

**DRAFT
ENVIRONMENTAL ASSESSMENT
FOR
ALTAR VALLEY FIRE MANAGEMENT PLAN
PIMA COUNTY, ARIZONA**



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The front cover is a picture taken in October 1984. On the right side of the road there has been no recent fire, on the left, a fire in June, 1984. The picture was taken on the King Anvil Ranch, in the San Pedro Pasture. Photographer unknown.

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1.0 PURPOSE AND NEED FOR THE ACTION

1.1 INTRODUCTION

The following organizations assisted in developing the Altar Valley Fire Management Plan (AVFMP) and associated Environmental Assessment (EA) and Biological Assessment (BA); and are referred to collectively as the Cooperators:

Altar Valley Conservation Alliance (AVCA),
USDA Natural Resources Conservation Service (NRCS),
Arizona Game and Fish Commission,
Arizona State Land Department (ASLD),
USDI Fish and Wildlife Service (FWS),
Arizona Ecological Services Office (AESO), and
Buenos Aires National Wildlife Refuge (BANWR),
Pima County Natural Resources Parks and Recreation (PCNRPR),
The Nature Conservancy (TNC),

The planning area (Figure 1) covers approximately 609,900 acres of land in Pima County, Arizona within the area generally bounded on the south by the U.S./Mexico border, on the north by State Route (SR) 86, on the west by the Baboquivari and Coyote Mountains, and on the east by the Sierrita, Las Guijas, Cerro Colorado, and San Luis Mountains. The planning area also encompasses three small towns: Three Points at the SR 86/SR 286 intersection, Arivaca at the extreme southeastern end of the Valley, and Sasabe at the southern end of the Valley.

1.2 PURPOSE OF THE AVFMP

The purpose of this project is to develop, facilitate, and implement scientifically sound land resource management and conservation strategies in the Altar Valley using prescribed fire. Prescribed fire is defined as human started and managed fire ignited by handheld drip torches, fuses, other hand held ignition devices, and by helicopter drops of an ignition agent. Natural or wildland fires are ignited by lightning or unconfirmed causes. The intent of the project is to improve range and watershed health by reducing invasive and woody species in the Altar Valley Watershed grassland habitats. It would also reduce the risk to human life or property due to large-scale wildland fire events by reintroducing the use of prescribed fire as a primary management tool.

Grasslands in central and southern Arizona have undergone dramatic vegetative changes over the past 130 years, including encroachment by shrubs, loss of perennial-grass cover, and spread of non-native species. The exclusion of natural fire from the ecosystem is a contributing factor to the changes in grassland composition. As a result, shrub encroachment has occurred on over 84 percent of existing and former rangeland in the U.S. (Gori and Enquist, 2003) Thirty-two percent of shrub-invaded native rangeland is considered to have restoration potential. (Gori and Enquist,

2003) Thus, the opportunity for restoration through prescribed fire is substantial, but time sensitive, considering the amount of grasslands already converted to shrublands.

The Altar Valley rangeland ecosystem is experiencing challenges because of drought, ranch operations, rangeland conservation actions, and special-status species management. A priority need for the Altar Valley is a range improvement measures that would begin to correct a number of ecological problems that stem, in part, from range management practices dating to the late 1800s. These ecological problems include the expanding Altar Wash arroyo, an extremely large incised channel that has formed on the valley floor over many decades; the encroachment of mesquite (a woody-shrub species) into many of the valley's historical grassland habitats; and the loss of native grasslands to non-native invasive grasses.

1.3 NEED FOR THE AVFMP

Fire played an important role in the Altar Valley's ecology prior to Euro-American settlement. According to Bahre (1985), fires were "fairly frequent" in southern Arizona grasslands prior to 1882 and much larger in extent within the grasslands; cessation of major grassland fire preceded the brush invasion of the 1890s. Kaib (1998) further suggests that desert grasslands in this area likely burned once every 8–12 years. In addition, evidence suggests that both Native Americans and early settlers in the Altar Valley used fire as a management tool (Sayre 2000). Those fire regimes likely played a crucial role in maintaining the area's grasslands by suppressing woody species and encouraging new growth (Sayre 2000, 2002). However, fire incidence in the Altar Valley has decreased dramatically during most of the twentieth century.

This is a result of several factors including:

- discontinuation of range fires with the introduction of wood fencing in the 1910s and 1920s,
- lack of sufficient herbaceous cover to sustain fires,
- increasingly effective and thorough fire suppression policies and techniques, and
- Endangered Species Act (ESA) considerations.

