Western Bat Working Group

WBWG NEWS

Volume 6, Number 1 Summer 2010

Male western red bat captured and radio tagged in northern Arizona for roost study, page 9. Photo by Elisabeth D. Mering.

WESTERN BAT WORKING GROUP
NEWSLETTER

Summer 2010 **Volume 6, Number 1**

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.

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*
Arizona occult myotis	*Myotis occultus*
Big brown bat	*Eptesicus fuscus*
California leaf-nosed bat	*Macrotus californicus*
Californian 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*
Mexican (Brazilian) free-tailed bat	*Tadarida brasilensis*
Northern long-eared myotis	*Myotis septentrionalis*
Pallid bat	*Antrozous pallidus*
Pocketed free-tailed bat	*Nyctinomops femorosaccus*
Silver-haired bat	*Lasionycterus noctivagans*
Southwestern myotis	*Myotis auriculus*
Southeastern myotis	*Myotis austroriparius*
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

In reflecting on the recent White-nose Syndrome (WNS) Symposium, held in Pittsburgh, Pennsylvania, I was reminded of a passage from Rainer Maria Rilke's *Letters to a Young Poet*:

> I would like to beg you...to have patience with everything unresolved in your heart and to try to love the questions themselves as if they were locked rooms or books written in a very foreign language. Don't search for the answers, which could not be given to you now, because you would not be able to live them. And the point is, to live everything. Live the questions now. Perhaps then, someday far in the future, you will gradually, without even noticing it, live your way into the answer.

I think these words are particularly relevant right now regarding WNS in that so much about WNS remains unknown to us, especially the knowledge that would enable us to prevent its spread or to reverse the mortality we've seen in the sites that WNS has already invaded. Meanwhile, WNS continues to spread and dominates as the most imminent and severe threat to bats. Although many other conservation issues exist for bats, no other current threat has the capacity to so swiftly exert region wide extirpations, or at worst extinctions, or to cause such precipitous population declines. That said, the WNS symposium gathered those leading the investigation into WNS both in North America and Europe to seek ways to better understand the problem as well as to effect actions to curtail it. To effectively address this threat will require that we work collectively and inclusively across jurisdictional and organizational boundaries as well as work in an environment of uncertainty until, as Rilke suggests, at some point we will *live* our way into the answer. We in the West have observed and learned as those in the East grappled with this urgent and all encompassing threat. Last summer, as a precaution in the West, we began to implement decontamination protocols. One year later, WNS has continued to spread and has now reached western Oklahoma.

What can we best do in the West? We need to carefully distinguish the problems over which we have some control from problems over which we have no control. We need to focus our efforts on those problems that we can potentially solve. What information do we need? How much do we know in our respective states and provinces about the number and location of hibernacula? Of those, how many receive regular surveys and for which we have accurate counts and species composition? This information will be essential to provide baseline information in the event that WNS continues to spread. Many questions remain unanswered such as: Will WNS affect western bat populations in the same way it has eastern bat populations? What about species? Will some species succumb and others persist? If so, what is it about those that succumb that make them more intrinsically vulnerable? Currently in the West, with the exception of the two federally listed bat species (lesser long-nosed bat (*Leptonycteris yerbabuenae*) and Mexican long-nosed bat (*Leptonycteris nivalis*)), Townsend's big-eared bat (*Corynorhinus townsendii*) is arguably the bat species with the highest conservation profile. But enter WNS and suddenly ubiquitous and common bats such as little brown bat (*Myotis lucifugus*) are being devastated.

States outside the WNS-infected area are beginning to mobilize and develop response plans. Missouri released theirs earlier in the year and others are following suit. The southwest states have organized to address issues that may differ from other western states. Western states gathered both in person and by conference call during the WNS symposium to address surveillance and monitoring needs. The WBWG WNS Committee is in the process of incorporating feedback on the WBWG WNS Action Plan. It remains a challenge to address a problem with no clear solution. But until we know more, we must draw from the best available information, and our collective experiential knowledge, to act in the best ways we can.

Sincerely,
Rita Dixon
President, Western Bat Working Group

STATE/PROVINCIAL UPDATES

CANADA

Northwest Territories

Northwest Territories is planning to increase monitoring of bats. Cori Lausen will be working in Wood Buffalo National Park in September, surveying caves that were reported to have bats hibernating in them during the 1970s. There is also some interest in the communities of Fort Smith and Fort Simpson regarding surveying for hibernating bats. Cori is planning to work with some community members to set up and use bat detectors to collect information on bat species and movements.

