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The hibernating Eurasian whiskered myotis (Myotis mystacinus) pictured on the cover is considered a vulnerable species due to loss of natural roosts in forests and caves. These bats now seek shelter in buildings and rely on castles, fortresses, and other structures as critical winter hibernation sites (see page 6 for more information on bats living in buildings).  
COVER PHOTO BY ROLLIN VERLINDE
Since 1990, BCI has awarded 132 scholarships supporting students in conservation-relevant research in 33 countries. Wide gaps in scientific knowledge about bats are often roadblocks to conservation, and these student scholars, including the five featured below, are helping pave the way for future conservation efforts. Their projects also help BCI build lasting relationships with local communities that, through the students’ education efforts, learn to value bats as essential allies.

**Bats in Northwestern U.S. Forests**

**Ed Arnett**

*Oregon State University*

**Scholarship Recipient 2000 and 2001**

Ed Arnett is a doctoral student in forest ecology at Oregon State University. He is researching the impact of snags and other potential roosts on bat abundance and habitat use in managed forests of the Oregon Cascades. This information will help improve forest management practices for bats. “We’re trying to develop models that will help forest managers better predict how their decisions affect bats,” said Arnett. “This includes developing strategies to help managers ensure a continuous supply of roosts, primarily by leaving snags and live trees of varied size and age, in areas most suitable for bats.”

Twelve species of bats occur in Douglas-fir forests of western Oregon. Nine of these roost in tree cavities and crevices and play important roles in consuming insect pests that attack forests. Arnett’s research centers on the roosting preferences of three species: big brown bats (*Eptesicus fuscus*), long-legged myotis (*Myotis volans*), and long-eared myotis (*Myotis evotis*). Using radio telemetry techniques, he has tracked these bats to their roosts in 36 landscapes that include a wide range of habitat (snags).

To date, more than 460 roosts have been identified, an unprecedented sample size, and a clearer picture of bat communities has begun to emerge. Long-eared myotis use snags, downed logs, rock outcrops, and stumps, but use snags more frequently when they are available. Big brown bats and long-legged myotis prefer snags and large trees with woodpecker cavities or broken tops in all landscape conditions. Also, it appears that the availability of structures used as roosts is more important to bats than forest age.

A diversity of partners, including federal and state management agencies, private indus-
Natasha Walton has always been fascinated by wildlife, receiving her undergraduate degree from the University of California at Davis in Wildlife and Fisheries Biology. However, it was Dr. Merlin Tuttle’s article in National Geographic in 1995 that piqued her interest in bats. “I tend to be interested in animals that other people shy away from,” she said when asked how she decided to work with bats. Upon returning to graduate school at California State Polytechnic University in Pomona, Walton began studying Mexican free-tailed bats (*Tadarida brasiliensis*). “I’m working with a colony of approximately 6,000 bats that lives in the Iwama Market, a vacant building, in Suisun,” said Walton. She is studying the effects of their voracious appetites on the codling moth (*Cydia pomonella*), the main insect pest in nearby pear orchards.

For her Masters thesis, Walton is working with local growers in Suisun Valley using their orchards as her study sites. At dusk every evening she assembles her bat monitoring stations, consisting of bat detectors connected to appropriate recording equipment, in orchards close to and far away from the bat colony. She then returns in the early morning to collect data on bat activity. She also deploys pheromone traps to determine moth numbers in each orchard and collects pears at each study site to evaluate moth damage. On some evenings, once each study site is set, Walton either observes the emergence of the bat colony at the Iwama Market or visits orchards to personally observe feeding bats flying through the trees.

Her study will not be complete until fall 2002, but Walton has documented bats using pear orchards as feeding grounds and suspects more could be attracted through use of artificial roosts, potentially good news for try, conservation organizations, and private foundations are collaborating to support this study. Arnett has also led cooperative efforts within the timber industry. “In recent years, private companies have become more involved in wildlife research and have focused on studying habitat relationships to help integrate the needs of wildlife, including bats, in forests managed for paper and wood products,” said Arnett. “Large, cooperative studies are critical to amassing the data necessary to answer complex questions about bats’ needs.

Final results of Arnett’s study will be available in December 2002.

**Bats, Pests, and Pears**  
*Natasha Walton  
California State Polytechnic University Scholarship Recipient 2000 and 2001*

Data from Ed Arnett’s study on habitat selection will help develop strategies for providing roosts for bats, including the western long-eared myotis (inset), in managed forests.
Conserving Subic Bay’s Flying Foxes and Rain Forests
Tammy Mildenstein and Samuel Stier
University of Montana at Missoula
Scholarship Recipients 1998 and 1999

Tammy Mildenstein and Samuel Stier, both graduate students at the University of Montana at Missoula, are two-time BCI scholarship recipients. As Peace Corps volunteers from 1999-2001, they were assigned to help officials at the Subic Bay Metropolitan Authority Ecology Center in Subic Bay, Philippines, promote environmental conservation in the 24,710-acre (10,000 hectare) area that once housed the largest overseas U.S. Naval Base. Since the 1997 Southeast Asian economic crash, there have been increasing pressures to create a Duty Free Zone on the base in hopes of bringing more money into the country. However, with 98 percent of the Philippines’ original forests lost to logging, this parcel of land is ecologically important as the last tract of lowland, old-growth monsoon forest in the entire country. It is also home to a colony of 20,000 endangered Philippine giant (Pteropus vampyrus) and golden-crowned (Acerodon jubatus) flying foxes.

