meets twice a year. BIG thanks to Ernie Valdez for an excellent job serving as co-chair with Jim Stuart for two years! Ernie's baton was recently handed off to Trish Griffin.

Fort Stanton National Conservation Area

Fort Stanton Cave Project holds three week-long expeditions in April, June and October at Fort Stanton Cave near Capitan, NM. Fort Stanton is managed by BLM and is an important hibernaculum for Townsend's big-eared bat and western small-footed bat. As part of the summer cave exploration, mapping, and scientific research, we are attempting to understand the cave microclimate where bats historically roost. We deployed I-Button temperature loggers during the summer in a side passage where fringed myotis day-roost. In October, prior to the closure of Fort Stanton Cave for the winter, we deployed both I-Button loggers and Hobo Pro temperature/humidity loggers along Main Corridor where Jennifer Foote has documented hibernating bats. This summer we also used I-Button hygrochron temperature/humidity loggers at Feather Cave, a nearby maternity site for Townsend's big-eared bats. To document the colony size at Feather Cave, we conducted emergence counts using infrared video equipment and supplementary infrared (IR) lighting. We also performed limited mist netting along both the Rio Bonito and Rio Salado Creeks, netting 54 bats from 9 species. These data will contribute to BLM's knowledge of the bat species associated with both caves and help them manage critical foraging habitat.

- Debbie C. Buecher, Buecher Biological Consulting (dbuecher@comcast.net)

WNS Protocols Stipulated in Roswell BLM Cave Permits

The BLM Roswell Field Office is requiring implementation of WNS decontamination protocols for permits for Fort Stanton Cave, Targac's Cave, and Crockett's Cave. The detailed procedures require an active decontamination process before and after entering caves. The NSS Gypsum Karst Project (GypKaP) has also implemented the protocols. WNS has not been detected in NM, but most caves in the Roswell region are used as hibernacula, so these measures are in place to reduce the WNS threat.

-Mike Bilbo, BLM Roswell Cave Program Manager (mike_bilbo@blm.gov)

The World's First Building Designed for Bats

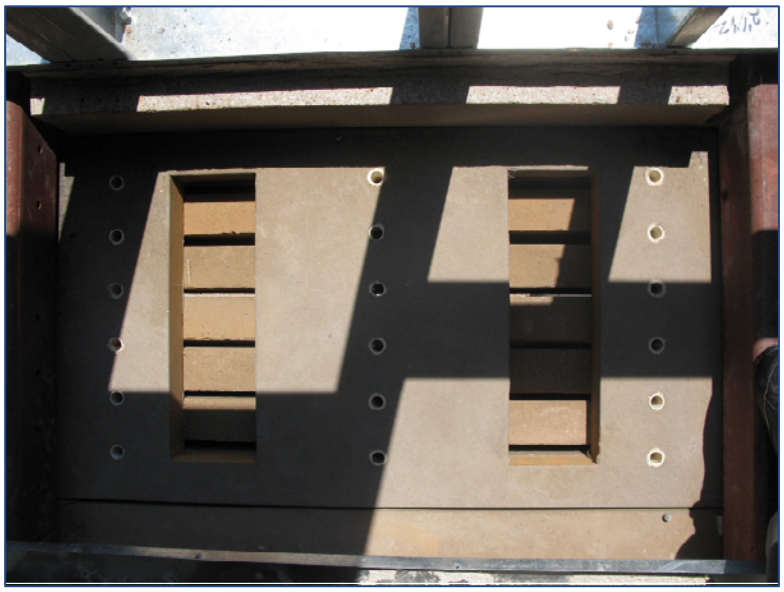
The National Cave and Karst Research Institute (NCKRI) was created by the U.S. Congress to conduct, support, facilitate, and promote programs in cave and karst research, education, environmental management, and data acquisition and sharing. To lead by example in many of these areas, NCKRI Headquarters is the world's first building with an artificial bat roost as part of the design.