-Joanna Wilson, Species at Risk Implementation Supervisor, Government of the Northwest Territories

USA

ARIZONA

Bat activity in Mesquite Along Lower Colorado River

It has been shown that birds along the Lower Colorado River use flowering mesquite as a stopover cue for greater insect abundance because these woodlands provide critical food resources to insectivorous birds during spring migration. The San Pedro River near Mammoth, Arizona, has one of the largest remaining stretches of quality mesquite woodland (bosque) in the Southwest and this relic bosque might also offer stopover cues to migratory bats. In the western U.S., bats benefit from riparian resources because of access to drinking water and greater availability of insect prey associated with deciduous streamside vegetation. It has been hypothesized that flowering mesquite might be as important to migratory bats as it is to migrating insectivorous birds. During summer 2010, we will test the hypothesis that there is greater bat foraging activity (measured with passive acoustic sampling) because of greater availability of insect food resources during the period that bats are emerging from hibernation and migrating. We are testing this hypothesis in flowering mesquite vs. either non-flowering mesquite or adjacent Sonoran desert scrub. We are using passive frequency division bat detectors (Anabats) to measure levels of foraging activity within and between mesquite bosque and adjacent desertscrub habitats. We are also conducting limited mist netting to confirm species presence.

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

Bat Roost Colony Enhancement at Cienega Creek Natural Preserve

-Don Carter, Pima County Natural Resources Parks and Recreation

In 2009, Pima County Natural Resources Parks and Recreation (NRPR) obtained a grant through the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program. The grant allowed for the construction of an artificial bat roost in an existing sink hole and former soil piping cave in the Cienega Creek Natural Preserve (CCNP). This is the second artificial bat roost to be constructed in the preserve. Don Carter, project manager with NRPR, is hopeful that the site will be used by Mexican long-tongued bats and Townsend's big-eared bats as a maternity roost. Both bats are known to occupy the soil-piping caves of the CCNP. However, degradation of the natural sites has prompted an interest in building artificial roosts for the bats. So far, the artificial roosts seem to be working well for both species.

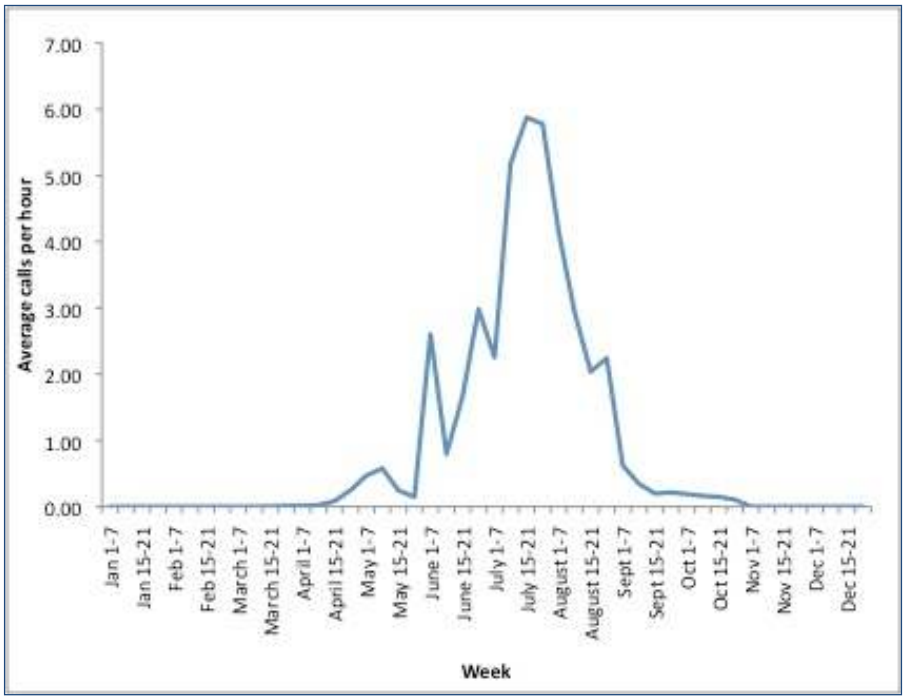
Activity through the year of bats in ponderosa pine forests in northern Arizona

-Liz Mering and Carol Chambers

At least 16 species of bats forage and roost in ponderosa pine forests in northern Arizona. Most research at higher elevations in northern Arizona has focused on bats during the reproductive season (summer). In other parts of the state, bats remain active across all seasons. We know anecdotally that capture rates of bats are higher during June and July in northern Arizona, but appear to decline after July, possibly because of the start of the monsoon season in mid July with cooler temperatures. Because spring, fall, and winter activity are largely unknown for most species in northern Arizona we monitored the temporal (seasonal and nightly) and spatial variation in activity of bats over one year.

We concurrently monitored 6 stands in ponderosa pine forest near Flagstaff from June 2008 through May 2009 using Anabat II ultrasonic bat detectors. Activity of bats differed spatially among all stands, possibly because we detected bats along travel corridors, near unknown roost sites, or where prey were more readily available. Temporally, we found call rates were low September to May. We didn't record any calls in December and January and only 2 in February (one at 40 kHz and the other at 25 kHz). We had the most activity during June, July, and August. Nightly, we found that activity was higher during the first 2 hrs after sunset and the last 2 hrs before dawn. We did find that precipitation and lower air temperatures decreased bat activity from May to September.

