

The Budgetary, Ecological, and Managerial Impacts of Pinyon-Juniper and Cheatgrass Fires

Thomas C. Roberts, Jr.

Abstract—The 1996 fire season illustrated the potential impacts of wildland fires on the Bureau of Land Management (BLM) administered lands through numerous western states. During the 1996 fire season, over six million acres burned in the United States through unplanned ignitions (wildfires). Over two million acres burned on BLM administered acreage, with over three hundred thousand of them having Emergency Fire Rehabilitation (EFR) projects implemented on them with project costs of over \$21 million, over a three year period. Many of these fires were on lands dominated by pinyon-juniper or cheatgrass vegetation community types. These fires are indicative of fuel loads and fire conditions that lend themselves to unplanned or planned ignition and commensurate ecological implications. Pinyon-juniper and cheatgrass fires, as often happen on BLM managed lands are expensive to rehabilitate, disruptive to the workforce and local land users, and at times contentious in methods used for rehabilitation. This paper will describe the budgetary, ecological, and managerial implications of these wildland fires and their rehabilitation within the BLM, using the 1996 fire season as an example.

The Bureau of Land Management (BLM) administers approximately 270 million acres of public land, with about 170 million in the lower forty eight states. Wildfire is a planned and budgeted program, with a programmed budget and workforce, that although in the most part seasonal, is obligated in its tasks, training and commitment. As performed in the BLM, Emergency Fire Rehabilitation (EFR) is funded under the Fire Operation and Suppression Accounts, and performed on an as needed basis. As such, training and support, until recently have been a low priority, with very few full time personnel and limited training. However, during the 1996 fire season, over six million acres burned across the country, including over two million on BLM administered lands, rehabilitation projects were implemented on over three hundred thousand acres with costs of over \$21 million, spread over a three year period. The states of Idaho and Utah were particularly heavily hit with large expensive fires in each state. The fires caused millions of dollars of unbudgeted expenditures to be planned, requested and budgeted. Utah alone needed almost \$9,000,000, with Idaho, Nevada and Oregon also needing significant amounts of funding. These amounts significantly exceeded the

usually budgeted amount of \$5,400,000 necessitating the request for supplemental funding through the Department of Interior. While to some extent, an obligated budget like Social Security or Medicare, it is not without scrutiny or concern that such large increases are made by the BLM.

Indeed there is and has been a large amount of discussion and concern about the appropriate level of rehabilitation or “restoration”, or to some observers, reclamation, that needs to be done after a fire. These discussions well illustrate not only a person’s fiscal philosophies, but their philosophies about the role of government in ecological matters. It is likely that as the 1996 and 1994 fire season are averaged with lower cost years, the average cost for the Emergency Fire Rehabilitation program will increase, and this is without anticipated increases in burned acreage, that may be in the future.

The ecological impacts of the pinyon-juniper and cheatgrass fires are particularly significant in Idaho, Nevada, and Utah, which have had a considerable number of fires in the last twenty years. In an era when the “health” of the land is often a subject of discussion, the impacts of these fires and their results have the potential for omission, when their impacts have both positive and negative possibilities. The pinyon-juniper community type has in common with the invasive annual, cheatgrass, the fact that they affect both the sagebrush-grass and salt desert shrub types where elevation or precipitation patterns permit. As such they affect a number of states including California, Colorado, Idaho, New Mexico, Nevada, Oregon, Wyoming and Utah. The implications of the management of the pinyon-juniper type are changing in visibility and ecological importance because of a number of reasons. The pinyon-juniper community type covers a large area, a diversity of uses and values, and the results of management decisions will be noticed whether those decisions are by intent or default. Fire and fire rehabilitation have a particularly large role in the management of this ecotype. Concurrently, this administration is encouraging the use of fire or the reinstatement of fire into ecosystems where it has been absent.

There are a number of considerations that are necessary to avoid ecological problems in the reinstatement of fire, including the presence of cheatgrass or other invasive plants on a site to be burned or one that has burned, and the lack or presence of a desirable understory prior to the fire. There are many areas dominated by pinyon-juniper or becoming dominated by them that may need appropriately applied fire or lack of aggressive suppression, should a wildfire start, but unless they have a desirable understory, either a funding source is necessary to reseed with desirable plant species or prescribed fire postponed until a funding source located, or in the case of wildfire, Emergency Fire Rehabilitation funds

In: Monsen, Stephen B.; Stevens, Richard, comps. 1999. Proceedings: ecology and management of pinyon-juniper communities within the Interior West; 1997 September 15–18; Provo, UT. Proc. RMRS-P-9. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Thomas C. Roberts, Jr. is Emergency Fire Rehabilitation Program Lead, Washington Office, Bureau of Land Management.

may be appropriately used to fund a rehabilitation project. Basically, fire rehabilitation funded with EFR funds may be done to reduce soil erosion, protect private property and life, and to deny the entry or expansion of weeds. It is not meant to be a restoration account, although possibly desirable, site restoration is not the primary goal of the EFR program.

