Abandoned Mine Land Restoration

A Policy Report

By Cathy Carlson, Outreach Director

Introduction:

Congress is considering changes in federal mineral policy to modernize mining operations in national forests and lands administered by the U.S. Bureau of Land Management (BLM) One of the long term benefits from reforming the century-old law that regulates mining is the opportunity to restore communities and watersheds in the West.

Abandoned mine restoration is a critical need in the western United States. According to the Environmental Protection Agency, 40 % of the headwaters in the West are polluted by abandoned hardrock mines. Abandoned mines impact streams and rivers by discharging heavy metals and other pollutants into water sources. They also release sediment that clogs streams and harms aquatic life.

The western states are among the fastest growing parts of the country. This rapid population growth has accelerated the demand for clean water to support western communities. The increase in people living in the West and using public lands for recreation also increases the risks of accidents at abandoned mines.

Abandoned hardrock mines are killers. The U.S. Department of Labor's Mine Safety and Health Administration keeps track of fatalities and near misses/accidents at abandoned mines in the United States since 1999. According to that agency, there have been 16 fatalities at abandoned hardrock mines in the Western U.S. since 2000.[1]

Every year, these abandoned hardrock mines claim another life in the region. In 2007 in Nevada, a 63-year-old man was killed when his Jeep rolled off a narrow trail and fell 500 feet down an abandoned mine pit near Virginia City. In a similar accident, a 13-year-old girl died and her 10-year-old sister was injured when the ATV they were riding fell 135 feet into an abandoned mine shaft in northwest Arizona.

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[1] http://www.msha.gov/sosa/sosahome.asp

Collapsing Mine Adit, photo courtesy Montana Department of Environmental Quality

Scope of the Problem:

Estimates of the number of abandoned mines vary. No one really knows the extent to which abandoned mines pollute and are a public safety threat. There has never been a comprehensive inventory completed of all the sites that were mined for gold, silver, copper, lead and other metals in the U.S. Estimates of the number of abandoned hardrock mines in each of the western states are found below. Also, some states estimate or inventory the number of mines in the state, while other states have estimates and inventories of mine openings, trenches, adits and other "features." There may be multiple mine "features" at a single mine.

Table 1. Western State Inventory of Abandoned Hardrock Mine Sites

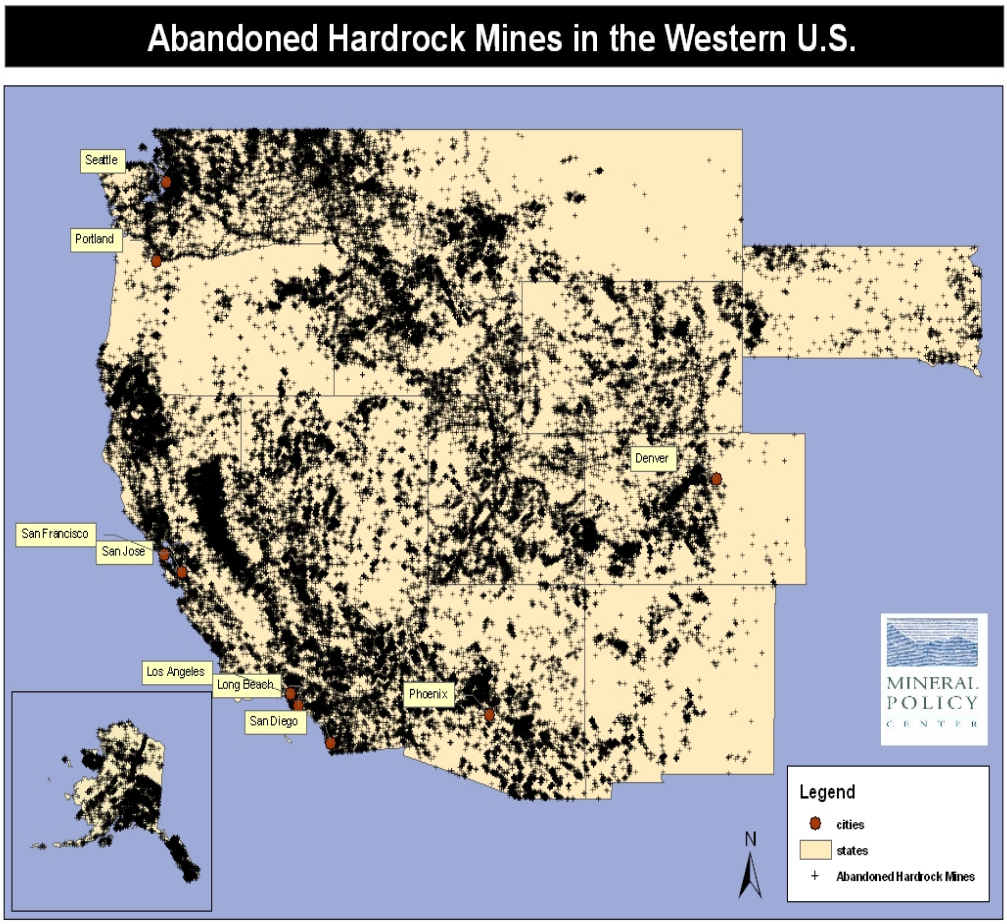
Arizona	Estimated 100,000 "openings"
California	Estimated 47,000 mines
Colorado	23,000 mines, including coal sites
Idaho	8,800 mines
Montana	6,000 mines inventoried
Nevada	Estimated 200,000 – 500,000 mine "features" at at least 166,000 mines
New Mexico	Estimated 15,000 mines
Oregon	140 mines inventoried
South Dakota	900 mines in the Black Hills area
Utah	20,000 mine features, including coal
Washington	3,800 mines inventoried

