CENTRAL
OKLAHOMA
GROTTO
OF THE NATIONAL
SPELEOLOGICAL SOCIETY,INC

C.O.G.nizance

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The January meeting of the Central Oklahoma Grotto will be held at the home of John Talbot at 8:00 p.m. on Friday, January 11, 2008.

Address: 2902 Shannon Drive, Bethany, OK.

Telephone: 405-789-6944

Remember that the January meeting is at John Talbot's.
Happy New Year!

Directions to John van Talbot's House: From Rt. 66 go south on N. Council Road. Turn west on NW 36th to Shannon.

ANNOUNCEMENTS

*Northwest trips are scheduled the third Saturday of every month. Contract Sue or John Bozeman for details.

*The 7:30 January meeting will be at the home of John Talbot, 2902 Shannon Drive, Bethany, OK. Phone**:** 405-789-6944

MINUTES

CENTRAL OKLAHOMA GROTTO

Minutes of the meeting of November 9, 2007

Host: the abode of Dale Amlee
Atttendees: Dale Amlee, Anne Ault, Sue and John Bozeman, Duane Del Vecchio, John Talbot, Jon van Dyke, Jon Woltz, S Beleu.

President Woltz began the meeting at 8:10.

OLD BUSINESS

The stock tank idea is kaput.

We had further discussion about bug collecting (invertebrates actually) for Dr. Groening's forthcoming publication.

Sue passed the cover around for the coming *Oklahoma Underground*. It looks good. It was designed by COG member and professional artist Marc Barker.

NEW BUSINESS

John Bozeman called for us to begin taking photos of Broken Horn Cave for the next *Oklahoma Underground* (not the issue that we're been working on now for five years, but the issue that will follow that in 2015).

Some of the Corn Caves have new owners, but it appears that they're good folk who will not block our access to their caves.

Anne talked us into donating $100 to an NSS fund. We voted to do so.

Election for our 2008 officers—Chair, Jon Woltz; Vice-Chair, Dale Amlee; Treasurer, John Talbot; Secretary and Sergeant-at-Underarms, S Beleu.

TRIP REPORT

Those who journeyed forth gave a trip report about the October 20 trip to Broken Horn Cave.

TREASURER'S REPORT

John Talbot gave his report.

We got it over at 9:17.

TREASURER'S REPORTS

INCOME		EXPENSES
DIVIDEND	$ 0.13	None
Dues	30.00	
TOTALS	**$ 30.13**	
CASH ON HAND	$ 23.04	**TOTAL FUNDS AS OF 11/6/07 $ 33,303.24**
CHECKING	$ 619.14	
SAVINGS	$ 2,661.06	

PREPARED BY TREASURER
JOHN TALBOT

POTPOURRI

Coexisting With Bats

http://www.renewableaccess.com/rea/news/story?id=50137

by Laurie Jodziewicz, American Wind Energy Association

The wind energy industry is partnering with wildlife advocates and other stakeholders to ensure that turbines and bats coexist successfully.

This year wind energy companies are increasing their support for critical wildlife research at a crucial point in the continued development and maturation of the wind energy industry. The Bats & Wind Energy Cooperative (BWEC), a collaborative research effort, is now entering its second phase, and some of the biggest industry players are stepping forward to support it.

> "By working with BCI, the U.S. Fish & Wildlife Service, and NREL, we are seeing high-quality research that everyone agrees is necessary to allow wind turbines and bats to coexist. We know it can be done, but not without the cooperation of these parties and the support of the industry."
> -- Tom Gray, Oversight Committee member, Bats & Wind Energy Cooperative

The issue of bats and wind turbines is one that cropped up relatively recently. During the industry's first two decades, studies conducted at wind projects around the country designed to monitor possible bird fatalities ended up finding that some bats were being killed; however, the low numbers never raised any significant alarms.

It was not until an avian study in 2003 at a project in West Virginia discovered relatively high numbers of bat fatalities that the issue became the most significant wildlife concern for the wind energy industry.

