

Environmental Assessment/ Assessment of Effect March 2011



Prepared By:

**Wildland Fire Associates, LLC
2016 ST. CLAIR AVE.
Brentwood, MO 63144
303/229-4470
www.wildlandfireassociates.com**

Wildland Fire Management Plan SALT RIVER AGENCY

ARIZONA

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DRAFT ENVIRONMENTAL ASSESSMENT/
ASSESSMENT OF EFFECT
FOR THE
SALT RIVER AGENCY WILDLAND FIRE MANAGEMENT PLAN
ARIZONA

EXECUTIVE SUMMARY

The Bureau of Indian Affairs proposes to prepare a Wildland Fire Management Plan (“the plan”; “WFMP”) for three Indian Tribes served by the Bureau of Indian Affairs, Salt River Agency, within the state of Arizona. The Tribal communities of Salt River, Ft. McDowell, and Pascua-Yaqui would be included. The plan will guide the wildland fire program by providing management direction that will support the accomplishment of resource management objectives. Current agency policy under an existing plan (2004) calls for the suppression of all wildland fires. However, the plan as proposed would also provide for strategies that include not only suppression of all wildland fires, but for management strategies that would reduce hazardous fuels accumulations and noxious/exotic vegetation. The plan would provide direction for habitat improvement through a proposed program of prescribed fire and non-fire treatments under a 10-year fuels treatment schedule, where feasible to do so.

Suppression of wildland fires over the last several decades has allowed some areas of tribal lands to become overgrown with brush and other unwanted vegetation. The decline of several native plant species and increase in non-native and noxious vegetation with loss of species diversity in recent years is believed attributable in part to the absence of fire and the presence of human activities. Thus, the need is for a plan of protection from unwanted fire and promotion of prescribed fire and non-fire use strategies that will meet short-term and long-term objectives.

Proposed strategies were developed during an internal scoping process, where concerns and opportunities were identified, and are expressed in the following alternatives for Salt River, Ft. McDowell, and Pascua-Yaqui Indian Communities:

Alternative A (no action): Continue the current wildland fire program strategy that calls for management of all wildland fires and burned area rehabilitation where necessary.

The no-action alternative would continue with an existing program that **excludes** any non-fire hazard fuel reduction and/or the use of prescribed fire to help reduce excessive fuel buildups and restore fire regimes on some tribal lands. All wildland fires will continue to be suppressed and selected severe burned areas rehabilitated under an approved rehabilitation plan.

Alternative B (proposed): Develop a wildland fire management plan that directs an appropriate management strategy for all wildland fires, rehabilitation of burned areas, and using prescribed fire, mechanical, hand, and chemical treatments under a 10-year fuels treatment schedule to meet resource and protection objectives.

Under alternative B, the revised Wildland Fire Management Plan would **include** appropriate methods of non-fire (hazard) fuels reduction strategies together with use of prescribed fire to restore fire regimes where applicable under a 10-year fuels treatment schedule, and continue to suppress all wildland fires. Burned areas would be rehabilitated under an approved rehabilitation plan.

Alternative C: Develop a wildland fire and fuels management plan that directs an appropriate management strategy for all wildland fires, rehabilitation of burned areas, and uses mechanical, hand, and chemical treatment strategies only to meet resource and protection objectives.

Alternative C would not include implementation of prescribed fire to meet objectives under a Wildland Fire Management Plan.

Under National Environmental Policy Act (NEPA) requirements, the “environmentally preferred alternative” is the alternative that best protects and enhances tribal historic, cultural, and natural resources and processes. In this analysis, the agency preferred alternative (alternative B) is clearly the environmentally preferred alternative.

Impact topics analyzed for each alternative were the following: geology/soils, water resources, air quality, vegetation/exotics, wildlife, special status species, cultural resources, human health and safety, and Native American traditional values.

The proposed action would have moderate long-term benefits to water quality, air quality, vegetation, wildlife, cultural resources, and Native American traditional values; minor long-term benefits to geology and soils, and health and human safety; and may affect, but not likely adversely effect, special status species. For the impact topics of soils, wildlife, air quality and cultural resources, the cumulative long-term effects would be beneficial; and cumulative effects for water quality, vegetation/exotics, special status species, health and human safety, and Native American traditional values would be negligible.

Public Comment. This environmental assessment will be placed on public review for 30 days. Please note that the names and addresses of people who comment become part of the public record. **If you wish to withhold your name and/or address, you must state this prominently at the beginning of your comment. Comments can be emailed to: comments@saltriverfmp.com, or mailed to: Salt River WFMP Comments, 4340 E. Indian School Road, Suite 21-264, Phoenix, AZ 85018.** Copies of the Wildland Fire Management Plan and Environmental Assessment are available upon request from:

