

ENVIRONMENTAL ASSESSMENT RECORD

NUMBER: Forestry-2003-01

CASEFILE / PROJECT NUMBER: CO-SJPLC-03-018

PROJECT NAME: CANM Pinyon Pine Protection

PLANNING UNIT: San Juan Public Lands Center

LEGAL DESCRIPTION:

1. Anasazi Heritage Center – T.37N., R.15W. Section 7
2. Lowry Pueblo – T.38N., R.19W., Section 2
3. Sand Canyon Pueblo – T.36N., R.18W., Section 12
4. Painted Hand Pueblo – T.37N., R.19W., Section 20

APPLICANT: Bureau of Land Management

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Proposed Action: Four high visitation recreation/cultural sites within the Canyons of the Ancients National Monument would be treated to protect mature piñon pine from the IPS piñon pine beetle. This action involves hand spraying Carbaryl insecticide, in accordance with the label directions, to the boles and branches of individual mature piñon pine trees. There will be no ground disturbance with this activity. Two treatments are required. The first would occur in late March and a second in late August. Candidate trees may need to be treated again in 2004 depending on IPS beetle activity and populations in the area.

The candidate trees were selected based on size, pleasing shape, and proximity to recreation and administrative sites. These trees are along trails leading to the pueblos, around parking and picnic areas, and in the front courtyard of the Anasazi Heritage Center. Preventive spraying provides a proven method of keeping uninfested but susceptible pines alive, despite attempted attack.

1. Anasazi Heritage Center – Treat 75 to 80 trees over 3.5 acres in the front courtyard, along the trail to the Escalante Pueblo and around the picnic tables.
2. Lowry Pueblo – Treat 18 trees over 5 acres, along access road and around picnic area and restroom.
3. Sand Canyon Pueblo – Treat 35 trees over 1 acre around parking area, along trail to the pueblo and within the pueblo area.
4. Painted Hand Pueblo – Treat 10 trees over 10 acres, near parking area, along the trail and rock rim just above the pueblo.

Carbaryl is currently registered for use and labeled by the U.S. Environmental Protection Agency (EPA) for forestry and rangeland treatments. All applications of this insecticide will be conducted in strict adherence to the label directions. EPA has classified carbaryl as a “possible human carcinogen” based on an increased incidence of vascular tumors in a chronic study of male mice exposed at 46 milligrams/kilograms/day (mg/kg/day) (1000 ppm) (EPA, 1993). Carbaryl is of moderate acute oral toxicity to humans. The mode of toxic action of carbaryl occurs through inhibition of acetylcholinesterase (AChE) function in the nervous system. This inhibition is reversible over time if exposure to carbaryl ceases. Carbaryl, however, is not considered to pose any mutagenic or genotoxic risk based upon the weight of evidence. Potential exposures to the general public from conventional application rates are infrequent and of low magnitude. These low exposures to the public pose no risk of direct toxicity, carcinogenicity, neurotoxicity, genotoxicity, reproductive toxicity, or developmental toxicity. Potential worker exposures are higher and have the potential for adverse effects if proper safety procedures, including required protective gear, are not used. Carbaryl has been used routinely in other programs with no reports of adverse health effects. Therefore, routine safety precautions are anticipated to continue to provide adequate protection of worker health.

No Action: This alternative will result in a majority of the trees selected for protection being killed by the IPS beetle during the summer of 2003. Nature will choose which trees survive, rather than the BLM specialists selecting the trees we want to see in the future on these sites. It is estimated that 80% to 90% of the mature piñon pine will die within the region at the current IPS beetle population numbers.

Background: Periodic IPS beetle epidemics are capable of causing heavy mortality in drought stressed and dense stands of pine. During late summer 2002 the Four Corners region, experienced a huge IPS beetle epidemic that killed thousands of piñon pine over thousands of acres. These beetles are wintering in many of these trees and are expected to emerge in late March or early April of 2003. Primarily bark beetles attack and kill healthy trees by mass colonization. They will be flying into the nearby healthy piñon trees to reproduce and to feed. Once inside of the tree, the beetles girdle the tree, disconnecting the translocation process between the roots and leaves.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD: None

NEED FOR PROPOSED ACTION: Bark beetles are among the most destructive insects in North America. Wood (1982) estimated that 54% of natural deaths of conifers was the result of bark beetles. This destruction reduces recreational opportunities, modifies wildlife habitat, affects water quality, increases the wildfire hazard and often releases unwanted understory plants. The protection of select mature high value piñon pine adds to the visual attractiveness improves the woodland diversity of these high visitation recreation/cultural sites.