“This bat colony, due to its ecological, economic, and educational importance, has become the focal point of a community-wide conservation effort,” said Mildenstein. “With such a singular resource, officials from the Ecology Center have been eager to set up a management plan for their popular, but endangered, bats.

Nonoy Morilao cares for an orphaned flying fox whose mother was killed by bat hunters. Nonoy, a former bat hunter himself, worked with Mildenstein and Stier and now helps educate local people about the value of their country’s bats.
The roost area is protected from hunting during the day, but conservation officers cannot protect the bats at night without knowing where they go to forage. The entire Subic Bay Protected Watershed is under pressure to allow industrial developments to displace valuable forests. The Ecology Center could only justify a denial of development requests in the forest if it could prove that the area was important to endangered wildlife. More research was essential.

In order to document where these fruit bats forage, Mildenstein and Stier captured 13 individuals and attached radio transmitters before releasing them. They trained a team of wildlife biology students, Ecology Center staff, indigenous people, and local bat hunters to help them track the bats and record their foraging locations throughout the night. Later, the locations were plotted on a map and visited by day so that each site could be described in terms of habitat type and vegetative and structural characteristics thought to be important for the bats.

While the data is still being analyzed, preliminary findings suggest that the fruit bats are primarily dependent on undisturbed rain forest, especially along waterways and in areas with a high density of “bat trees.” (The couple determined which trees were used as flying fox food resources by identifying seeds in their droppings.) Officials at the Ecology Center are now developing a management plan around these findings ensuring the bats’ future protection. Thanks to the experience and training gained, the eight field assistants who helped with the project have all gone on to use their new skills for bat conservation. Mildenstein and Stier have also forged partnerships with Shell Oil and a local hotel to promote habitat restoration and ecotourism.

Industry and tourists alike are learning that flying foxes are vital ecological links as pollinators and seed dispersers in the rain forest ecosystem. Thanks to the student scholarship program, many people are learning to value and protect flying foxes as a uniquely valuable resource.

Bats in America’s Majestic Redwood Forests
Danielle Purdy
Humboldt State University Scholarship Recipient 2001

Due to intensive logging and development, old growth redwood forests now cover less than five percent of their original range. With such losses, scientists are just now beginning to understand the importance of these trees as shelters for wildlife, including bats. Armed with a BCI scholarship, Danielle...
Purdy is studying bat use of these mammoth trees in order to gain a better understanding of their importance as roosts.

As a student in the Department of Wildlife at California’s Humboldt State University, Purdy is currently pursuing a Master of Science in Natural Resources. She works on the northern coast of California, near Arcata, where California myotis (Myotis californicus), long-eared myotis (Myotis evotis), Yuma myotis (Myotis yumanensis), and other species are known to roost beneath bark and in large cavities, also known as basal hollows, in old-growth redwoods. Basal hollows form when wood at the base of a tree decomposes following exposure to intense fires. Purdy hopes to document which species use these ancient hollows by collecting droppings and by mist-netting bats in and around the trees in the evenings. Using the data collected, she will compare use of contiguous forests in state parks to that of private, heavily logged timberland. The outcome of this comparison will assist forest managers in considering the needs of local bat populations before proceeding with logging activities.

This study grew out of Purdy’s personal interest in bats and the experience she gained through participating in one of BCI’s Bat Conservation and Management Workshops (see workshop schedule page 12) in Barree, Pennsylvania. She was delighted to meet other people who shared her interest, and was able to learn many of the study methods she now uses. Following completion of her degree, she plans to teach biology and share her enthusiasm for bat conservation.

Danielle Purdy collects guano inside redwood hollows to document the bats’ roosting preferences.

The Philippines’ Large Flying Fox (Pteropus vampyrus)

The large flying fox (Pteropus vampyrus) is the world’s largest bat, with a wingspan of up to six feet. It is a primary seed disperser and pollinator of tropical forests from southern Thailand and Indochina, through Malaysia and Indonesia, to the Philippines. Prior to persecution by modern humans, some of its colonies were estimated to have numbered in the tens of thousands, and given the incredible size of this species, evening flights were truly spectacular. The sight of even one flying overhead is still an unforgettable sight, making remaining colonies of these bats extraordinarily attractive for the promotion of local ecotourism opportunities.