**Superintendent
Bureau of Indian Affairs
Salt River Agency
204 West Pima St.
Sacaton, AZ 85147**

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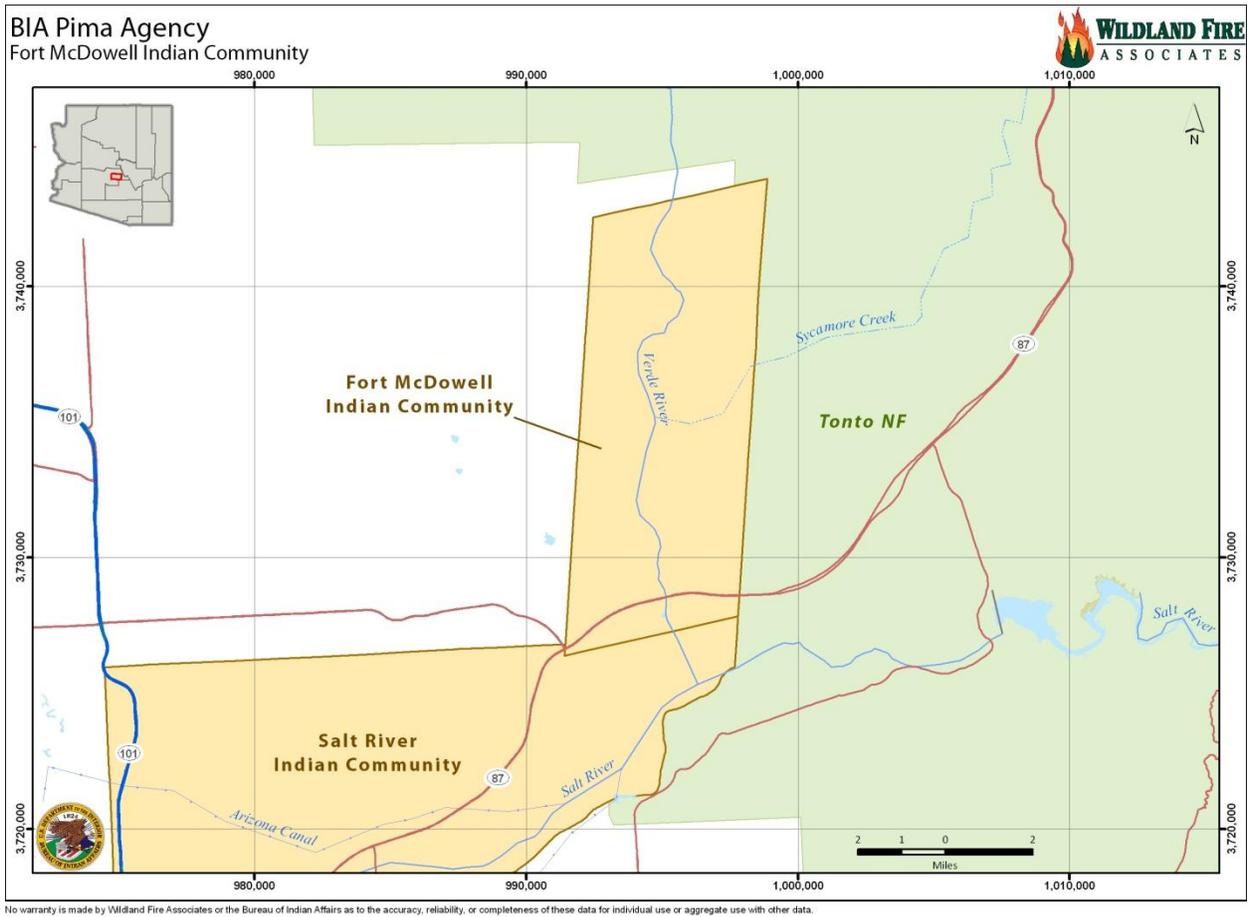
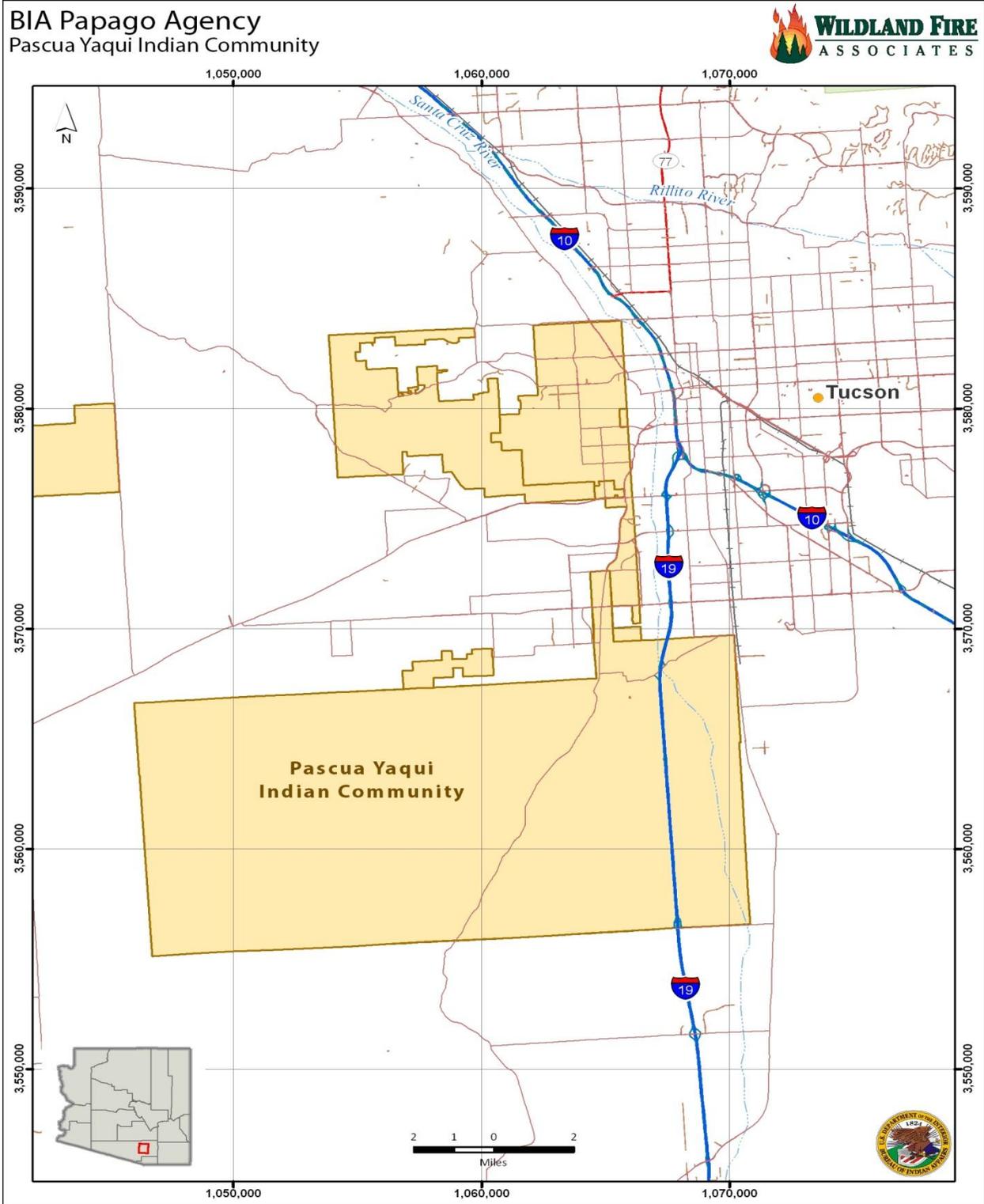


FIGURE 1. VICINITY MAP OF SALT RIVER INDIAN COMMUNITY (12/2010)



No warranty is made by Wildland Fire Associates or the Bureau of Indian Affairs as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

FIGURE 2. VICINITY MAP OF PASCUA-YAQUI INDIAN COMMUNITY (12/2010)

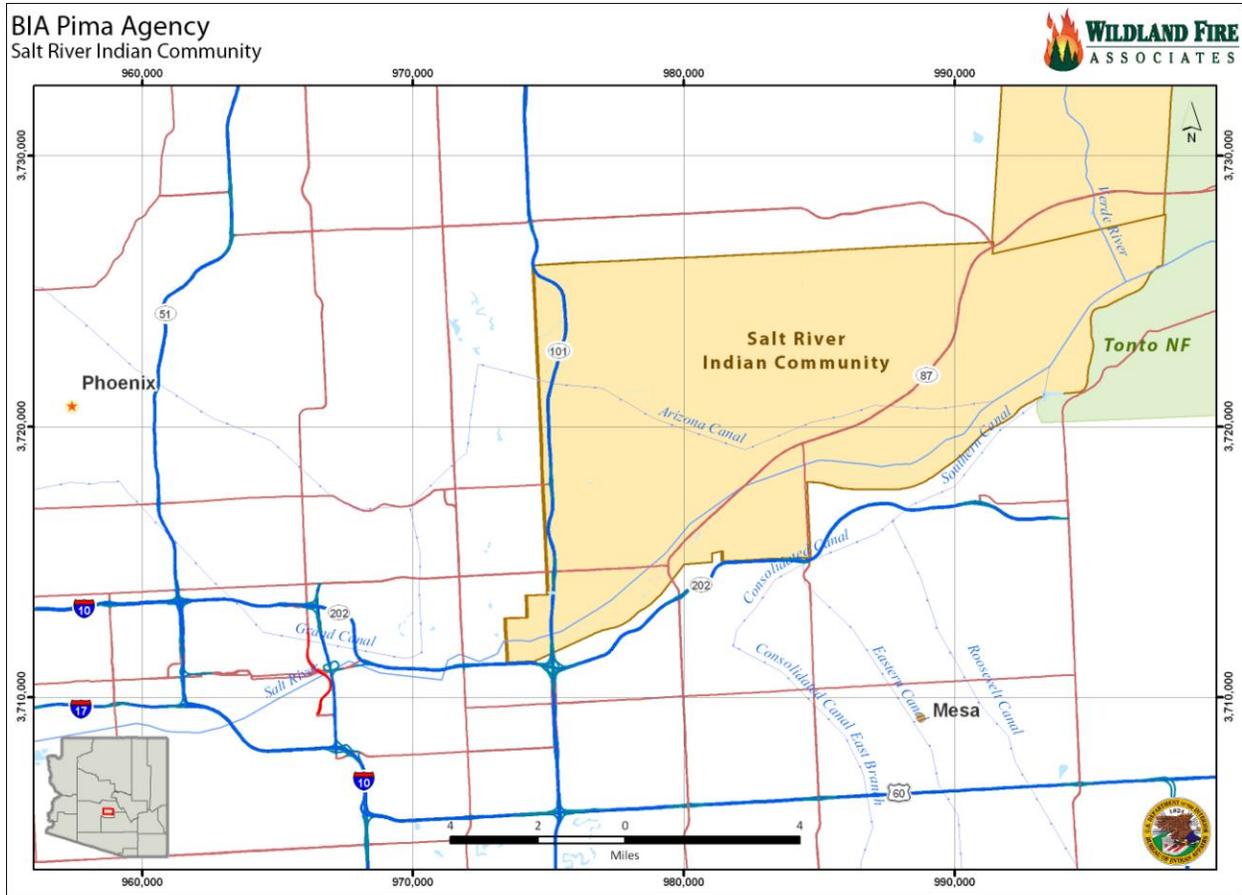


FIGURE 3. VICINITY MAP OF FT. MCDOWELL INDIAN COMMUNITY (12/2010)

1.0 PURPOSE AND NEED

This Environmental Assessment (EA) is prepared in accordance with regulations of the Council on Environmental Quality (CEQ 1978) (40 CFR 1500 et seq.) and Part 516 of the Department of Interior's Departmental Manual (DM) (DOI 2009). This document discloses the analysis of the potential environmental consequences of alternatives and provides information to understand the potential impacts of the proposed action. If any significant impact to Indian trust resources may or will result from implementing the proposed action as identified during the process, an Environmental Impact Statement (EIS) will be prepared.

