Bats Northwest News

BNW IS A NON-PROFIT, ALL VOLUNTEER CONSERVATION ORGANIZATION FALL 2009

Samoa Bound!

by Kathleen Bander

For thirty years I have wanted to join the Peace Corps. Only one problem: life intervened. My husband, Bill Mirand, had the same experience. In fact, when we first met twenty-six years ago, upon learning that the other also had the Peace Corps as a goal, we were ever more certain we would proceed through life together, someday joining the Peace Corps together.

And what those twenty five years have held! Adopting several children, taking on the care of several others, travel throughout the world, satisfying work, and….forming Bats Northwest!

Bats Northwest came about as a result of a chance encounter I had with a bat (at a cabin my husband and I built on our honeymoon), my ensuing research into the state of Northwest bats, and the recognition that bats needed help. When I contacted Margaret Gaspari who was at that time was working at the Pt. Defiance Zoo, she seconded my idea of forming a bat conservation group and after some hard work recruiting like-minded people, Bats Northwest was born. That was in 1997.

From the presentations given by Bats Northwest volunteers, thousands of people have come to learn about and appreciate the value of bats. Other volunteers have helped to research regional bats, and still others lead the way in rehabilitation efforts to help injured bats. Media often contacts BNW when writing or shooting stories to get background information about bats. Bats Northwest is now looked upon as the source for all things batty in the Northwest. It is exactly what I envisioned when first the idea came to me. My hat is off to all those who have given of their time and energy to help in the effort to protect our local bats.

On October 5, Bill and I are headed out for Samoa (Western, not American) to begin our 27-month commitment to the Peace Corps. After three months training, including intensive language training in Samoan, we will be assigned to several projects, as yet not finally determined. But I already know what one of the projects will be: bats! Samoa has old world fruit bats, and a slowly changing attitude toward preserving them. I fully intend to hurry that process along via educational efforts.

I'll be contributing stories for Bats Northwest's newsletter from time to time, sharing experiences and pictures. I'm sure there will be many new experiences, some anticipated and others not. It's hard to know exactly what to expect until we actually get to Samoa. Still, I know my first two goals: 1) learn the word for 'bat' in Samoan; and 2) find the bat experts in the country. Here we go again….!

Bats Northwest wishes Kathleen and Bill the best of luck in their work and efforts in Samoa.

Samoan fruit bat.

Bats Northwest web site is waiting for you at:
www.batsnorthwest.org

Join our monthly BNW Meetings!

Second Tuesday, 6:30-8:30

Sand Point-Magnuson Park
Building 30 Conference Room

Bats Northwest Envisions a Future

Where the Essential Role of Bats is Understood

Where the Public Recognizes the Vital Place of Bats In Our Environment and Economy

Where All are Inspired by the Remarkable Attributes and Invaluable Contribution of Bats to Our Natural Heritage

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While strolling thru the park one day, or I spy…

by Meg Lunnum

Bats Northwest receives some interesting bat identification questions, complete with pictures. When we opened a message from Jeny Pomber and then opened the attached photo, we were pleasantly surprised to inform Jeny she had photographed a Hoary bat (*Lasiurus cinereus*) on her trip to Seward Park.

Jeny had decided to play hooky from work in August to relax with a walk in Seward Park. While she was sitting in the shade of a tree by the water, a bat came flapping out of the forest and landed above her in the tree she was relaxing under. Most people believe that bats do not fly during the day, so this bat was the last thing Jeny expected to see at 4:00pm in the blazing bright afternoon.

Jeny's description when asking for identification - "He was pretty big, it looked to me like he had a 12 inch wingspan. He had tan/light brown wings when they were open, with red arms. I saw this from the sun shining behind him. He had dark brown fur on his body (he looked round and plump to me) with white tips, which gave him a sort of frosted look, and a round little monkey-like face, very flat, with a white stripey pattern and kind of "black eyeliner" around his eyes. His face didn't look "foxy" or batty to me at all, but more like a tiny spider monkey or something. I didn't see any ears, either. They must have not been very big, or I was just too far away.