Activity of bats (call rates)



Low call rates during winter may indicate that bats migrated from the area to lower elevations or latitudes or alternatively bats hibernated; our infrequent fall and spring observations could have indicated they occasionally exited hibernacula. We are still trying to understand how many bats might hibernate in northern Arizona (develop baseline data) so we can understand the potential impact of White Nose Syndrome if it continues to spread. In the meantime, understanding spatial and temporal variability by monitoring bat activity helps in making management decisions since we can reduce impacts of activities (such as thinning and prescribed burning in forests) by conducting activities when bats are absent or not active. Based on our data, we recommend surveys be conducted for at least 1 year across multiple locations in the southwest to better understand activity levels of bats.

Use of Artificial Roosts by Forest Bats in Ponderosa Pine Forests in Northern Arizona

-Liz Mering and Carol Chambers, Photos by Elisabeth D. Mering.

Bats use a variety of natural roosts, including large snags. However, snags may be lost during forest management operations such as thinning and prescribed burning and it may take years to grow replacement trees large enough to form snags that bats depend upon. In ponderosa pine forests in northern Arizona, there are at least 6 species of bats that use snags for maternity roosts. Snags that bats prefer often are > 69 cm dbh (range 31 to 101 cm). In areas where past forest management practices or human development has occurred, snags may be lacking or in low density, inadequate to support populations of bats. Around Flagstaff, the Wildland Urban Interface (WUI) seems to be particularly low in snag density with only ~1 snag/ha large enough (>40 cm dbh) to support bats. Some of our bats like much higher densities (14 to 69 snags/ha!) so we decided to try an interim measure to provide bats with additional roosts.

During the summer of 2009, we installed and monitored 104 artificial roosts on large diameter (> 45cm dbh), live ponderosa pine trees in the WUI around Flagstaff. Half of these roosts were wood painted 'ponderosa pine bark brown' and the rest were resin roosts that mimicked the appearance of ponderosa pine bark. Roosts were placed at 26 sites in the WUI as either a 'clump' of roosts (3 trees within 20 m of each other; 1 roost on each tree that faced south, east, or west) or as a 'single' roost (south facing) 150 to 250 m from the clump. We checked the roosts every 2 weeks (10 times) during the summer and captured any bats using the roosts when possible to identify species, sex, and reproductive condition. Guano traps placed 0.5 m below the roost also allowed us to identify use if no bats were present.

We found 19 roosts (6 wooden, 13 resin) were used at least once by bats and 10 roosts were used multiple times. Roosts were occupied by single individuals only and they were all males. We captured 4 species: Arizona occult myotis, big brown bat, long-legged myotis, and long-eared myotis. In a clump of roosts, east-facing roosts were most commonly used (7), compared with roosts that faced south (3) or west (2). None of our artificial roosts were used as maternity roosts during 2009. We hope to see more colonization by females in future as they too realize we've provided new housing.

Developing Microsatellites for Spotted Bats and Bat Blitz in Northern Arizona

-Carol Chambers, Suzanne Hagell, Jeff Foster, and Angie McIntire

Spotted bats are distributed broadly across the west, but are rarely captured so their population sizes are not well documented or understood. The spotted bat is a species of concern in Canada and the United States in part because so little is known about it. Because spotted bats are so difficult to study, genetics can provide a means to estimate population sizes, identify population structure (including barriers to dispersal), and assess the status of these populations. This information can help determine if the spotted bat population in Northern Arizona is viable for the long-term.

In summer 2005, we (some of you were there) captured 35 spotted bats in just over a week along the Colorado River in northern Arizona. We found roosts and radio-tracked 6 spotted bats for 10 days (it felt like years after long days and nights of sleep deprivation) and discovered these bats used huge areas (>100 square miles) for nightly activities during that very short time period.

Spotted bat. Photo by Elisabeth D. Mering.

Bat Blitz

This year we intend to repeat our efforts to capture spotted bats during a **BAT BLITZ FROM JULY 5-9** in northern Arizona. However instead of tracking bats to identify roosts and activity areas, we intend to sample bats to obtain genetic material that we'll use in developing and screening microsatellite markers. Microsatellites are rapidly mutating regions of DNA that are ideally suited for assessing population genetic structure. We will work to develop microsatellites that can be used to assess genetic patterns in the spotted bat populations of Northern Arizona. We will use these to assess the genetic variability in the Arizona spotted bat population. We would also like to get samples from spotted bats captured from other areas in the west so if you or someone you know might capture a spotted bat, and are willing to help collect genetic material, contact us (Carol.Chambers@nau.edu). We have already extracted spotted bat DNA from saliva samples that we collected last year so know they offer genetic material, but during the Bat Blitz we hope to sample at least 30 individuals from a reproductive population along the Colorado River.

