BATS
Volume 26, No. 3, FALL 2008

FEATURES

1 Conserving China’s Tiniest Bats
Sugar cane and paper threaten bamboo bats
by Libiao Zhang

4 From Yoga to Bats in India
BCI’s South Asia Liaison took a surprising turn
to champion bat conservation
by Sally Walker

8 A Strategic Approach to Protecting Bats & Mines in the Southwest
by Jason Corbett

11 The Hole-in-the-Wall Gang
Ukrainian bats fill an invaluable crevice
by Anton Vlaschenko

NEWS & NOTES

14 Lending a Helping Hand
Fighting WNS
Digital Bat Education
Scholarship Deadline Looms
Sign Up for a BCI Workshop
A New batcon.org
BCI Member Snapshots
The Wish List

COVER PHOTO: Endangered lesser long-nosed bats (Leptonycteris yerbabuenae) groom the pollen from their faces after returning to their underground roost. These bats are vital pollinators in Mexico and the southwestern United States. (See Page 8.)

© MERLIN D. TUTTLE, BCI / 8163506
Tiny bamboo bats are besieged in south China, where their unique roosts in hollow sections of bamboo are falling victim to human commerce. Bamboo forests are disappearing to provide cheap binding for sugar cane bundles and to feed paper mills. I’ve studied these tiny bats since 2001, and now we are tapping into our results to educate farmers about how and why they should conserve bamboo bats.

My research has focused on two species, the lesser (*Tylonycteris pachypus*) and greater (*T. robustula*) bamboo bats, documenting their roosting needs, the insects in their diet, their range and population sizes and trends. A third bamboo-bat species, *Tylonycteris pygmaeus* in southwest China, was formally described earlier this year.
My conservation work, including a one-year survey of bamboo bats in the region, was supported by a grant from BCI’s Global Grassroots Conservation Fund. This grant was funded in part by Mr. and Mrs. Edmund S. Morgan.

We captured, measured and released 259 lesser bamboo bats and 182 greater bamboo bats in a total of six southern provinces. The lesser bamboo bats averaged about 1½ inches (4 centimeters) in length and weighed about 2.6 grams (a U.S. penny weighs 2.5 grams). The greater bamboo bat is slightly larger. The two species are found throughout most of South and Southeast Asia and the Philippines. The world’s smallest mammal, the bumblebee bat (*Craseonycteris thonglongyai*) of Thailand and Myanmar, weighs about 2 grams.

Bamboo bats roost in the “internodes” of bamboo shoots — the hollow spaces between the solid joints or “nodes.” They enter the hollows through narrow slits created mostly by long-horn beetles. Lesser bamboo bats use slits that average about 0.4 inch (1.1 centimeters) wide; while those for greater bamboo bats are 0.7 inch (1.8 centimeters) across. The openings are too narrow for most predators, such as snakes, to enter. Bamboo bats, which are sometimes called flat-headed bats, are able to squeeze through partly because of the shape of their heads.

The slits give access to internodes that average about nine inches (23 centimeters) in diameter and can hold up to two dozen or so roosting bats. The bats use fleshy pads on their feet and thumbs to adhere to the smooth inner walls of the bamboo.

We found no significant differences, except slit width, between roost preferences of the two species, and both were occasionally found using the same roosts at different times.

Bats were captured from the internodes without damaging the roosts. They were released at the capture site after sunset, when they begin foraging. I took special care in June, when the adult females give birth, usually to twins. Captured mothers and pups were released inside their internode roosts and the entrance sealed for at least an hour to ensure the pups were not abandoned.

Our surveys redrew the range maps for these two species. We provided the first reports of the greater bamboo bat in three provinces (Sichuan, Guizhou and Hainan) and of the lesser bamboo bat in Hainan province.

We used questionnaires and interviews with area farmers to determine how they were utilizing bamboo and their knowledge and attitudes toward bats. This information, combined with our population surveys, confirmed that bamboo bats of...
both species are rapidly losing their roosting habitat because of increased planting of sugar cane as a cash crop. Although bamboo is also used for building furniture and for food, the greatest losses of bamboo forests are to produce strips used for binding bundles of sugar cane.

Most people we questioned had no idea that bats were living inside the bamboo. Worse yet, the farmers reported that they preferred to harvest bamboo that was marred by slits first in the mistaken belief that those plants were damaged and would stop growing.

We also found that people in the area knew almost nothing about bats but generally disliked them as black and odious creatures. We developed and distributed a brochure on the values of bamboo bats, especially their role as important predators of insect pests. The material also explains how these bats can be protected.

The brochures and site visits seemed to change attitudes readily. People frequently amended their misconceptions and became more accepting after seeing these lovely bats, especially the yellow-orange lesser bamboo bats, and learning about their appetite for troublesome insects.