The NCKRI bat roost is a modified eave in the building's southeast-facing wall. A set of concrete panels creates six 1.9-cm-wide by 60-cm-high by 6.7-m-long crevices. Horizontal gaps in the panels will allow bats to move between crevices without exiting the roost.

Slightly upward view along the length of the NCKRI bat roost. The gray wall will be covered in tiles for easy cleaning of occasional splatters of guano. The bottom of the crevices is 3.7 m above the ground; the bolts will be covered with an inert epoxy.

The end panels extend downward an extra 23 cm to create landing surfaces long the length of the roost. The tops of the crevices are blocked by a concrete cap, perforated with 72 holes for probes and cameras. Access to the equipment for maintenance or changes is through a set of air-tight doors recessed into the second floor of the building. The equipment will tap into data cables to download and archive data for research.

The bat roost was designed by George Veni, NCA Architects, and Mylea Bayless, Artificial Roost Coordinator for BCI, who estimates a maximum occupancy of 7,500 and a typical occupancy of 5,000 bats. NCKRI Headquarters is located along the Pecos River in downtown Carlsbad, New Mexico. Several bat species occur in the area and frequently feed along the river, and will likely start occupying the roost in Spring 2010. Guano that accumulates below the roost will be collected frequently to eliminate excess odor and used to fertilize the landscaping.



Downward view of the top of the roost.

Debbie Buecher, Buecher Biological Consulting, is assembling a team of bat biologists to develop a research plan for monitoring and maintaining the roost. Some of the data, and especially live video and audio, will appear on NCKRI's website and as part of NCKRI Headquarters' bat exhibit. The building will include a cave and karst museum, rooms for meetings, classes, and small conferences, a library, laboratory, as well as administrative offices within a highly energy efficient and environmentally innovative structure, making it a model regionally and for the national research community. Following proof of concept by bat occupancy and associated study, the NCKRI bat roost will be proposed as an option to the U.S. Green Council as an accredited construction feature in the LEED (Leadership in Energy and Environmental Design) building rating system. An opening date for NCKRI Headquarters has not yet been determined, but should occur in 2010.

- George Veni, Executive Director, National Cave and Karst Research Institute (gveni@nckri.org)

SOUTH DAKOTA

The South Dakota Bat Working Group was busy in 2009 with a variety of projects, including habitat protection, education, the bat book fund (to date, 14,000+ students at 43 elementary schools are benefiting from these bat book gifts), and continuing to improve and update our most excellent website. Check it out at www.sdbwg.org.

-Bradley J. Phillips, Wildlife Biologist, Hell Canyon District

UTAH

Significant bat fieldwork was completed this summer throughout the state of Utah. Through the cooperation of members of the Utah Bat Conservation Cooperative (UBCC), which includes biologists from all state and federal agencies with management responsibility within Utah (e.g., Utah Division of Wildlife Resources, USFS, BLM, NPS, USFWS, and DOD), coordinated standardized state-wide field capture and acoustic surveys were completed. This is the first sampling effort of its kind in Utah.

Many unknowns persist regarding the ecology and population status of Utah's bats. In 2009, biologists from the above-mentioned agencies spread out all over the state to help begin to fill these gaps as well as begin to determine the viability of bat populations. Specifically, survey sites were randomly selected based upon many variables such as proximity to water. Such sampling protocols will be repeated with the goal of detecting possible population declines so management efforts and resources may be allocated if necessary. Put simply, baseline knowledge of the current status of bat populations must be obtained before suitable management practices may be designed to protect and sustain bat populations within Utah.

Data analysis is currently underway. With repeated sampling efforts in the coming years, we hope to be on the right path to better conserve and protect the diverse assemblage of bats found within Utah.

- *Ben Sutter. Chair, UBCC*

WASHINGTON

compiled by Ella Rowan

Washington Bat Working Group

Greg Falxa (gfalxa@cascadiaresearch.org) and Ella Rowan (ella.rowan@dfw.wa.gov) have replaced Gerry Hayes and Howard Ferguson as the Bat Working Group Co-Chairs.