Western states, where hardrock abandoned sites pose the greatest threat to local communities and water supplies, have few resources to begin the monumental task of cleaning up these mines. In New Mexico, for example, the state Mines and Minerals Department has never had the funding to conduct a comprehensive inventory of abandoned hardrock mine sites in the state. The Abandoned Mine Land Program (AML) within the Mines and Minerals Department estimates that there are between 10,000 and 20,000 abandoned mine openings in the state. But there is no state funding in New Mexico, and in a number of other western states, to clean up abandoned hardrock mines. The minimal funding available through

the coal AML program is used to address immediate safety and health risks, but is grossly inadequate to address the extent of the problem. New Mexico's Abandoned Mine Land Program doesn't know what funds will be needed to address abandoned mines in the state, but estimates that $200 million will be necessary for safeguarding sites and addressing some of the environmental damage.[2]

Chronic lack of funding is not unique to New Mexico. In Arizona, the State Mine Inspector does not have a precise inventory of abandoned non-coal mine sites, but estimates there are 100,000 mine openings in the state. With funding from the BLM, the state identified more than 9,000 abandoned hardrock mine sites on federal lands. The State Inspector estimates that 1,200 of these inventoried sites are an "extreme risk" to public safety. Funding for clean-up efforts in Arizona is also woefully inadequate.[3]

The image below indicates the distribution of abandoned mines in the western United States, based on data from the U.S Geological Survey.



[2] John A. Kretzmann, P.E., Program Manager, Abandoned Mine Land Program, New Mexico Energy, Minerals and Natural Resources Department, personal communication, January 2008.
[3] Wes Cruea, Arizona State Mine Inspector's office, personal communication, February 2008

In California, the state estimates there are more than 165,000 mine "features" or openings and other disturbances at 47,000 mine sites across the state. The cost of dealing with the physical hazards and cleaning up the environmental damage identified as posing moderate or high risk to people is a staggering $4.1 billion.[4] However, in 2007, California received just $250,000 in general revenue and about $420,000 from the gold and silver fee fund to address public safety hazards in the state.

The Opportunity:

In the West, new revenues for abandoned mine restoration can create jobs and bring economic opportunity to rural communities affected by abandoned hardrock mines. Every western state has a long list of sites that need to be restored to protect public health and safety or the environment. This restoration work also employs people in the local community, improves the value of land that previously was damaged by mining, and may improve water quality for the local area and downstream communities.