PLAN CONFORMANCE REVIEW: The proposed action is subject to the following plan:

Name of Plan: San Juan/San Miguel Resource Management Plan
Date Approved: September, 1985


The proposed action has been reviewed for conformance with this plan (43 CFR 1610.5, BLM 1617.3).

The State Director's Guidance for Canyons of the Ancients National Monument, dated October 5, 2000, does not address pesticide applications.

Comment: Conformance with the appropriate plan is a necessity for proceeding with all proposals. If a proposal does not conform with the decisions of the RMP then it is rejected or the RMP must be subjected to analysis via a planning amendment. The following information is necessary under the PLAN CONFORMANCE REVIEW:

1. Identify the appropriate Resource Management Plan and its Approval Date. (Other resource activity plans may also be identified if applicable.)
2. Clearly identify whether the proposed action IS OR IS NOT in conformance with the plan.
3. Provide the specific RMP or other planning document decision either verbatim or by decision number.

Standards for Public Land Health: The Standards are addressed in the appropriate Affected Environment/Environmental Consequences sections. The following table is a summary of those two sections. Project areas have been assessed for all Standards, however, not all Standards necessarily apply to all acres in the project area. "NA" denotes where a Standard does not apply and does not influence overall land health. Depending on the action analyzed, completion of this chart may be required, optional, or not required. Also, in completing this chart, either acres or checkmarks are acceptable in the appropriate row-column depending on the action analyzed.

Standard	Current Situation			With Proposed Action	
	Achieving or Moving Towards Achieving	Not Achieving	Causative Factors 	Achieving or Moving Towards Achieving	Not Achieving
1 Upland Soils	X			X	
2 Riparian Systems	NA			NA	
3 Plant / Animal Diversity		X		X	
4 T & E Species	NA			NA	
5 Water Quality	X			X	
Total Acres					
Total number of acres in project area: 20					

COMPLIANCE WITH SECTION 302 OF FLPMA

X A review of applicable planning documents and a thoughtful consideration of new issues and new demands for the use of the public lands involved in the project areas has been made. This analysis concludes that the current land and resource uses are appropriate.

___ A review of applicable planning documents and a thoughtful consideration of new issues and new demands for the use of the public lands involved in the project area's has been made. This analysis concludes that the current land and resource uses may be inappropriate because of the following factors/concerns and a land use plan amendment will be completed prior to authorizing this project for more than one year. Reasons for the conclusion are:

AFFECTED ENVIRONMENT /ENVIRONMENTAL IMPACTS /MITIGATION MEASURES:

Much of the environmental impacts information comes from the 2002 USDA, Rangeland Grasshopper and Mormon Cricket Suppression Program Environmental Impact Statement, the USDA carbaryl fact sheet and the carbaryl pesticide label instructions.

The **mitigation measures** for each element are in **bold text** and are listed a second time at the end of this document.

CRITICAL ELEMENTS

AIR QUALITY: Carbaryl does not evaporate easily. It has a half-life in air of 1 to 4 months. The low vapor pressure of carbaryl makes it unlikely that there will be any volatilization from soil, water, or treated surfaces (Dobroski *et al.*, 1985).

During the operational phase of the proposed action there maybe some slight impairment of the air directly around the spraying operation. **These treatment areas will be closed to the public for 24 hours and workers will be required to wear respirators to avoid any human inhalation.** This spray mist would probably last less than a few minutes in the air immediately around the treated tree. **Spraying when wind speeds are less than 5 MPH and using a coarse spray tip will reduce the potential for any drift.** The proposed activity will not significantly affect the area's air quality.

Criteria pollutants (pollutants for which maximum allowable emission levels and concentrations are enforced by State agencies) will be produced by internal combustion engine fuel consumption during travel to the treatment areas. Effects will be localized and minimal compared with other vehicular activities in treatment areas.

CULTURAL RESOURCES: The proposed project would be conducted within or in the immediate vicinity of ten (10) prehistoric archaeological sites. These sites are described by treatment area as follows:

Lowry Pueblo Treatment Area- two sites are located within this area. They include Lowry Pueblo (5MT1566) and Site 5MT839. Lowry Pueblo is an excavated and reconstructed Ancestral

Puebloan habitation site with 39 known ground floor rooms, 7 kivas, a Great Kiva, and a possible tower. This site is a National Historic Landmark, and is listed on the National Register. Site 5MT839 is a large habitation with rubble mounds and kivas. It is eligible for inclusion on the National Register of Historic Places.