When bat fatalities were discovered in the East, the industry recognized that moving quickly to understand the issue and resolve it was key. The American Wind Energy Association (AWEA) joined with Bat Conservation International, the Department of Energy's National Renewable Energy Laboratory (NREL), and the U.S. Fish & Wildlife Service to form BWEC. BWEC is designed to recommend, fund, and review scientific research aimed at understanding how bats and wind turbines interact and how to minimize impacts to bats at wind energy projects.

The collaborative nature of BWEC has not always been easy to navigate, but the hard work has already paid off, for the result has been credible science produced efficiently and effectively, with all parties' funds well-leveraged.

A Nascent Science

BWEC came into being in response to a situation made more complex by the unique attributes of bats. As the wind industry became involved with the research, industry participants were somewhat surprised to learn how little is known about bats. The bats killed at wind projects are, for the most part, solitary tree-roosting species. Since these kinds of bats are active at night and are not found together in caves, it is difficult to know much about their population sizes or their activities in particular conditions.

Moreover, bats are different from birds in some important respects: they are mammals, they tend to live longer than most birds, and they have relatively few offspring (and, consequently, are probably less able as species to replace individuals that die in collisions).

The combination of what little is known about bat population sizes, and the potentially significant impact collisions with wind turbines might have called out for an immediate response. Thus, the Bats & Wind Energy Cooperative was formed. As BWEC launched in early 2004, the research program came together quickly. The first priority was to understand how bats were being killed by the turbines. Were they running into the stationary towers or the spinning blades? Under what conditions? Were the bats attracted to the turbines in some way? Not all of the answers became clear in the first year of research, but a picture began to form.

In 2004, BWEC began an intensive fatality monitoring program at the Mountaineer project in West Virginia and a second wind project about 60 miles away over the Pennsylvania border. Thermal imaging cameras recorded bats near turbine blades, and even a couple of strikes. It is thought that about 2,000 bats were killed during the six-week research period. The information collected provided a path forward for research aimed directly at reducing fatalities at wind energy projects.

The next phase of research in 2005 and 2006 took a number of directions. The questions became:

- Do turbines produce ultrasonic sounds that attract bats?
- Is there data that can be collected before a project is constructed that shows whether a site is risky for bats?
- Can an ultrasonic acoustic device be developed to deter bats away from turbines?

The first question was relatively simple to research and involved measuring the ultrasound emissions at wind turbines. Studies revealed that, in fact, ultrasound levels recorded at the base of the turbine were quite low and therefore were not a likely attractant to bats. Some further investigation may be needed to measure ultrasound emissions at the top of the turbine tower.

The next two questions require a much more detailed, multi-year investigation at multiple sites, and that work has already begun. Pre/post-construction data collection and analysis began at one site in Pennsylvania and has since been expanded to other sites now under development. Such work is crucial because, again, bat research sometimes poses unique challenges that are not even present with respect to avoiding problems with bird fatalities.

Before building a wind project, developers are usually required to study bird species in the area to determine whether the site will pose a threat to resident or migrant birds there. The kind of information that needs to be collected is relatively consistent across sites, depending on the avian species. Bats, however, are different, and specialized

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equipment is required to monitor their activity at proposed facilities.

Few pre-construction bat studies have been performed, and none have been linked with post construction fatalities to determine if in fact risk can be predicted. Thanks to stakeholders' efforts, progress continues to be made on that front. Acoustic monitors have been placed throughout potential sites in different habitats and at varying heights to record bat calls over many months.

This data will determine how much activity among different species of bats occurs at the site. That information can be correlated to weather data and then compared to post-construction fatality monitoring. Results should help researchers determine what kind of information can be used to predict bat mortality at a site so that the riskiest sites can be avoided or more robust mitigation measures can be taken.

"It is critical for everyone involved to make sure that the pre-construction data being collected actually answer the questions being asked," said Ed Arnett, project coordinator for the Bats & Wind Energy Cooperative. "The industry and permitting agencies need to know how to determine risky sites for bats."

BWEC is also involved in developing a possible acoustic deterrent that could perhaps warn bats away from wind turbines.