I had my camera with a slight zoom lens so I took tons of photos but very few are good enough to see his face, he was too busy grooming himself for me to catch a shot of it! He scratched and groomed for quite awhile, hanging upside down on the branch above us, and didn't seem to mind all the people and dogs and kids around. He hung there for probably a half an hour then took off back into the woods again."

We really appreciate any and all quests for bat identifications, especially when they come with photos. Bats Northwest has many sources to contact for positive identification. We also forward these observations to the Washington Department of Fish and Wildlife to be included in a bat location database.

Thanks again to Jeny Pomber for her fantastic photos.

Photos by Jeny Pomber.

Capitol Lake Recommendations Fails to Consider Bats

by Greg Falxa, Olympia

Over the past 6 years a group of volunteers have been monitoring the large Woodard Bay colony of Yuma myotis and Little Brown bats. For the past 2 years, the adult population at pupping time has been right around 3,000 bats--that's not counting the young. They seem to be doing okay, just minor problems, like their pier is falling apart. But, the site manager, Washington Dept. of Natural Resources, is preparing to do some reinforcing around the area where the bat hangout. That's the good news!

Now the bad news. We've studied the foraging behavior of this colony, with some material support from Bats Northwest, and discovered that most of these bats travel an awful long way, to feed at Capitol Lake in downtown Olympia. Every night, May through August, many thousands of Yuma and Little brown bats travel to Capitol Lake from several large maternity colonies, some as far as 9 miles away. The radio-tracking data indicates high site fidelity -- the bats that come to Capitol Lake do not use other locations. This may be because there are over a dozen species of midge at the lake, so there's always something hatching. Whatever the reason, the lake feeds five or six thousand bats in the spring and summer, and most are pregnant or mothers who are nursing pups. We very rarely find adult males at the lake.

Why is this the 'bad news?' Because an appointed group called the 'CLAMP committee' has just officially recommended removing the lake. For the past 6 years, there has been a panel of local government, tribal, and state agency representatives meeting to investigate the feasibility of converting Capitol Lake, formed by a bridge and tide-gate 57 years ago, into an 'engineered estuary.' The engineers have said it can be done, with a lot of engineering (earth moving) and that they could create a nice intertidal mudflat. Sounds cool to me, except for one big problem: there go the bats! These bats do not feed over salt water or mudflats. Not at all.

Since 2003, I and others have attended various CLAMP meetings, trying to inform the committee how a salt water body would be quite detrimental to the colonies of bats. This panel, mostly agency, tribal, and local government policy people, have simply refused to even talk about it, and have ignored our bats, and not included them in the equation, and ignored requests to include mitigation in any of the estuary alternatives under discussion. In the past there were a few indications that one of the committee member "gets it." But recently the Capitol Lake Adaptive Management Plan committee (called by the acronym CLAMP) showed that they were not going to be adaptive when it comes to bats. Their Alternatives Analysis study only mentions bats in the most general sense, in the phrase "aerial foraging birds and bats," and fails to mention any relationship between the lake and the large colonies of bats--maybe even the state's largest colony. The report also fails to list any species of bat, and does not dedicate even one sentence to bats. It does, however include a big table with all15 freshwater species of fish, showing whether they are native or not, or significant or not.

The CLAMP committee's recommendation to convert the lake to an engineered intertidal mudflat is not final, but has been sent to the Director of General Administration, Linda Villegas Bremer, as she is the lake's manager. She is right now (early November) pondering the options, and will make her recommendation to a group of lawmakers called the State Capitol Committee, and if they all say yes, it goes to the state legislature to compete for funding. The lake was created by an act of the legislature, and it is part of the 'Capitol Campus.' Over the next 50 years, it will cost hundreds of millions of dollars to maintain the lake (mostly dredging) and similar costs to convert it to an intertidal mudflat.

So, now is the time to ask Linda Bremer (that's with one 'm') to have a discussion about the effect that the 'estuary recommendation' will have on these regionally significant bat colonies. Please call, email or write her, soon! It wouldn't hurt to 'cc' the governor and Senator Karen Fraser, who chairs the committee that would approve funding requests. Senator Fraser has come out to Woodard Bay for a bat walk, and witnessed the thousands leaving for Capitol Lake, and asked thoughtful questions.