Sand Canyon Treatment Area- one site, Sand Canyon Pueblo, is located within this treatment area. Sand Canyon Pueblo is a large Ancestral Puebloan habitation containing at least 420 surface rooms and 90 kivas. This site is eligible for the National Register of Historic Places. Portions of this site were excavated by Crow Canyon Archaeological Center. The site is minimally developed for public visitation.

Painted Hand Treatment Area- three sites are located within and immediately adjacent to this treatment area. They include Painted Hand Pueblo (5MT502), a sparse artifact scatter (5MT14401), and a lithic scatter (5MT4308). Painted Hand Pueblo is a large Ancestral Puebloan, site with twenty masonry structures including rooms, kivas, and two towers. This site is eligible for the National Register of Historic Places. It is minimally developed for public visitation. 5MT14401 is a sparse sherd and lithic scatter that has been determined to be ineligible for inclusion on the National Register. 5MT4308 is a lithic scatter that has not yet been evaluated for National Register eligibility.

Anasazi Heritage Center Treatment Area- four sites are located within and immediately adjacent to this treatment area. They include Dominguez Pueblo (5MT2148), Escalante Pueblo (5MT2149), and sites 5MT4348 and 5MT9169. Escalante and Dominguez Pueblos are Ancestral Puebloan habitation sites with rooms and kivas. Both of these sites have been partially excavated and reconstructed, and are interpreted for the public. The other two sites are also Ancestral Puebloan habitations with rubble mounds and kiva depressions.

There would be no effects to cultural resource from ground disturbing activities as none are proposed for this project. The effects of Carbaryl on sensitive cultural features such as sandstone rubble mounds, standing masonry walls, and/or rock art panels of prehistoric archaeological sites are presently unknown.

Potential effects from Carbaryl spray on sandstone rubble mounds, standing masonry walls, rock art panels, and other sensitive features would be mitigated by laying plastic underneath trees and/or on sandstone cliff faces located in sensitive areas. Specific trees to be treated would be identified in advance, and trees located in archaeologically sensitive areas (within or in close proximity to rubble mounds, standing walls, rock art panels, or other sensitive cultural features) would be identified and marked by the CANM archaeologist. Plastic would be laid down beneath the trees or placed on wall faces prior to spraying. Potential drift of the spray onto unprotected sensitive areas would be reduced by spraying when wind speeds are less than 5 MPH and through the use of a coarse spray tip.

ENVIRONMENTAL JUSTICE: On February 11, 1994, the President issued Executive Order N. 12898 on Environmental Justice as it affects minority and low-income populations. The purpose of the order is to identify and address, as appropriate, disproportionately high or adverse

human health and environmental effects of program, policies, or activities on minority or low-income populations. In the region around the project areas, minority populations include Native Americans, Hispanics, and some Caucasians. These populations tend to be low-income groups in the area. The proposed activity would not disrupt any of these identified communities. No disproportionate negative impacts to these communities are anticipated.

FLOODPLAINS, WETLANDS, & RIPARIAN ZONES (includes information related to Standard 2): There are no floodplains, wetlands or riparian zones within the project areas. There would be no impacts.

INVASIVE, NON-NATIVE SPECIES: No surface disturbing activities would be associated with the proposed action; there would be no impacts to invasive, non-native species.

NATIVE AMERICAN RELIGIOUS CONCERNS: Native Americans are being consulted through a request for comments on this environmental assessment. Comments and suggestions will be considered by the decision making official prior to preparation of the Finding of No Significant Impact and signing of the Decision Record. A list of Native American tribes/nations/pueblos being consulted is provided in the Persons/Agencies Consulted section of this document.

Native American Tribes Being Consulted Through Review of this Environmental Assessment

The Northern Ute Tribe

The Ute Mountain Ute Tribe

The Southern Ute Tribe

The Navajo Nation

The Hopi Tribe

The Jicarilla Apache Tribe

The Pueblos of Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, Santa Ana, Santo Domingo, Sandia, San Juan, San Ildefonso, Santa Clara, Taos, Zia, and Zuni

PRIME OR UNIQUE FARMLANDS: None of the proposed treatment areas are considered prime or unique farmlands.

