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A strategic approach to Protecting Bats & Mines in the Southwest
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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 â€“ and was immediately greeted by a familiar, angry buzzing.

When you are in a 5-foot by 5-foot (1.5-meter) shaft, there isnâ€™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. Thatâ€™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 BCIâ€™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, weâ€™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), Townsendâ€™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 Iâ€™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 â€“ as long as the limitations are well understood.

As we expand our knowledge about batsâ€™ 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 hashed 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, BCIâ€™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, which offer important lessons for the future.

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 Inspectorâ€™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

Arizonaâ€™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 batsâ€™ 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.

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