The Bureau of Indian Affairs (BIA) Manual (BIAM) states that tribes may establish codes and set standards for regulating activities that affect tribal environments and resources either under federal statutes or inherent tribal authority. The BIA will comply with all applicable tribal environmental, cultural, and natural resources codes, directives, or standards, unless compliance is prohibited by some other legal requirements or preempted by federal law.

Tribal representatives and federal, state, and local agencies have been contacted for input, review, and permitting in accordance with legislative and executive requirements.

1.1 PURPOSE

The purpose of this EA is to analyze the effects of management strategies contained in alternatives for managing wildland fire and fuels under an Agency Wildland Fire Management Plan (WFMP) for Salt River, Ft. McDowell, and Pascua-Yaqui Indian Communities. The WFMP would direct the accomplishment of objectives that protect public and firefighter safety, economic, cultural, and natural resources.

Thus, this EA compares the potential impacts of implementing alternative fire management program strategies for the three Indian Communities. At the conclusion of the NEPA process, a WFMP will be written and approved in accordance with the selected alternative.

1.2 NEED

Research throughout the Southwest has shown that preparing seedbeds, controlling understory shrubs and thinning young tree stands, reducing fire hazard, and improving wildlife habitat are commonly accepted applications of prescribed fire today. Without this tool of resource management, increased accumulations of dead and down woody debris present increased risk to life and property from unwanted wildland fires.

Recent evidence of this trend includes the increased number of large destructive fires in the southwestern region. This trend also alerts managers that fire control has become an increasingly difficult and dangerous task. Other possible causes of high-severity wildland fires may be climate change, management practices, or both.

The need to develop a WFMP stems from the program objectives outlined below. It is further defined in terms of a program of hazard reduction where managed fire may be used with hand, mechanical (machine), and/or chemical methods to accomplish resource and human protection objectives.

The authority for managing wildland fires that occur on or threaten Indian lands managed by the Salt River Agency is found in P.L. 101-630, the National Indian Forest Resources Management Act of 1990 [25 USC 3101] (USDI 2002).

BIA Wildland Fire Policy provides impetus and program guidance for Wildland Fire Management Planning within the Agency. Further, the Federal Wildland Fire Management Policy Review and Update (NWCG 2001) finds and recommends

...that federal fire management activities and programs are to provide for firefighter and public safety, protect and enhance land management objectives and human welfare, integrate programs and disciplines, require interagency collaboration, emphasize the natural ecological role of fire, and contribute to ecosystem sustainability...

The National Fire Plan (2000) also calls for agency fire management programs to mitigate for threat of wildfires to human life and property, provide for rehabilitation of destructive wildfires, preparedness, and rural fire assistance.

2.0 SCOPE AND PROCESS OF THE WILDLAND FIRE MANAGEMENT PLAN

The scope of the WFMP is confined to Indian Trust Lands within the authorized boundaries of the three Indian Communities of Salt River, Ft. McDowell, and Pascua-Yaqui (see figures 1-3).

The initial step in the NEPA process involves determination whether proposed fuels treatments are addressed in an existing Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS). If necessary, it may be possible to supplement or amend an existing document to include the proposed treatments. If this is not possible, a new NEPA document must be prepared.

Approved fuels treatment projects must comply with the National Environmental Policy Act (NEPA) in accordance with direction found in the BIA NEPA Handbook, IAM Part 59, 3-H. Agency fuels management actions shall be fully addressed in a programmatic NEPA document associated with a Wildland Fire Management Plan, Fuels Management Plan, or other applicable land management plan. The NEPA document should provide for the full range of hazardous fuels reduction treatments to be employed. Adequate Tribal involvement is an essential aspect of the NEPA process. Other key environmental compliance laws associated with hazardous fuels management include: National Historic Preservation Act (NHPA), Endangered Species Act (ESA), Clean Air Act (CAA), and Clean Water Act (CWA).

This EA includes the description of the preferred alternative as well as a 10-year fuels treatment schedule which is part of the WFMP. This schedule would define fuels treatment activities

proposed to be implemented during the 10-year period following the approval of the plan. The schedule and its updates would be consistent with program objectives and the selected alternative defined in this EA. In this way, the fire program for the three Indian Communities would incorporate an adaptive management approach into planning and implementation.

The plan and treatment schedule would be subject to annual review and update as projects are accomplished. If said revisions would result in new impacts not considered in the original plan and EA, then such a program change would necessitate additional NEPA analysis. Regardless of whether changes are made to the plan, if new Bureau regulatory requirements (including Tribal), threatened and endangered species listings, or changes to the environment have occurred since the original EA, additional compliance actions would be required to continue program implementation.

3.0 FIRE MANAGEMENT OBJECTIVES AND PROPOSED STRATEGIES

The following objectives for the Indian Communities of Salt River, Ft. McDowell, and Pascua-Yaqui were identified during internal scoping discussions by an interdisciplinary team following review of existing planning documents and Bureau policies. All alternatives selected for detailed analysis must largely meet all the objectives as well as the purpose and need for action.

It is recognized that achieving every objective to its fullest extent is often not possible because of inherent conflicts between specific objectives. That is, one objective cannot be completely emphasized to the exclusion of the others. However, human safety would remain the highest priority. The following is a list of resource-related fire management objectives for the proposed wildland fire management plan:

1. *Make firefighter and public safety the highest priority of every fire management activity.*
2. *Suppress all unwanted and undesirable wildland fires to protect Indian Community property, and natural and cultural resources.*
3. *Manage wildland fires in concert with federal, state, and local air quality regulations.*
4. *Improve plant diversity in wildlife habitats.*
5. *Reduce wildland fire hazard around developed areas and adjacent to cultural and historic sites.*
6. *Promote understanding, appreciation, and support among tribal leaders, members and neighbors for the wildland fire management program.*
7. *Slow or halt the expansion of, and reduce existing stands of, saltcedar that present a fire hazard to Community values at risk.*
8. *Reduce populations of buffelgrass and cheatgrass where feasible to reduce hazardous fuels concentrations around Community values at risk.*
9. *Enhance existing mesquite populations where feasible to promote traditional Indian Community cultural values.*

The following are proposed strategies to meet objectives:

1. *Employ tribal members for fire management activities whenever possible.*
2. *Use minimum impact suppression techniques for all wildland fires.*
3. *Use prevention and education strategies to promote understanding and support of the fire management program.*
4. *Employ prescribed fire, mechanical, and/or hand methods for fuels management.*
5. *Apply approved biocides (e.g., herbicides) under a fuels management plan for target species.*

4.0 ISSUES AND IMPACT TOPICS

An issue describes an existing or potential environmental problem and the relationship between resources and federal actions.

An impact topic is a resource, value, or condition that potentially could be affected by actions described in the alternatives, under which relevant issue statements are identified. The impact topics were identified on the basis of federal laws, regulations, and orders, Bureau policies identified above, and knowledge of limited or easily impacted resources from Bureau and Tribal staffs.

Geology/Soils

- Fire may affect geologic processes, soil erosion, soil chemistry, and related processes.

Water Resources

- Fire potentially may affect water quality/quantity by runoff from burned areas, affecting sedimentation and nutrient loading in riparian systems.

Air Quality

- Emissions from fires may degrade air quality below state and local standards.

Vegetation/Exotic Plants

- Long-term drought and insect infestation may affect fire.
- Fire (or absence of fire) may affect plant species richness and plant community diversity
- Impacts of fire and fire management activities may affect non-native species.

Wildlife

- Fire may injure or kill wildlife and impact wildlife habitat

Special Status Species

- Fire may affect listed species and their habitats.

Cultural Resources

- Fire and fire management activities may affect cultural sites, features, materials, cultural landscapes, historic sites and features, and ethnographic values contained within the three Indian Communities.

Human Health and Safety

- Fire may benefit or adversely impact on public and firefighter health and safety.

Native American Traditional Values

- Fire and related activities may benefit or adversely impact native American traditional values within the three Indian Communities.

5.0 ISSUES AND IMPACT TOPICS CONSIDERED BUT NOT FURTHER ADDRESSED IN THIS EA

Those issues and impact topics identified during scoping that were considered irrelevant or not substantive were dropped from further analysis and are listed below along with the rationale for their dismissal.

