

**Colorado Bat Working Group
Meeting Minutes
25 April 2008**

Attendees

Kirk Navo, CDOW
Kristen Philbrook, USFS/BLM
Randy Ghormley, USFS/BLM
Troy Florian, CDOW
Eli Wostl, CDOW
Toni Piaggio, USDA/APHIS
Cheri Jones, CU Denver
Amy Englert, CU Denver
Paul Cryan, USGS
Gary Curtiss, CDRMS
Laura Ellison, USGS
Mark Hayes, UNC
Lea' Bonewell, USGS
Heather Sauls, BLM
Donald Solick, West Inc, WY
Rob Schorr, CNHP
Melissa Neubaum, USDA/APHIS
Dan Neubaum, USGS
Jeremy Siemers, CNHP
Mike Rauschkolb, Rio Tinto Minerals
Jerry Stimpson, CDOW
Nancy Olson, CDOW
John Burghardt, NPS
Cyndi Mosch, RM Cave Resources

Action items as a result of the meeting

- **Next meeting** 14 Nov 2008, 9 am, CDOW ofc.
- **New committee** formed to work on the Bat Plan matrix. **Kirk** has the list of interested people.
- **2 new committees** formed to work on wind energy issues – 1 to create a letter, 1 for education. **Kirk** has the list of interested people.
- **CBWG representatives:** Academic rep possibly move from Rick Adams to Rob – **Mark** will check. CDRMS rep possibly move from Julie Annear to Gary – **Gary** will check. DOW rep possibly to move from Sonia to Troy – **Kirk** will ask. FWS rep to stay with Sandy? – **Kirk** will check.
- Regarding **2008 bat trek** possibilities: **Troy** has a site in N. Colorado for Sept. to look at. Wooten Ranch in late June/early July – **Rob** will check out.
- Regarding the CBWG **website:** Send **Rob** suggested literature to add. NEED PICTURES.
- Regarding **wind turbine** proposal in the SLV area: **Randy** to email Troy area where this test site is.
- **Paul/Tom O'Shea** to send Troy and Heather info, ie. Bats of the Colorado oil shale region by Robert Finley.

WBWG update (Toni)

- Upcoming elections – will need a President and a VP for next April.

- Austin, TX biannual meeting upcoming. Trying to make sure it's an independent venue from a BCI event. Wind energy information sharing workshop planned before the meeting. Registration fees being considered.
- Membership fees being discussed. About 400 members in WBWG. \$20 member fee possible. 75% member approval to charge fee (of the 39% who answered the recent survey). Figure out incentives to be paid as a member vs. not a member. Fees could cover expenses, such as a conf call phone system and maintaining a website. WBWG has some funds in the bank from the previous conference.
- Working on white nose syndrome statement. Cavers in eastern US caves/mines need to disinfect equipment before coming west. White nose syndrome spreading. (See more info below.) Getting data from grottos/cavers – there HAVE been cavers from East US that went to West - Jewel and Wind caves.
- Bat forum – Area on WBWG website to discuss issues – ie. discussion of white nose syndrome, equipment swaps (Bob Berry had equipment that Pat Brown may want to disperse), bat jobs, meeting topics that could be filtered through the forum. Moderators help guide specific topics.
- Abandoned mine lands letter – getting clarification from states – letter to fed/state agencies about willingness to help them with bat issues/abandoned mines.
- Rob is gathering info about broad scale banding recommendations, yeah or nay – has feedback from 20 individuals around the country. Laura has a banding report almost through review process – 12 years to do – lots of data and depressing to work on. A moratorium on bat banding was put in place in 1972 by the government's Bat Banding Program. During the Bat Banding Program, more than 2 million bands were issued of which 1.5 million were applied to bats until the moratorium began. Metal vs. plastic bands no advantage. Researchers in Alberta, Canada, are starting a project at a Wind Farm to band hoary bats – no scientific study proposal however. There is a need for a clearinghouse and a way to track banding and marking of bats. It is difficult to get people to submit information on their marking, banding, and research to a clearinghouse. Troy asked about DNA tracking – answer is the same kind of issue of turning the info in - additionally how to store the samples. Toni - Radio isotope tracking – same issue.
- Kristen wanted to make sure that the info she's passing from WBWG and other sources are fine to continue to pass along to the CBWG members – all ok with her approach of dispersal.