Local governments, meanwhile, often are urging farmers to plant more sugar cane, especially in areas where rice does not grow well. More sugar cane means more bamboo will be cut down to provide packaging. The problem is especially serious because sugar cane is harvested in winter (December to February), when the bamboo bats are in the semi-hibernation state of torpor. They will not fly out to feed when the air temperature is below 60 degrees F (16 degrees C). If torpid bats are aroused when few insects are available for food, they may not survive the cold.

To help preserve bamboo forests, I urged local people to replace bamboo strips with plastic or straw ropes for bundling sugar cane. Few poor villagers, however, are willing to accept additional expense. So I educated them, instead, to harvest bamboo without slits, so roost sites remain available for bamboo bats. Almost everyone we encountered accepted this suggestion after learning to identify bamboo that’s suitable for roosts.

During my surveys, I also found that many small paper mills are being built in Guangxi and Sichuan provinces. In some mills, bamboo was the main feedstock for producing paper. Bamboo forests are quickly becoming scarce around these mills. In some regions, bamboo forests were clear-cut and replaced with fast-growing eucalypts that are often preferred by the mills.

We are urging a thorough evaluation of the impacts of small paper mills on the roost sites of bamboo bats and that strong measures be taken to protect the bats around these mills. Bamboo bats, despite being threatened with critical habitat losses, still are not uncommon in much of their south China range. But our study revealed a number of areas where populations are small and fragile. These are the critical sites in which conservation efforts, especially to protect bamboo forests and roosts, should be concentrated.

LIBIAO ZHANG is a biologist with the South China Institute of Endangered Animals in Guangzhou, China.
When I came to India in 1976, I knew almost nothing about bats and could hardly care less. My plan was to study Sanskrit and yoga in Mysore for three months, then return home to California. Now, more than three decades later, I’m still here in India. And much of my life, including my position as BCI’s South Asia Liaison, revolves around protecting these endlessly fascinating – but almost always persecuted – flying mammals in India and neighboring nations.

Across this broad region, my team and I conduct bat-research workshops, produce and distribute innovative bat-education materials, help establish bat clubs at schools and universities and maintain a vital information- and advice-sharing network for bat researchers, educators and advocates. Many of those we introduce to bats carry the message home to cities and villages throughout South Asia.

This unanticipated path that I have followed for so long began with a tiger cub.

Captivated by India, my three-month studies stretched into six years. Then, as I was finally preparing to return to the United States, I happened to visit the Mysore Zoo – and immediately fell in love with the little tiger. I was soon spending my mornings in a cage working with seven tiger cubs and my afternoons running India’s first zoo soci-

(Top) Children at a school in India learn all about bats from an educator from the Zoo Outreach Organization. The masks (above) they’re wearing are included in a popular bat-education packet the author’s bat-conservation group CCINSA is distributing throughout South Asia.
ety – Friends of the Mysore Zoo, which I founded. That led in 1985 to my starting the Zoo Outreach Organization (ZOO), which, among other things, emphasizes the role zoos can play in conserving threatened species.

In 1997, while planning the Biodiversity Conservation Prioritization Project’s mammals workshop, I really got bat religion. I was astonished by bats’ great diversity and value as pollinators, seed dispersers and insect hunters. India’s 102 bat species accounted for a fourth of all Indian mammals, and fully half of them were listed in the 1994 International Union for the Conservation of Nature and Natural Resources (IUCN) Red List as “Data Deficient,” which means we simply did not know enough about them to even assess their conservation status. Reports strongly indicated, however, that bats were declining across much of India because of widespread habitat loss, hunting and extermination.

That’s also when I realized that, despite their ecological and economic values, bats were classified with mice and rats in India’s Wildlife Protection Act as “vermin” and could be trapped, poisoned, shot, smoked or otherwise destroyed at will.

A major problem became clear at the workshop: bat scientists and conservationists were not only few in number but widely scattered across the country and working largely in isolation from one another. The bat working group cited the need of a society or “network” where bat workers could share data, hypotheses, ideas, techniques and all things of interest.

About a year later, I founded CCINSA – the Chiroptera

With support from Bat Conservation International, Sally Walker and CCINSA developed and published the “Bat Packet,” which gives educators an array of materials and activities to teach youngsters about the importance of bats.
Conservation and Information Network of South Asia, called “sin-sah.” That, of course, required the help of our team at ZOO, particularly Sanjay Molur, as well as prominent bat biologists Sharoukh Mistry of Westminster College in Pennsylvania, Ganapathy Marimuthu of Madurai Kamaraj University in India and Juliette Vanitharani of India’s Sarah Tucker College. We were later joined by such international scientists as Paul Bates of the United Kingdom’s Harrison Zoological Museum, plus Paul Racey of the University of Aberdeen and Tony Hutson of the UK’s Bat Conservation Trust, co-chairs of the Bat Specialist Group of the Species Survival Commission of IUCN, and, of course, BCI Founder/Executive Director Merlin Tuttle.