The opportunity is real. For example, the New Mexico Department of Energy, Minerals and Natural Resources spent $330,000 in 2007 to address the damage from 19 mine openings in the Granite Gap area. The project was located southwest of Lordsburg in Hidalgo County. The Department estimates that this funding supported four people over a six-month period for abandoned mine restoration work.[5]

Before and After Images from the Granite Gap Project
On the left, an open mine shaft with a rickety ladder. On the right the shaft is covered with high tensile steel.
Photos courtesy of New Mexico Energy, Mineral and Natural Resources Department

The U.S. Forest Service is restoring the Golden Turkey, Golden Belt and French Lily abandoned mine sites, located south of Mayer, Arizona, in the channel of Turkey Creek. The abandoned mines are a source of lead and arsenic in the water system in an area that has a number of year-round residences. The Forest Service spent $1.3 million in 2007 on these projects. That project

[4] Cy Oggins, Abandoned Mine Land Unit, California Department of Conservation, personal communication, January 2008
[5] John Kretzmann, personal communication, January 2008

employed five heavy equipment operators, two heavy truck drivers, three laborers, and a project manager and superintendent in 2007.[6]

The Nevada State Division of Minerals contracted with Great Basin Institute for restoration of public safety hazards in Clark County, using funds from the Southern Nevada Land Sale Management Act. They are employing 4 people for an 8-month period in restoration work at a cost of $232,000.[7] Another project in southern Nevada is using money generated from land sales to conduct an environmental inventory and close abandoned mines in Clark County. So far, roughly $2 million has been made available though a series of grants from the Southern Nevada Public Lands Management Act, which funds a team of 3-4 field staff to perform restoration work, several contractors to conduct bat surveys, cultural surveys and endangered species work, along with field staff and administrative personnel at three federal agencies and one state agency.

The Congressional Budget Office estimates that every $1 million generated for an abandoned mine clean up program would produce 14-33 jobs.[8] In rural communities, these jobs can provide high-paying employment for contractors, bulldozer operators, hydrologists and engineers.

Western Progress is seeking a comprehensive solution to address abandoned mine restoration in the West.

In 2006, the U.S. Geological Survey estimated that the production of gold, copper and other metals generated over $14 billion in revenue in the United States.[9] Although the federal government doesn't keep track of mineral revenues from federal lands, the Congressional Budget Office estimates that roughly $1 billion is generated annually from minerals taken off federal lands.[10]

Today, mining companies pay no royalties to the federal Treasury for minerals extracted from these federal lands. Companies are able to "claim" the public lands and hold these lands for possible future development for just $125 per claim, or roughly $5/acre. In addition, once development of gold, copper and other minerals gets started, there is no rental for the use of those federal lands.

Congress is currently considering changes to the Mining Law of 1872. As we update the Mining Law for the 21st century, mining companies should contribute to a substantial fund to restore lands and waters diminished by mining.

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[6] Maria McGaha, USDA Forest Service, Southwest Regional Office, Regional Environmental Engineer, Albuquergue NM, personal communication, March 2008

[7] Mike Visher, Nevada Commission on Mineral Resources, Division of Minerals, personal communication, March 2008

[8] Congressional Budget Office (CBO) Testimony Before the Subcommittee on Mineral Resources Development and Production, March 16, 1993. http://www.cbo.gov/ftpdocs/88xx/doc8850/05-04-MiningLaw.pdf

[9] http://minerals.usgs.gov/minerals/pubs/mcs/

[10] Congressional Budget Office, Cost Estimate – HR 2262 Hardrock Mining and Reclamation Act of 2007, October 23, 2007

- Revenues can be generated from a royalty based on the gross revenue from minerals extracted from the federal lands.
- Mining companies should double or triple their contribution to the government to take 'claim' of the public lands.
- Once mineral activities begin, a rental to the federal government for the use and occupancy of federal lands should be collected.

Establish Royalties That are Fair and Reasonable

Coal companies pay a royalty for minerals taken from federal lands, as do oil and gas companies. The idea of paying the government for extracting minerals from the public domain is not new. The House of Representatives adopted legislation that would require existing operations to pay 4% of the net return from their operations to the federal Treasury. New operations would be required to pay 8% of their net return. This royalty would generate around $40 million annually, according to the Congressional Budget Office.

Increase Claims Fees for Accessing Minerals on Federal Lands

The increase in prices for gold, copper, uranium and other minerals has created a new wave of land speculation in the West, although this time the speculation is on federal lands. The U.S. Bureau of Land Management now estimates that there are more than 400,000 mining claims on federal lands, up from 200,000 just a few years ago.

To stake a claim and hold on to a piece of federal land for future development, mining companies pay the government $125 per claim, or around $5 per acre. With all the interest in new mineral development, the claim fees should be doubled or tripled over time to generate more revenue for abandoned mine restoration and reduce the land speculation that is rampant on federal lands today.

A graduated increase in the claim maintenance fee could generate $50 million-$60 million annually in funds for abandoned mine restoration.