The steady increase of woody species and decrease of herbaceous species in the Altar Valley has resulted in a renewed interest in restoring fire to the ecosystem. In the *Altar Valley Watershed Resource Assessment*, Meyer (2000), noted (1) that numerous grassland areas within the watershed that had recently been burned showed vegetative components similar to pre-settlement conditions; (2) that burning appeared to be effective control of small mesquite trees and reduced the vigor of midsized trees; and (3) that live basal areas, grasses, and forage production were significantly greater, and bare ground and trees and shrubs were significantly less in burned areas.

The cooperators are developing the AVFMP to re-introduce fire in the ecosystem. One of the main objectives of this plan is to establish a process to address ESA compliance/recovery goals, while implementing a Fire Management Plan (FMP). The AVFMP is being planned for a 10-year period. The AVFMP fire prescriptions will be annually reviewed and periodically revised according to monitoring results.

2.0 ALTERNATIVES

The National Environmental Policy Act (NEPA) requires Federal agencies to consider a range of alternatives that could reduce environmental impacts of projects under consideration. This section presents details of the preferred alternative and other alternatives that have been considered.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, prescribed fire would not be implemented in a programmatic fashion as described in the AVFMP, dated July 11, 2007. This does not mean that prescribed fires would not be undertaken in the action area, but that they would occur in a project by project manner. This would lack the unified approach and the consistent implementation of prescribed fires across the landscape. Prescribed fires have been conducted about once every 4 to 7 years recently and only on small acreages. Wildland fire frequency is potentially every year with numerous wildland fires that are typically suppressed quickly.

2.2 PREFERRED ALTERNATIVE: Altar Valley Fire Management Plan

Under the Preferred Alternative, prescribed burning would be undertaken in a consistent manner as described in the AVFMP, dated July 11, 2007. Prescribe burn frequency would be possible on an annual basis, but on any specific land area would be potentially burned once every three to five years. A mosaic of vegetation would result as different areas are burned in different years. The AVFMP is included herein by reference.

2.3 ALTERNATIVE CONSIDERED BUT ELIMINATED: Wildland Fire Use

In the original draft AVFMP, dated February 2006 (Logan-Simpson), wildland fire use for resource benefit was included as an application of fire management in the Altar Valley. The scoping process and subsequent discussion with the ASLD – Division of Forestry resulted in an understanding that such an option is not permissible under current ASLD appropriations for fire management. This meant that ASLD fire professionals would not be able to participate in the planning and implementation of a FMP that included a provision for Wildfire Use for resource benefit. Therefore managing wildland fire use for resource benefit has been eliminated from consideration.

3.0 AFFECTED ENVIRONMENT

The Altar Valley has experienced grassland habitat alterations and is experiencing several rangeland management challenges because of drought, ranch operations, economics, rangeland conservation actions, and special-status species management. A priority need for the Altar Valley is a range management practice that would begin to correct and begin to improve a number of ecological problems that partly stem from range management dating to the late 1800s.

The grassland vegetative community is not at its potential with the desired mix of native grassland species. Two factors present obstacles to long-term sustainability of the Altar Valley watershed. These include (1) the Altar Wash arroyo, which impairs watershed function by increasing sediment transport, decreasing infiltration, and lowering soil moisture in the valley soils; and (2) mesquite encroachment in the uplands which create higher rates of sheet runoff, evapo-transpiration, erosion, and sediment transport. These trends are considered irreversible without management intervention, including restoration of fire to the ecosystem.

Conditions vary from place to place in the watershed and there are substantial problem areas. These are reflected in three of the four resource issues the AVCA has specifically identified as concerns: (1) invasive nonnative grasses, (2) woody shrub encroachment, and (3) erosion in the Altar Wash arroyo (AVCA 2001). These issues will be addressed to some degree through the AVFMP (incorporated by reference).

3.1 VEGETATION

Today, nonnative grasses, originally planted to control erosion and restore grasslands, are often considered undesirable compared to native grasses. Meyer (2000), for example, found in many upland areas that it was often nonnative grasses that held the soil in place and prevented erosion. Meyer also noted, however, that nonnative grasses dominated in many areas at the expense of native grasses.

