



DEPARTMENT OF CONSERVATION

Managing California's Working Lands

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STATE/FEDERAL PROJECT TO SEAL ABANDONED MINES PROTECTS BAT & OWL HABITAT AS WELL AS HUMAN SAFETY

In an effort to protect both human lives and wildlife habitat, federal and state agencies are working together to remediate dozens of abandoned mines in the California desert. The U.S. Bureau of Land Management (BLM) and California Department of Conservation's Office of Mine Reclamation (OMR) will close 100 potentially hazardous openings by the end of the next fiscal year with \$993,000 obtained through the efforts of U.S. Senator Dianne Feinstein. An assistance agreement between BLM and OMR is allowing the two agencies to work seamlessly together to accomplish the task.

"This agreement clearly produces results and allows us to focus on public safety," said Jim Scrivner, BLM-California's Deputy State Director for Energy and Minerals. "Coordinating closely with OMR allows us to more quickly work through the long list of physical safety hazards that exist out there in abandoned mining areas on public lands."

Added OMR chief Dennis O'Bryant: "Each year, several Californians are injured or killed because of abandoned mines, whether they decide to go exploring or come across them by accident. While human safety is our main concern, the opportunity to protect rare and fragile habitat for desert species is an important component of what we do."

Since last July, OMR's Abandoned Mine Lands Unit (AMLU) has worked with six Southern California BLM offices to remediate 48 hazardous mine features in five counties: 15 in Inyo, 12 in San Bernardino, nine in Riverside, eight in Kern, and four in Imperial.

AMLU estimates that there are 47,000 abandoned mines in California, many of them on BLM land. There is no comprehensive database that gives the precise location of most of these mines or their underground workings. Many operated before the advent of any regulatory or reporting authority, or even California statehood itself. Each mine may have multiple man-made "features," such as shafts, tunnels, machinery,

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facilities, waste rock or tailings that can pose either a physical or environmental hazard.

BLM and AMLU plan to complete about another 60 closures in the coming months. While planning continues, the actual closure work is on hiatus, per Mother Nature's orders.

"Right now, we're in a holding pattern because it's nesting season for owls and maternity season for bats," said AMLU engineering geologist Sarah Reeves. "Surprisingly, we've found a lot of barn owls in the mines. The owls are a protected species, so we have to be careful. They make their nests and lay their eggs, and once the young have fledged, we do our work. We sometimes modify our bat gate design to allow owls to use them. Meanwhile, the bats give birth to live young and they, quite literally, hang out in the mines during the summer."

Once BLM prioritizes the sites to be closed, AMLU staff evaluates the sites to determine the best closure method for each mine opening, coordinates with BLM on the necessary environmental documentation and hires specialized contractors. So far, 16 mine openings have been covered with gates that allow bats and owls to enter and leave while keeping humans out. Fourteen others have been permanently sealed with expandable polyurethane foam, and 10 have been covered with cupolas (dome-type structures over vertical shafts) that are bat and owl compatible.

AMLU has consulted frequently with Pat Brown, a bat biologist who has worked for several decades in the desert, on the BLM projects.

"She knows a lot of the sites, and whether bats live in them, right off the top of her head," AMLU's Reeves said. "A couple of the things that we consider are the number of openings a mine has and how complex it is underground. Bats aren't typically attracted to a shaft that goes 100 feet down into the side of a mountain and ends. They prefer mines that branch off and have warmer and cooler spots.

"Another consideration in how we close a mine is the stability of the opening. If the portal is unstable but the mine is otherwise good for bat habitat, we can install a culvert to stabilize it. On the other hand, BLM may decide that a mine is simply too dangerous, in which case we put in a permanent closure."

When a permanent seal is deemed necessary, PUF or backfilling are the preferred methods (dynamite is an exceptionally rare solution). Backfilling is a cheaper closure method, but sometimes the material taken out of a mine that could be used for backfilling is hauled away or eroded to the point where it's an unpractical solution. Frequently, however, leaving the piles of waste material untouched and using foam to plug a mine is done for aesthetic reasons.

"We want to preserve the cultural integrity of the sites – the waste rock piles are part of mining history and part of the experience for our visitors," the BLM's Scrivner said.

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Of the mines which have been remediated, American Girl, Oro Cruz and Queen East in the Cargos Muchacho Mountains were the most noteworthy, in terms of production. In their heyday, between 1877 and 1916, the mines of that area produced more than \$4 million worth of gold, silver and copper.

ABOUT THE ABANDONED MINE LANDS UNIT: AMLU has concentrated its efforts on the physical hazards associated with abandoned mines and features. It has partnered with a variety of federal, state and local agencies to remediate more than 657 hazardous abandoned mining features in 24 counties in the past seven years, including 316 features in the last three years. AMLU staff encourages anyone who comes across an abandoned mine to report it to their hotline, 1-877-OLD-MINE, so the site can be investigated and any public safety hazards remediated as necessary. Additional information about California's abandoned mines can be obtained at www.conservation.ca.gov/omr/abandoned_mine_lands/Pages/index.aspx/

ABOUT BLM'S ABANDONED MINE LANDS PROGRAM: The AML program enhances public safety and improves water quality by reducing or eliminating the effects of past hardrock mining in the western United States. BLM maintains an inventory of known abandoned mine lands on public lands. Most of the sites are abandoned hardrock mines. BLM California currently has an inventory of 18,000 known abandoned mine sites on public lands; over 1,850 sites evaluated, and more than 450 physical sites remediated in the past four years. While AML sites that pose physical safety hazards can be found throughout California, the majority of high-priority sites for the BLM are located in the Inyo, Kern and San Bernardino counties. AML physical safety projects are a high-priority in the California Desert District (CDD) which comprises five field offices.

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