CALIFORNIA

-Compiled by Dave Johnston California Co-Chair

California Bat Conservation Plan Update

The contractor team led by Dixie Pierson is nearing completion of the draft California Bat Conservation Plan. Dixie, along with facilitator Mike Fraidenberg, led the team in a review of the conservation issues, ecoregions, and species accounts at a four-day workshop in Davis in April. The draft Plan will be delivered to the California Department of Fish and Game in June 2010 and is expected to be released to the public in late 2010 or early 2011.

Gary Fellers is monitoring a Townsend's big-eared bat maternity colony by conducting monthly roost exit surveys. This work has been on-going for the last 22 years. In recent years, the colony has remained stable with about 230 female bats. In addition, Gary maintains 10 automated acoustic recording stations in the San Francisco Bay Area using Anabat detectors. This work provides information on seasonal and nightly activity of bats in a variety of habitats. Since some of the detectors have been in operation for more than 10 years, there is also a good dataset for evaluation of annual variation in bat activity.

Dave Johnston, Judd Howell, Nellie Thorngate, Jim Castle, Scott Terrill and Robert Shields of H. T. Harvey & Associates and Todd Mabee of ABR have completed their first year of a 2-year wind energy study on migratory bats and birds at Montezuma Hills Wind Energy Area. The study uses radar, acoustic monitoring, enhanced night vision observations and daily mortality searches to help determine if there is a relationship between bats and birds moving through the wind energy area and the numbers of mortalities for the same area. The project is funded through a PIER grant from the California Energy Commission.

IDAHO

-Bill Doering, POWER Engineers, 2041 S. Cobalt Point Way, Meridian, Idaho 83642,
bill.doering@powereng.com

Tree Bat Use of Caves on the Snake River Plain

During late summer and fall of 2009, Bill Doering began a study of stopover habitat used by tree bats crossing the Snake River Plain. His study is predicated on the assumptions that tree bat species will seek concentrated food sources, use alternate roosting habitats, and traverse atypical habitats during migration. The treeless “sagebrush sea” of the Snake River Plain would appear to present a significant obstacle to tree bat migration. Volcanic features, such as lava tubes, craters, and fissures, provide valuable habitat and concentrated food sources for resident bat populations. Very limited field observations from Bill’s graduate work on Townsend’s big-eared bat suggested that migrating tree roosting bat species might opportunistically avail themselves of these same resources. To investigate the role caves might play during migration in tree-obligate bat species, passive acoustical monitoring stations were established at the entrances of several lava caves on the Idaho National Laboratory and Big Desert of Eastern Idaho. Anabat systems were deployed to automatically record the echolocation calls of bats from approximately 30 minutes before sunset to 30 minutes after sunrise during sampling evenings. No direct capture methods were employed.

A total of 42,978 echolocation call files were collected during this first field season. Initial analysis reveals that late season bat communities at caves are a mix of 1) summer residents, 2) swarming pre-hibernators, and 3) transient migrators. Intensive foraging was evident at all caves. Results documented the presence of hoary bats at two of three monitored caves as well as the likely occurrence of silver-haired

bats, and the possible occurrence of red bats. The occurrence of the red bat would present a new species for the state of Idaho and a significant range extension. During 2010, Bill plans to expand his study, develop a call library, better describe bat communities active at cave entrances, and investigate proximate variables influencing bat activity and occurrence at caves. Ultimately, he would like to understand how migrating bats locate and use stopover habitat. This information would seem critical for addressing the problem of bat mortality at wind turbines. In addition, the potential importance of caves to migrating tree bats is currently unrecognized and warrants greater research and management attention. Bill would like to thank Bruce Haak with Idaho Fish and Game for allowing him to borrow Anabat equipment. He also wished to thank Roger Blew senior ecologist with S.M. Stoller for granting access to the Idaho National Laboratory and its wonderful caves.

NEW MEXICO

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

Kirtland Air Force Base (KAFB) Natural Resources Manager Carol Finley has contracted with Rio Grande Bird Research (RGBR) since 2007 to investigate the bat communities throughout the various habitats on the KAFB, from desert scrub to ponderosa pine woodland. Katherine Thibault and Travis Perry are the biologists spearheading this effort. Mist-netting and Anabat surveying efforts continue for another season, and mobile Anabat transects will be initiated this year to complement similar efforts occurring throughout the country. This season will also include continuation of radio-tracking efforts of female *Myotis auriculus* and an experimental roost box study. Although bat use of boxes in 2009 was limited to male big brown bats (as pictured in photo to the right) and Southwestern myotis, bats showed a clear preference for black boxes placed on southeast-facing slopes, as compared to white boxes on southeast slopes and boxes of both colours on northwest-facing slopes.