The first nonnative grass to appear in the Altar Valley seems to have been Johnson grass (*Sorghum halepense*). This grass was introduced to the valley prior to World War I and was planted in the bottomlands in subsequent decades to be harvested as hay (Sayre 2000). Bermuda grass (*Cynodon dactylon*), Boer lovegrass (*Eragrostis chloromelas*), Cochise lovegrass (*Eragrostis atherstonii*), and other non natives were introduced over the years. By the 1950s, the Soil Conservation Service (now the NRCS) was advocating the use of Lehmann lovegrass for range restoration purposes (Sayre 2000). Consequently, nonnative grasses have been used in the watershed for many years, and Lehmann lovegrass continues to dominate where it has been seeded. Lovegrass is successful because it germinates earlier than native perennials, stays green longer, withstands drought and fire, and tends to receive lighter grazing pressure than native grasses. These facts suggest that Lehmann lovegrass and other nonnative grasses, without some management, will persist in the Altar Valley planning area.

3.2 WILDLIFE

Most of the Altar Valley is rangeland used for cattle and horse production, recreation and hunting. Common wildlife include: desert mule deer (*Odocoileus hemionus*), whitetail deer (*Odocoileus virginianus*), mountain lion (*Felis concolor*), bobcat (*felis rufus*), coyote (*Canis latrans*), javelina (*Tayassu tajacu*), coati (*Nasua nasua*), scaled quail (*Callipepla squamata*), Gambel's quail (*Callipepla gambelii*), Montezuma quail (*Cyrtonyx montezumae*), curved-billed thrasher (*Toxostoma curvirostre*), white-winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), gartersnake species, rattlesnake species, tree frog species, road runner (*Geococcyx californianus*), vultures, hawk species, owl species, eagles, and numerous other bird

species. Less common wildlife include: jaguar (*felis onca*), masked bobwhite quail (*Colinus virginianus ridgewayi*), Chiricahua leopard frog (*Rana chiricahuaensis*), cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*), pronghorn (*Antilocapra Americana*), and black bear (*Ursus americanus*).

There are numerous stock ponds and livestock watering troughs in the Altar Valley that are used by domestic livestock and wildlife species. Recreational hunting is permitted and regulated by the Arizona Game and Fish Department.

Residential development has an impact on wildlife distribution and abundance. Infrastructure for residential and industrial developments and law enforcement, such as roads, utility corridors, and staging areas fragment the landscape and the habitats of many species.

3.3 LISTED, PROPOSED, AND CANDIDATE SPECIES

Federally listed, proposed, and candidate species occurring in the Altar Valley include: Pima pineapple cactus, Kearney blue star, masked bobwhite, southwest willow flycatcher (*Empidonax trailii extimus*, Mexican spotted owl (*Strix lucida*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*), Chiricahua leopard frog, jaguar, and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

3.4 CULTURAL RESOURCES

The Altar Valley is rich in cultural resources. Activities associated with existing livestock ranching and recreational hunting that do not disturb soil typically do not impact cultural resources. Any construction work related to ponds, wells, pipelines, fencing, roads, utility corridors, staging areas and other activities that disturb soil may impact cultural resources. These activities on State Trust Land go through a State permitting process titled “Permit to Place Improvements on State Land”. This includes a cultural resource clearance survey and review and permitting by the State Historic Preservation Officer (SHPO). Soil disturbing activities on private lands are not required to go through cultural resource surveys or consultation with SHPO. However, if federal funding assistance is provided by NRCS, then the NRCS would conduct cultural resource clearance survey and consult with SHPO as needed according to policy and procedure. NRCS policy and procedures for cultural resources procedures may be found in NRCS National Cultural Resources Procedures Handbook (8-2003), State Level Programmatic Agreement among USDA NRCS and Arizona SHPO, and Arizona Handbook of Cultural Resources Procedures (9-06). When human remains are found, then clearance and consultation with the Arizona State Museum is required.

3.5 SOCIOECONOMIC ENVIRONMENT

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, mandates that federal agencies identify and address disproportionately high and adverse human health or environmental effects of programs on minority or low-income individuals. The planning area includes families living on their ranches

in remote locations throughout the Altar Valley. These families formed the AVCA in 1995 and incorporated as a 501 (c)3 in 2000. The planning area borders, but does not include the three small communities of Three Points, Arivaca, and Sasabe. These communities have recently developed Community Wildfire Protection Plans with assistance from Pima County and are designated suppression areas. Also adjacent to the planning area are Tribal lands, within the Schuk Tauk District of the Tohono O’Odham Nation and not part of this plan.

3.6 WETLANDS

Wetlands are defined as lands that: 1) have a predominance of hydric soil; and 2) are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions; and 3) under normal circumstances do support a prevalence of hydrophytic vegetation. Wetlands have not been inventoried as part of this project. Impacts from construction activities in wetlands are regulated by the U. S. Army Corps of Engineers and the Arizona Department of Environmental Quality under the authority of the Clean Water Act.