Colorado Bat Plan (Kirk) **New committee formed to work on Bat Plan matrix.**

- Last year there was discussion of a Colorado Bat Plan revision. The decision was to revise parts of the Plan, including the bat matrix – Kirk, Jeremy, Mark worked on it.
- Jeremy presented a PowerPoint about current matrix in the Plan and how the scores were developed - proposing to take a qualitative approach to refigure threats like mining, urban development and wind energy and to incorporate forest mgmt practices, cave and crevice mgmt, and rangeland mgmt. Other biological considerations - summer roost status, winter roost status, status in Colorado. Qualitative assessment of threats discussion. Threat ranking factors – scope (how broad), severity (how bad), immediacy (how soon). Severity ranking and colors. “Unknown” category discussion. Use criteria that's already developed by others - none of these bats is exclusive to Colorado. Include statement that says that it gets updated every 4-5 yrs. IUCN and NatureServ databases being looked at as model for criteria and/or use their data scheme to help develop Colorado's criteria.
- Mark - key gaps in basic bat biology that could prevent us from making good management decisions – need to identify key gaps about what we know so they can be addressed in the next few years.
- Discussion to work together with others such as WBWG, but also move ahead and not wait for others to act.
- Decision to keep the matrix – passed.

- Decision to use NatureServ-type matrix for Colorado Bat Plan – passed. Work with WBWG to keep in synthesis with them.
- Cheri – get feedback from people who use this for mgmt decisions. Decision to keep bat plan in place until new one is in place – passed.
- Kristen/Randy – PJ update – increase in USFS/BLM fuels reduction projects ongoing. Addendum to Plan still being worked on – not to revise the Plan, but to add an amendment under Forest Mgmt in Plan - add fuels reduction in Appendix. Fuels reduction new since Plan was written – now funding to do lots of fuels reduction. Not based on beetle kill, but info based on fire suppression and now apparent overabundant PJ – also more people living in this habitat now. Mgmt recommendations in Plan fine, but more info needed now. Draft copy passed around. When Kristen & Randy are ready for comments, they'll send out for review.

Wind energy (Paul) 2 committees formed – 1 to create letter, 1 for education.

- Turbines continue to impact migratory tree bats – about 75% are of 3 species (red, hoary, silver).
- In TX and OK, *Tadarida* also may be impacted. Some OK evidence showing *Tadarida* fatalities near maternity roosts. TX largest amount of wind energy development in US.
- Sec. of Interior formed the Wind Turbine Guidelines Advisory Committee in accordance with the Federal Advisory Committee Act. 4 meetings a year – 1st meeting was in Feb08 in DC. Ed Arnett BCI on committee. Committee was formed to advise the FWS. Bats moving to forefront of discussion about direct effects of turbines on wildlife - fewer birds of many species effected relative to bats. Federal advisory committee tasked with coming up with guidelines, but voluntary and not enforceable. Wind industry a diverse group.
- Bats probably attracted to turbines in some way. Estimates in 4-state region in NE say that by 2020 10s to 100s of thousands of bats will be impacted. More are dying as turbines are getting bigger. Could be population sinks all over the landscape.
- Bats/Wind Energy Cooperative met recently in Austin to discuss ongoing research – several studies looking at correlation between pre- and post-construction monitoring, but it will be a few years before we know if there is a good relationship (especially between data from acoustic monitoring and post-construction fatalities). Coop is diverse group including Europeans – Europe's bats are different genera, but still mostly migratory tree bats impacted. Europe 2x as many wind turbines in less area (w. Europe) – same impact problems, similar species, different taxonomy – communication going on between US and W Europe to help each other. In Asia (China, India) – lots of turbines going on-line and no info on whether bats are being affected.
- Donald – from a consultant perspective, West Inc. is working in Colorado and across US doing some pre-construction monitoring at proposed facilities, but not post-construction – no enforcement and expensive to do post-construction monitoring. CBWG could help agencies and consultants by providing guidelines - gives a starting point and helps with understanding.
- Austin WBWG meeting will have a workshop on best practices of pre/post construction monitoring to get info out.
- Mitigation options/techniques: Fatalities happening on low-wind nights, a limited number of studied (Alberta, Canada and Germany) show that shutting down turbines on low-wind nights reduces the number of fatalities by approximately half. Ultrasound blasters – lots of issues. See what works before guidelines are completed. Survey methods/carcass collections. Trying different methods to see what works. Design a study to quantify is difficult because of the need to get bat detectors high off of the ground. Evaluating radar – issues because don't know what a migrating bat looks like on radar, mixing up bats/birds, species specific. Thermal imaging, bat detectors – doing best we can based on info we have, but none are solid validated tools to use for preconstruction yet. Use the best tools we have to the best of our abilities.
- Wind site in NY – have access to. Accessibility varies – some have kicked out researchers.