Adopt New User Fees for Mining Activities

Other long-term users of federal lands, such as ski resorts and recreational facilities, also must pay fees to the government Mining companies that operate on public lands for 5, 10 or 20 years should be treated the same way.

Based on surveys of environmental documents submitted by mining companies to the federal land management agencies, the Center for Science in the Public Interest found that more than 25,000 acres of public lands are being used for mineral activities. Several companies did not report the acreage of public lands used in mining, so this total underreports what is actually being used.

A rental fee of $100 per acre for use of the public lands for mining, along with a surcharge for millsite areas of $1,000 per acre – given the potential for pollution from these areas – could generate another $3 million-$4 million annually for abandoned mine restoration.

Funding the Needs in the West:

Legislation passed by the House of Representatives in October directed that half or more of the funds would go to one state where the bulk of gold production is taking place today, to assist in the restoration of abandoned mines and to finance a community impact assistance fund. The remaining funds would be distributed among the western states at the discretion of the Secretary of the Interior.

Western Progress encourages a different approach, which focuses on the clean up of abandoned mines where the need is greatest, in those states with high numbers of abandoned mines. A new royalty, coupled with a gradually increased claim maintenance fee and a user fee for long-term use of public lands, could generate $100 million annually.

If 50% of the funds were distributed to the states based on historic production and 25% of the funds were distributed to the states based on current production, the revenue would be distributed along the lines in the chart below. The remaining 25% of the funding would be available to the federal agencies for abandoned mine restoration on federal or mixed ownership lands.

Table 2. Distribution of Revenues to Western States from Proposed Allocation Formula

State	Percentage of Historic production	Allocation Based on Historic Production – royalty only (50% of total) In millions	Allocation Based on Historic Production – royalty + claim fee + rental fee In millions	Allocation based on current production (25% of total) In millions	Percentage of current production
Alaska	2.84	$0.6	$1.4		
Arizona	33.94	$6,7	$16.9		
California	4.25	$0.8	$2.1		
Colorado	8.53	$1.7	$4.2		
Idaho	6.56	$1.3	$3.3		
Montana	12.0	$2.4	$6.0		
Nevada	6.57	$1.3	$3.3	25.0	100%
New Mexico	5.62	$1.1	$2.8		
Oregon	0.22	$0.04	$0.1		
South Dakota	2.4	$0.5	$1.2		
Utah	16.0	$3.3	$8.0		
Washington	0.62	$0.1	$0.3		
Wyoming	0.06	$0.01	$0.03		

Note: historical production figures based on U.S. Geological Survey data of mineral production by state – 1900 to 1990.

Even with $100 million annually, it will take 500 years to clean up all the abandoned mine problems in the West. Estimates of the total cost of restoration currently range from $30 billion to $70 billion.

Current Federal Funding and Need:

The U.S. government funds abandoned mine restoration through the Department of the Interior, Bureau of Land Management, the Department of Agriculture, Forest Service and Department of Defense, U.S. Army Corps of Engineers. Each of these programs have variable funding, and are based on annual appropriations.

The Forest Service received around $15 million in fiscal year 2008 for mine restoration. Of that total, around $4 million will be distributed to the regional offices to address closures of sites that represent a public safety hazard, and the remainder will be used for environmental clean-up projects. The funding from the Department of Agriculture had been around $12 million annually for hazardous materials clean-up, but in fiscal year 2008, the budget was cut to $4.8 million, leaving only around $1.5 million for high-priority abandoned mine restoration projects in national forests. With the current levels of funding, the Forest Service is continuing to clean up existing projects but unable to take on new projects.[11]

The Bureau of Land Management received $10.5 million in fiscal year 2008 to restore abandoned mines on BLM lands through its watershed program. In addition, BLM's Hazardous Materials program includes about $2 million for the closure of public safety hazards on BLM lands, and the Interior Department's Central Hazardous Materials fund includes $3.5 million for abandoned mines.[12]

Table 3. Funds Needed for Abandoned Mine Restoration on Federal Lands

Agency	Abandoned Mines Inventoried	Total Projected Costs for Restoration (2007 dollars)	Fiscal Year 2008 Funding
Forest Service	35,000 sites estimated (MAS/MILS)	$5.5 Billion[13]	$16.5 million
Bureau of Land Management	12,000 sites inventoried, 65,000 estimated (MAS/MILS)	Unknown	$15.0 million