3.7 LAND USE

Most of the Altar Valley Fire Management Planning area is rangeland used for cattle and horse production, guest ranching, ecotourism, recreation and periodic hunting. There is no on-going mining activity, but past mining and exploration is apparent. The communities of Three Points, Arivaca, and Sasabe are not included in this plan.

3.8 WATER RESOURCES

During pre-settlement times, flows through the Altar Wash arroyo spread across the floodplain and percolated into bottomland soils. Deepening of the wash caused the alluvial water table to drop. This drop was detrimental to the perennial grasses and favored woody species (e.g., mesquite) located in the floodplains. In addition, “head-cutting” from the development of the Altar Wash arroyo caused smaller arroyos to form at the mouth of its tributary washes. These smaller arroyos began to cut their way up and through tributary washes into the uplands, forming gullies and causing bank erosion. This process often caused vegetation loss in the washes and prevented re-growth.

The watersheds in the planning area have changed dramatically over the past 130 years. The most drastic of these changes occurred between the 1890s and 1930s through the combined effects of drought, uncontrolled grazing, floods, and fuel-wood cutting. Generally, heavy stocking rates during the drought of 1898–1904 resulted in the massive loss of forage and vegetative cover within these watersheds, followed by a period of flooding in the winter of 1904–1905. Heavy flood flows during this period probably triggered the formation of the Altar Wash arroyo. As the arroyo developed, runoff from the surrounding mountains funneled through the Altar Wash and out of the watershed.

Water resources for livestock are fairly stable and dependable. Earthen reservoirs provide water in favorable rainfall years. Stockwater wells, some with pipeline systems, storage tanks, and troughs can provide water year round. The ground water table throughout most of the Altar Valley is stable, productive, and dependable. The arroyo has surface water flows only during ephemeral flooding. Residential water is usually provided from wells.

3.6 AIR QUALITY

Because of its rural character and distance from major metropolitan areas (the closest is Tucson, Arizona about 50 miles to the northeast); air quality in the Altar Valley is excellent.

Fire management activities do contribute to short-term adverse affects to air quality in the area, but fire management activities do not result in long-term effects on air quality. The adverse effects of fire management activities on air quality can include the issues related to public health and firefighter occupational safety. Particulate matter (PM) in smoke from prescribed fires is related to increases in airway obstruction by PM-induced narrowing of the airways, impaired clearance of lung pathways caused by hyper secretion of mucus caused by PM exposure, hypoxia, bronchi-constriction, apnea, impaired diffusion, and production of inflammatory mediators. These can lead to reduced blood gas exchange, asthma, chronic obstructive pulmonary disease and infections. Certain members of the human population are more susceptible to these effects than others, specifically, children, elderly, and asthmatics. Fine particles, less than 2.5 microns in size, have been implicated in such health effects; and are of greater concern as they can penetrate deeper into the human respiratory system than particles 2.5 microns in size and larger (Sandberg et. al. 2002).

In Arizona, the Arizona Department of Environmental Quality (ADEQ) monitors two general categories of air quality across the state: (1) criteria pollutants (including carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, and particulate matter); and (2) visibility (which is measured in connection with the state's scenic values). Of the criteria pollutants, ozone and particulate matter (both 10 microns (μm) and 2.5 μm in size) are monitored in Pima County

Prescribed fire management can result in temporary reduction in visibility from smoke and particulate matter transported in the wind. In addition, other ongoing grassland improvement and ranch management activities in the area may impact visibility through erosion and transport of soils by winds. The contribution of fire management activities is usually short-term, and other activities usually result in relatively small areas of disturbance from which the wind can erode soils.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the AVFMP would not be implemented. Ranchers could apply

prescribed fire by individually going through the permitting processes. However, this would be cost prohibitive and unlikely to occur on a meaningful scale. Prescribed fires have been conducted about once every 4 to 7 years recently but only on small acreages. The frequency and size of individually applied prescribed fires would not provide a watershed/landscape level of improvement on the watershed.

4.1.1 Vegetation

No improvement in the vegetative community, from those described in section 3.1 above, would occur under this alternative. Shrub invasion will continue and additional grassland will be lost. Lehmann lovegrass encroachment will continue and increase in area, and threats to Pima Pineapple Cactus (PPC) would increase. Individual ranchers may be unable to improve native vegetation without the group effort of the AVFMP.