Like most other flying foxes, mothers rear just one pup per year, rely heavily on rapidly disappearing native forests for food and shelter, and form conspicuous treetop colonies, making them especially vulnerable to extinction. Unfortunately, they also are highly sought after as restaurant delicacies, and tens of thousands are harvested annually, often in unsustainably large numbers. Public education regarding their key roles as primary forest propagators, and their direct contributions to important human economies, is essential. In many areas, they are important pollinators of Durian trees, which produce the region’s most lucrative fruit crop. Conservation and research efforts to help these magnificent animals are critically important.

-Merlin D. Tuttle

Are you an aspiring BCI scholar? For more information on how to apply, see page 13.
**CONSERVING BATS LIVING IN BUILDINGS**

Human-made structures, such as bridges, mines, and buildings, have become essential habitat for many species, especially where natural roosts in caves and forests have been destroyed. Bat conservationists in the U.S., the United Kingdom, Belgium, and other countries are working to educate those most likely to impact these bats.

**Bats in American Buildings**

by Barbara French

Numerous bats now live in buildings as homes of last resort. Yet, a rash of greatly exaggerated public health warnings, especially in the U.S. (see previous *BATS* issues), increasingly places even these in serious jeopardy, as frightened home owners contact pest control companies to have bats killed.

All concerned will benefit from BCI’s Bats in Buildings Program, a collaboration with U.S. pest control companies. Participating companies agree to abide by the most up-to-date information on solving nuisances, placing public health concerns in perspective, and providing alternative roosts. They also benefit from the increased business generated by being posted on BCI’s Web site at www.batcon.org.

Customers gain from knowing they are dealing with conservation-certified, local companies that help both people and bats, and they know their families will not be harmed by dangerous pesticides.

Already, 49 companies in 25 states have been certified, and a handbook soon will provide them with detailed explanations on how best to exclude bats and provide alternative artificial roosts for those that are displaced.

The project is headed by BCI’s Bats and Buildings Coordinator, Laura Finn, who receives applications, checks references, and annually renews certification based on her reference checks with home owners for whom services have been provided.

*Bats can be found roosting in attics, soffits, louvers, chimneys, under siding, eaves, roof tiles or shingles, and behind shutters. BCI’s Bats in Buildings Program offers homeowners and professional exclusion companies advice on solving nuisance problems in a manner that helps both bats and people.*
In contrast to efforts to evict bats in the United States, the United Kingdom zealously protects all bats residing in buildings. In 1985, while working for a major construction company in England, I was involved in refurbishing a stately home once owned by aristocracy. The home was being converted into a hotel, and during construction, stonemasons found bats hibernating in the three-foot-thick (nearly one meter) masonry walls. Having little knowledge of bats, the tradesmen put the little creatures in their pockets. The warmth of their bodies soon roused the bats, which were ill-tempered at being disturbed. I sought advice and found that British law protects all bats, so with training from the local bat group, our entire team worked wholeheartedly to minimize disturbance to the colony while completing our job.

I later began researching bats and construction techniques and the laws protecting bat colonies. In England, Scotland, and Wales all bat species are fully protected under the Wildlife and Countryside Act 1981, which makes it illegal to 1) deliberately kill, injure, or capture bats; 2) deliberately disturb bats; or 3) damage, destroy, or obstruct access to bat roosts. The legislation gives power to organizations such as English Nature, the Countryside Council for Wales, the Scottish Natural Heritage group, and The Department of Environment (Northern Ireland) to organize local volunteer bat groups that are responsible for ensuring protection of bats. After assessment, exclusion may be permitted as a last resort, only by a professional excluder.

As a result of the legislation, the construction industry has developed a series of bat-sympathetic construction designs that allow bats to remain in existing buildings and to be accommodated in new buildings. “Bat bricks” allow bats to reside within walls, and even in bridges, while “bat tiles” and slate allow bats access to roof spaces. Many housing developers also affix bat houses to the external walls of new houses and use this as a selling point for their homes—a positive move toward a greener society.

In one case, a hotel preserved a rare colony of lesser horseshoe bats (*Rhinolophus hipposideros*) and later marketed them as an ecotourism attraction. Architects, builders, engineers, surveyors, tradesmen, and local residents are now collaborating to find creative solutions that protect bats.

Many residential buildings in the United Kingdom are constructed using clay bricks around the exterior with a concrete block inner leaf. This technique creates a cavity between the two walls that can be used by bats as a summer roost or a winter hibernation site.
In Belgium, new conservation programs protect bats living in ancient churches and other historic structures.

**Historic Structures: Safe Havens for Belgium’s Bats**

by Alex Lefevre and Wim Van den Bossche

Belgium’s bats find safe hibernation roosts in human-made structures, from underground quarries and ice-cells to fortresses, bunkers, and churches. Since Roman times, subterranean limestone quarries have been exploited for building materials. The climate inside is conducive to the needs of bats, making these labyrinths important winter roosts.