- Kirk – green energy – tough environment right now. Paul – good communication necessary. And to open up lines of communication. ONLY regulatory authority is at local level, ie. California. Turbines are a windfall to the community.
- Migratory protection act and raptor act – incidental take. These bats have no protection. Unknown category of info in matrix used against preserving habitat/species. Wind sites are compared equally across the board for kills – fewer kills doesn't necessarily mean that it's less important in terms of population size. Production tax credit incentive to get turbine up quick and this impacts the ability to get proper evaluations done.
- Seasonal shutdown done in an Alberta experiment – \$10-20,000 cost from lost revenue and violation of contract to shut down. Cutting into profits to shut down seasonally. Current loan structures do not allow much flexibility to lose money by shutting down turbines after they are built.
- Non-profits to help offset shutdowns suggestion – compensation too expensive. Possibility of getting leverage by the idea that wind turbines could cause endangered species to happen.
- Wind prospectors out on plains looking for land to build turbines –very secretive. Xcel will be getting lines in to attach the turbines to the grid to get power back to the Front Range.
- Kristen suggested sending a letter to turbine decision-makers to express bat conservation concern. Cyndi suggested planning commissions. Formulate letter delicately to avoid backlash. Form committee.
- Education another committee.
- Suggestions needed from this group to Troy about wind power info. Looking at CA guidelines and talked to Dr. Barclay to see what to do. Worked really hard to get as much info as possible to help make decisions.
- Create a page to consolidate wind info in website.
- Discussion of what our role is – serve as an information sharing.
- Bat mgmt report regarding federal species of concern – wind energy section – next few months to be finalized.

CBWG (Kirk)

- Formal representation changes? Discussion of reps/roles. **Academic rep possibly move from Rick Adams to Rob – Mark will check. CDRMS rep possibly move from Julie Annear to Gary – Gary will check. DOW rep possibly to move from Sonia to Troy – Kirk will ask. FWS rep to stay with Sandy? – Kirk will check.**
- Move meeting to another timeframe? At beginning of field season, so maybe not best time. Perhaps Wildlife Society meeting tagged on at end of January? Winter? In the fall? Hosted by Fort Collins? Decision to move to Friday 14 Nov 2008 and keep in fall.

White nose syndrome (Paul)

- Paul gave PowerPoint presentation from Al Hicks, mammal specialist w/NY state department of environmental conservation in Albany - discovered WNS. USGS helping to coordinate research effort to figure out what's causing it.
- Syndrome – don't know what it is. White nose – fungus on bats. Fungus primary or secondary – symptom or problem itself. Pathology labs – NWHS, Disney, NYstate, Cornell, USGS – no obvious sign of contaminants or infectious disease.
- Consistent low fat reserves. Immuno-compromised and immune system not fighting it off? No fungal infections in lungs or organs – some pneumonia. Genetic typing – 48 common environmental fungi. Some dead bats found without fungus. Some live bats seem healthy other than fungus.
- Unprecedented. Started west of Albany in Howe Cave – 2/16/06. Photographed and 8 dead bats found. 1/18/07 – Schoharie Caverns – many bats close to entrance. Donald Griffin surveyed bats in this area since the 1930s. Winter 2007 – little brown bats flying around and submitted to rabies

lab – Albany Co. high numbers coming in. 3/14/07 - Hailes Cave – thousands of bats – half with WNS. Since 1930s, 1st time Indiana bats not seen in cave. More caves showing up. 4/21/08 – new map – WNS spreading.