4.1.2 Wildlife

No improvement in wildlife habitat, from those described in section 3.2 above, is expected under this alternative. Loss of wildlife habitat diversity will continue as plant community continues to degrade. Ranch management may not include wildlife considerations without the group effort of the AVFMP.

4.1.3 Listed, Proposed, and Candidate Species

No improvement in the current impacts to listed, proposed and candidate species, from those described in section 3.3 above, is expected under this alternative. Conservation of listed, proposed and candidate species may not be part of ranch management without the group effort of the AVFMP, refer to AVFMP and BA.

4.1.4 Cultural Resources

No change in the current impacts to cultural resources, as described in section 3.4 above, is expected under this alternative. Protection of cultural resources may not be part of ranch management considerations without the group effort of the AVFMP.

4.1.5 Socioeconomic Environment

No change in the current impacts to the socioeconomic environment, as described in section 3.5 above, is expected under this alternative. This alternative will not provide the potential watershed benefits expected from the preferred alternative that would also be beneficial to livestock operations. Furthermore, the assurances given to participating ranchers to address the purpose and need of the AVFMP and associated BA and EA would not be available.

4.1.6 Wetlands

No inventory of wetlands has occurred, however, no effect to wetlands, as described in section 3.6 above, is expected under this alternative. This alternative will not provide incentives to maintain wetlands, floodplains, and riparian areas on the part of ranchers who are concerned that by doing so they may provide habitat for species listed under the ESA. There may not be the incentives to maintain and improve these areas or the ecological function and habitat diversity that is anticipated under the preferred alternative.

4.1.7 Land Use

No change in the current impacts to land use, as described under section 3.7 above, is expected under this alternative. The vegetative communities and species habitat diversity will likely continue to degrade, erosion will continue, and the fire threat in the Altar Valley will continue and intensify. Individual ranch enterprises may be unable to improve native vegetation and habitat diversity without the group effort of the AVFMP.

4.1.8 Water Resources

No change in the current impacts to water resources, as described in section 3.8 above, is expected under this alternative. This alternative will not provide incentives to maintain water resources year round on the part of ranchers who are concerned that by doing so they may provide habitat for species listed under the ESA.

4.2.9 Air Quality

No change in the current impacts to air quality, as described in section 3.9 above, is expected under this alternative.

4.2 PREFERRED ALTERNATIVE: APPLY PRESCRIBED BURNING

The action under this alternative would be the application of prescribed burning over a three to five year period. Prescribed burning frequency on any land area would be potentially once every three to five years. A mosaic of vegetation would result as different areas are burned in different years. Prescribed burning would be conducted in such a way to achieve desired results and “permitted” according to federal, state, and local requirements. Refer to AVFMP for details.

4.2.1 Vegetation

Application of prescribed burning should reduce shrub encroachment. Re-introducing fire into this ecosystem will restore nature processes that should favor increase of native vegetation, especially herbaceous vegetation. Prescribed fires are not likely to eliminate Lehmann lovegrass, however activities favoring native herbaceous vegetation provide the best opportunity we have for restoring this ecosystem.

4.2.2 Wildlife

Application of prescribed burning should help to restore portions of the ecosystem and improve wildlife habitat diversity. Some temporary disturbance will occur during fire and until recovery of forage species for wildlife occurs. Indirect effects of prescribed burning and associated livestock range conservation practices should consist of increased herbaceous vegetation (forage) and cover resources for wildlife species.

4.2.3 Listed, Proposed, and Candidate Species

The AVFMP establishes measures to minimize the potential incidental take of federally listed species that may occur during the implementation of prescribed fire. The AVFMP also provides for an adaptive management strategy that would adjust to new information provided by monitoring as outlined by regulatory requirements. Protocol surveys for PPC will be conducted and procedures followed to minimize adverse effects. Initial prescribed burn treatments will be monitored and evaluated for development of a predictive model and adaptive management strategy for PPC occurrence and effects (refer to AVFMP for more details).

4.2.4 Cultural Resources

Prescribed fire planning and implementation will likely be funded through Federal programs administered by NRCS. Most of these burns will be on Arizona State Trust Lands, therefore the NRCS and/or ASLD policies and procedures will assure appropriate consultation with the SHPO (refer to section 3.4, above). Any potential adverse effects to cultural resources will be mitigated in accordance with SHPO requirements. Therefore, it is anticipated that no significant local or cumulative impact to cultural resources is likely to occur under this alternative. In addition, Tribal consultation will occur when NRCS is planning, implementing, or funding prescribed burns.