Bat Conservation International has been invaluable to our efforts, first with several Global Grassroots Conservation Fund grants and, for the past two years, as a stable sponsor through my work as BCI’s South Asia Liaison. The Chester Zoo of the United Kingdom was an early backer and continues its essential support. Much of the success with both ZOO and CCINSA resulted from what I learned in my work with the Conservation Breeding Specialist Group, part of IUCN’s Species Survival Commission.

We have grown CCINSA to more than 150 members in Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and
Sri Lanka, plus 11 members and advisers from outside the region. As scientific communication improved and both new and existing data became accessible, the number of Indian bat species in the “Data Deficient” category fell to just 3 percent after a Conservation Assessment and Management Plan Workshop in 2000.

CCINSA immediately began lobbying to remove bats from the vermin category of the Wildlife Protection Act. We and others kept increasing the pressure until, in 2003, two species—Salim Ali’s fruit bat (*Latidens salimalii*) and Wroughton’s free-tailed bat (*Otomops wroughtoni*)—were listed on Schedule I of the Act, giving them the highest level of protection. The Ministry is currently considering protection for all bat species listed by IUCN as endangered or critically endangered.

Field-techniques training is a popular tradition with CCINSA, with at least one intensive field workshop in a different country each year. These sessions have increased the number of people interested in studying bats in South Asia. Led by such top scientists as Racey and Mistry, the workshops provide a thorough introduction to resident bats and their importance, behavior, diversity and conservation needs, as well as hands-on experience in studying, capturing, identifying and surveying bats in the field. We also stress the need for educating the public about bats and provide training and materials for doing so.

We have helped turn many distinguished academics and researchers into part-time educators of children, villagers and others. Watching these normally dignified scholars wearing bat masks, playing games and creating little drama presentations is terrific.

One of the most amazing instances of a community of bateters developing from nothing grew from a combination of field training and a kids’ bat club. Several years ago, we started a CCINSA Bat Club program, and Geetha Shreshta, an educator in Nepal, set up one of our first clubs outside India. At that time, there were no bat biologists in Nepal. Geetha wanted an expert to talk to her bat club kids and eventually located an incipient professional bateter, who led her to other interested young people. Almost all of them joined CCINSA.

In 2007, we organized a special three-day field workshop in Nepal for a large number of college students. Since then, young bateters have started their own networks, university bat clubs, education programs and field research.

In India, we recently developed an unusual “poster in pieces,” as part of our assistance to Pterocount, a novel program conceived by Mistry and coordinated by Molur. Pterocount organizes volunteers to monitor local populations of Indian fly-

Sally Walker (left) and colleagues at Zoo Outreach Organization examine educational materials, many of them from BCI, that will be used to explain the benefits of Indian bats.
Dangling from a rope 70 feet (21 meters) down a 75-foot (23-meter) mine shaft, I turned my attention, very carefully, to the tangled mass of timbers, rocks and steel that had once been the shaft house and head frame of the mine. But the debris had so many nooks and crannies that it was almost impossible to reach a confident conclusion about the absence of snakes. Besides bats, rattlesnakes are the animals I encounter most often in abandoned mines in Arizona. Satisfied that my landing zone was clear, I dropped the final few feet to the ground – and was immediately greeted by a familiar, angry buzzing.

When you are in a 5-foot by 5-foot (1.5-meter) shaft, there isn’t much you can do about a rattler but freeze and try to find it. So with heart pounding, I stood still and scanned the floor, then ventured one small, backward step. That’s when I noticed the snake as it coiled in a corner, rattling indignantly for the remainder of my visit.

So goes a typical day in the field.

As Coordinator of BCI’s Southwest Subterranean Program, I often find myself underground helping federal, state and local agencies conduct bat surveys in abandoned mines throughout the southwestern United States. Faced with a lack of trained bats-and-mines surveyors and regulations that usually prohibit government biologists from entering abandoned mines, agencies must often find outside biologists to conduct surveys and, increasingly, they are turning to BCI for that expertise.

Since the program began in January, we’ve been working with a growing number of partners to identify and conserve mines and caves that house critical colonies of endangered lesser long-nosed bats (Leptonycteris yerbabuenae), as well as California leaf-nosed bats (Macrotus californicus), Townsend’s big-eared bats (Corynorhinus townsendii) and other species. Our goal is to work on
a regional scale, protecting specific underground habitats that are especially vital to healthy bat populations across the Southwest.

Most decision-makers are now knowledgeable, enthusiastic and committed to conserving bats. My predecessors did a remarkable job of raising bat awareness among land managers, mining engineers and similar professionals. Notable pioneers in bats-and-mine conservation efforts include Pat Brown, Bob Berry, Rick Sherwin and Scott Altenbach. Not too many years ago, thousands of bats at a time were wiped out when abandoned mines were closed without knowledge that bats were inside. Many landowners, worried that humans might fall into old mines or be injured while exploring them, wanted only to prevent access as inexpensively as possible.

