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Help for Townsend's Big-Eared Bats in California
When a historic bat roost disappeared, a gold mining company came to the rescue□
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by Elizabeth D. Pierson

I was so preoccupied with the golden eagle soaring overhead that I almost stepped on a large berry-filled bear scat. A bevy of startled California quail flushed out of the manzanita bushes nearby, and in a rock pile straight ahead, a young western rattlesnake basked in the warm spring sunlight, belly full of small fence lizards. I looked across a narrow oak lined canyon to the rock outcrops beyond. This scene in northern California had the serenity of wilderness, yet less than a mile away was a large, active gold mining operation, the McLaughlin Mine, owned and operated by the Homestake Mining Company.

On that particular morning in early June 1988, McLaughlin's staff environmental engineer, Dolora Koontz, biologist Bill Rainey and I were walking toward an old mine tunnel. Thanks to conservation efforts by Homestake, the tunnel is now the best protected maternity roost for one of California's most endangered bats, the western subspecies of Townsend's big-eared bat *(Plecotus townsendii townsendii*). A recently constructed, formidable gate protects the colony from human disturbance, and automatic monitoring equipment records bat activity in and out of the roost. As we downloaded our data from an electronic data logger outside the entrance, we noted with satisfaction that the newly protected colony--60 adult females and their young--had formed a tight, noisy cluster in a warm ceiling dome just inside the gate. Several of them turned their heads to look at us. Despite our close approach, most remained at the entrance; they seemed to know they were safe.

That wasn't always the situation for this small colony. Almost a year before, while investigating the current status of *Plecotus* in California for the Department of Fish and Game, I came to this old mining district in northern Napa County in search of one of the most important historic roosts for this subspecies. I found a very different landscape from the one described by bat researchers 40 years before. The formerly abandoned mine that had harbored the bats, indeed the whole hillside they were in, had been removed by the mining operation. With help from the McLaughlin staff, I eventually found the *Plecotus* colony, only one third its former size, in an abandoned mine tunnel about 100 yards from the active mining pit.

The mining company had been completely unaware that the collapsing old tunnels dotting their hillsides were significant roosting habitat for Townsend's big-eared bats. The use of modern technology to extract gold from abandoned workings is happening all across the American West. As a result, many important bat roosts are inadvertently being destroyed.

What distinguishes the McLaughlin Mine is their firm commitment to wildlife conservation and their sincere efforts to provide enduring protection for their resident bats--particularly for Plecotus. Once they were aware of what their mining operation was doing to the bats'

habitat, one of their top priorities was to provide safe and lasting homes for them.

Our initial task was to encourage the big-eared bat colony to move to a more secure roost. The tunnel they were then occupying was scheduled for demolition, and new mining activity was steadily encroaching on this site. Ray Krauss, McLaughlin's pioneering Environmental Manager, asked me to find alternate roosts, putting the mining operation on hold until measures had been taken to ensure the colony's safety.

Suddenly I had the somewhat daunting responsibility of designing a relocation program for this *Plecotus* colony, a species noted for its high sensitivity to disturbance. My apprehension increased when I realized how slight the chances might be that a bat colony, excluded from its preferred home, would accept a roost selected by a bat biologist. We nevertheless decided to take the risks. Several departments became actively involved. Dolora Koontz and several staff geologists--particularly Norm Lehrman, Dean Enderlin, and Pete Schwarzer--spent many hours tracking down old adits and endured numerous cold, late nights monitoring bat nets.

During the winter Dolora, Dean, and I identified two old tunnels which, based on available information, seemed suitable for the bats. In an unprecedented move, the mine diverted its construction crew from gold mining to bat roost construction, stabilizing the tunnel entrances and installing vandal proof steel gates. We considered the option of catching the animals and moving them to the new site, but feared such direct interference would lead them to reject our choice. The decision was made to let the bats fend for themselves, knowing that the alternatives we had provided were close by and almost certainly known to the animals.

In early May 1988, before the females had given birth to young, the relocation was on. We closed them out of their old roost and waited. Several days of anxiety followed as there was no sign of the animals at either new location. Then, on our next visit two weeks later, we found the entire colony of 60 bats well established in one of the new roosts. Since that time we have monitored them on a regular basis and are hopeful that in time, the colony, now secure, will grow to its original, historical size.

Encouraged by their initial success, Ray wanted to do more. This winter he turned his attention to protecting a second *Plecotus* colony, remote from the current mining site, but located in another old mining area controlled by Homestake. When the females return from hibernation this spring, they will find their tunnel roost entrances all have gates and that for the first time in many years they will have an opportunity to raise their young without disturbance. This colony was first studied by BCI member Dr. Phil Leitner over 20 years ago and was known at that time to be at least three times its current size. But these old tunnels have experienced increasing human traffic in recent years, due in part to the renewed popularity of a nearby resort.