Photo by Travis Perry.

The New Mexico Department of Game and Fish (NMGF) has been working with New Mexico Department of Transportation (DOT) to develop a bat exclusion protocol for highway bridges that are slated for demolition and replacement. Unfortunately, several major concrete bridge spans on Interstate 25, known maternity sites for Mexican free-tailed bats, have deteriorated and are being replaced with new bridge designs that are less bat-friendly. DOT has been very proactive in working with NMGF to identify bridges that may be important for bats, installing exclusion netting and caulking access points prior to the arrival of migrating bats (if demolition is scheduled during breeding season), and installing bat boxes on new bridges that might otherwise not be inviting to bats. So far, the exclusion methods on old bridges seem to be working to prevent the destruction of breeding colonies. Thanks go to Mark Watson (NMGF) and Curt Frischkorn (DOT) for their efforts.

Underside of bridge span, I-25, Rio Salado, New Mexico, with bat exclusion netting in place. Photo by J. Stuart.

Cavers continued performing biennial hibernating bat counts this winter for the BLM Roswell district and started a hibernating count for USFS Guadalupe District in NM. Four caves were surveyed this year, with one cave hosting about 900 Townsend's big-eared bats. Species identified this year included cave myotis, Townsend's big-eared bat, small-footed myotis, and fringed myotis.

-Jennifer Foote

SOUTH DAKOTA

-Brad Phillips

The South Dakota Bat Working Group was awarded a SD Game, Fish and Parks wildlife educational competitive grant of $5,000. The money will go to the purchase of bat education book sets (12 volumes per set) designed for elementary school aged children (3-5th graders). Our goal is to get a set of these books in every elementary school library in South Dakota. This grant will bring the total to 101 schools served by this program. For more information about our Bat Book program visit our website, WWW.SDBWG.ORG.

August 14th we will have our 5th annual SD Bat Festival at Custer State Park (12 miles east of Custer, SD). The evening program includes games for the kids, demonstrations of what bat biologists do, and a power-point presentation – all while bats are flying around the crowd!

Also available on our website is a position statement regarding our opposition to the formation of captive colonies of *Corynorhinus*. We would encourage other working groups to keep current on this topic.

WASHINGTON

-Compiled by Greg Falxa

Hanford Site Update

Work continues at the Hanford Site in south-central Washington on gaining entry into a deactivated filtered water plant to assess the facility for bat usage. Initial outside work occurred last summer, which included acoustic monitoring, mist-netting and videotaping, indicated the presence of potentially several species using the facility. Acoustic monitoring was conducted again this last December outside the facility, which surprisingly indicated winter bat activity. It is unknown at this time where the bats were hibernating at in relation to the facility -- more questions to be answered. Safety planning and associated documentation, which is an important part of this process, is required to be in place before we can enter the building to continue this assessment for bats.

My work toward completion of a Masters in Environmental Science at WSU-TriCities continues, with graduation being planned for spring of 2011. My thesis project is related to bat usage of facilities at the Hanford Site and how colonies are related genetically.

-Jon Lucas, Washington Closure Hanford

Sustainable Prisons Project Constructs Bat Condos

The Nature Conservancy, Fort Lewis Army Installation and Cascadia Research teamed up with the Washington State Department of Corrections through The Evergreen State College's Sustainable Prisons Project, to produce 40 bat houses that are being installed at the army base formerly known as Fort Lewis

(now named Joint Base Lewis-McChord). Using a new design that proved successful in a 2-year bat box utilization experiment at Fort Lewis, inmates participating in the Sustainable Prisons Project, a joint effort between some of Washington's corrections centres and The Evergreen State College, have been constructing our "Uncle George" style boxes, or as the inmates call them, "Bat Condos." The Sustainable Prisons Project coordinates alternatives to the traditional furniture and license plate prison industries, and currently inmates are growing native plant starts, hatching Oregon spotted frog eggs for reintroduction projects, and a number of other projects.

So far they have exclusively produced these bat boxes for use at Ft. Lewis, who purchased the materials for the initial construction effort, but partners are looking to engage other not-for-profit entities with a similar arrangement. Construction of these boxes is labour intensive compared to a simple vertical chamber bat box, but their success during initial trials make it worth the effort, considering the labour is free – but of excellent quality. No, we don't currently have locations for the 40 rather large structures (60 cm wide x 120 cm tall), but they keep finding places, and its great to have some on hand. The dual-chambered rocket boxes have also been doing well, being used after more time in the field. A poster on the bat box comparison study, presented at this year's Washington TWS chapter meeting, can be found here:

http://cascadiaresearch.org/bats/BatBoxPreference_screen-view.pdf

-Sanders Freed, TNC, sfreed@tnc.org

Long-term Monitoring of Bats at North Creek

The campus of the University of Washington-Bothell/Cascadia Community College is unique in that over half of it is a 70-acre wetland bisected by North Creek. During the summer, this wetland supports hundreds of bats as they forage over the dense stands of yellow willow, North Creek, Lake Truly, and several small detention ponds. It is a site I have often used to train others in the use of acoustical bat detectors.