Today, every one of the hundreds of people I’ve worked with understands that bats, when they lose natural roosts, often turn to abandoned mines as homes of last resort. This has made our mission of protecting both bats and the public much easier. Key players now appreciate that well-designed bat-friendly gates will also protect people.

My program is focusing first on Arizona, with an estimated 100,000 abandoned mines and virtually no source of funding, either federal or state, to deal with them. Where mine closures have occurred, bats are usually considered, although there clearly is room for improvement.

The best, as well as most timely and cost-effective, means of determining which animals are using an old mine is to actually go inside and survey before closing it. Given previously noted restrictions, however, that often is not possible. When bats are active, conducting exit surveys for a few nights prior to closure provides limited information but is, nonetheless, decidedly better than no survey at all – as long as the limitations are well understood.

As we expand our knowledge about bats’ use of Southwestern mines, we are improving our ability to identify the most critically needed sites across the landscape. Our overarching goal is to conserve region-wide bat populations, rather than just targeting individual mines and caves.

In Arizona, efforts to deal strategically with bats-and-mines issues center on the Arizona Abandoned Mine Consortium. BCI recently initiated this new alliance of federal, state and local agencies so partners can pool and share resources, span jurisdictional boundaries and prioritize needs for dealing with abandoned mines in a statewide context. The Consortium already is making notable progress in developing a map of priority landscapes where we will focus our efforts.

Our emphasis on progress through partnerships, often initiated through outreach at meetings and office visits, really comes to fruition in the field. Many of our best plans, agreements and strategies are hatched out with key players on the long, bouncing rides and sweaty hikes to mine and cave sites. These well-forged partnerships are built to last.

The American Southwest is a huge, rugged region of spectacular vistas and a great diversity of bats and other wildlife that have adapted to life in this semiarid land. In its first year, BCI’s Southwest Subterranean Program has built a solid foundation of partnerships and research from which to face the many challenges ahead.

We have also achieved some significant early successes (next page), which offer important lessons for the future.

Arizona Game and Fish Biologist Bill Burger rappels down the 170-foot (52-meter) shaft near the Buckeye Copper Mine, an important roost for California leaf-nosed bats. The mine was gated in March 2008.
Eagle Creek Bat Cave
This cave once sheltered the largest bat colony in Arizona, housing millions of Mexican free-tailed bats (*Tadarida brasiliensis*) in the 1960s. But its bats have suffered repeated vandalism, including shotgunning clustered bats and setting internal fires. Populations crashed. The colony now numbers only an estimated 30,000 bats. Previous efforts to protect the cave failed for various reasons. But now BCI, the Arizona Game and Fish Department, Freeport McMoRan Inc., the U.S. Bureau of Land Management and the Wildlife Habitat Council are working together to complete a bat gate in November. By the end of 2008, the beleaguered bats of Eagle Creek Bat Cave should finally be protected from further disturbance.

Sunrise Relief Mine
The Sunrise Relief Mine, used in winter by more than 400 California leaf-nosed bats, is being swallowed by urbanization from nearby Phoenix. Houses already reach within a few yards of the entrance, and when an already-approved development is completed, the mine will be a tiny wildlife island in a sea of suburbia. We cannot yet predict whether these bats will adapt to their new urbanized surroundings or abandon the site. But the fate of these bats has important implications for countless other roost sites that inevitably will be engulfed as cities and towns expand into the wildlands. Through the efforts of BCI, the Bureau of Land Management, the Arizona Mine Inspector’s Office, Arizona Game and Fish and other partners, the mine is being prepared for installation of a cupola-style bat gate.

Buckeye Copper Mine
Arizona’s Buckeye Copper Mine was recognized as a significant winter roost for California leaf-nosed bats a decade ago. Efforts to install a bat-friendly gate, however, did not come to fruition until a collaborative partnership came together in March 2008. We subsequently worked with Arizona Game and Fish and the BLM to complete area surveys and develop broader recommendations.

State of Texas Mine
The State of Texas Mine at Coronado National Memorial in southeastern Arizona is an abandoned copper mine that houses up to 30,000 endangered lesser long-nosed bats during the post-maternity season. The colony has been known for decades, but the current net-gate is woefully inadequate. Recent increases in illegal cross-border activities have raised concerns that repeated disturbances could cause the colony to abandon the site. Because these bats are endangered, gate design and installation require great care. This past summer, a temporary, prototype gate made of plastic pipe and wood was placed over the main entrance, and the bats’ response to various designs was monitored. Another series of tests will be conducted in summer 2009 to determine the most appropriate design before the actual gate is installed. Key partners are the National Park Service and the University of Arizona.