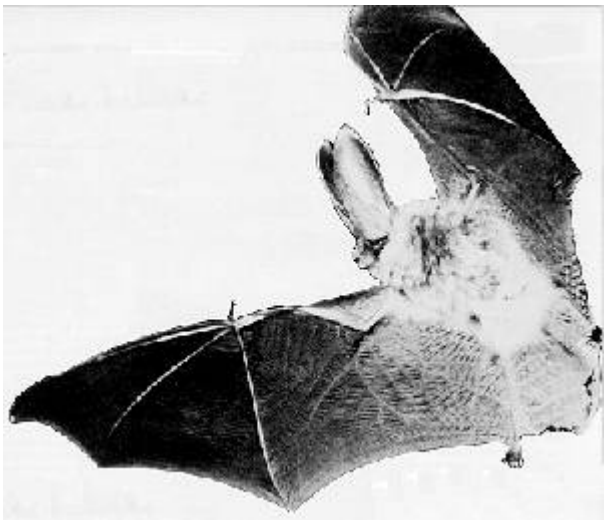
This second bat colony, siuated in an open woodland, offers an ideal opportunity to investigate the foraging behavior of *Plecotus*, and last fall, with support from McLaughlin, we initiated such a study. With volunteers from the mining staff, the State Department of Fish and Game, the University of California, and the caving community, several colleagues and I organized an all night vigil to monitor the feeding behavior of bats that had been outfitted with small temporary fluorescent tags. This effort engendered such enthusiasm among the mining staff that, back at headquarters, bat mobiles now hang over desks, bat photos decorate the walls, and bat t-shirts have become department uniform.

A dedicated and inventive man, Ray Krauss also has suggested incorporating artificial roosts, especially hibernacula, into the growing piles of mining tailings, which are being revegetated by the company and eventually will become part of the landscape. Ray is constantly pushing his company and the mining industry to do more. He has committed support to a long term monitoring program and ecological study and has funded the development of sophisticated monitoring equipment (still in experimental stages) that could dramatically change our ability to census bat populations without disturbing the animals. He has contacted environmental managers at other mines to spread the word about what he feels the industry can do to provide and protect wildlife habitat. His efforts already are having a statewide impact. Other agencies (in particular, the Bureau of Land Management and a naval base), inspired by the successful efforts at the McLaughlin Mine, have expressed interest in also protecting big-eared bat roosts.

Such efforts are vital to the survival of *Plecotus* in coastal California where at present only seven small colonies are known. Once abundant, the species has experienced alarming population declines in the past forty years. Because of roost destruction and human disturbance, there has been a 46% decrease in the number of colonies and a 65% decline in overall population size. Of the seven currently known roosts for the coastal subspecies, only three receive active protection--the two at the McLaughlin Mine and another at Point Reyes National Seashore.

When I first met Ray Krauss, he said to me, "We are taking from this earth, and I want to give back." As a result, two very important *Plecotus* colonies have been saved, and a precedent has been set which should have far reaching consequences for bat conservation.

Elizabeth D. Pierson received her Ph.D. from the University of California at Berkeley in 1986. In addition to her research on bats in California, she is currently involved in projects on the ecology, conservation, and evolution of bats in New Zealand and the South Pacific.



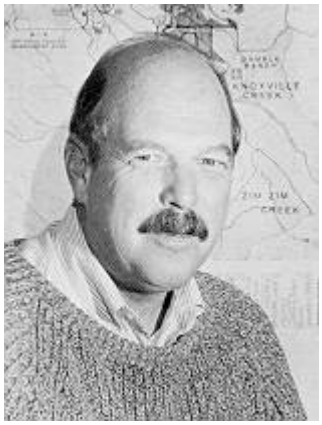
In northern California, idyllic landscapes like this are prime habitat for one of the state's most endangered bats Plecotus townsendii. PHOTO BY MERLIN D. TUTTLE

Above: Dixie Pierson (center), Bill Rainey (right), and Dolora Koontz (left) set up an electronic data logger at the newly gated entrance to a former mining tunnel, now protected as a roost for a successfully relocated colony of Townsend's big-eared bats.

Above right: Dolora Koontz, and environmental engineer at the McLaughlin Mine, checks the gate at another protected tunnel, used by the colony as a temporary night roost.

Right: Old mining tunnels dot the northern California landscape, providing important roosting sites for bats. PHOTOS BY MERLIN D TUTTLE

Townsend's big-eared bats are exceptionally sensitive to human disturbance. PHOTOS BY MERLIN TUTTLE



Ray Krauss, McLaughlin's Environmental Manager, is firmly committed to protecting bats. PHOTO BY ELIZABETH D. PIERSON