Hanford Site Bat Monitoring 2009 Highlights

As part of the Columbia River Corridor environmental restoration activities conducted on the U.S. Department of Energy's Hanford Site in south-central Washington, annual monitoring of known maternity colonies were conducted at the 100°F reactor site.

Mist-netting and acoustic monitoring occurred on two different occasions this summer. One night was to assess a maternity colony of pallid bats that use bat boxes at the former 105°F reactor and the other night was to assess a maternity colony of approximately 3,000 Yuma myotis that use a former underground filtered water storage structure (183°F). Both nights of mist-netting and acoustics went well, with both species caught and standard information collected. The pallids and Yumas caught were in excellent condition in terms of weight, wing condition, and overall appearance.

Western small footed bat (*Myotis ciliolabrum*)

Surprisingly, one western small-footed myotis was caught during monitoring of the Yuma myotis. Data was collected, and it was light-tagged for acoustic monitoring. After the small-footed myotis was released, it flew around briefly and then flew into the underground filtered water storage structure (183°F) that the Yumas use. What this means, we don't know. Could the small-footed myotis be using this structure along with the Yumas...? We will have to further investigate this in the spring.

-Jonathan G. Lucas, Cole T. Lindsey and Ken A. Gano

Woodard Bay Myotis Colony Monitoring

During spring and summer, after our paid work hours, we enjoy our weekly walks out to the old pier at the Woodard Bay Natural Resource Area, 10 km north of Olympia, Washington. Our destination is the largest known bat colony in Washington State. For the past 6 years, we've been monitoring the population size of this colony, counting them as they exit from under an abandoned railroad pier they call home. Since 2008, the count has hovered around 3,000 adults. The “forearm and call frequency” identification method gives us estimates of the species ratio at approximately 65% Yuma myotis and 35% little browns. Prior to 2007, going back to the early 1990s, the population was around 2,000 adult bats (counted before the young become volant), leading us to wonder if there was a roost site lost between 2007 and 2008, with the increase coming from members of another colony needing a new home.

There are also a couple of fun facts about this colony. One is that radio tracking revealed that most of these bats travel over 13 km (one way) to forage at Capitol Lake in downtown Olympia. Some lactating mothers make 2 nightly trips to the lake. The route between the colony's roost and Capitol Lake is busy from sundown to sunup. Another is that during the main parturition week, both species roost shoulder-to-shoulder in the 4-cm wide crevices between the large wooden beams, in one long, narrow cluster approximately 5 metres long. The site is owned by the state's Department of Natural Resources, which is in the process of evaluating methods to extend the life of the pier in the area of this colony. A number of the beams are rotting and falling away.

- Lori Salzer and Mary Linders, Washington Department of Fish and Wildlife (lori.salzer@dfw.wa.gov, mary.linders@dfw.wa.gov)

Bat Roosting Habitat Enhancement Projects at Fort Lewis

Sanders Freed, Greg Falxa, and a host of volunteers have completed several bat house construction projects at the Fort Lewis Military Reservation in western Washington. With over 50,000 undeveloped acres, there is adequate bat foraging habitat on the installation. During a 2008 survey of Fort Lewis, all 9 bat species thought to occupy the region were documented. Like most forested areas, the lack of roost structures is very apparent.

Beginning in 2008, we used habitat enhancement funds to create bat roosts. In 2008, we installed 30 bat houses, 10 each of 3 designs. Several boxes of a new design (shown being assembled in the photo below) were used within weeks of installation. The new design and the Dual Chamber Rocket Box had use at over half the locations this past summer. For DOD's Public Lands Day in October, a group of The Nature Conservancy (TNC) volunteers constructed another dozen boxes of the new design, and also renovated a "government surplus" church steeple that was fitted with a bat entrance, and placed on an 8-ft stem wall. We were able to secure approval to install it at a protected location next to a wooded creek corridor, and are waiting for spring to see who finds it first. The photo should make it clear why it's nicknamed "the Bat Hat." The projects include ongoing monitoring of all created bat structures, and results will be presented at the annual meeting of the Washington chapter of The Wildlife Society in February 2010.