JASON CORBETT, a native of Arizona, is Coordinator of BCI’s Southwest Subterranean Program.
Bats dart and dive through the skies of northeastern Ukraine each summer, chasing an assortment of insects over the steppes. During the summer months, bats of at least five species are about as common over much of these near-featureless plains as in the more diverse Ukrainian landscapes, where caves and mines provide handy sites for hibernating in winter. But there are virtually no caves and very few underground mines in the steppes. Where, then, are these non-migratory bats spending their winters?

The puzzle of these missing hibernation sites was raised by Russian researcher Petr Strelkov half a century ago. He investigated likely alternatives – especially abandoned, underground monasteries – but found only about 20 bats. He reported no other viable options where many thousands of resident bats could spend their winters. Recent surveys of Strelkov’s monasteries still found barely 200 bats hibernating there.

My colleagues and I discovered a likely solution in 2003. In the limestone-and-clay walls of an abandoned open-pit mine near the village of Zavody, we found a deep crevice in which bats of five species roosted during summer and hibernated in winter. Two of the species – Brandt’s (Myotis brandtii) and Natterer’s myotis (M. nattereri) – had not previously been reported using abandoned mines and monasteries. The crevice was too small for us to enter, but initial estimates put the number of bats at more than 1,000.

Bat hibernation sites in rock crevices are virtually unstudied in eastern Europe. As part of my graduate studies at Ukraine’s Kharkov National University, I set out to find crevices used by bats in other open-pit mines, valley walls and rock cliffs and outcrops. I planned to survey bat populations...
and document their conservation status and needs. My research was supported in part by a Bat Conservation International Student Research Scholarship funded by the Frank Cross Foundation.

Facing an almost complete absence of data on the characteristics, locations and abundance of suitable crevices, my field team and I searched some 385 square miles (1,000 square kilometers), much of it on foot, for hibernation sites. We spent 43 days in the field – hiking, climbing and mist-netting in search of crevices that contained hibernating bats or evidence of past use. We explored old open-pit mines, riverbanks, cliffs and valley walls. We analyzed maps and consulted with geologists to identify likely locations, but the geology of the area is often dominated by chalk, marl (limestone and clay) and other unstable materials. Piles of rubble are common.

We found very few large crevices and none that contained more than a few bats or evidence of previous use by significant numbers of bats.

A rare burst of excitement during this period of frustrated exploration came near the town of Losovaya. We examined two big open pits, but found neither bats nor droppings. Then a rainstorm sent us scrambling for cover into an old, abandoned elevator once used to haul material out of the pit. To our delight, we discovered bats roosting in small crevices.

Only 10 Natterer’s myotis were reported in all of Ukraine in the past decade. Vlaschenko and his team captured 201 of them, including these, around crevices at the open-pit mine.

Vlaschenko examines geologic maps of northeast Ukraine that helped lead him to old mines, riverbanks and cliffs that might provide crevices where bats could roost and hibernate.
of the concrete ceiling. We set our mist nets outside and captured 19 bats of five species. Although catching bats was very pleasant after such a long dry spell, this was not the aim of our project.

In the end, we were left only with the Zavody Open Pit, where the main crevice roost is about eight feet (2.5 meters) high and averages some 2.75 inches (7 centimeters) wide. The main entrance used by bats is near the center of the vertical crevice and measures about 4 by 4.7 inches (10 by 12 centimeters). This primary crevice is at least several meters deep. Bats also use smaller, horizontal crevices in the rock wall.

The open pit was abandoned about 20 years ago. The Seversky Donets River runs nearby with a large, old-growth forest along its bank.

We have netted bats at the Open Pit between March and November for five years, capturing a total of 908 bats of 10 species. Five species are resident to the area, including three myotis species that are rarely reported in Ukraine: Brandt’s and Natterer’s myotis and the pond myotis (Myotis dasycneme), listed as vulnerable by IUCN.

We captured 45 pond myotis, suggesting the Open Pit is an important habitat for this rare species. Only 10 Natterer’s myotis had been reported in all of Ukraine during the previous decade; we caught 201 of them.

The other five species are migratory and captured only in early and mid-August. These migrating bats apparently use the open pit as a stopping point in their journey.

We have confirmed that resident species use the Open Pit crevice as a hibernation site, as well as a summer roost. We have also documented autumn swarming at the site. In swarming, bats congregate at a location, usually the entrance to a cave or underground mine, and fly around the area nightly for a time. The reasons for swarming behavior remain unclear; it may involve mating or selection of hibernation sites. Our results suggest that some migratory bats joined resident species in swarming at the Open Pit.

We continue to analyze our data, and additional work is needed to confirm the scarcity of suitable hibernation crevices throughout the region. We suspect we may find suitable crevices in southeastern Ukraine.

After five years of netting and an intense year of searching for bat hibernacula, our main conclusion is that the Zavody Open Pit is a unique place for bats in all Ukraine, a site that is crucial as a summer roost and winter hibernation site for resident bats and as a stopover point for migratory species.