Ice-cells offer another underground haven. In the late nineteenth century it was a luxury to have iced drinks on hot summer days. To conserve the ice gathered during winter, ice-houses or ice-cells were built near almost every large country house and castle. During winter, these now abandoned cellars remain between 35.6° and 50° F (2° and 10° C), with a high relative humidity making them optimal for hibernating bats. We found eight different species hibernating in these cellars, including the whiskered bat (*Myotis mystacinus*), the long-eared bat (*Plecotus auritus*), and one of the rarest, the barbastelle bat (*Barbastella barbastellus*).

At the beginning of the twentieth century many fortresses were built around major cities. Antwerp, with one of the biggest harbors in Europe, was surrounded by more than 20 fortresses. Today, these abandoned structures are ideal for more than 5,000 hibernating bats of up to 10 species, including Natterer’s bats (*Myotis nattereri*), Daubenton’s bats (*Myotis daubentonii*), Pond bats (*Myotis dasycneme*), and even Geoffroy’s bats (*Myotis emarginatus*), probably the latter’s northernmost site.

Much work has been done by hundreds of volunteers who have placed bat-friendly gates at quarries and bat-friendly doors in ice-cells. In cooperation with the Belgian Army, one of the facilities previously used for commando training is now protected for bats, and recently, a small fortress was acquired with funding from the Department of Nature of the Flemish Government and by our nature conservation organization, Natuurpunt vzw.

Western Europe’s latest conservation efforts also link the past with the present. New programs to protect serotine bats (*Eptesicus serotinus*) living in ancient church roofs have brought together architects and congregations who collaborated to modify the roofs, creating special access holes for bats. Serotine bats and long-eared bats immediately accepted the roosts, and we are now excited about growing opportunities for historic structures to play an important role in bat conservation throughout Europe.

**About the Authors**

**Barbara French** is BCI’s Conservation Information Specialist. She works closely with other biologists, conservationists, and exclusion professionals worldwide to safeguard bats roosting in human-made structures.

**Peter Fenn** is a Chartered Surveyor; a Lecturer at the University of Manchester Institute of Science and Technology; a Registered Mediator and a Fellow of the Chartered Institute of Arbitrators; and is active on the President’s Panel of Mediators at the Royal Institution of Chartered Surveyors. During the academic year 1997-1998 he was a Visiting Professor at the University of Kentucky. He continues to research bats and construction, funded by the Royal Institution of Chartered Surveyors.

**Alex Lefevre** leads the bat working group Natuurpunt vzw in northern Belgium. During the past 15 years, the organization has protected more than 130 important hibernation sites.

**Wim Van den Bossche** coordinates conservation initiatives for Belgium’s largest nature conservation organization, Natuurpunt vzw.
Fortresses built around major European cities in the early twentieth century are now abandoned and provide an ideal habitat for hibernating bats.
Why Paint Bats?

Article and Artwork by Fiona A. Reid

“Is that a bat? Why are you painting that bat?” I had a feisty stripe-headed, round-eared bat (*Tonatia saurophila*, formerly *T. bidens*) in my left hand, where it was gnawing my leather glove. Brush in right hand, I paused to consider my answer. “Well, someone has to do it,” I said finally, and continued with my field study.

The backpacker, unfortunately not at all put off, continued his interrogation. “Wouldn’t it be easier to paint it larger than that? Is it biting your hand? Is it a vampire? How long does it take to do that? Why not take a photo instead?” I had come to southwestern Costa Rica in search of new species to draw for my book, *A Field Guide to the Mammals of Central America and Southeast Mexico*. At Sirena Station in Corcovado National Park, I had mist-netted bats along a small creek and had caught a leaf-nosed bat (*family Phyllostomidae*), attracted to the net by the squeaking protest of another bat I was untangling. Several hours later, field study completed and bat released, I reflected on the backpacker’s questions. Why spend painstaking hours painting bats that few people see?

The billion-dollar bird-watching industry depends in no small measure on the production and availability of field guides, which have become basic tools for amateur naturalists and for biologists working in unfamiliar regions. Field guides are also important for bat conservation. Color plates allow scientists to quickly identify species, while naturalists and park interpreters use guides to educate visitors about local animals. In Latin America, people often have misconceptions about mammals. Many think that all bats are vampires, or that long-nosed coatis and anteaters are related. Field guides are an accessible means of providing basic information and stimulating interest in, and concern for, the region’s fauna.

Many field guides have given short shrift to small mammals by including only species “larger than a loaf of bread” on the grounds that most naturalists and travelers will not see the smaller bats and mice, or may not care to identify them. Although this may sometimes be true, the fact is, small mammals are more abundant and much more diverse than larger mammals. These are the groups that are a real challenge to identify. In Costa Rica, there are over 100 bat species and only two species of deer. Tourists may not see small rodents, but almost all will see bats, in particular the greater fishing bats (*Noctilio leporinus*) and proboscis bats (*Rhynchonycteris naso*). Numerous student groups visiting Central America use field guides in their course work. Without a fully illustrated field guide to the small mammals, these groups often misidentify the animals they find.

