

# Remediation Work Continues in Mansfield Canyon

By Robert Gay

A mine remediation project in Mansfield Canyon, accessed by Temporal Canyon Rd, is being conducted by the Nogales District of the Coronado National Forest (CNF). There are four phases in the project: tunnel and shaft protection, road maintenance and realignment, tailings relocation and biological restoration.

The tunnel and shaft protection is for both human safety and preservation of bat habitat, according to CNF spokesperson Heidi Schewel. In the two mines located within the project area, seven adits (horizontal passages leading into a mine for access or drainage) and three shafts received closures. In designing the closures, Schewel explained in an email, "the Forest Service worked with Bat Conservation International, who performed a survey of the mine features within the project area in 2017 to assess bat presence."

Road maintenance and realignment of approximately one mile on segments of FS Roads 72, 72A, and 4091 were necessary for the movement of earthmoving equipment and tailings materials, and included regrading, erosion prevention and culverts. The road from Temporal Road to these mines (FS 72A) remains closed until January 31, 2020. FS Road 72, the road in Temporal Canyon, is open and a temporary four-mile detour of the Arizona Trail, unpopular with hikers, is no longer necessary.

The third and largest part of this project was the relocation and encapsulation of toxic tailings.

The primary impetus for the project had been the presence of lead, arsenic and antimony in the historical tailings of two 19th and 20th century mines in the Canyon, the Dixie Mine (closed 1936) and the Hosey Mine (closed 1953.) In addition to lead, these mines had been worked for silver, copper, gold, zinc, and barium.

The first phase was to encapsulate the tailings away from washes in a way that drainage can't flow from them into Temporal Gulch, which drains into Sonoita Creek. Approximately 54,000 cubic yards of mine-generated ma-

terial has been relocated by an outside engineering contractor into two shallow depressions with a tough liner and capped in place with about six

feet of native material. The site is on a ridge about 5 miles from the area of the two mines and is fenced with 4-strand barbed wire. To date there is no signage. Smaller plants, including amaranth, are beginning to reclaim the areas, albeit sparsely. Summer rains don't have appeared to produce any significant erosion or gullies, and small plants are beginning to grow in the soil cap.

The encapsulation of tailings will be followed next summer by the biological phase of the project, when a team from Borderlands Restoration Network will place both locally harvested seeds and plants salvaged from the project's construction areas. Team member Allegra Mount explained that their seeds and plants will begin to restore the basic plant communities of the disturbed area, and the plant restoration will in turn create habitat and food sources for creatures of all scales to return, in a self-diversifying response by nature. Over many years, the returnees might include mammals, birds, amphibians, reptiles, insects, and soil micro-communities.

The Borderlands team sees the re-creation of wildlife habitat by projects like this as a form of ecological healing and point out that the restoration of wildlife habitat is essential to preserve the biodiversity critical to global ecosystem function. While Borderlands does not work directly in mine reclamation, they welcome the opportunity to work with Federal land managers to contribute their seeds, plants, and biological expertise to the restoration of these "legacy mines."

The Mansfield Canyon project was not financed with Superfund dollars. The project costs were covered by money administered by an Environmental Trust Fund created by a 2014 Federal settlement against Tronox Inc, a consequence of an Asarco-originated bankruptcy which also involved Kerr-McGee, a former Patagonia Mountain claim holder who tried to unload mining holdings that had excessive cleanup costs. The settlement total of \$5.15 billion was at that time the largest U.S. environmental damage claim ever awarded

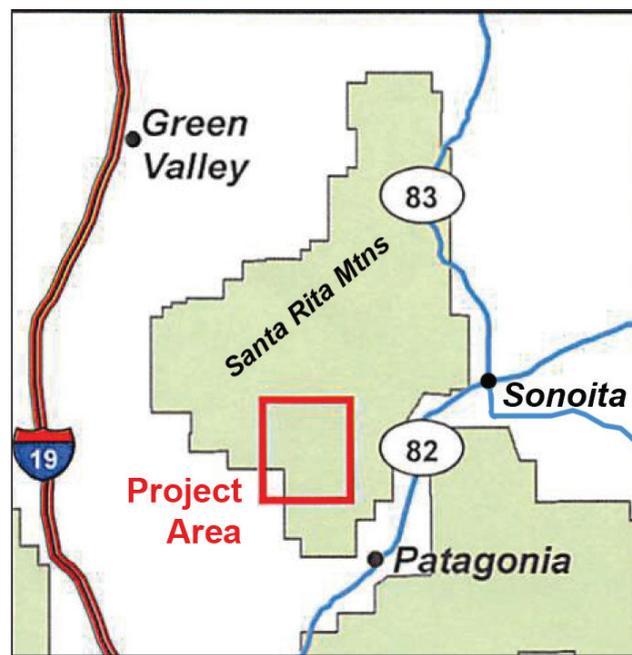
and was disbursed among Tronox-related projects in 22 states. About \$1.2 billion of it went to the cleanup of 50 abandoned uranium mines on the Navajo Nation. The Mansfield Canyon project represents a tiny fraction of the total settlement.

Elsewhere in the Santa Rita Mountains, the CNF is scheduling 58 mine-closure projects, largely in the south and east parts of the range. They are not toxic material responses, but rather involve a variety of safety closures, fencing and signage after habitat assessment of each site.

Many of the closures will be grilles intended to let air and bats into the old and generally dangerous mines, but not humans or other large mammals. Completion of this project is expected within about a year and is part of the Forest Service's Abandoned Mine Lands program. The State of Arizona has a similar program, with two field inspectors inventorying and closing unsafe mines, while preserving bat habitat when possible.

In the Patagonia Mountains, east of Red Mountain, the current Forest Service attempt to stop the recurring acid drainage from the Lead Queen Mine is a hydraulic plug filling the mouth of the adit, a site PRT has previously reported on (March 2015 and May 2018).

Also in the Patagonia Mountains, south of the Lead Queen, South32's Hermosa Project is approximately 80% finished with the tailings remediation of the former Trench Mine, another encapsulation project, with approximately 1.25 million tons being relocated. These are being placed on an impermeable



Map adapted from U.S. Forest Service Road Closure Map

liner, to a height of about 60 feet. At the bottom of the tailings pile, a piping system will drain affected water from the lined basin into a small holding pond for processing by an active water-treatment plant designed to demineralize the water to meet AZ State Aquifer Protection Permit standards.

Legislation now in the US Congress would help provide funding for remediation of both old and new mining projects, especially important in this region where the mine cleanup task is daunting.

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**Patagonia Youth Enrichment Center  
PYEC KIDS CAN COOK PRESENTS**

**THE CENTER CHEFS**  
DATE: October 19, 2019  
TIME: 4:00 P.M.  
LOCATION: 115 S. 3rd Ave, Patagonia, AZ

**Ticket Price: \$15.00 a plate (kids under 5 eat free)**

The Patagonia youth want to thank our community for supporting the Kids Can Cook (KCC) program and the PYEC at this fundraising event by showing off the cooking skills that our youth have learned through the KCC program over the 2019 summer.

For any questions regarding this event please contact Anna Coleman at (520) 343-2356 or info@pyec.org