The clock is ticking, and we are way behind. Linda Bremer is smart and thoughtful, and contacting her is not a waste of your time. She attended some of the CLAMP committee meetings over the past few years, and has heard at least a little about the harm an unmitigated removal of the lake would have on these protected colonies. Yes, protected. Although the Wash. Dept. of Fish and Wildlife comments fail to note this, Capitol Lake is mapped by WDFW as a Priority Habitat under their Priority Species and Habitat program, because of the large congregations of foraging reproductive bats! Please write or call Linda Bremer, to ask for the maternity colonies to be considered in any plan or recommendation for lake or estuary.

Links to the reports and info about these bats can be found here: <http://CapitolLake.com> Or find more of my thoughts at <http://olympiabats.blogspot.com>

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Our Mission

Bats Northwest Envisions a Future . . . Where the Essential Role of Bats is Understood Where the Public Recognizes the Vital Place of Bats In Our Environment and Economy Where all are Inspired by the Remarkable Attributes and Invaluable Contribution of Bats to Our Natural Heritage

Many bat sites on the Web provide worthy information and great photos from around the world.

BATS NORTHWEST is focused on our regional bats, but there is so much to learn about bat conservation worldwide. You may enjoy visiting some of these sites.

www.batcon.org
www.wa.gov/wdfw/wildwatch
www.batsound.com
www.lubee.com
www.athertontablelands.com/bats
www.batbox.org
www.batworld.org
www.californiabats.com
www.batcrew.com
www.warksbats.co.uk

Eagle Project Final Report

by Jacob White

For my Eagle Project I built 8 bat houses at Tolt McDonald Park. Four bat houses were installed near the Red Barn and four near the North Shelter. Each bat house can provide housing for up to 200 bats. Each bat can eat 200 mosquitoes hourly, a great benefit to visitors. Each of the five days I lead approximately 12 volunteers. In total, the volunteers provided over 230 hours of service over one year.

I used my leadership skills to guide volunteers to accomplish the project goals. I announced my project to those in my troop and passed out a sign up sheet a week or two before each day of my project. A day or two before the project, I called them to confirm if they were coming and to remind them about my project. Then I lead them to carry out the project. I instructed them by word and with instruction packets. I moved back and forth, monitoring each task to ensure the volunteers followed their instructions. I also used my leadership skill to raise funds for the project. This involved many phone calls. I contacted the Redmond Home Depot, the American Legion, and Carnation Ace Hardware for donations. I also sold water and drinks on the 4th of July to raise money.

Doug Kelley operates the band saw

The project also involved a lot of preparation and decisions. My first task was to research bat houses to maximize the chances of bats inhabiting the houses. I used the Internet, read the Bat Builders Handbook, and asked Kathleen Bander (a knowledgeable volunteer for Bats Northwest) questions about bat houses. I learned that the best bat house is the rocket box. I found the best height for the bat houses. I learned that the bat houses work better in groups of 4 or 5. I tested the strength of steel pipe and discovered that 1½" pipe would be the cheapest pipe strong enough to do the job.

Brian Kelley and Michell Young dig holes

I also had many obstacles to overcome. For example, I wanted my bat houses to be mounted on a 1½" pipe. However, this would require drilling a huge hole into the end of the 4x4 that would be very difficult to drill straight and would severely weaken the 4x4. So I looked for answers. After thinking for hours and asking others for advice, I finally decided to reduce the pipe to ¾" so I could drill a smaller hole into the 4x4. I had to think more to figure out how to drill 1 1/8" holes 8" into the end of the 4x4s. How could I drill the holes straight? I eventually designed a jig to keep the drill bit straight. I needed to solve these problems in order for the rest of my project to be successful.

On the first day, we prepared the materials for construction. I designed a pattern of how to cut all the many pieces we needed from only two sheets of plywood. I also explained to volunteers how to shape the 4x4 and showed them a diagram I prepared in advance.

On the second day, we constructed the bat houses. I created a three-dimensional drawing of the bat houses to help the volunteers visualize how the pieces would fit together. We carefully caulked each seam, screwed and nailed the bat houses together, and painted the bat houses with white primer.