In January 2009, my study partner Steve Negri and I set up a long-term acoustical station at the wetland with two sets of study objectives: technical and scientific. The technical objective was to see if can we set up a remote acoustical detector for bats and effectively run it year-round without any major failures. For the last few years I have been beta testing SonoBat software developed by Joe Szewczak, and looking for various remote applications for the system. Past bio-acoustical work has involved monitoring industrial and marine mammal sounds in Alaska and Puget Sound, and I run a "trapline" of trail cameras for rare carnivores in the Cascades. Developing similar remote detection applications for bats seemed like a logical next step. Recently, Joe and I discussed the idea of setting up a series of bat "listening posts" across the West to begin gathering population trend and composition data.

The scientific objectives were to 1) document any winter bat activity such as the silver-haired bats and Californian myotis as found elsewhere in western Washington, 2) document seasonal and daily activity patterns for each of the species of bats that use the wetland, 3) correlate bat activity with weather parameters (there is a weather station on site) and other environmental variables, and 4), given the local

species composition, determine the number of consecutive nights of survey are needed each season to capture the true species composition.

The current set up includes a laptop computer (using the SonoBat recording feature) and a 12-volt backup battery housed in a locked toolbox and AC power supplied by the university. The computer is linked to a D240x Pettersson detector that is housed inside a 3" PVC elbow mounted atop a 10-foot tall 3" PVC pipe. The data and power supply wires run to the detector inside the protective pipe, and the detector microphone faces to a small hole in the cap protecting the face of the elbow. So far, weather has not been a problem with the durable detector. Spiders and wasps, however, do love the housing and like to encase the detector in webbing and paper nests.

We are still in the process of analyzing the 2009 data. In our initial set ups, we were having problems with call quality in the 25 kHz range (ground reflection) making it difficult to separate big brown and silver-haired bats using the SonoBat classification software. Thus, each of the hundreds of calls is analyzed individually. This problem has been solved making analyzing what we have collected so far in 2010 a breeze. We also have to scrub out thousands of raindrop files, many of which make a pattern that fools the SonoBat scrubbing feature and have to be eliminated individually.

-Gregory A. Green

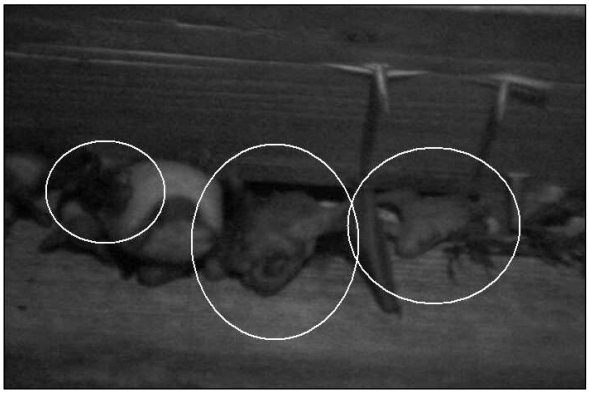
Maternity Roost Monitoring with Remote Video Cameras

-Greg Falxa, Cascadia Research Collective, gfalxa@cascadiaresearch.org

In spring 2009, I started installing internet-accessible infrared video cameras to provide remote monitoring at maternity colonies. The first, on a long-term big brown colony near Olympia, Washington, provided year-round still photos that were taken at 5-minute intervals, and has provided data on the bats' coming and going over seasons and daily cycles. The Washington Department of Fish and Wildlife (WDFW) provided a nice 'pan-tilt-zoom' camera, and in return, the live video from the colony is posted on the WDFW Watchable Wildlife, http://wdfw.wa.gov/wildwatch/batcam/bbb_video.html

We have found that using professional grade video gear designed for the security market makes for a reliable and installation and quality results.

An intern at Cascadia Research monitored the images starting in June 2009 to determine first sign of pups, which occurred on 12 June, and appeared to stretch out for at least 3 weeks. Another colony has had cameras installed for this coming year, and we hope to get similar data. Once set up, these units have not required site visits, although the lens protectors get a bit dirty by the end of the season. This year I have installed better shields over them. Guano happens! This monitoring has allowed us to determine that already there are as many bats at the big brown colony as the peak adult number of last year. Either the bats are a couple of weeks earlier this year, or there are more at the site, we will know in about a month.