In one instance, an Organization for Tropical Studies course instructor showed...
me bats that she had prepared as museum specimens. When I asked why they had been collected she told me that her students thought that they were common vampire bats (*Desmodus rotundus*, family *Phyllostomidae*) and had killed them because they feared being bitten. She later keyed them out as black mastiff bats (*Molossus rufus*, family *Molossidae*), based on their long tails. In fact, the bats were common mustached bats (*Pteronotus parnellii*, family *Mormoopidae*) neither similar in appearance nor closely related to mastiff or vampire bats.

In cases such as these, a picture is worth a thousand words. For my field guide I illustrated all the species of small mammals that could be identified in the hand. I designed the plates so that I could illustrate all the bats life size, allowing me to measure the forearm, tibia, and other body parts to check the accuracy of my rendering.

When I first arrived in Central America I had no idea that I would end up with a missionary zeal to see and catch all the bats—and mice—throughout the region. As time went on, finding new species became more challenging. I searched out roosts and devised some tricky capture methods: a hand net made from coat hangers and the end of an old mist net, with two long saplings duct-taped together, enabled me to catch the rare smoky bat (*Cyttarops alecto*) roosting high up under a coconut palm leaf. I even searched out some Central American bats in Arizona and Ecuador. My final tally was 96 species caught and drawn from life, out of 118 species included in the guide.

This was not a bad start, but only a handful of the nearly one thousand species of bats recognized worldwide. At present I am painting bats of the United States and Canada for a new *Peterson Field Guide to North American Mammals*, and hope to continue painting live bats around the world. It is a privilege to be able to examine each bat closely: to compare the tiny bumps on the chin of a pygmy fruit-eating bat (*Artibeus phaeotis*) with those of an even smaller yellow-eared bat (*Vampyressa pusilla*); to look behind the nose-leaf of the lovely Macconnell’s bat (*Mesophylla macconnelli*) only to find a second small nose leaf; to compare the hairiness of the legs of closely related species of yellow-shouldered bats (genus *Stenodiscus*). The continuing challenge of finding these unique characteristics for hard-to-identify species, and the chance to personally get to know these marvelous night fliers, is why I paint bats.

Fiona A. Reid is a freelance writer and illustrator of books on mammals. To see more of her books and art, visit [www.hopscotch.ca/fionareid](http://www.hopscotch.ca/fionareid) or [www.speleobooks.com/art/index.html](http://www.speleobooks.com/art/index.html).
BCI FIELD STUDY WORKSHOPS
SUMMER 2002

Join us for one of BCI’s field study workshops and gain hands-on experience in bat conservation and research techniques, including mist-netting, trapping, radio-tracking, night-vision observation, acoustic monitoring, and habitat assessment. BCI staff and local researchers will share their knowledge through lectures, field trips, and demonstrations covering topics such as habitat management, field research techniques, bat houses, public health, and nuisance problems. Nightly field trips provide guided, personal instruction in bat capture, handling, and identification. The cost of the workshop includes all tuition, lodging, fees, and transportation from the local departure city.

ARIZONA
In southeastern Arizona, we emphasize western bats, species identification, and habitat assessment. Here, we can expect to capture and release as many as 17 species in a single evening, with additional close-up observations of endangered lesser long-nosed bats (Leptonycteris curasoae) and Mexican long-tongued bats (Choeronycteris mexicana) visiting hummingbird feeders. Our field site at the American Museum of Natural History’s Southwestern Research Station is located in a beautiful riparian canyon in the Chiricahua Mountains. This is one of the most species-rich areas of North America, providing opportunities to work in the lowland desert one night and coniferous pine forests the next, comparing and contrasting the bats we find.

Departure City: Tucson, AZ
Limited to 12 people per session.
Three 6-day, 5-night sessions beginning: May 29, June 3, and June 8, 2002.
Cost: $1,195 (A limited number of full and partial scholarships are available for federal and state agency biologists, land managers, and other professionals with special needs.)

NEOTROPICAL WORKSHOP
Join Fiona Reid, author of A Field Guide to the Mammals of Central America and Southeast Mexico, and BCI staff in Belize for an introduction to the amazing diversity of neotropical bats. We expect to encounter frog-eating and fishing bats, fruit and nectar feeders, and vampire bats, plus a wide range of insect specialists, from gleaners to aerial insectivores. In addition to the techniques learned at BCI’s U.S. workshops, we will investigate capture methods especially useful in tropical situations, including raising extra-large nets into the forest subcanopy (and other high net sets) and using a boat to erect and check extra-long mist nets set across waterways.

