

## Selected AMLU Abandoned Mine Remediation Projects (2007)

*(Click on pictures below or scroll down for more information.)*

	<p>Partner(s): U.S. Forest Service (USFS) Six Rivers National Forest            Closure type: Cupolas, culvert gates, cement caps            Location: Del Norte County            Completed: December 2007</p>
	<p>Partner(s): USFS San Bernardino National Forest            Closure type: Bat gates            Location: San Bernardino County            Completed: December 2007</p>
	<p>Partner(s): California State Lands Commission            Closure type: Backfills            Location: Calico Mining District and other areas in San Bernardino County            Completed: October 2007</p>
	<p>Partner(s): Solano Land Trust &amp; City of Vallejo            Closure type: Culvert gate and backfill            Location: Solano County            Completed: October 2007</p>
	<p>Partner(s): Bureau of Land Management (BLM) Folsom Field Office, State Parks, &amp; USFS            Closure type: Backfills            Location: Nevada County            Completed: September 2007</p>
	<p>Partner(s): BLM Ridgecrest Field Office            Closure type: Fences            Location: Red Mountain area, San Bernardino &amp; Kern Counties            Completed: September 2007</p>
	<p>Partner(s): BLM Bakersfield Field Office            Closure type: Bat gates, polyurethane foam, backfills            Location: Quartz Mountain Complex, Madera County            Completed: June 2007</p>
	<p>Partner(s): USFS Eldorado National Forest            Closure type: Culvert gates            Location: El Dorado County            Completed: May 2007</p>
	<p>Partner(s): USFS Sequoia National Forest            Closure type: Backfills            Location: Kern County            Completed: April 2007</p>

## Multiple Closures, Six Rivers National Forest, Del Norte County, December 2007

In December 2007, the AMLU partnered with the U.S. Forest Service (USFS) to remediate physical hazards associated with four adits and four shafts in the Six Rivers National Forest, Del Norte County. These eight abandoned mine features were closed using a combination of cupolas, culvert gates, and reinforced concrete caps. The U.S. Forest Service had previously closed the Union-Zaar shaft in the Six Rivers National Forest, which was the site of a fatality and injury in October 2003.



## Bat Gates, San Bernardino National Forest, San Bernardino County, December 2007

In December 2007, the AMLU partnered with the San Bernardino National Forest to close three adits in San Bernardino County. USFS staff installed bat gates at the entrances to the heavily visited features, which included a former powder magazine (a structure once used to store explosives). One adit had motorcycle tracks leading into the portal, and another contained abundant rodent droppings, some of which had developed a fungus that if touched could become airborne, posing the risk of transmitting the potentially deadly hantavirus. Fallen boulders in front of several adits were an indication that the adit portals were subject to collapse. The USFS also closed the road to the site to further keep the public out of this hazardous area.



↑  
**BEFORE**  
↓



↑  
**AFTER**  
↓



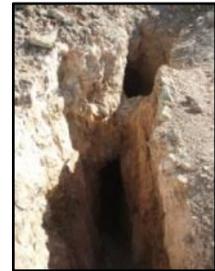
*“The Forest Service works to increase the agency’s effectiveness in partnership and collaboration with citizens, communities, governmental agencies and non-governmental organizations and others. The funding for Abandoned Mine Lands has been diminishing on a steady basis and we are glad that the Department of Conservation stepped in to help protect the public from entering these dangerous mine openings and protect bat habitat.”*

- Raj Daniel, Forest Minerals Program Manager, San Bernardino National Forest

## Calico District Closures, San Bernardino County, October 2007

In October 2007, the AMLU and the California State Lands Commission backfilled 13 abandoned mine features in San Bernardino County that ranged from 20 to more than 100 feet deep. Six features were located near the Calico Ghost Town outside Barstow. The Calico District contains extensive abandoned mine workings, including numerous small shafts, collapses, and underground voids waiting to collapse. In 2006, on private property in the same general area, a man was killed after a 50-foot fall down a hidden vertical opening located inside an adit. A week later, a second man was paralyzed after falling into the same opening.

The site below highlights how some AMLU remediation projects evolve from the initial discovery of the hazard, to temporary fencing, to permanent closure by backfilling.