Washington Department of Fish and Wildlife (WDFW) has instituted gear restrictions, capture site restrictions, and a decontamination requirement on Scientific Collection Permits involving bat captures in response to the threat of White Nose Syndrome (WNS). Unfortunately, WNS has spread west of the Mississippi River since the inception of this new permit terminology. WDFW will be contacting permit holders that intend to capture bats in Washington to inform them that gear restrictions pertain to all states and Canadian provinces that lie east of the Mississippi River, those that have found bats within their populations with WNS, and possibly adjacent states. Exact terminology is pending. The current permit terminology is as follows, but will be revised soon:

> As scientists learn more about WNS and how it is spread, disease prevention is the primary conservation action that WDFW is taking against transmission of this fungus to Washington's bat populations. The following prevention measures include: 1) prohibited use of any equipment or clothing previously used in cave/mine exploration or bat surveys east of the Mississippi River (pending revision), and use of decontamination protocols for clothing and gear when conducting bat surveys in Washington.
>
> > 1) Under no circumstances should any equipment or clothing that has been used in surveys of bats or cave/mine explorations east of the Mississippi River (pending revision) be used in Washington. Vectors that could spread WNS include equipment, such as mist nets, harp traps, bat holding bags, ropes, harnesses, wing biopsy punches, weighing tubes, rulers, and clothing, boots, and gloves.
> >
> > 2) The WDFW requires that all persons permitted to capture bats in the state follow established decontamination protocols for gear and clothing developed by either the U.S. Fish and Wildlife Service (http://www.fws.gov/northeast/white_nose.html) or the Western Bat Working Group (http://www.wbwg.org/conservation/whitenosesyndrome/WNSPreventionProtocol061509.pdf). WDFW recognizes that decontamination protocols will require additional time, effort, and money to implement but these measures are necessary to prevent the spread of the fungus to Washington or minimize its spread to bats if it already occurs in the state.
> >
> > 3) In addition, bat captures in and around maternity or hibernacula sites are not allowed, unless explicitly requested, justified, and permitted.

Additional measures taken by WDFW to survey for WNS include submitting fresh carcasses for necropsy when 5 or more bats are found dead and developing an educational WNS webpage that will be uploaded in the summer of 2010.

-Ella Rowan, Wildlife Biologist, Washington Department of Fish and Wildlife

WHITE-NOSE SYNDROME UPDATES

WNS Detections in Several New Areas and New Species in 2010

Ssoutheastern myotis in Virginia

Cave myotis in Northwestern Oklahoma

Endangered Gray Bats in Missouri, Shannon County, Ozark National Scenic Riverways, May 2010

Updated WNS Materials on WBWG website found at http://www.wbwg.org/

- Outreach materials (brochure and sign)
- Bat Grid Inventory and Monitoring WNS Protocol
- U.S. Fish and Wildlife Service Decontamination Protocol for Researchers

WNS 2011 Congressional Funding

Please urge your Congressional representative to sign Representative Carol Shea-Porter's letter requesting $5 million in the 2011 federal budget to combat White-nose Syndrome.

Bat Conservation International has provided a sample letter on their website and information on how to contact your representative at https://writerep.house.gov/writerep/welcome.shtml.

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.

Shapiro, Julie and Anne Pringle. 2010. **Anthropogenic influences on the diversity of fungi isolated from caves in Kentucky and Tennessee**. American Midland Naturalist, Vol. 163, No. 1 (Jan., 2010), pp. 76-86. http://www.faqs.org/periodicals/201001/1940618001.html

Burghardt, John E. 2003. **Bat-compatible closures of abandoned underground mines in the National Park System.** nature.nps.gov/Geology/aml/amlreports/batgate9102003_screen.pdf

Bales, Brandon Terry. 2007. **Regional distribution and monitoring of bats, especially species of conservation concern, along the Lower Missouri River in South Dakota.** bathead.com/batpdf/balesMS.pdf

Ellison, L. E., T. J. O'Shea, J. Wimsatt, R. D. Pearce, D. J. Neubaum, M. A. Neubaum, and R. A. Bowen. 2006. **Sampling blood from big brown bats (*Eptesicus fuscus*) in the field with and without anesthesia: impacts on survival.** Journal of Wildlife Diseases 42:849-852. http://www.vivo.colostate.edu/bats/pubs/ellison2006jwd.pdf

Ellison, L. E., T. J. O'Shea, D. J. Neubaum, and R. A. Bowen. 2007. **Factors influencing movement probabilities in big brown bats (*Eptesicus fuscus*) in buildings**. Ecological Applications 17:620-627. http://www.vivo.colostate.edu/bats/pubs/ellison2007jea.pdf

Neubaum, D. J., T. J. O'Shea, and K. R. Wilson. 2006. **Autumn migration and selection of rock crevices as hibernacula by big brown bats (*Eptesicus fuscus*) in Colorado**. Journal of Mammalogy 87. 73:467-469. http://www.vivo.colostate.edu/bats/pubs/neubaum_hibernacula.pdf