On the third day, we painted the bat houses with high-quality black paint. I oversaw the application of paint to ensure that the volunteers painted all parts of every bat house.

On the fourth day, we dug the holes for the bat houses and set the pipes in concrete. I tied together a 15-foot square from twine so that the bat houses would form a perfect square. Then arranged T-posts, in a pattern I though out a couple days before, to tie guy wire to the bat houses

Joseph White lifts a bat house on top of a steel pipe

Trent Fisher screws the bat houses together

to keep the pipes in place while the cement dried. I also arranged for a park official to unlock the park gate so we could transport cement to the work site near the North Shelter.
On the fifth day, we glued plastic onto the roof of the bat boxes, bolted the bat boxes to the 4x4s, and mounted the bat houses onto the steel pipes. I provided detailed instructions with diagrams to give the volunteers their instructions. Then I directed the work by assigning tasks to each person and scrutinizing their actions. The project ran smoothly and we were all excited to see the bat houses go up. Later, King County Parks posted a sign informing visitors about the bat houses and recognizing contributors to the project.

Harley White and Jacob White use an excellently devised jig to drill a 1 1/8" hole into the end of a 4x4

The installed bat houses near the red barn with a new informative sign

Keep up to date! Check out Bats Northwest's Website.

Watch our Events Page for news on upcoming presentations and field trips.

Does the Bat Always Get the Bug?

by John E. Bassett

Most people with an interest in bats would answer this question in favor of the bat. We would like to believe that our favorite animal is a super-efficient predator who rules the night skies with an iron fist. Many bat enthusiasts who want to attract bats to their surroundings for insect control also feel that a dominant predator is the best tool to accomplish their goal. While many studies of foraging insectivorous bats have shown them to consume large quantities of prey during their nightly forays, the number of individual encounters between bats and bugs that result in the bugs becoming dinner is less well known.

Echolocation, the sensory system that allows bats to "see" in the dark with sound and successfully catch flying insects, was finally described as we currently understand it by Donald Griffin in the 1930s. Before that time, bats were thought to possess an acute sense of hearing which allowed them to capture bugs by listening to the sounds produced by the insects. The key part of the system discovered by Griffin was the ability of the bats to produce and project ultrasound into the environment coupled with their ability to hear the echoes returning from objects in front of them. Griffin's discoveries and insights were made possible by advances at the time in the technology for sensing and recording sound of frequencies outside the range of human hearing. In the 70 years since Griffin conducted his pioneering work on echolocation, neurobiology has made tremendous strides in learning how bats produce and project sound, how their ears detect and transmit the information contained in the returning echoes to their brains, and how their brains use that information to construct a mental "picture" of what is out in front of them that they can use in real time. In particular, biologists have learned how the bats use this system to detect and capture moving objects such as bugs.

If the real world were an unchanging place, the bat's echolocation system would clearly provide

Bat eating a grasshopper.
Photo credit: Texas Parks and Wildlife Department

them an insurmountable advantage over the bugs which would eventually clear the skies of night-flying insects. As anyone who goes out at night can attest, these pests are still with us and often seem to be increasing in number and nuisance value. This poses the question of how do the bugs even the playing field in their battle with the bats. The first and less interesting way that bugs compete with bats is to out-reproduce the bats. Insects are capable of producing many times more offspring than the bats are capable of consuming. The second and much more interesting way that some bugs reduce the bat's advantage in this eternal battle is to "listen in" on the bat's echolocation sounds and to use this information to act in a manner that benefits the bugs.

By the early 1960s, several large moths which are frequently consumed by bats were found to be able to "hear" ultrasound of the frequencies used by

From the Field
Bat Grid 2009

Checking a bat wing for signs of damage.
Photo by Amber Schwanke.

A *Myotis* bat is processed.
Photo by Amber Schwanke.