A prototype mechanism was created and tested in the laboratory and the field in 2006. The device is designed to emit ultrasonic acoustic stimuli at a level that would not attract bats but rather flood them with noise and jam their ability to hear anything but the device, similar to the situation in which a person who is near a jet engine can only hear the engine.

In this situation, it is expected that a bat would avoid the area around such a device. Early results showed some promise, so the decision was made to scale up this area of inquiry and test some different prototypes on wind turbines.

That work began at a project in New York this fall, during the bat migration season, when most of the bats killed by wind turbines have historically been found.

"It is far too early to claim that this acoustic deterrent is a solution," said Arnett. "But it does warrant more investigation, and so that is why we are pursuing it further."

Next Steps

Great work is being done by BWEC, but much more is needed. As the cooperative enters into the next three-year phase, research efforts will continue and expand. The pre/post-construction research projects will continue and should start producing some informative results now that the wind energy projects are under construction. Work on the acoustic deterrent, meanwhile, is progressing, and extensive testing will be needed to determine its effectiveness.

One preventive practice researchers wanted to pursue earlier, a technique known as "feathering" turbine blades in lower wind speeds, is expected to commence at a project as early as 2008. Feathering a turbine means turning it out of the wind, which greatly slows or even stops the blades from turning. Monitoring in 2004 found that bats were more likely to collide with turbine blades during low wind conditions, and no bat fatalities were found at one turbine that was not operating.

So, the thinking goes that turbines could be curtailed during some lower wind times in order to reduce the number of bat fatalities. The economic impact of turbine curtailment to wind facilities, even under limited conditions, is unclear at this point; therefore, this research is still to come. Such are not yet available.

The Importance of Collaboration

Wind energy companies are stepping up to support the critical research concerning bats and wind power. AWEA raises money from member companies to fund BWEC's research, and the response this year has been encouraging. Industry funds are pooled with money from contributors to Bat Conservation International (BCI), an annual grant from the U.S. Department of Energy's National Renewable Energy Laboratory (NREL), and money from state energy funds.

"I think the lesson we have all learned from BWEC is the importance of collaboration," said AWEA's Communications Director and BWEC Oversight Committee member Tom Gray. "By working with BCI, the U.S. Fish & Wildlife Service, and NREL, we are seeing high-quality research that everyone agrees is necessary to allow wind turbines and bats to coexist. We know it can be done, but not without the cooperation of these parties and the support of the industry. I might add that BCI has been a very effective partner, contributing a significant portion of the research funding."

Laurie Jodziewicz is a communications & policy specialist with the American Wind Energy Association. Any companies interested in supporting this important research effort are encouraged to email her at ljodziewicz@awea.org.

School working to expel bats

By Tony Thornton, Staff Writer
Copied from the Oklahoman
Saturday, September 15, 2007

CHEROKEE - As students in this small northwest Oklahoma town were taking the summer off, their school was becom-ing overpopulated — with bats.

An infestation threatened to shut down the auditorium and the adjoining cafeteria Friday morning, leaving Superintendent Ray Pebsworth stumped for a solution.

"Got any ideas?" he asked Friday.

A wildlife removal expert arrived Thursday and found hundreds of bats liv-ing in the high school auditorium.

"I stopped counting at 750," said Ned Bruha of Total Wildlife Control of Tulsa.

While trying to prepare for Cherokee's football Homecoming Friday night, Pebsworth also was busy trying to make decisions concerning the bats.

"I've been in the business a long time, and I've never come across anything like this," Pebsworth said.

Friday afternoon, Pebs-worth got some good news from Dr. Kristy Bradley, state epidemiologist for the Okla-homa Health Department Bradley said the situation poses little health risk to stu-dents and staff.

At most, the risk will be to the contractors who remove the guano after the bats are gone, she said.

Bruha said that will be done when students aren't around.

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Bradley said because the bats live in a false ceiling not visible to school students or workers, closing the auditori-um isn't necessary. In addi-tion, the school's classes and offices are in a separate build-ing with its own heating and air conditioning system.

Bats to be moved

The bats' removal will in-volve relocation, not extermi-nation.

