

Armstrong Mine Reclamation

Lois Olsen, Forest Ecologist



The Helena National Forest has hundreds of unreclaimed mining areas that have acid mine drainage, waste rock, and tailings piles. The Forest has reclaimed 13 of those sites in the past several years, one of which is the

Armstrong Mine. The Armstrong is located in the Tenmile drainage, the municipal watershed for the City of Helena. The waste rock and tailings were removed from the Armstrong to the Luttrell Repository in 1999. The slopes were recontoured and the area was treated using straw fiber mats and seeded with a metal-tolerant seed mixture.

Revegetation of sites such as the Armstrong is very difficult, and sometimes not very successful. Some seed has established on the Armstrong, but by the spring of 2003 the area was actively eroding, the mats were slipping off the slope, and not much vegetation had established from the seeding.

Kenley Stone, a graduate student

from Montana State University, approached the Helena Ranger District about experimenting with native and nonnative sod versus mats and seeding, and seeding with no mats. The District agreed that this was a good project for the Armstrong mine, and the work began!

There were 600 rolls of sod (donated by Bitterroot Turf Farms) needing to be laid and staked in place. The slope is 65% to 70%, and people held themselves on the slope with ropes. To make the work just a little more challenging it rained on us all day long! Over 40 people worked for 8 hours without mishap to haul sod and put it in place on the slope.

We succeeded in greatly improving the ground cover on the

slopes of the mine. A follow-up visit to the area showed that while some of the sod had turned brown (a common occurrence with sod application in the summer) quite a lot was green, and being enjoyed by the local elk. The animals were churning up the sod in several places, but most of the sod was intact and expected to be actively growing into the future.

It may not be practical or necessary to attempt sod establishment on entire sites selected for rehabilitation, particularly if the acreage involved is extensive. However, if the experiment proves to be successful on this very demanding site, partial or full sod application on other difficult sites may be a practical, cost effective way to repair our most damaged wildlands.

Black-backs Need Fire

Rachel Feigley and Jodie Canfield, Wildlife Biologists

The wildfires of the past few years have dramatically changed the west. The flames and post-fire aftermath directly affected both people and animals. However, for some species, big hot fires are essential.

When fires kill trees, large numbers of insects are attracted to this new food source. In turn, insect-eating birds move in to take advantage of the bugs. These newly burned forests are especially important for species that nest in cavities. Woodpeckers are called primary cavity nesters since they are the first birds to excavate the burned trees. Secondary cavity nesters, such as bluebirds, chickadees, flycatchers, swallows, nuthatches, and wrens, then take advantage of the holes vacated by woodpeckers.

Black-backed woodpeckers are one of the most interesting woodpecker species to inhabit

burnt forests after a fire. These birds that blend into the burned environment are able to travel long distances to forage on wood-boring beetles in recently burned forests. Black-backed woodpecker numbers in a burned forest peak about 3 or 4 years after the fire, but birds remain as long as there are still insects to eat.

Salvage logging obviously affects the abundance of habitat for black-backed woodpeckers. To minimize the effects of salvage logging on fire-dependent bird species, we designed the Cave Gulch and Maudlow-Toston post-fire salvage sales to leave most of the area that burned intact and to leave additional islands of burned trees within the logged areas. Our assumption was that black-backed woodpeckers would nest in the undisturbed areas, but might make use of unburned islands within the logged areas to forage.

To determine if black-backed woodpeckers and other cavity nesters would occupy these areas that burned in 2000, and to test our assumptions about the salvage logging, we began a 3-year woodpecker survey in 2002. The survey occurred in three burned areas in the Big Belt Mountains; two of the areas had salvage logging activity.

Black-backed woodpeckers first arrive in April to initiate nesting. Their behavior at this time, which includes strong territorial displays and constant drumming to attract mates, makes them easier to find. To survey for these birds, a recorded drumming call is played along a mapped route every 200 meters. Males and breeding pairs respond to the call, and this response helps us document active nests, determine nesting territories, and estimate populations.

During the 2003 surveys, crews focused on the Cave Gulch Fire area. Black-backed woodpeckers were heard or observed along 10 of the 13 survey routes in the area not salvage logged and along 3 of the 10 routes in the logged area. Surveyors noted, as in 2002, that most of the sightings occurred in the transition zone between burned and unburned areas.

The surveyors noted that the bark had fallen off most of the severely burned snags so that few beetles or larvae were available. Therefore, most of the sightings in both areas occurred in the transition zone between the burned forest and the green islands. Survey crews also observed northern three-toed woodpeckers, downy woodpeckers, hairy woodpeckers, and northern flickers foraging in all three areas. Our surveys next year will tell us if we've "reached our peak" or whether the birds that need fire have moved on.