SOILS (includes information related to Standard 1): Carbaryl has a relatively short half-life in soil. It may be active in the soil and is absorbed by soil particles. The average half-life ranges from 7 days in aerobic soils to 28 days in anaerobic soils (EPA, OPTS, 1985). Carbaryl persistence in soil depends on the pH, moisture content, and microbial activity of the soil. Degradation of carbaryl in soil results primarily from the metabolic activity of microorganisms (Heywood, 1975), but hydrolysis and photolysis also occur. Biodegradation of carbaryl is a

principle breakdown mechanism and as much as 80 percent has been shown to mineralize (degrade) within 4 weeks (Howard, 1991). Soil microorganism densities have been slightly reduced following carbaryl treatments, with recovery to normal population densities occurring within 3 weeks (Moulding, 1972). Management Systems (GLEAMS) modeling (Davis *et al.*, 1990) indicates minimal soil movement of carbaryl. **Using a coarse spray tip to reduce the potential for any drift would reduce the impacts to the soils directly around each candidate tree.**

The soil type found in the Anasazi Heritage Center treatment area is Wauquie-Dolcan complex, 6 to 25 percent slope.

The soil type found in the Lowry Pueblo treatment area is Cahona-Sharps-wetherill complex, 2 to 6 percent slopes.

The soil type found in the Sand Canyon treatment area is Gladel-Pulpit, 3 to 9 percent slopes.

The soil type found in the Painted Hand treatment area is Rizno-Gapmesa complex, 3 to 9 percent slope.

The degradation of carbaryl is slowed in acidic soils. The soils within the proposed treatment areas are all neutral to alkaline. The chemical properties of the soils would not hinder the degradation of the pesticide. The soils within the proposed treatment areas have moderate clay content. Carbaryl has low mobility in soils with high clay content. The physical properties of the soils would help to limit mobility of the pesticide.

THREATENED AND ENDANGERED SPECIES (includes information related to Standard 4): Carbaryl may be a hazard to endangered species if it is applied to areas where they live. No threatened or endangered species are known to occur within the proximity of this project. Several sensitive bat species are known to roost and/or forage in piñon-juniper woodlands. These include the Allen's big-eared bat, big free-tailed bat, fringed myotis, spotted bat, and Yuma myotis. Since the pesticide is being applied to the bole of the tree, it is unlikely one of these bat species would be affected by the application. Potential impacts are negligible.

No threatened or endangered plants are found within the proposed treatment areas. Several sensitive plants are found within the regions piñon and juniper woodlands but these plant species are not found growing underneath piñon trees.

VEGETATION (includes information related to Standard 3): Carbaryl has a low phytotoxicity to most plants. Insecticidal properties of carbaryl persist on exposed green plant surfaces from 3 to 10 days and perhaps longer. Contact with non-target plants may injure some plants. Roots and leaves absorb small amounts of carbaryl. Carbaryl acts as a plant growth regulator. **Spraying would occur when winds are less than 5 MPH to reduce drift. A coarse spray would be used to minimize drift to non-target plants.**

The major metabolite is 1-naphthol. Although carbaryl is a polar compound, bioconcentration in plants is not of concern due to limited plant uptake relating to the low water solubility and rapid degradation (Nash, 1974). The effects of carbaryl on vegetation can be either direct toxicity (phytotoxicity) or indirect. Carbaryl can adversely affect plant growth and produce phytotoxic effects at high application rates. However, exposure of vegetation to carbaryl at the proposed program application rates is lower and would not be expected to result in any phytotoxic effects. The negative impacts on plant reproduction would be associated with reduced numbers of plant pollinators.

WASTES, HAZARDOUS OR SOLID: Carbaryl pesticide would be applied according to the label. If any spill occurs the following label procedures would be followed. Protective equipment including an approved respirator, chemical resistant gloves, full-body protective clothing, and goggles would be worn during spill cleanup. Spills of dry material would be scooped up using shovels and placed in containers for disposal. Any remaining material would be cleaned from hard surfaces. Small spills of liquid material would be absorbed using an inert material such as sand. Large spills would be diked. Material would not be flushed to any waterway or public sewer system. If carbaryl is exposed to excessive heat, thermal decomposition (breakdown) may occur. Thermal decomposition products may be hazardous. **In the case of a large spill, CHEMTREC at 1-800-424-9300 would be called for advice.**

WATER QUALITY, SURFACE AND GROUND (includes information related to Standard 5): There are no surface waters within the four proposed project areas. The nearest perennial stream to one of the proposed project areas is approximately 0.4 miles.