On arrival in Belize, we will travel by boat into New River Lagoon, where the tops of Maya temples extend above the rainforest, and disembark at Lamanai Outpost Lodge. This rustic yet very comfortable lodge, recognized as Belize’s “Hotel of the Year” 1999-2000, is our base for four nights. Lamanai Outpost houses and supports ongoing research into archaeology and conservation biology and has strong ties with the local Maya and Mennonite communities. In addition to lectures on tropical bats and our evening field work, we will explore this diverse region and learn about its wildlife and ancient history.

From Lamanai we will travel by dirt road to the Rio Bravo Conservation and Management Area, where we will stay at La Milpa Field Station. The station and the Management Area are owned and operated by Programme for Belize, a local, non-governmental organization that is a leading force in conservation. Encompassing four percent of Belize’s land mass, this forest is home to 12 endangered species. (Jaguar and other spotted cats are seen regularly, as are ornate and black and white hawk-eagles.) Bat diversity is high. We expect to see tent-making bats in their leaf tents, and we may capture several uncommon species in nets.

Join us in Belize, explore the riches of the Neotropics and learn about local conservation initiatives to save this lush environment.

Departure City: Belize City, Belize
Limited to 15 people.
One 6-day, 5-night session beginning: July 27, 2002 (optional 5-day, 4-night extension available).
Cost: $1,795 (includes a $250 tax-deductible contribution to BCI’s Global Grassroots Program)

For more information about any of these workshops, including on-line applications, visit the BCI Web site: www.batcon.org/trips/tripguide.html or contact:

Janet Tyburec, BCI
P.O. Box 86493 • Tucson, AZ 85754
Tel/FAX: 520-743-0265 • jtyburec@batcon.org
Student Research Scholarships Available

Each year, BCI awards scholarships ranging from $500 to $2,500 for student research projects that best document bat roosting and feeding habitat requirements, their ecological or economic roles, or their conservation needs. Students enrolled in any college or university worldwide are eligible to apply. Projects must have bat conservation relevance. The scholarship application deadline for 2002 is December 15, 2001.

All application information and forms are available on our Web page at www.batcon.org/schol/schol.html. Or, write to: Bat Conservation International, Student Scholarship Program, P.O. Box 162603, Austin, TX 78716-2603, or email aengland@batcon.org.

Bat Books

The University of Natal Press has released Dr. Peter John Taylor’s book, *Bats of Southern Africa*. The 206-page book was written to raise public awareness of bat values and conservation needs and contains species accounts for each of the region's 74 species. Photos by Dr. Merlin Tuttle and illustrations by Christeen Grant complement the text. Taylor is curator of mammals at the Durban Natural Science Museum. The book costs about $16.25 plus shipping and is available from the University of Natal Press. Write, call, or visit them on the Web: University of Natal Press, Private Bat X01, Scottsville 3209, South Africa; Phone 27 (33) 260 5226; email books@nu.ac.za, or www.unpress.co.za.

Sheffon Watzke measures the nectar volume in a Sonneratia caseolaris flower as part of his study of their pollination by long-tongued fruit bats in Peninsular Malaysia.
Legislation for Bats

During the Texas Legislative Session in spring 2001, BCI teamed with the Sierra Club to gain legislation to protect Texas’s bat colonies from exploitation by wild animal dealers. Bryan Sybert, natural resources director of the Sierra Club of Texas, worked with BCI’s Barbara French, Bob Benson, and representatives from the Texas Parks and Wildlife Department to write the bill. Co-sponsored by State Senator Jeff Wentworth and Representative Edmund Kuempel, the bill passed in May and prohibits hunting or selling bats, or disturbing their natural roosts, without a permit.

Texas’s House of Representatives also passed a resolution honoring BCI and its Founder and President, Dr. Merlin Tuttle. Representative Elizabeth Ames Jones introduced House Resolution No. 1008 on May 16, 2001, recognizing Dr. Tuttle’s many years of bat conservation efforts in Texas.

The Texas House of Representatives honored BCI and Dr. Merlin Tuttle for conservation efforts on behalf of the state’s bats. Pictured left to right: BCI Executive Director Steve Walker, Public Information Manager Bob Benson with Bat Ambassador Zoe, State Representative Elizabeth Ames Jones, and BCI Founder and President Dr. Merlin Tuttle.

North American Bat Conservation Partnership Grants Available

Since 1998, the North American Bat Conservation Partnership’s Conservation Fund has provided grants of up to $5,000 each for priority bat projects across the continent. Through this fund, BCI and its partners have facilitated millions of dollars in bat work. Applications are now being accepted for spring 2002, and the deadline for submission is December 31, 2001.