One other federal program assists states with abandoned mine restoration work and is funded through the U.S. Department of Defense, Army Corps of Engineers. In 2008, the Restoration of

[11] Tom Buckta, USDA Forest Service, Abandoned Mine Program, personal communication, February 2008
[12] George Stone, USDI Bureau of Land Management, Abandoned Mine Program, personal communication, February 2008
[13] Cost estimate for restoration work provided the House Committee on Natural Resources, in response to questions, October 2008

Abandoned Mine Sites (RAMS) program received, $656,000 in appropriations, with $525,000 of that total earmarked for clean up at an abandoned mercury mine in California.[14]

State Restoration Funding and Priorities:

Starting in the mid-1990s most western states embarked on a program to identify the most significant areas within the state in need of restoration dollars to address public safety or physical hazards and major environmental hazards. Most western states now have a multi-agency task force that meets and sets priorities for restoration. The BLM compiled priorities for each state into one document, which was released to the public in 2006.[15] The following is a summary of these priorities, where available, along with available state funding.

Arizona:

Arizona is one of the few western states that does not have a multi-agency task force that sets statewide priorities. The State Office of Mine Inspector handles the abandoned mine restoration program and focuses on securing sites that are a public safety risk. In fiscal year 2007 (the last year information is available), the state received zero funding from general revenues or other government sources. It obtained a $50,000 grant from a mining company to assist with the costs of mine closures in the state.[16]

BLM has been able to inventory about 20% of its lands in Arizona. Thus far, it has identified 1953 sites on BLM lands. Based on the information available to date, BLM established that the priority watersheds for restoration are the Hassayampa, Upper San Pedro, Tyson Wash, Sacramento Wash, and Hualapai Wash and Imperial Reservoir. In addition, there are other watersheds where abandoned mines are impacting the quality of waters that flow through population centers, encompass recharge areas for groundwater used by municipalities, and that drain directly into the Lower Colorado River. Over the next seven years, BLM indicates it will take $6.1 million to clean up just 8 sites in these watersheds.

In addition, the agency will need another $1.7 million to address 150 of its highest priority public safety hazards near La Posa Long Term Visitor area, Indian Kitchen and Swansea recreation sites.

The Forest Service identified one priority area in Arizona in its work plan for the next two years – cleaning up uranium mines in the Workman Creek area. The estimated cost of this work is $1.5 million.

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[14] Cy Oggins, CA Department of Conservation.
[15] USDI Bureau of Land Management, "Cooperative Conservation Based Strategic Plan for Abandoned Mine Lands Program, March 2006
[16] Arizona State Mine Safety Fund Annual Report, December 1, 2007
http://www.asmi.state.az.us/userfiles/file/Annual%20Reports/AMSF%20Annual%20Report%20SFY2007.pdf

Colorado:

The state of Colorado prepared a comprehensive inventory of abandoned mine sites in the 1990s. Colorado found 23,000 abandoned mines, including coal mine sites. According to the Abandoned Mine Land office, approximately 13,000 of these sites are hardrock abandoned mines. In fiscal year 2008, the state received around $1.0 in funding through the Surface Mining Act's abandoned mine land program and from state severance tax funds for hardrock abandoned mine restoration.

BLM identified 2751 abandoned hardrock mines on its lands in the state. These include more than 4,600 features that are affecting water quality and 11,000 features that are considered to be safety hazards. Based on this information and in coordination with the state, the highest priorities for restoration are the upper Animas River, the upper Arkansas, and the Lake Fork of the Gunnison River.

Over the next six years, BLM proposes to work with the state to clean up 35 mine sites on federal or mixed ownership lands, at a cost of more than $7 million. In addition, the BLM expects that it will only be able to address about 30 mine sites with public safety hazards each year, since the funding has been cut off for supporting these efforts in Colorado.

The Forest Service also identified two priorities in Colorado in its work plan for the next two years: remediation of the Standard Metal Mines site near Crested Butte and removal of abandoned mine waste in Chalk Creek. These projects are expected to cost $1.2 million and $900,000, respectively.