Carbaryl is not expected to have detectable runoff or any leaching to groundwater due to the low water solubility, moderate sorption, and rapid degradation in soils. Less than 1 percent of carbaryl applied to a sloping plot was detected in runoff (Caro *et al.*, 1974).

Carbaryl is not expected to persist in aquatic environments. Degradation of carbaryl is rapid in both freshwater and saltwater. The half-life of Carbaryl in freshwater ranges from 1 to 6 days. Carbaryl applied over open freshwater was found to degrade completely in 1 to 2 days (California Department of Fish and Game (CDFG), 1963; Lichtenstein *et al.*, 1966). Kinetic studies determined the half-life for hydrolysis in neutral to alkaline freshwater to be 1.3 to 1.5 days (Wolfe *et al.*, 1978; Aly and El-Dib, 1971). The photolysis half-life in water was determined to be 6.6 days (Wolfe *et al.*, 1978). Carbaryl concentrations following a 1.5-inch rainstorm are projected to have less than 5 parts per billion (ppb) in streams and less than 13 ppb in ponds based upon GLEAMS modeling (USDA, APHIS, 1996).

To avoid any chance of water contamination the carbaryl spray would only be applied on a rain-free day.

WILDERNESS, AREAS OF CRITICAL ENVIRONMENTAL CONCERN, WILD AND SCENIC RIVERS: The proposed action would not effect any of these resources.

WILDLIFE, AQUATIC (includes information related to Standard 3): No open water sources are within the possible range of contamination from the proposed hand spraying application.

WILDLIFE, TERRESTRIAL (includes information related to Standard 3): Carbaryl is of moderate acute oral toxicity to mammals. Carbaryl applied at label rates is unlikely to be directly toxic to upland birds, mammals, or reptiles. Field studies have shown that carbaryl applied as either ultra-low-volume (ULV) spray or bait at proposed rates posed little risk to killdeer, vesper sparrows, or golden eagles in the treatment areas. Most mammals, including humans, readily break down carbaryl and excrete it in the urine and feces. An estimated 70 to 80 percent is eliminated within 24 hours (Dorough, 1970). Water-soluble metabolites taken up by mammals are also quickly eliminated, mainly in the urine (Casida and Lykken, 1969). Carbaryl is not subject to significant bioaccumulation due to its low water solubility and low octanol-water partition coefficient (Dobroski *et al.*, 1985).

Carbaryl is an AChE inhibitor. For vertebrates, such as birds, AChE is essential for normal nervous system functions. A moderately severe AChE inhibition of 40 to 60 percent affects coordination, behavior, and foraging ability. Such inhibition can lead to death from weather, predators, or other stresses of survival in the wild. The effects of lower AChE levels are still open to question regarding biological significance. In samples collected over a period of several years from multiple grasshopper treatment areas, not a single bird or mammal was found to have more than a 40 percent AChE inhibition, and only a few individuals over the course of the entire study had an AChE inhibition as high as 20 percent (McEwen *et al.*, 1996a). Fish exposed to carbaryl showed no inhibition of AChE (Beyers *et al.*, 1994). At the carbaryl application rate proposed for this activity, there is very little possibility of toxicity-caused mortality of upland birds, mammals, or reptiles, and none has been observed (McEwen *et al.*, 1996a).

McEwen *et al.* (1996b) studied the effects of carbaryl bait applied at label rates to American kestrel nests. No adverse effect was noted on the treated nests, and all kestrel nestlings fledged normally. No toxic signs of bird mortality were observed during studies on killdeer populations in North Dakota when carbaryl ULV sprays were applied at label rates.

Golden eagles are a protected species and also are designated as a “species of concern” by wildlife conservation and land management agencies. This bird also has special significance for some Native American tribes. Golden eagles nest in remote rangeland areas and may be found on areas requiring treatments. A study of carbaryl sprayed directly over golden eagle nests at the label rate found that there was little risk to nesting golden eagles (McEwen *et al.*, 1996b). The effects of carbaryl bait applied at label rates on vesper sparrow nestling growth and survival were investigated in North Dakota (McEwen *et al.*, 1996a). Vesper sparrow survival, growth, and fledgling rates were not affected by the bait treatments around the nesting areas, and there was no difference in any of the productivity parameters between vesper sparrow nests on treated and untreated sites (Adams *et al.*, 1994).