Environmental Justice. Executive Order 12898, “General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” (White House 1994) requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Potential health effects are addressed under air quality and human health and safety. Therefore, environmental justice was dismissed from further analysis.

Waste Management. None of the fire management alternatives would generate noteworthy quantities of either hazardous material or solid wastes that need disposal in hazardous waste or general sanitary landfills. Therefore, this impact topic was dismissed from further analysis.

Transportation. None of the proposed alternatives would substantively affect road, railroad, water-based, or aerial transportation in and around the three Indian Communities. One exception may be the temporary closure of nearby roads during fire suppression or prescribed burning activities or from dense smoke from such fires. As evidenced by recent fire history, such closures would likely be very infrequent and would not substantially impinge on local transportation. Therefore, this impact topic was dismissed from further analysis.

Utilities. Some types of projects involving construction may temporarily impact telephone, electrical, natural gas, water, and sewer lines, potentially disrupting service to customers. Other projects may exert increased demand on telephone, electrical, natural gas, water, and sewage infrastructure, sources, and services, thus compromising existing services or creating a need for new facilities. None of the proposed alternatives would cause any of these effects to any extent. Therefore, this impact topic was dismissed from further analysis.

Economic Factors. The proposed action would neither change local Indian Community land use nor impact local businesses or other agencies. Wildland fire management activities on Indian Community lands are of typically short duration—lasting only several days. There may be intermittent or sporadic opportunities for hiring some Community residents during wildland fires, but the effect would be short term and of little economic impact. Therefore, the economic factors impact topic was dismissed from further analysis.

Wetlands. None of the proposed alternatives would substantively affect the very little area comprising wetlands (cottonwood wetland, southwestern corner of Salt River-Pima Maricopa Community) in the Communities covered by this EA. Therefore, this impact topic was dismissed from further analysis.

TABLE 1. SUMMARY OF IMPACT TOPICS RETAINED OR DISMISSED

Impact Topic	Retained or Dismissed from Further Evaluation	Relevant Laws, Regulations, or Policies (includes Tribal laws)
Geology/Soils	Retained	<i>BIA Management Policies</i> ; Tribal laws
Vegetation/Exotic Plants	Retained	<i>BIA Management Policies</i> ; Tribal laws
Wildlife	Retained	<i>BIA Management Policies</i> ; Tribal laws
Special Status Species	Retained	Endangered Species Act; <i>BIA Management Policies</i> ; Tribal laws
Water Resources	Retained	Clean Water Act; Executive Order 12088; <i>BIA Management Policies</i> ; Tribal laws
Air Quality	Retained	Clean Air Act (CAA); CAA Amendments of 1990; <i>BIA Management Policies</i> ; Tribal laws
Cultural Resources (Archeology, historic structures, and Ethnographic resources)	Retained	Section 106 of National Historic Preservation Act; Archeological and Historic Preservation Act; Archeological Resources Protection Act; 36 CFR 800; NEPA; Executive Order 13007; Executive Order 11593; the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation; <i>BIA Management Policies</i> ; Tribal laws
Human Health and Safety	Retained	<i>BIA Management Policies</i> ; Tribal laws
Native American Traditional Values	Retained	Department of the Interior Secretarial Orders No. 3206 and No. 3175; Tribal laws and policies
Economic Factors	Dismissed	<i>BIA Management Policies</i> ; Tribal laws
Prime and Unique Farmlands	Dismissed	Council on Environmental Quality 1980 memorandum on prime and unique farmlands
Wetlands	Dismissed	Executive Order 11988; Executive Order 11990; Rivers and Harbors Act; Clean Water Act; <i>BIA Management Policies</i> ; Tribal laws
Environmental Justice	Dismissed	Executive Order 12898
Waste Management	Dismissed	<i>BIA Management Policies</i> ; Tribal Policies
Transportation	Dismissed	<i>BIA Management Policies</i> ; Tribal laws
Utilities	Dismissed	<i>BIA Management Policies</i> ; Tribal laws

6.0 PROPOSED ACTION AND ALTERNATIVES

The proposed action and alternatives were developed from the ID Team's internal and external scoping; guidance from existing and approved plans and documents; input from staff specialists; policy guidance from the BIA; the 2001 Federal Fire Policy; the National Fire Plan; and relevant literature. The alternatives cover the range of what is physically possible, acceptable by policy, and feasible for local managers.

Three alternatives were identified, all of which meet Bureau and Tribal management objectives. A no-action alternative is included for analysis, in compliance with the NEPA.

6.1 MITIGATION COMMON TO ALL ALTERNATIVES

The Code of Federal Regulations (40 CFR 1508.20) defines "mitigation" as including the following:

- Avoiding the effect altogether by not taking a certain action or parts of an action
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing or providing substitute resources or environments

Mitigation measures are prescribed to prevent/mitigate adverse impacts to resources and values that may result from implementation of any alternative. The following apply to all alternatives.

Safety. Public and firefighter safety is the number one priority of all alternatives. The Federal Fire Policy states, "Firefighter and public safety is the first priority, and all Wildland Fire Management Plans and activities must reflect this commitment."

Minimum Impact Suppression Tactics (MIST). The application of strategy and tactics that effectively meet suppression objectives with the least environmental, cultural, and social impacts. MIST guidelines are found in the *Interagency Standards for Fire and Fire Aviation Operations 2011* (NIFC 2011).

Cultural Resources. The following mitigation measures are based on lessons learned and related fire effects studies:

- Define work limits in the vicinity of cultural resources.
- Locate, identify, and isolate cultural sites that are vulnerable to fire effects or suppression actions.
- Educate fire crews about the need to protect cultural resources.
- Avoid the direct application of water on archeological resources. Use foams for mop-up applications to avoid ground disturbance.

- The mechanical manipulation of fuels may be necessary to mitigate damage to cultural sites.
- Use of water as much as possible rather than construction of hand line to contain unplanned wildland fires to minimize the potential of disturbing archeological sites.
- Other tactics to be considered include blacklining around structures or features near wildland fires, treating structures with fire-retardant foam concurrent with fires, wrapping structures with heat reflective materials, and establishing sprinkler systems on and around structures concurrent with wildland fire suppression activities.
- Monitor fire suppression activities, immediately report newly discovered resources to a qualified archaeologist, and protect the site.
- Because of the potential to threaten human life and impacts to natural and cultural resources, off-road use of motorized equipment, such as all-terrain vehicles and wildland fire engines, may require authorization by the Agency line officer.
- A Tribal or BIA Resource Advisor should be considered, and if deemed necessary, be ordered through the interagency dispatch system.

Special Status Species. Where the presence of any listed endangered or threatened species is known or suspected, the staff biologist/natural resource manager would be consulted for survey needs to determine species occupancy. If species are known or found, action would be taken to reduce impacts including avoidance of breeding or nesting seasons. The U.S. Fish and Wildlife Service (USFWS) would be contacted to ensure that appropriate and effective mitigation is provided.

Public Education. Community members and the local public would receive information via media releases.

Coordination with Tribes. All pending treatments, including pile and broadcast burns, biocide treatments, and non-fire fuels work would be coordinated with the appropriate tribal staff prior to implementation.

Rehabilitation. Burned areas from wildland fires would be evaluated to determine if a rehabilitation plan is necessary as a mitigation measure to prevent further resource damage.

Potential measures may include:

- native plant re-seeding
- erosion stabilization, including: water bar installation, rehabilitating firelines, and contour felling
- invasive species control using appropriate treatments
- removal of vehicle tracks, temporary signs, flagging, and any garbage or evidence of fire camps and staging areas
- stabilization of cultural sites or features as directed by an archaeologist and Tribal staff

7.0 ALTERNATIVES

Three alternatives were selected and are proposed:

7.1 ALTERNATIVE A (NO ACTION): Continue the current wildland fire program strategy that calls for management of all wildland fires and burned area rehabilitation where necessary.

The no-action alternative would continue with a program that **excludes** any non-fire hazard fuel reduction and/or the use of prescribed fire to help reduce excessive fuel buildups and restore fire regimes on some tribal lands. All wildland fires will continue to be suppressed and selected severe burned areas rehabilitated under an approved rehabilitation plan.