The reports from previous grant recipients attest to the impact of this program. On Vancouver Island, British Columbia, Martin Davis’s studies of the rare Keen’s myotis (Myotis kevinum) led to the designation of Weymer Caves as a permanent Wildlife Habitat Area, preventing imminent logging in surrounding forests. In Louisiana, Gypsy Gooding Langford worked in the D’Arbonne National Wildlife Refuge’s bottomland forests, studying bat roost requirements. Water tupelo trees were found to be especially important for bats, and the forest will now be managed to protect potential roosts in tupelo trees from disturbance and forest clearing. Jim Petterson studied the distribution and habitat use of bats in Mount Rainier National Park in Washington using bat detectors to record echolocation calls. He also inspected bridges, buildings, and abandoned mines for the presence of bats. The park is now using this information to guide its management decisions, and Petterson is developing educational programs about bats for park visitors.

Applications and information are available on the Web at www.batcon.org/nabcp/newsite/grants.html. Or, write to: Bat Conservation International, P.O. Box 162603, Austin, Texas, 78716, or email jkennedy@batcon.org.

Projects directly supporting student research are not eligible for this program and should be directed to BCI’s Scholarship Program (see page 13).

Jim Petterson, a National Park Service wildlife ecologist, mist nets for bats in the shadow of Mount Rainier.
BCI Invites Award Nominations

BCI is proud to work with an ever-growing number of bat conservationists around the world. However, it is difficult for us to keep track of all of the innovative projects and enthusiastic people who are making good things happen.

We invite you to submit your nominations for BCI's Distinguished Service Awards 2002, including the Educator of the Year Award, and the new Young Conservationist Award recognizing achievements of conservationists under 17 years old. Send a one-page letter telling us about someone who is working to help bats and why you believe that person should be recognized. You can nominate someone else, or you can nominate yourself. Past recipients have included park interpreters, private landowners, teachers, and biologists. Anyone with a passionate desire to save bats is eligible!

The deadline for nominations is January 15, 2002. Write to: Bat Conservation International, Awards 2002, P.O. Box 162603, Austin, TX 78716-2603, or email pubs@batcon.org.

Rabies Scares Continue

In September alone, BCI responded to seven new articles that prompted rabies scares from Los Angeles to New York. In addition, Conservation Information Specialist Barbara French contacted two drug companies whose advertisements promoted fear of bats while providing misleading and potentially damaging information.

The Bayer Co., in promoting Kiltix, a product intended for use on dogs and cats as tick control, featured “attacking” flying foxes in ads comparing bats to parasitic ticks. When the company declined to withdraw the campaign, BCI informed biologists, bat rehabilitators, and other conservationists of the problem via email. Many contacted The Bayer Co. on behalf of bats, including BCI member and veterinarian Deborah Kemmerer, whose clinic uses many Bayer products. After receiving a large number of complaints, the company indicated they would no longer use the ad.

The Chiron Corporation, which manufactures the vaccine RabAvert, was much more cooperative when approached about their postcard ad featuring a vicious bat. After receiving educational materials from BCI, their National Sales Manager, David Dwight, wrote, “You may rest assured that the content in this mailing won’t be distributed again. Chiron Corporation greatly appreciates the valuable service that BCI performs and hopes you will accept [our] donation to the organization.” A check for $1,000 was enclosed. BCI appreciates Chiron Corporation's willingness to learn the facts about bats and rabies and their support of bat conservation.
**WISH LIST**

Your help with any of the following special needs would greatly increase our effectiveness. To make a donation, or for more information, please call Bob Benson at BCI 512-327-9721, ext. 27 or email: bbenson@batcon.org

**DAT Recorder TCD-D8**

BCI uses high-quality ultrasound equipment to research bats afield. An equally important component of such field work is to record the data gathered, which is often under tough weather conditions and within harsh environments. A new TCD-D8 Sony DAT tape recorder would be a tremendous asset ($639).

**“Night Shot” Digital Video Camera**

BCI’s workshop and program leaders request a Sony “Super Night Shot” model DCR-TRV330 digital video camera for unimpaired observation of bats. This camera would be extremely useful for monitoring and recording bat populations and behaviors in the field by night. Your contribution in any amount would be a great help ($689).

**Garmin GPS III Field Equipment**

Because maps are not available for much of the remote bat habitat where we work, BCI’s field biologists request a Global Positioning System. These instruments are a distinct advantage in ensuring both accurate data and the safety of staff during abandoned mine surveys, radio-tracking, and mist-netting ($350).

**Kodak Digicam - 4800 model**

A shortage of camera equipment continues to plague BCI’s field staff. With as many as five biologists afield at once, our gear is in constant use, increasing the need for additional digital cameras to ensure that everyone can adequately document their work for our publications, Web site, and Annual Report. We would greatly appreciate donations to cover the cost of a new Kodak 4800 ($450 total).

**Field Equipment - Mist Nets and Poles**

Despite great care, the mist nets we use to safely capture bats in the wild frequently get damaged beyond repair. Last year, with an unprecedented number of workshops and ecotours, our dwindling supply met its limits. We would be grateful for donations to purchase 12 new nets—four each of three sizes: 18-foot ($58); 30-foot ($70); and 42-foot ($94); $888, and six pairs of 5/8” x 9” net poles, which are $132 a pair from Avinet; $792 (Total cost for all $1,680).