But the crevices in this crumbly rock are threatened by water flow and human disturbance. We are compiling documents calling for the creation of a small bat reserve in the Open Pit. This is a rare and vital sanctuary for the many bats that live – or just pass through – the steppes of Ukraine, and it must be conserved.

ANTON VLASCHENKO is a graduate student at Kharkov National University in Ukraine.

Help Bat Conservation International support students such as Anton Vlaschenko conduct important research around the world by donating to the BCI Student Research Scholarship Program. Please contact our Department of Development at development@batcon.org or (512) 327-9721.

(Left) These deep crevices at an abandoned open-pit mine provide the only known hibernation site for bats in the Ukraine’s northeastern plains. The author is proposing protection for the old mine. (Right) Daubenton’s myotis (Myotis daubentoni) such as this one were captured while emerging from the mine.
Lending a Helping Hand

When Timothy Clancy read a *Boston Globe* article about how White-nose Syndrome was killing countless bats, he decided that “bats need my help.” So he went to work building bat houses and designing a bumper sticker to raise money for BCI’s WNS Emergency Response Fund. Pretty impressive, right? Now consider that Tim is 12 years old.

The Rehoboth, Massachusetts, youngster said he wanted desperately to help scientists solve the puzzle of this mysterious ailment that has devastated bat-hibernation sites in the northeastern United States. But what can a kid do?

Well, Tim found plans for a bat house on BCI’s website and spent the summer building 20 of them. He sold 19, raising about $400 after the cost of materials. The remaining bat house he donated to the nearby Capron Zoo.

Next, he designed a bumper sticker to help inform the public about WNS and sold them to the people who did not want bat houses but wanted to support his cause. He made over $100 selling the bumper stickers after the cost of printing.

That added up to Tim’s $500 donation to the BCI fund that provides emergency support for scientists seeking the causes and possible solutions to WNS.

But that wasn’t enough for Tim. He also made 60 bat-holding bags for the New Hampshire Fish and Game Department to secure bats that are captured for WNS research. “Each bag was handcrafted from bed sheets,” he says.

Finally, came what Tim calls “the best part of this project.” He wondered if BCI could help him visit a local university that was doing “actual research” on bats. We called Tom Kunz of Boston University, a leading bat researcher and BCI Science Advisor who is studying WNS. Kunz arranged for Tim to accompany graduate student Jonathan Reichard on an expedition to a bat colony.

“We visited a known hibernaculum, a cave where bats hibernate, in Vermont. We measured body conditions of the little brown bat. Despite the 45-minute hike up the mountain, it was still fantastic. It was exhilarating to gain firsthand experience in the research which I helped support.”

Fighting WNS

As research into the cause and possible solutions to White-nose Syndrome continues, it is largely guided by the priorities established in June by an emergency science meeting that drew more than 100 participants from government agencies, universities and organizations in the United States and Canada.

The final report of the meeting may be downloaded at BCI’s website, [www.batcon.org](http://www.batcon.org).

WNS is believed to have killed hundreds of thousands of hibernating bats of at least five species in the northeastern United States during the past two winters. Mortality rates exceeding 90 percent have been reported in some hibernation caves, yet the cause is not known.

Top-priority research questions from the meeting include:

- Is the [recently identified] cold-loving fungus associated with WNS the primary cause of mortality in these bats?
- Is the fungus associated with WNS a secondary manifestation of other underlying conditions?
- Why are fat reserves of bats with WNS depleted by mid-winter?
- Are pathogens a direct cause of mortality?
- Are [environmental] contaminants a direct cause of mortality?
- How does WNS affect bat maternity colonies?

The meeting was organized by Bat Conservation International, Boston University, Cornell University, the New York Department of Environmental Conservation and the U.S. Geological Survey, in collaboration with the U.S. Fish and Wildlife Service. BCI provided primary funding, with support from the Disney Rapid Response Fund, the National Speleological Society, Anton Schindler (in memory of his wife Valerie), the U.S. Army Corps of Engineers and the U.S. Geological Survey.

As always, BCI members and friends have responded. Our WNS Emergency Response Fund has been able to provide six grants for quick support of critical WNS research at Boston, Bucknell, Cornell, Indiana State and Missouri State universities. Donors include Horizon Wind Energy, the Dirk and Charlene Kabcenell Foundation, Wallace Global Fund and many others.

But, as North American bats face probably their worst threat ever, the need for research support is still great. Your help is urgently needed. Please donate now to the WNS Emergency Response Fund: [www.batcon.org/wnsdonate](http://www.batcon.org/wnsdonate).
Digital Bat Education

BCI Science Officer Barbara French and Executive Assistant Dianne Odegard took bat conservation on the digital road with a series of video-conference presentations, complete with live bats, that fascinated children at a half-dozen Central Texas elementary schools. Better yet, videos of the bat talks will be available for use by teachers across the state.