- 90-95% mortalities in many of the caves with WNS. Estimates 400-500,000 died in this area of Albany. Other trend – bats moving to front of caves and used to be further inside. Bats in front of one cave seen not responding to disturbance – likely dying.
- Concern of spread. What is being done? To ID cause of mortality labs are analyzing – pathology, viruses, contaminants, bacteria, immune response or depression, fungus, environmental factors (humidity, temperature). Surveying sites in affected and non-affected states – PA, NJ, WV, VA, MD, NH, ME and selected hibernacula in IN, KY. Surveying affected NY sites for mortality shift in locations of known roosts, investigating mortality at VT sites, experimenting with body temp radio transmitters at VT site. Investigation of bat rehabilitation (formulating proposal) – should we do it? It appears that most of these bats are juveniles that are possibly disproportionately affected.
- Meeting to occur soon.
- Are people contributing to the spread? Are bats contributing to the spread? Lots of participants helping. 4 endangered species south of this area that use caves/mines that could be impacted. Several species being impacted now – everything in caves. EPFU's seem to be less effected. Possible low fat reserves from a crash in insects, etc. Lots of possibilities. Is the flying in the winter because they are having neurological issues or low body mass and as a result, bats are looking for insect food. Finding no fat to burn – bats are starving. No data about whether the bats have enough fat before they go into hibernation.
- See <http://wbwg.org/conservation/whitenose.html>.
- If in the summering grounds, it would have to be very widespread. More likely in a concentrated area – fall/winter roost. If an infectious agent, then not good. Intense surveys may be doing more harm than good.
- WBWG talked about decontamination between sites, went instead with decontamination between eastern states (east of Mississippi) to western states – will be posted on websites and will also go to agencies and to BLM for mining permits – get widespread coverage.
- For B/IMP decontamination, not reasonable at this point except for simple procedures.
- Decontaminate waders – guidelines on WBWG.
- Bats implicated in a lot of diseases lately – several papers coming out soon.
- 2 sites that don't seem effected – relative humidity is below 50%.

Bat trek

Wind energy? Wooten Ranch? Discussion. **Troy has a site in N. Colorado for Sept. to look at. Wooten Ranch in late June/early July – Rob will check out.**

Web site

See http://www.cnhp.colostate.edu/RASwebpage/cbwg_website/cbwg_index.htm. Rob divided Bat Plan into sections on website for easier access. Also added mgmt info section for literature – difficult to get all the literature on there. Updated info. **Send suggested literature to add.** Links to bat trek. **NEED PICTURES.** Toni – tool to see how many hits? Rob – not as of yet.

Acoustic survey training (Kristen)

Anabat training \$950 a person, not including travel, hotel, other expenses. Working on availability of scholarships. Need to already have laptop and Anabat software. People that are selling Anabat are charging to show how to use?! Too expensive. Anabat great for deploying for longer periods with less detail. Sonobat great for full spectrum detail. Share knowledge during Bat Trek likely best way to show how it works and get introduced to software.

Forest cutting

Randy - spruce budworm – spruce getting removed. Lodgepole – wide-scale removal. Rob- Boulder also planning to cut.

Roundtable

- Randy – USFS species accounts avail for all bios to use in Region 2. Water and wildlife aspect presentation given at regional workshop. Bat awareness is greater in the region. Locally in SLV - Baca Mtn mines evaluated by BIMP and gates recommended and funded. Toni did some genetic sampling on COTO from the mines. USFS Hot Creek research natural area mgmt plan – no logging or major activities in them – did some mist netting. BLM wind turbine test site west of Saguache. **Randy to email Troy area where this test site is.**
- Mark – CBS sent letter to BLM to support taking specific mines off the claims roster. Found a COTO maternity roost along the Front Range last summer in Boulder Cnty.
- Rob – Pacific NW bat cooperative pooling common interest in bats. Ed Arnett talked about this in his paper. Providing about \$1000 funding and will help decide what the concerns are and ask for proposals for research. Possible funding for grad students.

Arnett, E. B. and J.B. Haufler. 2003. A customer-based framework for funding priority research on bats and their habitats. *Wildlife Society Bulletin*. 31(1):98-103.

Trauger, D.L., W.C. Tilt, and C. B. Hatcher. Partnerships: Innovative strategies for wildlife conservation. *Wildlife Society Bulletin*. 23(1):114-119.

- Kristen – Jeremy and Rob will do some bat work in hydro-mowed areas.
- Mike – Caves in NPS Devil's Hole area installed new gates and bat population increased. Looking at how bats are moving within the cave.
- Paul – EPFU stable isotope work in Ft. Collins. Mesa Verde NP work completed last year - all bats using rock crevices except one time. Alice Chung-McCaubrey brought out detector dogs.
- Kirk – Elephant Mine gates to be installed this fall. Uranium in SW Colorado increasing. Paradox Mill not in place yet, so ore is stockpiled or sent elsewhere for now.
- Heather – Acoustic survey in Piceance Basin – intense energy development. Assess trends long-term. Short-term – bats using wastewater pits?
- Troy – uranium mining in N. Colorado proposed. Bats could use the wastewater evaporative ponds. **Paul/Tom O'Shea to send Troy and Heather info, ie. Bats of the Colorado oil shale region by Robert Finley.**
- Nancy – bats found impaled on cholla cactus.
- Cyndi – completing report to USFS.

Next meeting 14 Nov 2008, 9 am, CDOW ofc.