Consideration of firefighter safety calls for careful evaluation by a qualified incident commander before the decision is made to send fire crews into areas with heavy vegetation, especially during severe fire seasons. The full-suppression strategy could include actions such as fire line construction using dozers (requires Tribal approval), hand tools, chainsaws, and helicopter water drops. Vehicle use would be authorized by the Agency line officer only in specific cases to support suppression actions for unwanted wildland fire incidents having potential to threaten human life. Vehicles would include engines, pickups, water tenders, and all-terrain vehicles.

The no-action alternative may expose firefighters to somewhat elevated risks as well as potentially increased costs. This alternative would not result in the same level of protection of natural and cultural resources and people over the long term as would occur with the preferred alternative.

Some mechanical thinning treatments might occur to protect human life, property, and cultural and natural resource values, but each project would require a separate implementation plan, public involvement, cultural resources and natural resources regulatory compliance documentation, and decision records.

7.11 Mitigation as Part of the No-Action Alternative

Applicable mitigation listed under “Mitigation Common to all Alternatives” above would be implemented during suppression operations under Alternative A.

7.2 ALTERNATIVE B (PREFERRED): Develop a wildland fire management plan that directs an appropriate management strategy for all wildland fires, rehabilitation of burned areas, and using prescribed fire, mechanical, hand, and chemical treatments under a 10-year fuels treatment schedule to meet resource and protection objectives.

7.2.1 Strategies—Alternative B

Under alternative B, the revised Wildland Fire Management Plan would **include** appropriate methods of non-fire (hazard) fuels reduction strategies together with use of prescribed fire to restore fire regimes where applicable under a 10-year fuels treatment schedule, and continue to suppress all wildland fires. Burned areas would be rehabilitated under an approved rehabilitation plan.

Suppression. The suppression strategy (i.e., appropriate management) would include potential impacts created by suppression activities such as handline construction using dozers (requires Tribal approval), hand tools and chainsaws, helicopter water drops, and retardant use where life and property are immediately threatened and to prevent unwanted wildland fire from impacting values to be protected. Human presence (e.g., Community members) associated with suppression and support actions is also a potential effect. These may include camps, staging areas, helispots, security check-points, and any other temporary facilities required.

Prescribed Fire. The term “prescribed fire” (or Rx fire) means any fire ignited by management to meet specific objectives (see also the Glossary of Wildland Fire Terminology (2008)). A written, approved prescribed fire plan (also called a burn plan) must exist. All projects involving prescribed fires and/or non-fire treatments would require an approved plan (according to BIA wildland fire policy) that outlines the management objectives, prescription, resources to be used, contingencies, and mitigation required.

Manual and Hand Fuels Treatment. Projects would accomplish stated objectives involving the establishment of defensible space, preventing fires from crossing Indian Community boundaries, or accomplishing specific ecological restoration objectives. This strategy would include the use of chainsaws and hand tools to clear brush and selected trees.

Trees and brush to be thinned, trimmed, or removed would be identified by the Agency within each scheduled project. Slash would be lopped into approximately 2- to 4-foot lengths to ensure rapid drying to facilitate subsequent burning. Stumps would be cut as close to, or flush with, the ground surface. Slash would be distributed in a manner that protects valuable trees and residual vegetation to the maximum degree possible. Slash would be burned on site (either in piles or broadcast) in a timely manner to avoid infestation by diseases, insects, or other pathogens. Tree slash generated by thinning under this alternative could host insect colonization, and thinning and burning would be timed to minimize the likelihood of insects colonizing the project site. During fuel reduction and burning operations, temporary road closures or traffic control may be necessary to ensure safety.

Rehabilitation. Department of Interior (DOI) policy includes:

- Emergency stabilization (short-term; no plan required)
- Burned Area Rehabilitation (long-term; plan required for up to 3 years)

Any post-fire rehabilitation actions (e.g., repairing fences, structures, roads, and trails; installing erosion control devices; and reclaiming fire camps, temporary helispots, staging areas, and other operational locations) will have had varying degrees of impact that require mitigation through an approved Burned Area Emergency Rehabilitation (BAER) plan. Stabilization of slopes and other affected features also is included.

Herbicide (chemical) Treatment. The rapid expansion of noxious weeds and exotic plants continues to be a major contributor to ecosystem degradation on western wildlands. These plants displace native vegetation and create or add to the risk of wildfire by accumulation of fuels and contributing to firefighter safety and threats to values at risk on Indian Communities lands.

Executive Order 11312, *Invasive Species*, (White House 1999) directs federal agencies to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause.

The *Noxious Weed Control and Eradication Act of 2004* (Public Law 108-412, USDA 2004) established a program to provide assistance through the states to eligible weed management agencies to control or eradicate harmful non-native weeds on public and private lands.

Chemical treatment involves the application of approved herbicides (chemical compounds) via a variety of application methods at certain plant growth stages to kill target weed and non-native species that are identified as hazardous wildland fuels in the fuels treatment schedule. Selection of an herbicide for use would depend on its chemical effectiveness on a certain weed species, habitat types present, proximity to water, and presence or absence of sensitive plant, wildlife, and fish species.

Saltcedar. For relatively large areas of saltcedar, the best treatment method would likely be foliar application of imazapyr herbicide (Arsenal®) to intact plants or burning or cutting plants followed by foliar application of imazapyr or triclopyr (e.g., Garlon4® or PathfinderII®) to the resprouted stems. Foliar application of imazapyr or imazapyr in combination with glyphosate (e.g., Rodeo®) can be effective at killing large, established plants. Over 95 percent control has been achieved in field trials during the late summer or early fall. The herbicide can be applied from the ground using hand-held or, less commonly, truck-mounted equipment. Foliar application of herbicide works especially well in monotypic stands of saltcedar, although experienced persons using ground equipment can spray around native trees and shrubs such as cottonwood (*Populus* spp.) and willow (*Salix* spp.). As an alternative to herbicides, prescribed fire can be used to open up large stands of saltcedar. Once opened, the resprouts can be sprayed when they are 3.3 to 6.6 feet tall using imazapyr, imazapyrplus glyphosate, or triclopyr (Ecosystem Management 2007).

Application methods would include spraying from backpack or ATV (all-terrain vehicle) by trained and certified operators. Aerial application is not considered under this EA.

Integrated weed management strategies under the proposed alternative may combine mechanical, hand, and prescribed fire along with herbicide application. Utilizing one strategy alone is often not effective in accomplishing long-term fuels management objectives.

7.22 Mitigation as Part of Alternative B

During suppression operations, prescribed fires, and thinning/fuel reduction operations under Alternative B, the following mitigation would be applied in addition to, or in conjunction with, applicable mitigation actions listed in the section entitled “Mitigation Common to all Alternatives” to provide for resource protection.

Geology and Soils

- Prescribed fire planning would involve prescriptions where low-severity, short-duration fire is desirable. The burn plan would include locating control lines that ensure minimum soil exposure.
- Pile burns would be avoided where geological features or soils may be vulnerable to sterilization. Soil moisture would be high enough to ensure that an organic layer would remain following burning.

Vegetation and Wildlife. Mitigation of impacts on the Indian Communities' native vegetation and wildlife species and habitats consists of, but is not limited to, the following:

- Consultation with natural resource specialists on proposed locations of management actions that may remove or disturb native vegetation/habitat
- Minimization of ground disturbance wherever possible
- Selection of a time of year for actions that least affect breeding and/or nesting animals
- Planned protection of specified habitats for cavity and ground nesters and other wildlife
- Whenever consistent with safe, effective suppression techniques, the use of natural barriers, such as sparsely vegetated areas, would be used as extensively as possible.
- Fire retardant, if used, must be on the approved list of retardants used by the U.S. Forest Service and USDI Bureau of Indian Affairs.

To prevent the introduction of noxious weeds and non-native plant species, the following mitigation measures would be considered:

- Consultation with a tribal or Agency vegetation management specialist is advised when considering fire effects on existing weed species or potential for weed introductions from the use of fire or any tracked or wheeled equipment use.
- Before any native ecosystems are disturbed (such as with prescribed burning), identify the exotic species likely to invade the disturbed areas and measures to prevent such invasion. Where feasible, control exotics on neighboring lands before they become established on Indian Community lands.

Special Status Species. Any potential disturbance to listed species or habitats would be identified in the planning process generally through informal consultation with the USFWS Ecological Services under Section 7 of the Endangered Species Act (ESA).