This educational project was sponsored and organized by the Texas Wildlife Association as part of its Conservation Legacy program. Its slogan: “One generation plants the trees, the next enjoys the shade.”

The presentation introduced the wondrous diversity of bats, with a focus on Texas species, for kids in grades 2 to 4, who watched and questioned from their own classrooms. Addressing a video camera but watching the children on a television screen, French showed previous BATS magazine covers to illustrate the many differences among bat species.

Then, to the students’ obvious delight, she displayed four live bats, including a Mexican free-tailed bat (Tadarida brasiliensis) like those that live beneath Austin’s Congress Avenue Bridge. She also presented Zoe, a 15-year-old straw-colored fruit bat (Eidolon helvum) from Africa, a charming veteran of countless public appearances as one of BCI’s Bat Ambassadors.

“The kids,” she said, “were totally fascinated and, of course, amazed by the bats.” Once she had their attention, French explained bats’ ecological and economic importance and what we can all do to conserve these magical flying mammals.

Odegard said the students asked plenty of questions, ranging from “Are bats teeth sharp?” (You bet) to “How high do bats fly?” (Some fly up to 10,000 feet in the sky).

The Texas Wildlife Association plans to make the video available to teachers online and will provide background information, including sources of more information, such as BCI’s website, in its newsletter, Critter Connections.

Scholarship Deadline Looms

Time is running out to apply for a 2009 BCI Student Research Scholarship. The deadline for submitting applications is December 15, 2008, so don’t delay. Apply online at www.batcon.org/scholarships.

Bat Conservation International’s scholarship program has been supporting conservation-relevant student research projects throughout the United States and around the world since 1990. We have helped more than 250 students conduct important research in 54 countries.

We plan to award 15 to 20 scholarships of $2,500 to $5,000 each for the coming academic year. Up to 10 of the scholarships are supported by the U.S. Forest Service International Programs specifically for research conducted in developing countries.

USFS International Programs and BCI are also offering graduate students the opportunity to double their award (up to $10,000) if they focus their research on subjects of special concern to bat conservation. This year’s Special Scholarships are restricted to research on bats’ pollination of durian or Old World mangroves.

Anecdotal observations suggest that both are highly reliant on bats for pollination. The durian is the most commercially valued fruit in much of Southeast Asia and nearby Pacific Islands, but farmers often mistakenly assume that bats reduce (rather than enhance) durian production. Coastal mangroves are ecologically essential but are disappearing at alarming rates. Their primary bat pollinators are also disappearing rapidly but are largely ignored in mangrove-conservation planning. Studies documenting bat roles as durian and mangrove pollinators are urgently needed. To apply, click “Yes” when asked in your online application if you qualify for a Special Scholarship.

BCI scholarships are competitive, and proposals will be evaluated by an international panel of bat experts.
Sign Up for a BCI Workshop

Get up close and personal with an amazing diversity of bats next summer. It’s time to sign up for a 2009 Bat Conservation International field workshop to learn by doing the latest techniques of bat research and conservation.

For 17 years, BCI workshops have offered unequalled hands-on training in capturing, identifying and studying bats in the field, plus field trips to diverse bat habitats and lectures by leading experts on all aspects of bat conservation. All these workshops prepare you to handle field research, while also using local conditions to highlight specific aspects of research and conservation.

More than 1,375 biologists, land managers, wildlife professionals, educators and serious bat enthusiasts from 23 countries have benefited from this training. The intensive six-day, five-night workshops are an unforgettable experience that has transformed many a career.

In addition to Bat Conservation and Management Workshops, BCI also offers an Acoustic-Monitoring Workshop for advanced training in the scientific use of bat detectors. The session provides details of bat-call identification and strategies for setting up an acoustic-monitoring program and covers both AnaBat and SonoBat detectors.

The number of participants for each workshop is strictly limited, so register early to ensure your place. Fees, which cover lodging, field transportation, materials, meals and take-home resources, are $1,395 for the Bat Conservation and Management Workshops and $1,595 for the Acoustic-Monitoring Workshop. Some partial scholarships are available.

Bat Conservation and Management Workshops

Portal, Arizona: May 5-10 or May 11-16

Our course at the American Museum of Natural History’s Southwestern Research Station features the astonishing biodiversity of the Chiricahua Mountains. Working in habitats from deserts to high-country pine forests, you will net and examine up to 18 bat species and also observe Mexican long-tongued and endangered long-nosed bats visiting hummingbird feeders. You’ll also enjoy spotting such local wildlife as ring-tailed cats, coatis and trogons.