-Sanders Freed, TNC (sfreed@TNC.org)

The Bat Hat, Fort Lewis, Washington

Assembling the new "Uncle George" bat box at Public Lands Day

Townsend's Big-eared Bat Study at Fort Lewis

During an installation-wide 2008 survey for bats at Fort Lewis, in western Washington, three Townsend's big-eared bat calls were found among some 20,000 call files. Over the past 17 years a few Townsend's have been documented in the area, but no information exists regarding foraging preferences, and information is sparse on current roost sites. With The Nature Conservancy as a partner, those 3 calls provided impetus for funding a modest Townsend's study, completed in summer 2009. We radio-tagged a few non-reproductive adult females, found primarily at night roosts, who faithfully led us to the nursery roosts. Although they spent the majority of their foraging hours in stands of older conifers on Fort Lewis, all of the day roosts were in a neighbouring town. These day roosts, especially a pair of old buildings that seem to house a colony (or at least a social group), are vulnerable to human disturbance. The two private building owners that we are working with have been very cooperative, but the future of these buildings is uncertain; one needs structural work and the other is a bygone horse stable that is far from what would be considered the highest and best use for a downtown lot. We've made the pitch to Fort Lewis for funding to construct some Townsend's roost structures on the installation, which is only a half km from the current maternity roosts. Secure roosts inside the base boundary will improve long-term protection, and access for monitoring. - *Greg Falxa, Cascadia Research (gfalxa@cascadiaresearch.org)*

An Ecological Risk Assessment of Wind Energy Development in Eastern Washington (under review)

This project was intended to identify those areas in the state that pose the least risk to biodiversity if developed for wind power. First, a wind power development suitability analysis was conducted. Then, using wind-sensitive species and ecosystems as risk elements, we conducted an ecological risk assessment of wind energy development for Eastern Washington. In addition, to augment available species data for shrub-steppe birds and bats, we conducted a rapid field assessment of some of the largest wind suitable areas of native habitat. The end result is a conservation "blueprint" for wind power development in Eastern Washington.

The Nature Conservancy conducted shrub-steppe bird and bat surveys during spring of 2008 and 2009. Acoustic bat surveys consisted of deploying acoustic recording devices overnight, within the identified potential high wind development sites. Recorders were placed on open lithosol ridges, shrub-steppe (big sagebrush), ponderosa pine/shrub-steppe, riparian and marsh habitats. Acoustic recording equipment consisted of a Pettersson Ultrasound Detector D 240x, and a MP3 recording device. Calls were downloaded each morning and converted to wave files, and subsequently analyzed using the Sonobat 3.0 program. Twelve nights of acoustic bat surveys were conducted in seven areas (Beezley Hills, Babcock Bench, Quincy Lakes, Clockum, Ellensburg, Goldendale and Saddle Mountains) in eastern Washington. All locations were on State and Federal public lands in large blocks of native habitat.


Andrusiak

A total of 1,017 calls were recorded and analyzed. Twelve of the 14 bat species found in eastern Washington were recorded during this limited survey. Since an individual bat can make multiple passes over the recorder during a survey, the data suggests only relative activity and cannot be assigned an estimate of overall abundance. Bats were recorded in all habitats surveyed. As expected, larger numbers of bats were found near water and riparian areas, with limited use along open sagebrush ridge tops. Seventy five percent of the calls recorded came from Quincy Lakes and 33% of all bat calls were western small-footed myotis.

Bat species and abundance of calls recorded

Pallid bat 08	California myotis 49
Townsend's big-eared bat 01	western small-footed myotis 339
Big brown bat 101	western long-eared myotis 28
Spotted bat 17	little brown myotis 28
Hoary bat 17	Yuma myotis 01
Silver-haired bat 107	Canyon bat 20
Myotis species 139	Big brown/silver-haired/hoary/pallid 46

Bat calls and species recorded/location

Beezley Hills: 5 calls/2 species; Babcock Bench: 62/7; Clockum: 151/10; Ellensburg: 11/3; Goldendale: 22/3 and Quincy Lakes: 766/12.