Handler pictured has received pre-exposure prophylaxis for rabies. Never handle or touch a bat without proper immunization.

bats for echolocation with their ears, actually a tympanic membrane on their abdomen. Ken Roeder and his colleagues found that these moths were not only able to sense bat echolocation calls but were able to act in appropriate ways upon hearing these sounds depending on how loud the sound was. When free-flying moths heard low intensity ultrasound, as would be the case when a bat was a distance away and posing no imminent threat, they simply turned and flew in a direction directly away from the sound. Such a behavior would get the moth away from the bat in the most expeditious way possible. On the other hand, when free-flying moths heard high intensity ultrasound, they reacted by folding their wings and dropping straight down toward the ground. This behavior would offer the moth the best chance to remove itself from the vicinity of a foraging bat that is very close. This move represents a last-ditch effort to escape from a bad situation.

The ability of these moths to produce ultrasound clicks of the same frequencies used by bats for echolocation was also discovered in the 1960s. The moths were also found to be able to produce these sounds in response to the echolocation calls of bats. This ability was hypothesized to aid the moth through any or all of three mechanisms. First, these ultrasound clicks could startle attacking bats enough to disrupt a feeding pass and cause it to fail. Second, these clicking sounds could advertise to the attacking bat that the moth is not a palatable prey item. This represents an acoustic version of the aposematic coloration of Monarch butterflies. Monarchs feed as caterpillars on milkweeds which contain distasteful and harmful chemicals. As adults, the butterflies still contain these chemicals which are capable of sickening birds that eat them. Once a bird becomes sick from attempting to consume adult Monarchs, they avoid them in the future. Such behavior by the birds benefits the Monarch butterfly as well as several other species of butterfly such as the Viceroy which have coloration very similar to the Monarch but no distasteful chemicals. Finally, the ultrasound clicks produced by the moths could actively jam the bats echolocation system by providing false and misleading echoes to the bat. If the moth was capable of providing false information to the bat's sensory system, a feeding pass could fail because the location of the bat's target was incorrectly entered into the attack computer. Work conducted since the 1960s has demonstrated that the "startle" hypothesis is not likely to provide an advantage to the moth. Bats become habituated to random, abrupt noises and therefore are able to continue an attack in their presence after a small number of disrupted encounters. The aposematic and jamming hypotheses, however, have not been ruled out nor proven over the past fifty years.

Recently published work by Aaron J. Corcoran, Jesse R. Barber, and William E. Conner of Wake Forest University (Tiger Moth Jams Bat Sonar, 2009, *Science* 325:325-327) has demonstrated quite clearly that target location information received by the big brown bat (Eptesicus fuscus) during an attack on the Tiger moth is compromised by the ultrasound clicks produced by the moth. Bats trained to forage in the laboratory invariably catch Tiger moths that have been rendered incapable of producing the clicks, while bats have significantly reduced success in catching moths that are still capable of producing the jamming noises. The investigators also address the aposematic hypothesis by testing the ability of another species of non-palatable, clicking moth to jam the bat's attack computer. The ultrasound clicks produced by the non-palatable moth are not capable of disrupting an attack pass while the clicks of the palatable Tiger moth are capable of jamming an attack. The authors speculate that bat predation provided palatable moths a selective pressure for the development of ultrasonic clicks that reduced the effectiveness of the bat's echolocation.

In popular parlance, it is a jungle out there. When one member of a group of interacting species develops an advantage through an evolutionary change, the other members of the group often respond by evolving countermeasures. Insectivorous bats and their insect prey have demonstrated this phenomenon quite clearly over the 50 million years since the bats evolved in the Eocene. Both the bats and the insects are still here since neither has been able to totally overwhelm the other.

A big brown bat (*Eptesicus fuscus*) approaches a wax moth.

Photo credit: William Conner and Nickolay Hristov, Wake Forest University.

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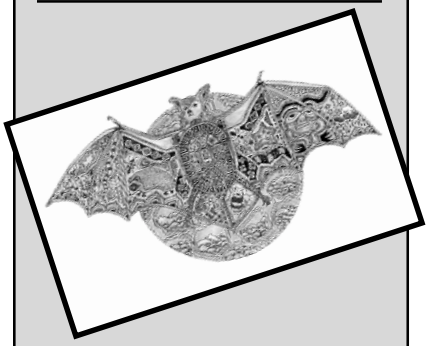

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Join us in the adventure to learn more about our bat neighbors!

Membership Options: a $35 a $50 a $75 a $100 a Other $_____

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