It will work like this: One evening, perhaps as soon as late next week, the bats will make their nightly mass exo-dus in search of bugs. They leave through a small open-ing

While they are away from the school, Bruha's crew will seal the school so they can't return. The bats will be di-rected into four bat houses, each capable of housing 300.

Bruha figures the colony could total 1,500 to 2,000 bats.

He hasn't calculated the cost but figures the job will require more than 100 hours of work.

So where will he take the bats?

"Probably somewhere close to my house. I'm self-ish. I love them. They con-sume massive, massive amounts of mosquitoes," Bruha said.

Those living in the school are either Mexican free-tail bats, which are migratory and winter in Mexico, or large brown bats, which live year-round in Oklahoma.

Infestation not recent

Pebsworth, beginning his second year as superintendent, said he learned about the bats several months ago but took no action because he was told the birth season is May through August.

"During those periods you can't evict them, or you leave all the babies up there," he said.

Besides, he had heard from longtime school employees that the bats had called the auditorium home "for years and years," so getting them to leave didn't seem urgent.

Health risks are minimal

• Bat colonies can pose health prob-lems, mainly from the guano they pro-duce.

• Histoplasmosis, an airborne disease caused by a microscopic soil fungus, can damage human lungs. It often is misdiagnosed as influenza or tuber-culosis.

• However, most people who encoun-ter it either show no symptoms or have only a short-lived respiratory reaction, said Dr. Kristy Bradley, state epidemiologist.

• People with com-promised immune systems are most at risk, she said.

• Typically, histoplasmosis be-comes a problem only when guano is disturbed.

• Rabies also is a concern, although its impact has been vastly exaggerated, according to the Northern Prairie Wildlife Research Center. A California study in 1979 found that about 1 bat in 1,000 is rabid, ac-cording to the research center, which is part of the U.S. Geological Survey.

• Deaths caused by rabid bats are ex-tremely rare, as are unprovoked attacks on humans.

• Bites usually re-sult from people attempting to handle a bat, according to the wildlife center.

GYPSUM NODULES 4
Written by Steve Beleu

Upon this rock microorganisms flourish
So abundantly it's become soft to touch
As if it were living stone. Will it eventually Become transparent and invisible?

*

No cave's worthy of being called a cave
Unless it has foot-high, two foot-wide
Barely passable tubes that wind
Around and down to nowhere.

*

We went down well-educated human beings
But returned as mud-creatures,
Minds mud-packed as our skins.

*

Where the water's surface meets the ceiling-- That's either the end of our survey
Or someday a drought will show us A new passage down to a lower level
11 inches high and 50 feet wide.

*

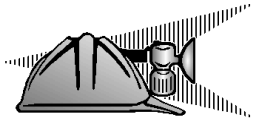
Let me evolve from arms and legs to webbed flippers And I can dig all the mud and stone out of our way.

*

Crawling crown of head first out of the cave Through mud and water and over rocks That roll into our coveralls we look up At the bright risen moon and are joyful
To know the origin of The Moonlight Sonata.

Central Oklahoma Grotto is a non-profit organization and a chapter of the NSS (National Speleological Society), Cave Avenue, Huntsville, AL., 35810. Dedicated to cave conservation and safety, C.O.G. published general information in a monthly newsletter ($6.00/year) and detailed cave surveys and related Speleological items in a yearly publication, *The Oklahoma Underground* ($3-$8/issue) Membership is by sponsor and is $12 per year for adults, $6 for spouses and students, and $3 if under 18. Central Oklahoma Grotto meets once a month on the second Friday of each month. For information, write 3208 Gettysburg Dr., Altus, Oklahoma, 73521. All submissions to the newsletter should be sent to the editor: Lil or Dale Town, 3208 Gettysburg Dr., Altus, OK 73521: Telephone: (580)477-4027: E-mail: oklmt@cableone.net. The deadline for submissions for any particular month's issue is the 20th day of the previous month. If you wish material returned. Please include a SASE with submission. All materials in this newsletter is available for reproduction, provided proper credit is given with the article when you print it. Trade publications are welcomed. *Cave softly and safely!*

Start the new year out right, come to the January Grotto meeting at John Talbot's, Friday, January 11.



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