-Julie Conley, Betsy Bloomfield and David St. George

North Central Washington 2009 Bat Grid Surveys

Acoustic bat recordings were collected at 11 sites in North Central WA as part of The Bat Grid Program. This summary covers acoustic recordings collected by David St. George and Liz Johnson with TNC. The Bat Grid is a comprehensive bat inventory and monitoring program developed by Pat Ormsbee of USFS and partners. Surveys are conducted from randomly selected 10km X 10km square grid-based sampling

units. The Bat Grid was initially developed for the state of Oregon, and has been expanded to neighboring states and can now be used anywhere in the US. A standardized protocol includes three methods for identifying bats: morphology (mist-netting), acoustic (recorded calls) and genetics (tissue samples). Acoustic recording equipment consisted of a Pettersson Ultrasound Detector D 240x, and a MP3 recording device. Calls were downloaded each morning and converted to wave files, and subsequently analyzed using the Sonobat 3.0 program developed by Joe Szewczak, Humboldt State University.

Mist-netting was conducted at sites with water that attracted larger numbers of bats. Acoustic recordings were conducted at netting sites and other (remote) locations one or more kilometre away from netting sites. Some of the remote sites had water and others were near cliffs or open sagebrush. All 14 bat species found in eastern Washington were recorded during this effort. A total of 605 calls was recorded and identified. Western small-footed myotis and little brown myotis comprised 48% of all bat calls. Sites with water present had the higher numbers of species (12-13) and calls (126-129) recorded like Whisper and Jameson Lakes, but other sites in Moses Coulee near US Highway 2 (Buffalo Jump and Jameson Road Cliffs) had up to 10 species recorded where there was no water.

Bat species and abundance of calls recorded

Pallid bat 25
Townsend's big-eared bat 01
Big brown bat 42
Spotted bat 15
Hoary bat 15
Silver-haired bat 15
Canyon bat 90
California myotis 349
western small-footed myotis 162
western long-eared myotis 07
little brown myotis 129
western long-legged myotis 02
Yuma myotis 38

Bat calls and species recorded/location

Jameson Lake 129/13, Whisper Lake 126/12, McCartney Creek Meadow 82/11, Lower Lewis Falls 77/8, Jameson Road Cliffs 76/10, Buffalo Jump 59/10, Coyote Spring 20/5, Banks Lake DOT Gravel Pit 16/6, Burton Draw 9/7, Homestead Well 6/3 and Chase Draw 5/2.

-David St. George and Liz Johnson, TNC

WBWG NEWS

EDUCATION COMMITTEE REPORT

Deborah Crough reports that educational materials will be posted on the WBWG website shortly. The guano material was presented at local community college for a student event in September. Approximately 600 people from the community attended.

Grants for educational publications are being pursued, with two applications in the works. Additional application will be made to the National Science Teacher Association conference for 2011.

WHITE-NOSE SYNDROME UPDATE

The Department of the Interior appropriations bill, passed October 30, 2009, includes $1.9 million for research, monitoring and related activities to respond to the devastation of white-nose syndrome. The leading edge of white-nose spread is currently defined (November 2009) as most of Pennsylvania, New Jersey, West Virginia, Virginia, eastern Tennessee, eastern Ohio, and eastern Kentucky (Source: *White-Nose Syndrome Management: Area 3 Implementation Guide – see below).*

New resources available regarding white-nose syndrome include:

- *A Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats, DRAFT FRAMEWORK, Questions and Answers* (November 2009),
- *White-Nose Syndrome Management: Report on Structured Decision Making Initiative* (October 2009), and
- *White-Nose Syndrome Management: Area 3 Implementation Guide*.

These can be downloaded from http://www.fws.gov/northeast/wnsplanning.html

The WBWG White-nose Syndrome Brochure can be downloaded from:

http://www.wbwg.org/conservation/whitenosesyndrome/WNSBrochure061509.pdf

WHITE-NOSE SYNDROME DISCUSSION FORUM

A forum on the WBWG website will be open for use in the near future to provide a venue for discussion of WNS issues such as the action plan. Members are invited to participate and should check the WBWG website, www.wbwg.org, in the near future for access to this forum.