4.2.5 Socioeconomic Environment

No activity proposed by the AVFMP is anticipated to impact the socioeconomic environment. There are no indirect effects expected on AVFMP participants as rancher participation is voluntary. Neighboring ranchers and landowners may be indirectly affected during prescribed burns while smoke is produced. The AVFMP would provide assurance to the Altar Valley ranchers that their responsibilities under the plan are clearly defined, consistent with their economic and operational needs, and would remain predictable over the life of the plan.

4.2.6 Wetlands

No activity proposed by the AVFMP is anticipated to impact wetlands. This alternative should provide incentives for ranchers to maintain and improve wetlands (if found), floodplains, and riparian areas and their ecological function through the implementation of ranch management plans.

4.2.7 Land Use

No activity proposed by the AVFMP should directly impact land use. No significant indirect effects are expected from implementation of the AVFMP as it was developed to be compatible with current land use. The AVFMP proposes to implement prescribed fire management to improve range and watershed health. The proposed action would incorporate:

- Minimum Impact Suppression Tactics (MIST, Interagency Standards for fire and Aviation Operations 2003) for fire suppression and prescribed burning
- Conservation measures for fire management activities in riparian and aquatic habitats
- Conservation measures for threatened and endangered species
- Protection of cultural resources (historic and prehistoric)
- Protection of soils and watersheds
- Maintain visual quality

4.2.8 Water Resources

Prescribed fires proposed by the AVFMP would directly contribute to short-term increases in soil erosion and runoff containing ash and organic debris. These materials would temporarily degrade water quality by increasing suspended solids and turbidity. Indirect impacts would be improvement in soil stability and watershed conditions due to the decline in woody vegetation and the return to native grasses and forbs resulting from restoration of the natural fire cycle. No significant impacts locally or cumulatively are anticipated.

4.2.9 AIR QUALITY

Fire management. The activities covered by the AVFMP, has the potential to adversely affect air quality. Such effects would occur in the course of undertaking prescribed fires and would consist of the impacts of the smoke generated by such fires, individually and cumulatively: (1) on the occurrence or presence of seven criteria pollutants monitored by the State of Arizona (ADEQ 2006; Section 3.6 above) and visibility (which ADEQ also monitors); and (2) on air quality parameters monitored by the State of Arizona (which are not specified here). Of the former, three pollutants—carbon monoxide and particulate matter (PM¹⁰ and PM^{2.5}), together with other chemicals and irritants, as well as visibility—would be expected to be present in or to be affected by smoke generated by rangeland fires in the Altar Valley. The effects of such fire-generated smoke, furthermore, could potentially occur: (1) onsite and be direct (in the case of immediate effects at the time of a fire and within its vicinity); (2) onsite and be indirect (in the case of lingering such effects, if smoke does not quickly dissipate); (3) offsite and be direct (if smoke is carried quickly to offsite locations); and (4) occur offsite and be indirect (in the case of lingering such effects, if smoke is carried to offsite locations).

However, the severity, duration, and location of such effects in individual circumstances would depend on numerous factors, including: (1) the size and intensity of fires undertaken or managed under the AVFMP; (2) their periodicity (i.e., frequency); (2) wind direction and speed (which determines the rate and direction in which fire-generated smoke would dissipate or be blown);

and (4) decisions, in the course of fire planning, by regulatory agencies responsible for fire control and fire-related air quality effects, and, in the course of undertaking fire, by on-the-ground fire control personnel. Therefore, if fire management is undertaken at appropriate scales and intensity, suitable intervals, and in proper conditions, assuming that air quality monitoring by ADEQ and other agencies continues to be carried out, and given the lack of other significant sources of air pollution in the region, two conclusions can be drawn: (1) that the air quality impacts of smoke generated by fire events under the AVFMP would be individually manageable and cumulatively insignificant; and (2) that, to the extent that such effects might become significant, this would be detectable (i.e., through the states' air quality monitoring programs) and could be corrected through appropriate adjustments to fire management conducted under the AVFMP.

In summary, we anticipate some short-term adverse effects during implementation of prescribed fire. Improvements in air quality are anticipated in the long-term based upon an overall reduction in fuels and improved vegetation cover within the permit area. We do not anticipate significant effects to Air Quality from implementation of the Preferred Alternative over those that would be anticipated under the No Action Alternative.

4.3 CUMULATIVE IMPACTS

The Council on Environmental Quality defines cumulative impacts as the incremental impacts of multiple present and future actions with individually minor, but collectively significant, effects. Current impacts to the existing environment and impacts from future actions under the Preferred Alternative are described above. Because of the large area planned for ecosystem restoration and the small, localized land area to be burned, cumulative impacts are anticipated to be generally neutral or beneficial, and insignificant locally or across the planned area. Therefore this proposed action is not a major Federal action significantly affecting the quality of the human environment.