Carbaryl is slightly toxic to birds. The acute oral LD50 of carbaryl to avian species ranges

from 707 mg/kg to 3,000 mg/kg (Hudson *et al.*, 1984). A number of studies have reported no effects on bird populations in areas treated with carbaryl (Richmond *et al.*, 1979; McEwen *et al.*, 1962; Buckner *et al.*, 1973). Some applications of carbaryl were found to cause depressed AChE levels (Zinkl *et al.*, 1977; Gramlich, 1979). This temporary inhibition of AChE may reduce the ability of the birds to avoid predation and conduct adequate foraging. AChE inhibition at 40 to 60 percent affects coordination, behavior, and foraging ability in vertebrates. This could lead to death from weather, predators, or other stresses of survival in the wild. Studies over several years for multiple grasshopper treatment areas have shown AChE inhibition at levels of no more than 40 percent with most at less than 20 percent (McEwen *et al.*, 1996).

Data about effects of carbaryl to reptiles and amphibians is limited to toxicologic information about the bullfrog. The acute oral LD50 of carbaryl to bullfrogs is greater than 4,000 mg/kg (Hudson *et al.*, 1984). This indicates that carbaryl is probably slightly toxic to most of these species.

Carbaryl will most likely affect nontarget insects that are exposed to carbaryl spray within the treatment area. Field studies have shown that affected insect populations can recover rapidly and generally have suffered no long-term effects, including some insects that are particularly sensitive to carbaryl, such as bees. **Since Carbaryl is extremely toxic to bees, spraying would be conducted in the early morning before they become active.**

Applications of broad-spectrum insecticidal sprays can cause short-term reductions in populations of nontarget arthropods immediately after treatment. Insects that are active during treatments or that feed on IPS beetles have the greatest potential for exposure to insecticides. Insects of this type include ground Catangui *et al.* (1996) assessed the impact of carbaryl at label rates on nontarget arthropods in South Dakota. There were no substantial reductions in the numbers of ants, spiders, predatory beetles, or scavenger beetles from 7 to 76 days after treatment. Even after 1 year, no substantial reductions in soil surface-associated arthropods were detected. That study also found that flying nontarget arthropods such as pollinator bees, predators, and parasites showed no substantial reductions either immediately after carbaryl treatments or 1 year later.

Carbaryl, in its action as an insecticide, is severely toxic to many insects. Honeybees are particularly sensitive to carbaryl (Atkins *et al.*, 1981). Carbaryl applied to turf grass at labeled rates decreased earthworms by 60 to 99 percent (Potter *et al.*, 1990). Spiders are not severely affected in carbaryl-treated fields, and recovery occurs within 3 weeks after spraying (Shepard and Sterling, 1972; Barrett, 1968). Carbaryl is severely toxic to predatory mites, but less toxic to phytophagous mites (Bartlett, 1968). Live trapping studies of small rodent populations (primarily deer mice) in areas treated with carbaryl showed no post treatment decreases in number of animals (McEwen *et al.*, 1996a).

Deer are known to be resident in all four project areas. The application of this treatment would have no impact on these animals. As described above, carbaryl breaks down readily in mammals and does not exhibit any kind of bioaccumulation.

NON-CRITICAL ELEMENTS

CADASTRAL SURVEY: All treatment areas fall on public lands administered by the BLM. The treatment areas are directly around known protected BLM high visitation archaeological sites and the Anasazi Heritage Center. No surveys are needed for this project.

FOREST MANAGEMENT: The dominant forest type of the proposed project areas is piñon pine and Utah juniper. These forests are commonly referred to as piñon-juniper woodlands. These are hardy, drought-tolerant trees that are well suited to the project landscape. Forest management recommendations to ensure optimum tree health include providing adequate spacing and water, and avoiding wounding of the trees.

Substantial changes have taken place in the piñon-juniper woodlands over the past 150 years. It is believed that the piñon-juniper woodlands were historically restricted to sites that did not readily burn, mainly the sites with shallow soils and rocky ridges. Today many of the more productive sites have become encroached and overgrown with piñon and juniper trees. This is due to the lack of disturbance, fire suppression, and dense growth habit of the piñon/juniper woodlands. There are too many trees per acre competing for limited nutrients, water and sunlight. These dense piñon-juniper stands are highly susceptible to an uncontrollable crown fire or a beetle infestation.