PDF CORNER

The PDF Corner lists recent open-access publications that may be of interest to WBWG members. If you come across a full-text on-line publication that you think should be listed here, please send the link to lorraine.Andrusiak@keystonewildlife.com.

Ammerman, Loren K., Molly McDonough, Nickolay I. Hristov, and Thomas H. Kunz. 2009. **Census of the endangered Mexican long-nosed bat *Leptonycteris nivalis* in Texas, USA, using thermal imaging**. Endangered Species Research Vol. 8: 87–92. Available: http://www.int-res.com/articles/esr2009/8/n008p087.pdf

Cathrine, C., and S. Spray. 2009. **Bats and Onshore Wind Farms: Site-by-Site Assessment and Post-Construction Monitoring Protocols**. Available: http://www.stuartspraywildlife.co.uk/assets/documents/107200993936_CC_SS_BatsWindFarms_InPractice64June2009.pdf

Fischer, Joern, Jenny Stott, Bradley S. Law, Maria D. Adams, and Robert I. Forrester. 2009. **Designing effective habitat studies: quantifying multiple sources of variability in bat activity.** Acta Chiropterologica 11(1): 127–137. Available: http://people.anu.edu.au/joern.fischer/cv/09_bat_pilot.pdf

Ghose, Kaushik, Jeffrey D. Triblehorn, Kari Bohn, David D. Yager and Cynthia F. Moss. 2009. **Behavioral responses of big brown bats to dives by praying mantises.** Journal of Experimental Biology 212:693-703 Available: http://jeb.biologists.org/cgi/content/full/212/5/693.

Jones, Gareth, David S. Jacobs, Thomas H. Kunz, Michael R. Willig, and Paul A. Racey. 2009. **Carpe noctem: The importance of bats as bioindicators**. Endangered Species Research. Available: http://hydrodictyon.eeb.uconn.edu/people/willig/Willig_pdf/Carpe%20noctem.pdf.

Krauel, J. J. 2009. **Foraging Ecology of Bats in San Francisco, California**. M. Sc. Thesis, San Francisco State University. Available: http://www.krauel.com/docs/JJKThesis.pdf

Morrison, Michael L. and Sue Fox. 2009. **Bats associated with inactive mines in the western Great Basin**. Western North American Naturalist 69(1):134–137. Available: https://ojs.lib.byu.edu/ojs/index.php/wnan/article/viewFile/32/1660.

Nicholls, Barry and Paul A. Racey. 2009. **The Aversive Effect of Electromagnetic Radiation on Foraging Bats—A Possible Means of Discouraging Bats from Approaching Wind Turbines.** PLoS One. 2009; 4(7): e6246. Available: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2705803/

Peurach, S. C., C. J. Dove and L. Stepko. 2009. **A decade of U.S. Air Force bat strikes.** Human–Wildlife Conflicts 3(2):199–207. Available: http://si-pddr.si.edu/dspace/bitstream/10088/7874/1/vz_Peurach_et_al._2009_USAF_Bat_Strikes.pdf

Piaggio, Antoinette J., Kirk W. Navo, and Craig W. Stihler. 2009. **Intraspecific comparison of population structure, genetic diversity, and dispersal among three subspecies of Townsend's big-eared bats, *Corynorhinus townsendii townsendii, C. t. pallescens,* and the endangered *C. t. virginianus*.** Conservation Genetics 10:143–159. Available: http://ddr.nal.usda.gov/dspace/bitstream/10113/23137/1/IND44151774.pdf

Redgwell, Robert D., Joseph M. Szewczak, Gareth Jones and Stuart Parsons. 2009. **Classification of Echolocation Calls from 14 Species of Bat by Support Vector Machines and Ensembles of Neural Networks.** Algorithms 2: 907-924. Available: http://www.mdpi.com/1999-4893/2/3/907/pdf