5.0 PUBLIC INVOLVEMENT

CONSULTATION AND COORDINATION

The USDA NRCS is the lead federal agency and has supervised the preparation of this EA in accordance with:

- National Environmental Policy Act (NEPA)
- Council for Environmental Quality regulations
- USDA NRCS NEPA regulations (7 Code of Federal Register Part 650, August 29, 1979) and Policy (NRCS General Manual Title 190 Part 410, July 2005) and Procedure (NRCS National Environmental Compliance Handbook, 10-2003).

Federal, state, and local agencies having specific jurisdiction or land management authority are cooperating agencies. All entities listed in section 1.1 have assisted in preparation on the plan.

The USDA NRCS District Conservationist will be the Responsible Federal Official for NEPA compliance.

NEPA scoping public meetings were held 2-17-06 in Arivaca and 2-21-06 in Tucson.

6.0 LITERATURE CITED

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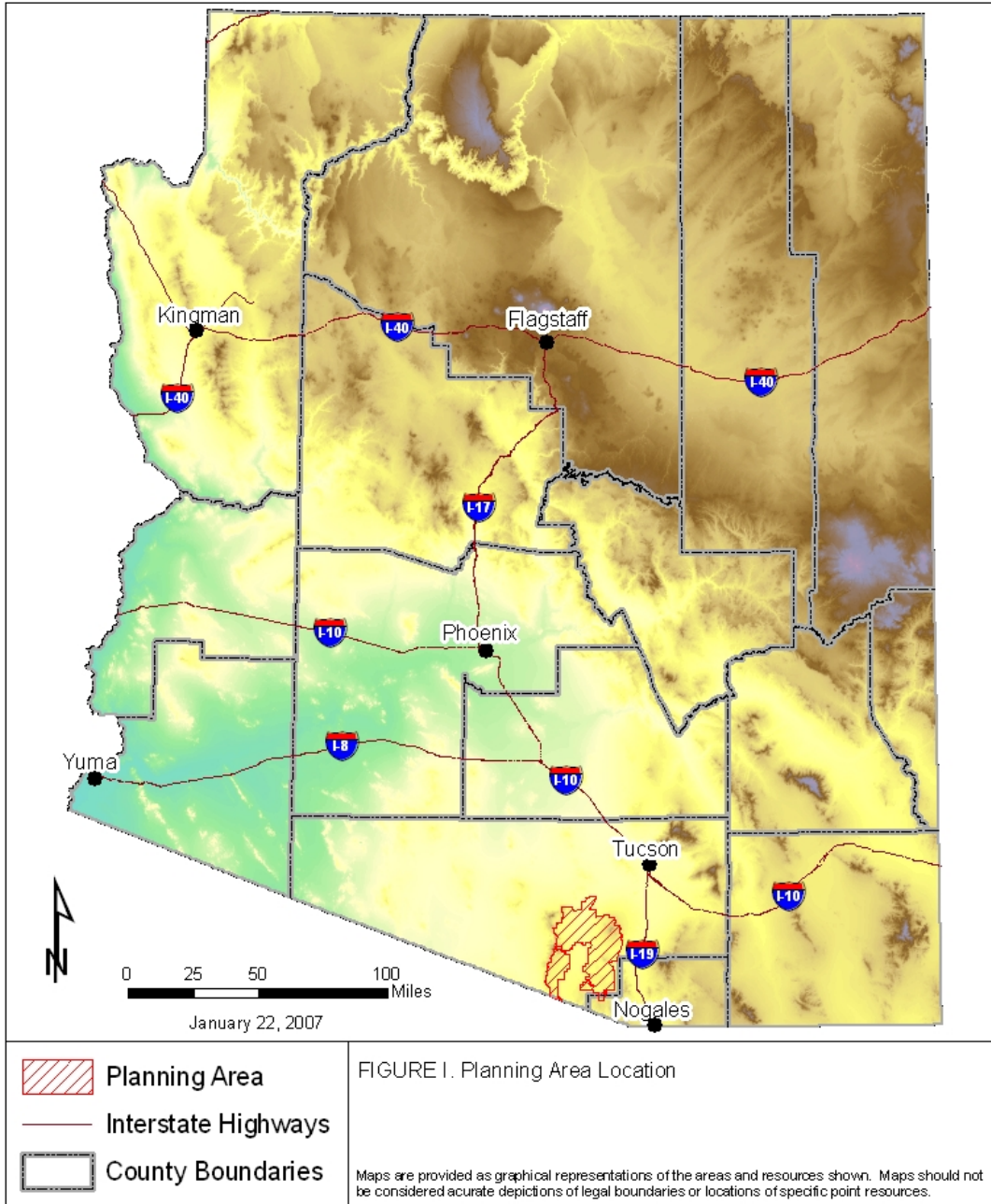
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Appendix A: Map of Project Area