Idaho:

The Idaho Geological Survey began in 1996 to conduct inventories of all the state's abandoned mines. There are 8,800 mine sites in the Mines and Prospects database, which includes both lode and placer claim sites. According to the state Geological Survey, about half of these locations are prospect pits with minimal land disturbance. For the past few years, the state has been conducting field inventories of abandoned mines on federal lands with support from the BLM and Forest Service, with some limited survey work on state lands for the Department of State Lands. [17] To date, Idaho's Geological Survey has visited and characterized the work that needs to be done at about 1,500 mine sites.[18]

Idaho's Department of State Lands is responsible for abandoned mine restoration on state and private lands in Idaho. It receives roughly $200,000 annually to address high priority public safety hazards across the state. [19]

Idaho's BLM office has identified 575 mines on its lands in the state. Of these, the BLM estimates that 80 could be environmental hazards and another 250 are public safety hazards. For the next several years, BLM will be concentrating its efforts in the Coeur d'Alene area in

[17] Virginia Gillerman, Boise Office, Idaho Geological Survey, personal communication, February 2008
[18] See, e.g., http://www.idahogeology.org/Products/PubList.asp, Staff Reports on Site Investigations from BLM and Forest Service lands.
[19] Sharon Murray, ID Department of State Lands, personal communication, February 2008

northern Idaho, with 6 priority sites that will require more than $2.6 million. There are also a number of sites that are impacting threatened and endangered species in the state. BLM needs another $650,000 to address its highest priority public safety sites along the Lewis and Clark National Historic Trail, in the Owyhee Mountains area, the Coeur d'Alene basin, and in the Challis, Salmon and Sun Valley-Hailey areas.

The Forest Service also has one project in Idaho identified as a priority in its work plan for 2008-2009. The agency proposes to clean up the Livingston Mill area at a cost of $800,000 million.

Montana:

The state of Montana has done the most comprehensive inventory of abandoned mines in the western United States. Most of the mine sites in the state have been inventoried, and the work to restore these mines has been prioritized. The state has approximately 6,000 abandoned hardrock mines on non-federal lands. The inventory does not include abandoned hardrock mines on federal lands. The costs for reclaiming all these mines run into the hundreds of millions of dollar, but no estimate exists of the total cost of reclaiming Montana's abandoned mines. This year the state received around $2.5 million in funding through the coal abandoned mine program administered by the federal Office of Surface Mining.[20]

BLM has identified 1,183 mines on public or mixed ownership lands. The top priority is the Upper Missouri Watershed, particularly in Boulder River, Ten Mile Creek, and Indian Creek. Over the next six years, BLM will need $10.565 million to clean up the priority sites in these watersheds. In addition, another $400,000 will be needed to address the highest priority public safety threats on BLM lands.

The Forest Service also has one priority area in its work plan for 2008-2009, cleaning up the Basin Mining area at a cost of $1.643 million.

Nevada:

Nevada has no comprehensive inventory of abandoned mines in the state. The Division of Minerals estimates that there are 200,000-300,000 mine "features" in Nevada.[21] The state is developing an inventory of all the abandoned mines. So far, it has inventoried 30,000-40,000 sites that are non-hazards, and another 12,000 sites with public safety or environmental hazards. Funding for abandoned mine restoration in Nevada comes primarily from a fee on mining claims and a per-acre fee for mineral activities on federal lands. These sources will provide about $1.1 million in funding in 2008.[22] BLM also provided a grant of $50,000 to the state. In 2008, there are no funds available to the State Department of Environmental Protection for environmental restoration at abandoned mines.[23]

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[20] John Koerth, Montana Department of Environmental Quality, Abandoned Mine Land Program, personal communication, March 2008
[21] Commission on Mineral Resources, Division of Minerals, State of Nevada AML Program, Nevada Abandoned Mine Land Report 2006 (April 2007)
[22] Mike Visher, personal communication, March 2008
[23] Jeryl Gardner, Nevada Department of Environmental Protection, personal communication, March 2008

BLM's Nevada office has a current inventory of 166,000 mines on its lands, which is based on surveys of existing databases and maps. Of this total, 50,000 features at these mine sites are considered to be public safety hazards and fewer than 120 features have water quality problems.[24] The priority areas for restoration are the Upper Humboldt/Maggie Creek area, Castleton tailings and Pioche tailings near Pioche, the Reese River area and the Ward Mine in central Nevada. Restoration in these areas is anticipated to cost $9.9 million over the next 7 years. In addition, BLM hopes to address around 400 high priority public safety sites out of the 50,000 on BLM lands in the next 7 years.