Ruffell, Jay, Joshua Guilbert, and Stuart Parsons. 2009**. Translocation of bats as a conservation strategy: previous attempts and potential problems.** Endangered Species Research. Available: http://www.int-res.com/articles/esr2008/theme/bats/batspp13.pdf

ter Hofstede, Hannah M., Joanne Killow and James H. Fullard. **Gleaning bat echolocation calls do not elicit antipredator behaviour in the Pacific Field cricket, *Teleyllus oceanicus* (Orthoptera: Gryllidae).** Journal of Comparative Physiology 195:769–776 Available: http://www.erin.utoronto.ca/~w3full/reprints/2009terHofstedeKillowFullardGleanTeleoJCP.pdf

Valdez, Ernest W. and Paul M. Cryan. 2009. **Food habits of the hoary bat (*Lasiurus cinereus*) during spring migration through New Mexico.** The Southwestern Naturalist 54(2):195–200. Available: http://www.fort.usgs.gov/Products/Publications/21921/21921.pdf

UPCOMING EVENTS

CANADA

21st Annual Conference of the Alberta Chapter of the Wildlife Society (ACTWS)
March 11-14, 2010, Red Deer, Alberta.
http://joomla.wildlife.org/Alberta/images/Documents/newsletters/v20n3.pdf

2010 International Congress for Conservation Biology: Conservation for a Changing Planet
July 3-7, 2010, Edmonton, Alberta, Canada.
http://www.conbio.org/activities/meetings/2010/

USA

2010 Western Association of Fish and Wildlife Agencies Winter Meeting
January 7-10, 2010, Paradise Point Resort & Spa, San Diego, CA
http://www.wafwa.org/2010/Winter/index.html

2010 Arizona Bat Resource Group in conjunction with the **Arizona/New Mexico Chapter of The Wildlife Society**
February 4, 2010, 3:30-5:00, Radisson Woodlands Hotel, Flagstaff, Arizona.

2010 Oregon Chapter/Northwest Section Meeting of The Wildlife Society
Emerging Environmental Issues and the Role of Wildlife Science
February 11-12, 2010, The Riverhouse Conference Center, Bend, OR.
http://joomla.wildlife.org/oregon/

National Wildlife Rehabilitators Association (NWRA) Symposium
March 9-13, 2010, Seattle, WA.
http://www.nwrawildlife.org/page.asp?ID=264

Symposium on Conservation and Management of Big-Eared Bats (*Corynorhinus*).
March 9-11, 2010, Southeastern Bat Diversity Network. Athens, Georgia. Presentations covering the three taxa of big-eared bats (Ozark Big-eared Bat, Virginia Big-eared Bat, and Rafinesque's Big-eared Bat).

75th North American Wildlife and Natural Resources Conference
March 22-27, 2010, Hilton Milwaukee City Center, Milwaukee, Wisconsin
http://www.wildlifemanagementinstitute.org/index.php?option=com_content&view=article&id=348&Itemid=61

Windpower 2010 Conference and Exhibition
May 23-26, 2010, Dallas, Texas
http://www.windpowerexpo.org/

17th Annual Conference of The Wildlife Society
October 3-7, 2010, Snowbird, Utah
http://joomla.wildlife.org/index.php?option=com_content&task=view&id=516&Itemid=304

Trilateral Meeting of the Canadian, Mexican, and United States Wildlife Veterinary and Conservation.
October 24-25, 2010, South Padre Island, Texas. "Wildlife and Ecosystem Health Without Borders." In conjunction with the AAZV/AAWV/ARAV Annual Conference.

The North American Symposium for Bat Research (NASBR)
October 27-30, 2010, Denver, Colorado

Western Bat Working Group Biennial Conference.
April 2011, Las Vegas, Nevada.