IPS piñon pine beetle has killed thousands of piñon pine trees in Montezuma County. The beetle population exploded during the fall of 2002. These beetles are expected to emerge and fly into the nearby healthy piñon trees in the spring of 2003. They have 3 to 4 regenerations per year. The mature piñon pines selected for protection are between 100 to 500 years old. These larger sized piñon pines are extremely valuable on the selected treatment areas for aesthetic reasons.

Carbaryl is the recommended pesticide for IPS beetle control. Two treatments are required, one in late March and a second in late August. Carbaryl a carbamate, broad spectrum, insecticide that has many commercial uses for insect control on fruits, vegetables, ornamental plants, field crops, forage crops, rangeland and forestry.

The region's Piñon/Juniper woodlands are being converted to woodlands that are dominated by juniper. On a site specific scale the proposed activity would improve the diversity on each treatment site by ensuring that a few large mature piñon pine remain on the landscape.

GEOLOGY AND MINERALS: The proposed action would have no effect on the geology and minerals within the treatment areas.

HYDROLOGY AND WATER RIGHTS: The proposed action would have no effect on hydrology and water rights within the treatment areas.

LAND STATUS/REALTY AUTHORIZATIONS/ACCESS: The lands on which the proposed action would occur are public land managed by the Bureau Of Land Management. Access to each proposed treatment site is accomplished by State highway, county road, and

various BLM roads. No authorization is required for this action and no impact is expected to lands as a result of the proposed action.

NOISE: There would be no noise created by this activity besides vehicles traveling to and from the treatment areas.

RANGE MANAGEMENT: The Anasazi Heritage Center, Sand Canyon Pueblo, and Lowry Pueblo are outside of active grazing allotments. The Painted Hand Pueblo is within the Cahone Mesa allotment. This site experiences little grazing pressure due to the distance from available water. The proposed action would have no impacts to grazing and rangeland management.

RECREATION: The four proposed treatment areas are heavily visited recreational areas in the Monument. Since implementation of the proposed action would occur during March and August (with potentially high visitation) the following mitigation measures must be adhered to:

An effort must be made to effectively inform the public of the upcoming project. Therefore, **a news release will be completed and posted in the local newspaper at least two weeks prior to implementation of the project.** This would inform recreational users of the closure(s) and provide them with enough time to plan ahead for alternative sites to visit.

Application at all proposed treatment areas would be avoided during the weekends.

The public would not be allowed in treated areas during the application and for 24 hours after the spray has been applied. To effectively close each area would require temporary signs to be placed at each location. In order to bring immediate attention to the public of the closures, large poster sized signs would be effectively positioned at each site. In addition, smaller sized signs (approximately 8 ½ x 11) would be posted at specific picnic sites and information boards to emphasize the importance of the closure.

If the project is completed and each site is reopened to the public, **additional information signs would be posted in treated areas for at least two weeks.** The purpose of these follow-up signs is to continue to inform the public about the project, to ensure they remain on the trail, and to emphasize the importance of not climbing trees or handling fallen tree limbs.

TRANSPORTATION: No new roads would be created by the proposed activity. Existing roads will be utilized to provide access into the proposed treatment areas. The proposed activity would have no effect on transportation plans or existing road conditions.

VISUAL RESOURCES: The proposed activity would not affect the visual resources.

PERSONS/AGENCIES CONSULTED:

Tom Eager- Entomologist-USFS Gunnison Service Center

BLM STAFF INVOLVED:

1. LouAnn Jacobson –CANM Manager
2. Mark Tucker – Range Program Manager
3. Clyde Johnson – Reality/Lands Specialist
4. Laura Kochanski – Archaeologist
5. Leslie Stewart – Ecologist
6. Kathy Nickell – Wildlife Biologist
7. Shauna Jensen – Hydrologist
8. Roger Baker - Invasive Species
9. Penny Wu - Recreation
10. Loren Wickstrom - Geology and Minerals
11. Mike Jensen – Rangeland Manager
12. Steve Kandell – CANM Planner
13. Jim Cunio – Natural Resource Specialist
14. Rick Tholen – BLM, Forest Health Program Manager
15. Jamie Sellar-Baker – Assistant District Ranger

FONSI

CO-SJPLC-03-018

The environmental assessment, analyzing the environmental effects of the proposed action, has been reviewed. The approved mitigation measures result in a finding of no significant impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

LouAnn Jacobson
Manager, Canyons of the Ancients National Monument

Date