Mammoth Cave, Kentucky: July 14-19

In partnership with the National Park Service at Mammoth Cave, our Kentucky workshop emphasizes underground environments and their importance to bats, including the endangered gray and Indiana myotis. Students explore cave habitats and learn to assess past bat use by identifying hibernation staining and quantifying historic guano deposits. You’ll be netting and harp-trapping at cave entrances and at nearby feeding and drinking habitats and learn to identify 10 eastern species. Your fieldwork will contribute directly to an important, long-term inventory program for the Park Service.

Barree, Pennsylvania: August 14-19

Solving bat/human conflicts is a highlight of our workshop in central Pennsylvania, which has long been a center of artificial-roost development. You’ll visit an abandoned church that’s home to more than 20,000 little brown myotis and a growing population of endangered Indiana myotis. Examining an old limestone mine where six bat species hibernate provides a stark contrast to the late-summer habitat above ground. You’ll net, trap and release bats over trout streams and beaver ponds and witness thousands of bats swarming at old mine entrances.

Acoustic-Monitoring Workshop

Portal, Arizona: May 11-16

This workshop is designed for biologists, consultants and researchers looking for hands-on, guided experience with cutting-edge technologies for recording and analyzing bat echolocation calls. Participants will work directly with AnaBat/AnaLook and SonoBat software developers Chris Corben and Joe Szewczak to learn techniques for collecting, recording and analyzing bat calls in the field. These and other experienced instructors offer a comprehensive curriculum covering all aspects of heterodyne, frequency-division, time-expansion and direct-recording detecting that will teach students to use their own equipment more effectively and to choose proper protocols for designing an acoustic-inventory project.

For information and online applications, visit www.batcon.org/workshops/ or contact Peg Lau Hee at 512-327-9721 or workshops@batcon.org.
A New batcon.org

Check out BCI’s completely redesigned website. Six months in the making, this new www.batcon.org has a sleek, inviting look and should prove easier to navigate. We need your help to clear out any bugs and improve the final product, so please visit us online and share any comments, problems or critiques at feedback@batcon.org.

We’ll see you online …

The Wish List

Your help with any of these special needs will directly improve BCI’s ability to protect bats and bat habitats. To contribute or for more information, contact BCI’s Department of Development at (512) 327-9721 or development@batcon.org.

Where do the bats go?

BCI is working with Norma Monfort, a tireless conservationist, to protect the world’s largest colony of Geoffroy’s rousette fruit bats and, at the same time, nourish a young bat-conservation movement in the Philippines. About 1.8 million fruit bats live in a cave owned by Norma’s family on the small island of Samal. A growing network of partners, including Philippine Bat Conservation, several universities and a federal agency, is launching research projects to better understand these bats and their significance. An immediate goal is to determine where the bats go to forage each night and where better protection is most needed. Radio-tracking equipment is required. Receivers cost $1,360 each, while antennas are $150 each and radio transmitters are $190 apiece.

Building a ‘Kit Bag’

A new, dual-purpose “kit bag” is needed for training at BCI field workshops. These field-research kits will not only be used to train professionals in bat conservation, but will also be shared for direct conservation work by our two Arizona-based conservation programs – Borderlands and Southwest Subterranean. The gear is used to safely capture, identify and examine bats of various species, an indispensable aspect in developing many bat-conservation efforts. Among the most critical components of this field resource are sixteen 18-foot mist nets ($73.75 each), eight 30-foot nets ($92 each) and four 60-foot nets ($139 each). We also need four digital thermometers ($20 each) and four 50g scales ($44.50).

A Latin American Workshop

BCI is taking its popular Bat Conservation and Management Workshops to Central America. Our first Spanish-language workshop, in Nicaragua this January, promises far-reaching benefits for diverse bat populations that face a host of threats. The session focuses on conservation and management concerns for neo-tropical bats, with hands-on training for land managers and biologists from throughout the region. BCI’s partners include the U.S. Forest Service’s International Programs, the U.S. Agency for International Development and Paso Pacífico. Among expenses for this important project are transportation costs for four instructors. Round-trip airfares for two instructors from the United States are approximately $1,200 each, while tickets will be about $550 each for two Latin American instructors.

BCI Member Snapshots

BCI member Martin Willebeek-Le Mair lives in New Jersey, but owns a 60-acre tree farm in Maine. He asked BCI for educational materials to give to the editors of several local newspapers. The results aren’t in yet, but Martin’s keeping the pressure up. Back in Maine, his grandson Nathan Willebeek-Le Mair (shown here) has built several bat houses, based on BCI plans, to mount at the tree farm. Bat conservation runs in the family.

Share a snapshot of your bat activities with fellow members: Email it pub@batcon.org or mail it to Snapshot, Bat Conservation International, PO Box 162603, Austin, TX 78716.
Kids Pollinator Bat T-shirt

New at Batcatalog.com

Bats Online T-Shirt

The Bat Calendar 2009

Bat Earring Jewelry

Bat Conservation International
P.O. Box 162603
Austin, TX 78716-2603 U.S.A.