Air Quality. The Agency will conform to the Arizona State Implementation Plan and would comply with all federal, state, and local air-quality laws and regulations, specifically the U.S. Clean Air Act and the Arizona Administrative Code (R18-2-602). The Agency would also notify local agencies (e.g., fire department, law enforcement, Forest Service, etc.), offices, and individuals before commencing prescribed burning under an approved burn plan. Other mitigation actions would include the following:

- Reduce fuels available for combustion where feasible, and use head-fire ignition with the wind wherever practical to produce flaming versus smoldering combustion.

- Burn at higher fuel moisture of the large (e.g., logs) fuels. Combine this technique with burning at lower fine fuel moisture.
- Reduce particulate emissions for the fuel consumed by reducing the time period of the smoldering phase.
- Avoid smoke-sensitive areas, such as highways during heavier traffic periods (e.g., weekends, holidays), hospitals, extended care facilities, casinos, etc.
- Avoid burning near smoke-sensitive areas when there are strong inversions or very stable high-pressure systems in place.

Water Quality. Mitigation of fire impacts to water quality and aquatic habitat is largely dependent upon the level of wildland fire severity and time of year. Planning to minimize direct impingement of any prescribed fire use on riparian habitats by ensuring the use of ignition techniques that produce low-severity fire and monitoring impacts in key locations are mitigating considerations.

Cultural Resources. Because of the nature and sensitivity of cultural resource site locations, site maps, National Register documentation, photographic records, and drawings are not included in this document. If previously unknown archeological and/or historic resources are discovered during project planning, the resources will be identified and documented and an appropriate mitigation strategy will be developed, if necessary, in accordance with pertinent federal and Tribal laws and regulations. Moreover, the following action shall be implemented for the Salt River Pima Maricopa Indian Community lands:

If any human remains or cultural resources are observed on the ground surface or sub-surface during implementation of the plan within the noted area of effect, all work must stop immediately and you must notify the SRP-MIC, Cultural Preservation Program immediately. (SRP-MIC Policy Statement Letter; dated March 4, 2011).

Human Health and Safety. Mitigation consists of adequate and timely notifications of planned actions and on-site protective measures to ensure that the public (e.g., community members) is not exposed to risk posed by fire management activities. This may include closure or restrictions, traffic control to prevent smoke-related incidents on public roadways, and distribution of appropriately-worded flyers and handouts.

7.3 ALTERNATIVE C: Develop a wildland fire and fuels management plan that directs an appropriate management strategy for all wildland fires, rehabilitation of burned areas, and uses mechanical, hand, and chemical treatment strategies only to meet resource and protection objectives.

7.31 Strategies—Alternative C

Under this alternative, strategies would include all those discussed under alternative B (preferred) except the use of prescribed fire to accomplish fuels management objectives. Without prescribed fire as a treatment strategy, some fuels reduction objectives would not be met; without

a viable management tool such as prescribed fire, the other strategies would be less effective in debris disposal and likely more costly to implement.

7.32 Mitigation as Part of Alternative C

Geology and Soils. Mitigation would be similar to that of alternative B.

Vegetation and Wildlife. Mitigation would be similar to that of alternative B.

Special Status Species. Mitigation would be similar to that of alternative B.

Air Quality. As prescribed fire is not part of this alternative, mitigation measures would largely be non-existent.

Water Quality. Mitigation would be similar to that of alternative B.

Cultural Resources. Mitigation would be similar to that of alternative B.

Human Health and Safety. Mitigation would be similar to that of alternative B.

7.4 ALTERNATIVES CONSIDERED BUT DISMISSED

Alternative D. Suppression and Prescribed Fire Only. Use suppression and prescribed fire strategies only to meet objectives. Under this alternative the strategy of mechanical and/or hand (manual) hazardous fuels treatment methods would not be used to create defensible space around values at risk within and around Indian Communities. Therefore, this alternative would not meet all stated objectives, and is dismissed from further analysis.

Alternative E. No Management. This alternative would allow all wildland fires to burn unimpeded by any management action. This alternative was dismissed because it is inconsistent with federal policy and regulations.

7.5 SUMMARY OF ALTERNATIVES AND IMPACTS

The following table summarizes impacts to each alternative by impact topic. Detailed analysis is found later in this document.

TABLE 2. SUMMARY OF ALTERNATIVES AND IMPACTS

Impact Topic	Alternative A - No Action	Alternative B – Preferred	Alternative C
Geology/ Soils	Adverse, minor	Beneficial, minor	Negligible to adverse, minor
Water Quality	Negligible to adverse, minor	Beneficial, moderate	Negligible
Vegetation/Exotic Plants	Adverse, minor	Beneficial, minor to moderate	Adverse, minor
Wildlife	Adverse, moderate	Beneficial, minor to moderate	Adverse, minor
Special Status Species	May affect, not likely to	May affect, not likely to	May affect, not likely to

	adversely affect	adversely affect	adversely affect
Air Quality	Adverse, minor	Beneficial, minor to moderate	Negligible to beneficial, minor
Cultural Resources	Adverse, minor	Beneficial, moderate	Negligible to beneficial, minor
Human Health and Safety	Adverse, minor	Beneficial, minor	Beneficial, minor
Native American Traditional Values	Negligible to adverse, minor	Beneficial, moderate	Adverse to beneficial, minor

8.0 ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in the NEPA of 1969, which is guided by the CEQ. The CEQ provides direction that:

the environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101:(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradations, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety, of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The **no-action alternative (alternative A)** represents the current management direction for the Salt River, Ft. McDowell, and Pascua-Yaqui Communities. Without a planned and orderly intervention into many altered plant communities that exist now, probabilities increase for a high-severity, high-risk, and damaging wildland fire that would likely promote the spread of exotic species, destruction of important wildlife habitat, and alteration of cultural sites and features. The no-action alternative also may expose firefighters to somewhat elevated risks as well as potentially increased costs because it does not allow for use of confinement strategies in suppression operations. Therefore, this alternative would not result in the same level of protection of natural and cultural resources, and people over the long term as would occur with the preferred alternative. Consequently, the no-action alternative does not satisfy provisions 2, 3, and 4 of NEPA's Section 101.

Alternative B (preferred) would accomplish stated goals and objectives for the fire management program. Specifically, alternative B would more fully meet restoration and protection objectives, whereas alternative C would meet only partially without the strategy of prescribed fire. Under the preferred alternative (B), the adaptive management approach and employment of monitoring, fuels treatment prescriptions using prescribed fire, and non-fire fuels management according to a 10-year fuels treatment schedule can be adjusted to reflect desired effects. Alternative B also surpasses the no-action alternative (A) and Alternative C in best

realizing national environmental policy goals 2, 3, 4, and 6 as stated in § 101 of the NEPA over the long term. Therefore, alternative B is the environmentally preferred alternative.

9.0 METHODOLOGY

Available information on the three Indian Communities and the surrounding ecosystems were reviewed, including information on soils, water resources, vegetation, and wildlife. Potential impacts to rare species/unique habitats and cultural resources potentially affected within the Communities are assessed in separate sections below. Maps of the land areas were used to generally characterize the natural systems. The potential impacts of each alternative on those components/impact topics then were evaluated, including pertinent issues identified during the scoping process. Predictions about short- and long-term impacts were based on available past studies of land use.

9.1 DEFINITIONS

For each impact topic evaluated below, the impacts are defined in terms of context, intensity, duration, and timing. Direct, indirect, and cumulative impacts are discussed for each impact topic. Definitions of intensity levels vary by impact topic (see the thresholds matrix below), but the following definitions were applied for all impact topics:

Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

Adverse: A change that moves the resource away from a desired condition or detracts from its appearance or condition.

Direct: An effect that is caused by an action and occurs in the same time and place.

Indirect: An effect that is caused by an action but that is later in time or farther removed in distance, but it is still reasonably foreseeable.

Potential impacts are described in terms of **type** (i.e., are the impacts beneficial or adverse?), **context** (i.e., are the impacts site-specific, local, or even regional?), **duration** (i.e., are the impacts short-term, lasting less than 1 year, or long-term, lasting more than 1 year?), and **intensity** (i.e., are the impacts negligible, minor, moderate, or major, or would the impacts constitute impairment of the Salt River, Ft. McDowell, and Pascua-Yaqui Communities' resources and values?).