Falxa, Greg. 2007. **Winter foraging of silver-haired and California *Myotis* Bats in western Washington.** http://cascadiaresearch.org/reports/Bats-NWNaturalist-2007.pdf

Mantilla-Meluk, Hugo, Alex Mauricio Jiménez-Ortega, and Robert J. Baker. 2009. **Phyllostomid Bats of Colombia: Annotated Checklist, Distribution, and Biogeography.** http://www.nsrl.ttu.edu/publications/opapers/specpubs/SP56.pdf

Higginbotham, Jana L. and Loren K. Ammerman, 2002. **Chiropteran community structure and seasonal dynamics in Big Bend National Park.** http://www.nsrl.ttu.edu/publications/opapers/specpubs/SP44.pdf

Hayes, M. A., K. W. Navo, L. R. Bonewell, C. J. Mosch, and R. A. Adams. 2010. **Allen's big-eared bat (*Idionycteris phyllotis*) documented in Colorado based on recordings of its distinctive echolocation call.** http://asstudents.unco.edu/faculty/radams/PublicationPDFs/HayesEtAl2009.pdf

ICUN. 2001. **Microchiropteran Bats: Global Status Survey and Conservation Action Plan.** http://www.iucn.org/dbtw-wpd/edocs/2001-008.pdf

Willis, C.K.R., R.M.R. Barclay, J.G. Boyles, R.M. Brigham, V. Brack, Jr., D.L. Waldien, J. Reichard. 2010. **Bats are not birds and other problems with Sovacool's (2009) analysis of animal fatalities due to electricity generation**. Energy Policy. 38: 2067-2069. http://ion.uwinnipeg.ca/~cwillis/pdfs/willis_et_al_2010_bats_are_not_birds.pdf

Dumont, E.R. 2007 **Feeding mechanisms in bats: Variation within the constraints of flight.** Integrative and Comparative Biology, 47:137-146. http://www.bio.umass.edu/biology/dumont/Dumont_2007_Integrative%20and%20Comparative%20Biology.pdf

Macadam, Craig R and Neil E Middleton. 2005. **BaTML Factsheet: An introduction to the analysis of bat droppings.** http://www.batml.org.uk/publications/documents/FactSheet/BaTML_Factsheet_Analysis_Of_Bat_Droppings.pdf

Messenger, ,Sharon L. , Jean S. Smith, and Charles E. Rupprecht. **Emerging epidemiology of bat-associated cryptic cases of rabies in humans in the United States.** CID 2002:35 (15 September) Emerging Infections. http://www.idready.org/webcast/spr05_materials/zoonotic_infections/2005-01-25/rabies_messenger.pdf

Voigt-Heucke, Silke L., Michael Taborsky Dina K.N. Dechmann. 2010. **A dual function of echolocation: bats use echolocation calls to identify familiar and unfamiliar individuals.** Animal Behaviour in press.

http://behav.zoology.unibe.ch/sysuif/uploads/files/esh/pdf_online/taborskym/Voigt_Heucke_AnimBehav2010_1.pdf

Munshi-South, Jason, Gerald S. Wilkinson. 2010. **Bats and birds: Exceptional longevity despite high metabolic rates.** Ageing Research Reviews (in press). http://faculty.baruch.cuny.edu/jmunshi-south/publications/MunshiSouthWilkinson2009ARR.pdf

Lorch , Jeffrey M., Andrea Gargas, Carol Uphoff Meteyer, Brenda M. Berlowski-Zier, D. Earl Green, Valerie Shearn-Bochsler, Nancy J. Thomas, David S. Blehert. 2010. **Rapid polymerase chain reaction diagnosis of white-nose syndrome in bats.** J Vet Diagn Invest 22:224–230. http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/vetd-22-02-224-230-e.pdf

UPCOMING EVENTS

USA

August 5-10, 2010. **Bat Conservation International Acoustic Monitoring Workshop**, Lava Beds National Monument, Tulelake, California, http://www.batcon.org/index.php/get-involved/workshops/subcategory/83.html

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

October 19-20, 2010. **NWCC (National Wind Coordinating Collaborative) Wind Wildlife Research Meeting**, Denver, Colorado, http://www.nationalwind.org/news/article.aspx?ArticleId=20

October 24-24, 2010. **Trilateral Meeting of the Canadian, Mexican, and United States Wildlife Veterinary and Conservation.** South Padre Island, Texas, USA. "Wildlife and Ecosystem Health Without Borders." In conjunction with the AAZV/AAWV/ARAV Annual Conference, http://www.aawv.net/meetings.html

October 27-30, 2010. **40th Annual North American Society for Bat Research Meeting**, Denver, Colorado, http://www.nasbr.org/

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

Tobacco label circa 1869. Image available at http://www.arspublik.com/public-domain-images-ariel-riding-a-bat/