International

2nd International Berlin Bat Meeting: Bat Biology and Infectious Diseases
February 19-21, 2010, Berlin, Germany. http://www.izw-berlin.de/de/veranstaltungen/index.html?symp%20on%20bat%20biology/1_Symposium%20on%20Bat%20Biology.htm~rechts

International Conference on Diseases of Zoo and Wild Animals 2010
May 12-15, 2010, Zoo Aquarium of Madrid, Spain.
http://www.zoovet-conference.org/

15th International Bat Research Conference
August 23-27, Prague, Czeck Republic

UPCOMING BCI WORKSHOPS

Reserve your place for a unique opportunity to learn about bats, their conservation and the latest tools and techniques for studying them in the field. Experience six days of class work, discussions and hands-on field trips with expert instructors. More than 1,460 people have attended BCI workshops since 1990. Here's why:

- *Experience with field techniques:* radio-tracking, marking, light-tagging, echolocation recording, advanced capture techniques
- *Lectures and demonstrations:* habitat assessment and management, conservation and status determination
- *Qualified staff:* BCI biologists, local colleagues, regional experts with 20+ years experience
- *Small class size:* 1 instructor per 4-5 students at all field settings
- *Networking opportunities:* educators, consultants and peers

Bat Conservation and Management

Portal, Arizona (Chiricahua Mountains): May 28-June 2 and June 3-June 8 (two different workshops)

Lava Beds National Monument, Tule Lake, California: July 30-August 4

Barree, Pennsylvania: August 27-September 1

Acoustic Monitoring

Lava Beds National Monument, Tule Lake, CA: August 5-10

For information and online applications, visit: http://www.batcon.org/index.php/get-involved/workshops/subcategory.html?layout=subcategory or workshops@batcon.org

OREGON BAT WORKSHOP

BAT CONSERVATION FOR EVERYONE

Preceeding the NASBR conference, a *Bat Conservation for Everyone* workshop for the public was held on November 3 at the Oregon Zoo. Presented by The Oregon Zoo, Oregon Department of Fish and Wildlife, and USFS, this day-long event featured presentations on bat biology, disease, wind energy, and management issues (loss of roosts, managing bats in human structures, habitat management), with a focus on bats in Oregon. Michael Durham showed his amazing photographs of bats and other wildlife during lunch.

The workshop was designed to bring management information to people without a background in bat biology, but who make decisions and take actions that can affect bat conservation, either positively or negatively. It was a big success, with approximately 130 people attending.

2009 NASBR HIGHLIGHTS

The 39th annual North American Symposium for Bat Research (NASBR) was held in Portland, Oregon on November 4-7. Hosted locally by Jan Zinck and Pat Ormsbee, the conference included sessions on morphology and physiology, health and disease, conservation, ecology, behavior and echolocation, genetics, wind energy, and white-nose syndrome. Check out the abstracts in the upcoming issue of the Bat Research News on the website http://www.batresearchnews.org/.

2009 NASBR Conference T-shirt design. Artwork by Willy Gibboney based on Michael Durham photograph.

NEW TOYS DISPLAYED AT NASBR

Once again, vendors at NASBR presented new technology for bat biologists to play with! The highlights included Sonobat Version 3.0, offering automated identification and batch processing of bat files recorded in full spectrum .wav format. Binary Acoustic Technology displayed their AR125-EXT ultrasonic receiver for mounting long distances away from their recording unit; they also demonstrated how their system could be used to record birds during the day and bats at night. Lotek/Biotrack was there with their new low weight transmitters (~0.26g). They were also displaying their new Geolocators which store location data onboard using light detection, and their nanotag transmitters that turn on/off without the hassle of solder or magnets. Holohil has forthcoming low weight LB-2X transmitters (0.26 – 0.36g). Anabat has a new Mobile Monitoring System, and they have a GML1 Remote Download System for use in wind farm monitoring. A new acoustic kid on the bat scene, Wildlife Acoustics, was displaying their new reasonably-priced, weather-resistant, full spectrum bat detector (SM2BAT) with low power consumption and optional dual microphones (record ultrasound in both or mix-and-match on the same or different schedules to record both birds and bats).

-Cori Lausen

Fringed myotis (*Myotis thysanodes*) (D. Buecher photo)