9.2 INTENSITY OF IMPACTS DEFINED

The following table defines impact thresholds, by impact topic, for each level of intensity included in this assessment.

TABLE 3. IMPACT INTENSITY THRESHOLD CRITERIA AND DURATION DEFINITIONS

<i>Impact Topic</i>	<i>Negligible</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Duration of Impact</i>
Geology/Soils	Impacts would be below detectable levels and not measurable.	Changes to character of geologic features or soils detectable but short-term and localized. Any mitigation needed to offset adverse impacts would be simple and would be effective.	Changes to character of geology and soils readily apparent and short term over a wide area. Mitigation measures to offset impacts would probably be necessary and likely successful.	Impacts to geology and soils characteristics severe or of exceptional benefit over a wide area for the long-term. Mitigation to offset adverse impacts would be needed, and its success not assured.	Short term refers to durations of less than 5 years. Long term refers to durations in excess of 5 years.
Vegetation/ Exotic Plants	Vegetation would not be affected or individual plants could be slightly affected; impacts short-term and limited to small area. Impact on exotics barely detectable or individual species could be affected. Impacts short-term and limited to small area.	Changes short-term, localized, and measurable to one or more species, but would be of little consequence to the population. Mitigation of any adverse impacts would be effective. Mitigation to protect native species would be effective.	A large segment of one or more species populations would be affected in the short-term and over relatively larger area. Mitigation could be extensive, but likely effective.	Considerable long-term impacts on plant populations over large areas. Mitigation to offset adverse impacts required and extensive, and success not assured. Impact is severe on or of exceptional benefit to competing native species. Extensive mitigation required to offset adverse impacts to native species, but success not assured.	Short term refers to a period of 1-3 years. Long term refers to a period of longer than 3 years.
Wildlife	Impacts barely detectable or individuals could be affected but not populations. Impacts short-term and limited to small area, and not measurable.	Changes would be short-term, localized, and affect one or more species populations. Any adverse impacts can be effectively mitigated.	A large segment of one or more wildlife populations affected long-term and over a relatively large area. Mitigation to offset adverse impacts extensive but likely successful.	Impact is severe or of exceptional benefit to wildlife populations. Extensive mitigation would be required to offset adverse impacts, and its success not assured.	Short term refers to a period of 1-3 years. Long term refers to a period of longer than 3 years.
Special Status	Listed species	There would be	A noticeable,	Noticeable,	Short term refers

<i>Impact Topic</i>	<i>Negligible</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Duration of Impact</i>
Species	would not be affected or change so small as to not be of any measurable or perceptible consequence to the individual or its population.	an effect on one or more individuals of a listed species or its habitat, but change would be small and short-term.	measurable affect to an individual or population of a listed species. The effect would have long-term consequence to the population or habitat.	measurable affect with long-term severe consequences or exceptional benefit to the population or habitat of a listed species.	to a period of 1-3 years. Long term refers to a period of longer than 3 years.
Water Quality	Impacts barely perceptible or below detection levels.	Changes to water quality, hydrology, and aquatic organisms detectable but short-term and relatively small. No mitigation would be necessary.	Changes to water quality, hydrology, and aquatic organisms readily apparent, long-term, but localized. Mitigation to offset adverse impacts could be necessary, and would likely be successful.	Impacts to water quality, hydrology, and aquatic organisms severe or of exceptional benefit long-term and over a wide area. Mitigation to offset adverse impacts would be necessary, but success is not assured.	Short term refers to duration of days to a few months. Long term refers to duration in excess of a year.
Air Quality	Impact on air quality barely detectable and not measurable; if detected, would have slight effects.	Impact on air quality measurable but short-term and localized. No mitigation measures would be necessary.	Changes in air quality Would be measurable and would have consequences, but impacts local. Mitigation measures necessary and likely effective.	Changes in air quality Measurable, would have Substantial consequences, and noticed regionally. Mitigation measures necessary and success of measures not assured.	Short term would refer to hours or days; i.e., the duration of the fire management incident or action. Long term would refer to substantially beyond the duration of the incident.
Cultural Resources	Impacts at lowest levels of detection are barely perceptible and not measurable on cultural sites or features, natural or physical ethnographic resources.	The impact affects an archaeological or historic site or features with little data potential, but impact would not affect the character - defining features of a listed site or site eligible for	The impact affects an archaeological or historic site with modest data potential. For a National Register eligible structure or building, the adverse impact would change the character	The impact affects an archaeological or historic site with high data potential. For a National Register eligible or listed structure or building, the impact would change the	Short term would refer to periods of less than one year. Long term would exceed one year duration.

<i>Impact Topic</i>	<i>Negligible</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Duration of Impact</i>
		listing on the National Register of Historic Places. For Section 106, the determination of effect would be no adverse effect.	defining feature(s) of the structure, but would not diminish the integrity of the resource and jeopardize its National Register eligibility. For Section 106, the determination of effect would be adverse effect, or a no adverse effect in the case of a beneficial impact. An action that would cause some change to a natural or physical ethnographic resource and would be measurable, but mitigation actions would be effective.	character defining feature(s) of the structure or building, diminishing the integrity to the extent that it is no longer eligible for listing on the National Register. Section 106 determination similar to “moderate intensity”. An action that would cause a noticeable to severe change or exceptional benefit to a natural or physical ethnographic resource. The change is measurable & has a substantial and possible permanent effect even with mitigation applied.	
Human Health and Safety	An action that could cause a change in level of risk to public and firefighter safety, but the change would be so small that it would not be of any measurable or perceptible effect.	An action that could cause a change in risk level, but the change would be small and localized effect. Mitigation would be a standard procedure and highly effective in minimizing risk.	An action that would cause measurable change to levels of risk; however, mitigation to offset adverse effects would generally be moderate complexity and effective.	An action that would cause a severe change or exceptional benefit to public and firefighter safety related values. The change would have a substantial and possible permanent effect, and mitigation to offset adverse impacts is not	Short term would refer to the duration of a fire management incident. Or project. Long term refers to duration extending beyond the incident.

<i>Impact Topic</i>	<i>Negligible</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Duration of Impact</i>
				assured.	
Native American Traditional Values	No perceptible or measurable change to Sites, structures, objects, landscapes, or natural resource features assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with them.	An action that could cause a change to traditional values or significance in the cultural system of a tribe associated with them; if change is measurable, would be small and localized.	An action that would cause measurable change to a traditional value or significance in the cultural system of a tribe associated with it (them); mitigation to offset adverse impacts would be simple and generally effective.	The effect would be readily apparent and would result in a substantial adverse or beneficial change in a traditional value or significance in the associated cultural system; mitigation to offset adverse impacts required, but success not assured.	Short term would refer to periods of less than one year. Long term would exceed one year in duration.

9.3 CUMULATIVE IMPACTS METHODOLOGY

From CEQ regulations (1508.7), a “cumulative effect” is the effect on the environment that results from the incremental effect of the action(s) when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such action (CEQ 1978).

CEQ regulations also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g., reducing the intensity of an impact from major to moderate or minor. However, any resultant reduction in intensity of impact resulting from mitigation is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Although adverse impacts under Section 106 may be mitigated, the effect remains adverse.

Cumulative impacts were determined by combining the impacts of the preferred alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify and analyze other ongoing or reasonably foreseeable future projects on the Indian Communities, and, if applicable, the surrounding area.

9.4 OTHER ONGOING AND PROPOSED PROJECTS AND ACTIVITIES

Rural residential growth also would add cumulatively to resource- and human-safety-related impacts on neighboring federal and private lands and thus to Community lands as the proposed action is implemented.

Cumulative impacts associated with neighboring agencies' prescribed fire and fuels management program(s), when added to smoke emissions potentially produced by the proposed action from this EA, also would require analysis.

9.5 COMPLIANCE WITH SECTION 106, NATIONAL HISTORIC PRESERVATION ACT

In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 of the NHPA (36 CFR Part 800) (ACHP 2004), impacts to cultural resources and the cultural landscape were identified and evaluated by (1) determining the area of potential effects, (2) identifying cultural resources present in the area of potential effects that were either listed in or eligible to be listed in the National Register of Historic Places, (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register, and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either adverse effect or no adverse effect also must be made for affected National Register-eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register, e.g., diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Adverse impacts also include reasonably foreseeable impacts caused by the preferred alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

10.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

10.1 GEOLOGY AND SOILS

Affected Environment. Soils within the Salt River and Ft. McDowell Indian Communities consist generally of channel deposits, floodplain alluvium, alluvial fan deposits, slope-wash deposits, and lacustrine deposits. They are largely from granitic and mixed rocks. Permeability in these soils is moderate in Mohall loam soil unit, containing a relatively high clay content (EPA 2001; EPNRD 2008).