New Mexico:

The New Mexico Department of Energy, Minerals and Natural Resources never had the funding to inventory all the abandoned mines in the state. It estimates there are about 15,000 abandoned mines in New Mexico, and about 5% of these sites may be coal-related sites. The priority work for abandoned mine restoration is the closure of sites with public safety hazards, mostly focused in the southwestern part of the state, and the restoration of abandoned uranium mines. New Mexico currently receives about $1.5 million from the coal abandoned mine land program under the Surface Mining Control and Reclamation Act. The state estimates that restoration of abandoned mines will take $200 million, not including the work that needs to be done on mill sites around the state. This is a best guess since a complete inventory of environmental and public safety hazards is not available.[25]

BLM's inventory of abandoned mines on public lands in the state is equally spotty. The BLM field offices have identified 600 sites on BLM lands that they believe pose public safety risks, and these sites have over 2,500 high risk mine features, such as tunnels and adits. The highest priority areas on BLM for closing sites with public safety threats are Lake Valley, Orogrande, Boston Hill, Cerrillos Hills and the border areas in Hidalgo and Luna Counties. BLM expects to close around 45 high priority mines over the next 7 years with $470,000 in funding.

The Forest Service also identified two priority sites in its work plan for 2008-2009: cleaning up the San Mateo mine and removing mine waste, and performing restoration work in the High Rolls mining district. These two projects will cost around $1.5 million.

Utah:

The State of Utah used its Mineral Occurrence data to estimate that there are about 20,000 mine openings in the state. Many of these sites present a public safety hazard but the actual number is unknown. The funding available for abandoned mine restoration in Utah is unknown.

BLM estimates there are between 8,000 and 17,000 mine openings on public lands in Utah. Of this total, between 5 and10 percent have water quality problems. The priority areas for restoration in the state are Silver Creek/Upper Webber River, La Sal Creek, White Canyon, Asphalt Wash in the White River, White Canyon and Red Canyon. BLM identified 10

[24] Chris Ross, USDI Bureau of Land Management, Abandoned Mine Program, Nevada State office, personal communication, March 2008
[25] John Kretzmann, Abandoned Mine Land Program, Mining and Minerals Division, NM Department of Energy, Minerals and Natural Resources, personal communication, February 2008.

environmental hazards that would cost approximately $14 million to restore over the next 7 years. In addition, BLM estimates it would cost $8.3 million to address the known public safety hazards in the next decade.

The Forest Service also identified the King Edward uranium mine as a priority mine area for its remediation work, which is expected to cost $0.375 million.

Conclusion

The single largest factor in not meeting the goals of restoration in the West is money. Given the current level of funding for abandoned mine restoration and the need to protect public health and safety from hazardous mine openings it will take hundreds if not thousands of years to correct the problems associated with abandoned mines in the West. A dedicated source of federal funding will speed up the efforts to restore these lands and waters, and create jobs and economic opportunities in local communities.

Sources for Abandoned Mine Inventory in Table 1:

Arizona:
http://www.asmi.state.az.us/userfiles/file/Annual%20Reports/ASMI%202006%20Annual%20Report.pdf

California: "California Abandoned Mines" A Report on the Magnitude and Scope of the Issue in the State, Department of Conservation, Office of Mine Reclamation, Abandoned Mine Lands Unit, June 2000.
http://www.conservation.ca.gov/omr/abandoned_mine_lands/california_abandoned_mines/Pages/overview.aspx

Colorado:
http://mining.state.co.us/AbanondonedMines/inactivemine.pdf

Idaho: Idaho Geological Survey, Mines and Prospects Data Base.

Montana: Montana Department of Environmental Quality, Abandoned Mine Section, Abandoned Mine Inventory Data Base, 2008

Nevada: Commission on Mineral Resources, Division of Minerals, State of Nevada AML Program, Nevada Abandoned Mine Land Report 2006 (April 2007)

New Mexico: http://www.emnrd.state.nm.us/Mmd/AML/AMLmain.htm

Oregon:
http://www.deq.state.or.us/lq/pubs/factsheets/cu/AbandonedMineCUsHighCostLackFunding.pdf

South Dakota: South Datkoa Department of Environment and Natural Resources, and South Dakota School of Mines and Technology
http://www.state.sd.us/denr/DES/mining/AbandonedMines.htm

Utah: Utah Mineral Occurrence System data
http://www.dogm.nr.state.ut.us/amr/AMBROCHR.HTM

Washington:
http://www.environmentwashington.org/reports/toxics/toxic-free-future-reports/washington-undermined-the-toxic-legacy-of-abandoned-metal-mines-in-washington-state