**Two-way radios**

Two sets of Motorola TalkAbout 250 Sport Radios are needed for BCI workshops. These durable and compact two-way radios allow communication between groups in the field for improved safety and coordination—especially when radio-tracking bats to roosts in rugged terrain. Four radios with cases are requested ($80 each, or $320 total).

**Additional Field Equipment Luggage Needed**

BCI’s busy field season is particularly challenging with increased staff activities and limited luggage for transporting gear. Outdoor Products offers a wheeled nylon duffle ideal for heavy equipment. Two of these sturdy and spacious bags would make a big difference ($180 for two duffle bags). We also have an immediate need for two durable tote bags to carry mist-net poles. These custom cases are handmade by a colleague and are kept in continual use year-round at workshops and ecotours ($144 for two cases, or $468 total).

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**Gift Certificates**

Gift certificates are available for the hard-to-please, and as always, BCI welcomes your “In Honor of” holiday donations. And don’t forget to order your holiday cards featuring BCI’s bat ambassadors!

**Bat Stickers**

Artwork by David Chapman. 18 stickers on two sheets per package.
T-2. Non-members $5.95, Members $5.50

**Fruit Bat Shirt**

Illustrator Meryl Henderson’s beautiful painting of fruit bats on a bright purple shirt.
C-12. Non-members $19.95, Members $18.95

**2001 Holiday Card**

BCI’s bat ambassador “Zuzu” hangs peacefully beside her cute baby “Zena” in a holiday wreath. Cards measure 5.25” x 7.25” and come in sets of 12 with matching envelopes.
M-13. Non-members $13.95, Members $12.95
For just $25 a year, you can introduce your home community to the secret world of bats. Since 1983, *BATS* magazine has been the leading source of information about bats and bat conservation worldwide. Full color photography offers readers a glimpse into the lives of these fascinating and essential animals, featuring articles on conservation, research, and education that have inspired numerous young people to pursue careers in these fields.

To provide your local library with an introductory one-year membership, which includes a subscription to *BATS* magazine, complete the form below or go to [www.batcon.org](http://www.batcon.org) and fill out the online Library Sponsor Form. Please provide us with your librarian’s name and complete address so that we can announce your tax deductible gift.

**YES**, I want to give my local library a one-year membership in BCI. Enclosed is my tax-deductible contribution of $25.00.

*Recipient Library Information:*
- Name: ____________________________
- Address: ____________________________
- City: __________________ State: ______ Zip: ______
- Country: ____________________________

*Sponsor Information:*
- Giver’s name: ____________________________
- Address: ____________________________
- City: __________________ State: ______ Zip: ______
- Country: ____________________________

Please make checks payable to BCI. U.S. funds drawn on U.S. banks only.

Or, charge your:  
- ☐ Mastercard  ☐ Visa

Card # ________________
Exp. Date ________________
Signature ____________________

☐ Please send me my library’s renewal notices.
This season, your donation to BCI’s Global Grassroots Bat Conservation Fund will spread more than joy around the world. Global Grassroots is a special program that allows BCI to dramatically increase its impact on bat conservation, research, and protection worldwide. With this fund, BCI provides training, supplies, educational materials, and small, low-risk grants to local conservationists protecting bats and habitats in their home communities. In the last two years, BCI has dispersed $35,000, protecting bats in 13 countries, including Cambodia, Costa Rica, Honduras, and Romania.

The impact of these Grassroots efforts has been phenomenal. Grant recipients have:

- broadcast educational radio spots on the benefits of bats, reaching nearly one quarter of the population in Honduras,
- distributed 10,000 storyboards and lesson plans on the roles bats play in the Cambodian environment, and
- initiated a campaign to bring large flying foxes back from the brink of extinction due to massive hunting in the Philippines.

It isn’t really a miracle that we can accomplish so much with so little. The American dollar goes a long way in these countries, and we know that on-the-ground, in-the-community activists often have more influence in their countries than outsiders. They get results quickly and inexpensively.

Here is the secret to making it work. You! Without your help nothing happens. In fact, we’ve had to suspend additional grants this year due to lack of funds. The quality proposals we’ve received from bat conservationists in countries like Brazil and Slovakia now sit in the “funding unavailable” file.

So this fall, please help bats around the world through a donation to BCI’s Global Grassroots Conservation Fund. Then, sit back and watch your goodwill turn into good deeds. We’ll make sure and tell you all about what we accomplish with your investment.

For more information on how you can support local heroes (both bats and the humans working to save them), contact Denise Meikel, director of development, at 512-327-9721, ext. 26, or at dmeikel@batcon.org.

Or, send your gift directly to:
Global Grassroots Conservation Fund
Denise Meikel, Bat Conservation International
P.O. Box 162603, Austin, TX 78716