**BEFORE**



**DURING**



**DISCOVERY (2002)**



**FENCE (2003  
& VIEW IN 2007)**



**BACKFILLING (2007)**

*"We are pleased with our progress since beginning our partnership in 2002 with the Office of Mine Reclamation's Abandoned Mine Lands Unit to safeguard the public and wildlife from mine hazards located on state lands. Help from OMR has allowed us to double the amount of work we would have been able to achieve, and our efficiency has increased every year."*

*-- Greg Pelka, Senior Mineral Resources Engineer, CSLC*

## Culvert Gate and Backfill, Solano County, October 2007



**BEFORE**



**DURING**

In October 2007, the AMLU assisted the Solano Land Trust by closing two adits that provided an attractive nuisance and a safety hazard to the public on property that is designated for public access. The city of Vallejo conducted the environmental review for the project pursuant to the California Environmental Quality Act. The AMLU contracted with Sweetwater Construction, Inc. to close both adits.

One adit was closed using a steel culvert with a bat gate built inside. This method was designed to allow for use by bats and to preserve the interior of the feature for public viewing as an interpretive historic site. The culvert limits sunlight penetration into this shallow adit, potentially making it more attractive to bats to use as a day roost. The second adit, which was extremely unsafe due to unstable rock overhead, was plugged using a combination of local rock, polyurethane foam, and grout to retain a natural look.



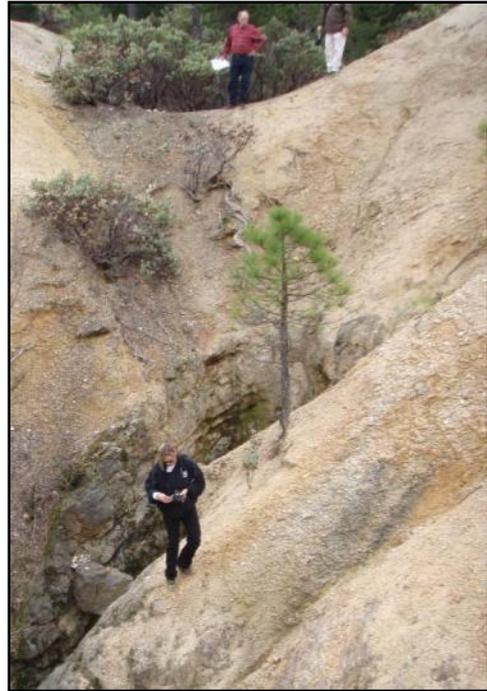
**AFTER**

*"The expertise provided by the Office of Mine Reclamation's Abandoned Mine Lands Unit was invaluable in closing these unsafe adits and adding bat habitat to the site. We appreciate that the contractors were able to get in and out of the site with minimal disturbance. Thank you for this opportunity to partner with this great group of people." – Sue Wickham, Solano Land Trust*

## High Tensile Steel Mesh Closures, Nevada County, September 2007

In September 2007, the AMLU helped to close an extremely hazardous feeder shaft and inlet to a drain tunnel for the Le Du hydraulic mine near Malakoff Diggings in Nevada County.

The project had numerous challenges, including mixed ownership (Bureau of Land Management [BLM] and State Parks), the need to maintain drainage through the features, and the unusually shaped openings. The AMLU worked with the BLM's Folsom Field Office and the U.S. Forest Service to install high tensile steel mesh over the feeder shaft, which is located within Malakoff Diggings State Park, and a similar closure modified with a bat gate on the inlet, which is located on BLM land.



**BEFORE**



**DURING**



**AFTER**

## Red Mountain Closures, San Bernardino and Kern Counties, September 2007

In September 2007, the AMLU partnered with the BLM Ridgecrest Field Office to fence 42 hazardous features in the Red Mountain Area. Forty of the shafts were located in San Bernardino County and the other two shafts were in Kern County.

The Red Mountain and Randsburg areas contain hundreds of dangerous open mine shafts that pose a serious risk to the general public, including off highway vehicle (OHV) users who recreate on the public land in the area.

On December 24, 2006, the Kern County Fire Department responded to a report that a 9-year-old fell down a mine shaft. Fortunately for the family, the boy only suffered minor injuries from the incident. Then in January 2007, another incident at an open mine shaft was reported to the BLM. In this incident, a rider drove onto a tailings pile and nearly fell into the shaft. In 2005, another rider was killed when he drove his motorcycle into a mine shaft located on private land and fell nearly 700 feet. After the December 2006 and January 2007 incidents, the BLM fenced the two shafts. This project enabled the BLM to fence many more shafts in the area that pose a serious threat to the health and safety of the general public.