However, as stated above, fire and fire rehabilitation can be powerful tools in land management in the BLM. There are presently about 45,000,000 acres dominated by pinyon-juniper trees under administration of the BLM (USDI, 1993) and an estimated 75,000,000 acres with cheatgrass or with the potential for the presence of cheatgrass (Pellant and Hall, 1994). The ecological problems related to these fires have been documented by many including, Bunting, (1994), Billings, (1994), and others. Bunting (1994), found that the fire free interval of juniper dominated areas to be as long as fifty years and suggests a number of scenarios to explain the present situation, and ecological impacts of fire in the juniper type in the Great Basin. Indeed, the apparent conflicting needs of ecosystems dominated by juniper or pinyon and juniper, and the necessity to control fire in sagebrush or shadscale ecosystems that are at risk because of the presence of cheatgrass have been documented by Pellant (1994), Roberts (1994), and others. Probably most telling is Billings (1994) where he states that "Cheatgrass in the Great Basin area has become abundant enough to provide fuel for disastrous and extensive fires". Roberts (1994) reported on the resource impacts of a ten year history of fire in the Salt Lake District of the BLM, consuming nearly 500,000 acres of rangeland documenting differences between sites before and after fires and the impacts due to the presence of cheatgrass. Whisenant (1990) reported on the decreased fire frequencies in the Snake River Plains of Idaho, again due to the presence of cheatgrass. As illustrated above, the ecological implications related to fire and the pinyon-juniper community type are integral to questions related to the presence or absence of cheatgrass.

The managerial challenges are final and possibly the most limiting to these intertwined ecosystems. Again, using Utah as an example, the fires of 1996 caused an expenditure of over 425 workmonths in rehabilitation projects on the burned over acreage, much of it juniper or cheatgrass dominated. Although half of those workmonths were accomplished by temporary labor, the other half was work done by full time permanent employees, including range conservationists, wildlife specialists, botanists, engineers, equipment operators, archaeologists, surveyors, public affairs officers, and numerous others. Unfortunately, the use of solicitors and even the BLM's Resource Advisory Council because of the use of chaining, a controversial method of burying seed (in Utah), was necessitated because of legal challenges and ultimately a Temporary Restraining Order prohibiting the Utah BLM from completing one project. Idaho also had difficult questions relating to fires near Boise. The Eighth Street Fire, just inside Boise City limits was human caused, burning up through dry cheatgrass and shrub vegetation though publicly and privately owned land to be stopped on the Boise National Forest. The choice of rehabilitation techniques, in this case terracing, caused a furor in Boise, which threatened to shut down the project. Ultimately, it is probable that result was less than first proposed, but more than desired by many. It was a fire and rehabilitation project that

will be monitored for a number of years. It also had significant impacts on the workforces of Boise District (BLM) and Boise National Forest, while drawing upon the concerned volunteers of Boise City. While costing millions of dollars as did the projects did in Utah, it involved much less land, and many more people and more jurisdictions, including the BLM, U.S. Forest Service, state and county governments, and private land owners.

In conclusion, the problems or challenges caused by pinyon-juniper vegetation and fires, and cheatgrass are many and will continue. The dilemma caused by fire exclusion and the concomitant increase in juniper dominated land is countered by the cheatgrass presence and its problems. A potential problem that may make cheatgrass look benign are the secondary invasive weeds such as medusahead-rye, yellow starthistle, diffuse knapweed, and rush skeleton weed, weeds that have been found on the Eighth Street fire, and some of the Utah fires. These are weeds, particularly yellow starthistle and diffuse knapweed, that have little or no forage producing capacity, have the same site dominating capabilities of cheatgrass, and sharp thorns that destroy the site's recreational desirability also. The 1997 fire year was a light to moderate fire year, with adequate moisture for a high fuel buildup and carryover into next season, indicating that 1998 could be as difficult or worse than 1996.

In a positive note, the BLM and Forest Service have increased their training and in the BLM's case revised its EFR Handbook to reflect a broader approach to fire rehabilitation. There has also been a great amount of discussion and evaluation of Post-Fire rehabilitation policies and directions, being done at the Departmental Level, at the Department of Interior. It is likely that this review will examine the policies and funding authorities being used by Interior agencies, and BLM in particular.

This review may also have some impacts on the Forest Service. In the short run, the agencies are committed to an increased level of communication and coordination on training, and when necessary, project planning and implementation. It can be expected, however, that continuing discussions or concerns will remain as to funding authorities and philosophies for fire rehabilitation, and how far that approach can be extended towards vegetation restoration on the burned site. It should be anticipated, however, that as discussed above, there will likely plenty of rhetorical and physical fuel to continue some of the controversies relating to management of the pinyon-juniper ecosystem and its adjacent ecosystems, particularly as the discussions relative to ecosystem "health" continue.

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