Appendix B: Public Comments and Agency Response

Letter #1

Name and contact information withheld by request
Tucson, Arizona 85704

I am a resident and cattle rancher in the Avra Valley, with my ranch central to Ironwood Forest National Monument. Over the last several years I have been involved with the Pima Natural Resource Conservation District and currently serve in the position of Supervisor. As such, I have paid close attention to the conservation efforts in the Altar Valley and have attended several meetings of the Altar Valley Conservation Alliance. However, my comments here are written on behalf of myself and not on behalf of any organization I am associated with.

I have read Nathan Sayre's book about ranching and endangered species, regarding conservation efforts and ranching in the Altar Valley, particularly concerning restoration attempts on behalf of the masked bobwhite quail.

I have reviewed the fire management plan and find it very thorough and well-researched.

I support the preferred alternative.

The no-action alternative may be acceptable, but common sense allows the assumption that the abundance of red tape involved with individual projects individually planned from beginning to end, as I infer the no-action would dictate, would make rangeland management very costly and would interfere with optimum hands-on management.

I have seen recent photographs of burned areas restored to grassland on one side of a road and untreated areas full of woody species on the opposite side, within the proposed plan area. I believe that prescribed fire is a good and natural management tool. Also I am aware of historic prescribed burn efforts the former Buenos Aires Ranch, and inferred from the reported results that the effects were at least temporarily beneficial to the masked bobwhite quail.

Clarification needed--the draft EA does not include a glossary of terms, including such as defining the differences between wildland fires and prescribed burns. The final EA ought to include these definitions so as to avoid any potential legal entanglements later. Furthermore the EA discusses "wetlands" without defining the term. My understanding is that Congress is in the process of re-defining "wetlands" under a bill introduced to revise the Clean Water Act. Without a specific definition of "wetlands" in the EA, I have no idea what the authors are discussing.

NRCS: Due to the many technical terms found in this document, NRCS decided that a glossary of terms would be impractical. However, the terms "prescribed fire" and "wildland fire" are now defined in the final EA in section 1.2. The term "wetlands" was defined in the draft EA in section 3.6.
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Letter #2

Dear Stu:

The Pima Natural Resource Conservation District does not have many comments on the Fire Plan at this stage. X (name omitted by request) has already sent comments as a private individual.

1. need a "caption" for the cover photo ("L. shrub invasion controlled by fire; R. no fire")
2. pg.6. we question that ADOT was using Lehman's "as early as 1930's" (?)
3. some where in doc. you may want to add: "recent development of several native range grasses by Tucson Plant Materials Center could enhance seeding of native grasses after fire to control shrub invasion", or some such wording.

Vicki France

Pima Natural Resource Conservation District

NRCS: 1. Agreed: Appropriate photo caption to be added to final EA.
2. Agreed: Since the Lehman's Lovegrass statement is not substantiated and not necessary to the point of the discussion, it was dropped from the EA.
3. We agree the Plant Materials Center is a valuable resource for reseeding native grasses behind prescribed burns. However a species list and discussion with the PMC for this purpose has not taken place at this time. Each individual burn will require additional environmental evaluation and planning that can consider the use of PMC developed native grass species.

Letter #3

December 7, 2007

Stuart Tuttle, State Biologist, USDA NRCS
230 North First Avenue, Suite 509,
Phoenix, AZ 85003-1733

Dear Mr. Tuttle:

Re: Altar Valley Fire Management Plan

I am pleased to read through the Fire Management Plan. I appreciate all the work from the many agencies who helped advise and compile the plan. I certainly appreciate the 'brevity of the plan document. As a member of the Altar Valley Conservation Alliance, I am looking forward to being able to put it to use on our ranch.

The front cover is a picture taken in October 1984. On the right side of the road there has been no fire, on the left, a fire in June. The picture was taken on the King Anvil Ranch, in the San Pedro Pasture.

Sincerely,

Patricia King, Chairman
Altar Valley Conservation Alliance
King Anvil Ranch

NRCS: Agreed: Appropriate photo caption to be added to EA.
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