*"I would like to thank you and your agency for cooperating with the BLM on this project. Without your agency's assistance in furnishing the labor costs for this project, these forty-two features may not have been fenced, thus leaving many potential hazards of the public land users in the area. Overall, this project went smoothly. The work completed under this contract shows what can be accomplished when the Federal government, the state government, the local community and the contractor all work together to accomplish a task."* – Hector Villalobos, Field Manager, BLM Ridgecrest Field Office

## Quartz Mountain Closures, Madera County, June 2007

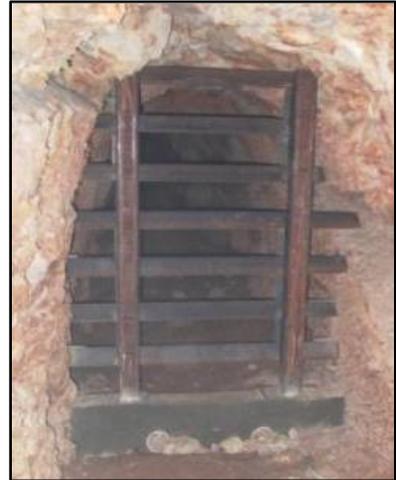
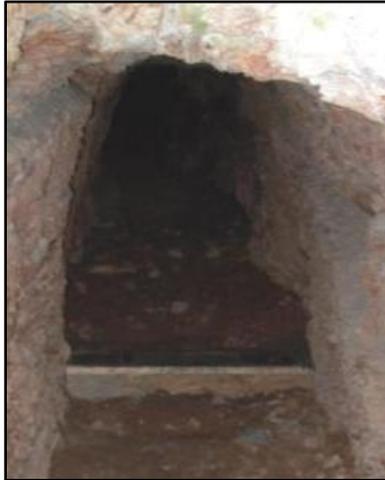
In June 2007, the AMLU partnered with the BLM Bakersfield Field Office to permanently close two abandoned mine shafts and three abandoned mine adits, as well as fill several pits in Madera County.

The need for this project was first identified when the BLM, Yosemite High School District, and the Coarsegold Elementary School District entered into a Recreation or Public Purpose lease agreement to develop federal lands at Quartz Mountain as a school site.

“Green Sticker” fees collected by the State Parks Off-Highway Motor Vehicle Recreation Division helped to fund the bat surveys for this project.

*“I write to thank you and your staff for the excellent work that was done for completion of abandoned mine closures at Quartz Mountain.... As a result public safety has been improved at Quartz Mountain, and the area is much better suited for development of a public school there. Your staff was extremely helpful, knowledgeable and timely in the entire execution of this project and displayed exemplary dedication and professionalism. The contractor you selected for the project did excellent work. I look forward to working with you and your excellent staff to close other mine features on BLM lands in the future.”*

– Tim Smith, Manager, BLM Bakersfield Field Office

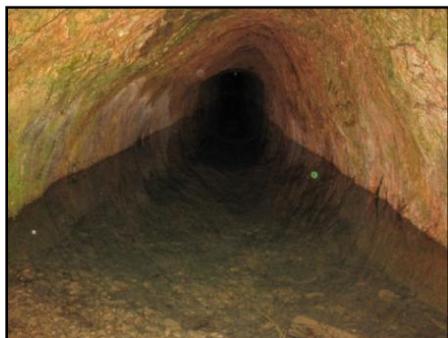


**ADIT (before and after bat gate installed)**



**SHAFT BEFORE AND DURING PUF CLOSURE (before PUF covered with soil)**

## Adit and Tunnel Closed, Eldorado National Forest, El Dorado County, May 2007



**BEFORE**



**DURING  
AND AFTER**



In May 2007, the AMLU partnered with the USFS to install three culvert gates at two abandoned mines near Georgetown in the Eldorado National Forest. The collaborative work closed one adit and two openings of a sluice tunnel in the Bottle Hill area. The sluice tunnel was located directly under an Off-Highway Vehicle (OHV) trail, making both sides easily accessible. The adit was located within a few hundred feet of a residence. All three culvert gates were constructed by a locally contracted welder in Georgetown and installed by USFS and AMLU staff.

## Adits Closed near Lake Isabella, Sequoia National Forest, Kern County, April 2007



**BEFORE**



**AFTER**

In April 2007, the AMLU and USFS teamed up to close eight abandoned mine adits located next to a campground near Lake Isabella in Kern County. The remediations were the first of many collaboration efforts between the AMLU and Sequoia National Forest. The adits, which were visible from U.S. Highway 155, were backfilled and recontoured by both AMLU and USFS staff. Cinderblock and mortar barriers were buried under fill to close some of the adits, while others were filled with polyurethane foam and backfilled to ensure that the openings would remain sealed.

*"Your crew was awesome in the help they provided for the closures. In these shrinking budget times the financial assistance gives us "more bang for the buck". I look forward to working with you on our next project."*

– Donna Duncan, Lands and Minerals Assistant, Kern River Ranger District, Sequoia National Forest