For the Pascua-Yaqui Community lands, the reservation is at the southern end of the Tucson Mountains, a northwest-trending range in the southern Basin and Range physiographic province. These mountains form a tilted lava-capped range containing sedimentary rocks ranging from Cambrian to Cretaceous in age, volcanic rocks from Cretaceous to Pleistocene, and intrusive rocks of Cretaceous and/or Tertiary (Laramide) age.

Alluvial deposits forming the bajadas on which the reservation is situated are derived from the Sierrita Mountains, southwest of the Tucson Mountains. Part of the reservation is also located in gravel (U.S. Bureau of Mines 1982).

Soils in the salt-desert shrub communities are fragile, but as they currently do not support dense vegetation that would cause high-severity wildland fires, their current condition is relatively unaffected by fire.

On those Indian Community lands that support shrub fields with grass understories on steeper slopes, soils are currently at risk for potential high-intensity and rapid-moving wildland fires. Undesirable soil movement may be a consequence of such fires.

10.1.1 Impacts of Alternative A (No Action)

Impact Analysis. High-intensity wildland fires burning in accumulations of untreated fuels on any of the three Indian Communities' landscapes would have the potential to cause or increase some soil erosion or movement of geologic features.

Localized and temporary direct adverse impacts to soils would result from fire suppression operations. As most of the recent wildland fires have been limited in size to 10 acres or less, the impact of fire suppression is considered minor. Indirect impacts could include erosion on fire lines, but that potential can be mitigated by rehabilitation of firelines in those areas. Impacts resulting from these actions would be indirect, localized, adverse, of minor intensity, and short-term in duration.

The direct impacts of fire on soil properties also may include changes in soil chemistry (e.g., loss of nitrogen), reduction in porosity, and consumption of organic matter. Indirect impacts would include an increase in soil temperature after vegetation layers are removed. The impacts of unplanned wildland fires on soils of the Salt River and Ft. McDowell Community lands, particularly given the typical small fire size and infrequent occurrence as well as the low organic content in local soils, would be well within the range of normal impacts. As such, the impacts of fire on soil properties would again be minor and short-term.

Cumulative Impacts. Cumulative impacts to soils would include the effects of fire and fire suppression and human presence, particularly where soils may be exposed on slopes. These effects, when added to the potential for high-intensity wildland fires, would result in minor short- and long-term adverse effects on soils productivity and stability.

Conclusion. The no-action alternative would result in localized, short- and long-term, minor, direct and indirect adverse impacts to geology and soils of the Salt River, Ft. McDowell, and Pascua-Yaqui Indian Communities.

10.1.2 Impacts of Alternative B (Preferred)

Impact Analysis. The strategy of for wildland fires under a proposed WFMP would result in minimal increases in acres burned. However, with the use of natural and human barriers, there would be comparatively less fire line construction to bare mineral soil and likely less ground disturbance of other types. Any additional impact would be a result of slightly extended firefighter presence on the fire, but this would be negligible. Indirect impacts on post-fire soils would include an increase in soil temperature and erosion after vegetation layers are removed in small, localized patches resulting from torching of heavier fuels or clumps of trees. Impacts on soils would be indirect, adverse, and localized, but minor and short-term in duration. There could

be an increase of water during intense storms but the amount would be negligible. The short-term impact on soils that would occur following fire would return to natural conditions as ground cover returns (generally in 3 to 5 years). Impacts would become beneficial, long-term, localized, and of minor intensity on soil erosion potential. Negligible impacts on geological features would occur.

Chainsaws would be used to thin trees around identified structures and facilities. Debris would be piled for later burning or removal. Piles would be ignited when soil moisture and temperature are cool, although minor increased heating of soil organics directly below the pile would occur. Soil disturbance from these activities would be negligible. No toxic materials would be introduced into the soils or watershed during the treatments. Accidental spills from refueling saws would be minimized by refueling on surfaces where fuel could be contained.

With reasonable care to minimize ground disturbance during these projects, the potential adverse impact is expected to be localized, short-term, and minor. For the long term, as nitrogen and other necessary chemical components become available for new and diverse post-fire vegetative growth, the effect would be beneficial, indirect, localized, and of minor intensity.

Herbicide applications to reduce fuel hazards and treatment of saltcedar would cause minor localized adverse impacts to soils, particularly if applicators follow strict guidelines to mitigate spills and accidental introductions of chemicals into the soils resource.

Motorized vehicle use in support of fire management projects would be confined to existing roads, and therefore, impacts to soils would be negligible.

Cumulative Impacts. Impacts to geology and soils from any nearby construction, routine maintenance, or other ground-disturbing actions would likely be offset as fire is restored and selective thinning contributes to reducing potential for high-intensity wildland fire, resulting in localized, negligible to minor adverse effects, but consequently changing to beneficial as soil condition is improved in the long term.

Conclusion. Impacts would become beneficial, long-term, localized, and of minor intensity on soil erosion potential; negligible impacts on geological features would occur, with localized negligible to minor adverse short-term changing to beneficial long-term cumulatively.

10.1.3 Impacts of Alternative C

Impact Analysis. Impacts under alternative C would be similar to those stated under the preferred alternative, except that there would be no prescribed fire strategy included here. Thus, the three Indian Communities would depend solely on mechanical/hand fuels management with some supplemental herbicide applications. Additional off-road vehicular traffic associated with fuels treatment work would likely result in localized and direct, adverse, and moderate long-term compaction to soils.

Cumulative Impacts. The cumulative impacts would be similar to those described under alternative B, but given the varying levels of legal and illegal vehicle uses in the area over time, minor to moderate, adverse ground disturbance is anticipated.

Conclusion. Actions described in alternative C would be similar to those of the preferred alternative B, except that additional long-term effects on off-road soils from tire compression at would be direct, moderate, localized, and adverse. Alternative C would not produce any major adverse impacts or impairment of geology and soils resources of the three Indian Communities.

10.2 WATER QUALITY

Affected Environment. The Salt River remains home to the Salt River Pima-Maricopa Community, the Fort McDowell Yavapai Nation.

In the Southwest, fire can be among the most significant watershed disturbance agents, particularly to peak stream flows. In areas severely burned by the Rodeo-Chediski Fire, peak flows were as much as 2,350 times greater than previously measured, the highest known post-fire peak flow in the Southwest. Increased peak flows can degrade stream channels and make them unstable, increase sediment production, and cause flood damage (Neary and others 2003).

SRPMIC: the following aquatic/riparian systems constitute much of the water resource for the Indian Community: the Salt River; the Verde River; irrigation tail waters (non-point sources); a non-point source treatment wetland (the Cottonwood Wetland); and groundwater (SRPMIC 2008).

The Verde and Salt River systems have been heavily modified over the past 50 years. Elevations of groundwater have been drawn down, leading to reductions in riparian and wetland areas. The once lush stands of cottonwood and willow have now been altered by introductions and spread of such non-native species as saltcedar. Additionally, riparian systems have been altered by the construction of upstream diversion dams and land developments. Remnants of mesquite bosque can still be found in association with ironwood and Palo Verde stands with scattered herbaceous groundcover (Ecosystem Management 2005).

The Community water quality program (WQP) has established water quality guidelines, from management plans to Standards, and has laid the foundation towards achieving Treatment-as-a-State (TAS) status. The WQP enforces these guidelines for surface water, point source pollution control, non-point source pollution control, sole source aquifer designation, and wellhead protection (SRPMIC 2008).

Ft. McDowell: It was not until 1939, after construction of Bartlett Dam on the Verde River minimized flooding, that the Fort McDowell Community received Bureau of Indian Affairs funding for a small concrete intake dam for their irrigation works.

Following years of litigation and water rights issues, the Fort McDowell Indian Water Settlement Act of 1990 became law. This agreement settled all water rights claims of the Indian Community as well as dismissing a number of pending lawsuits. The Act authorized the appropriations necessary for the United States to fulfill its legal and trust obligations to the community. Under the settlement, the Fort McDowell Indian Community received 36,350 acre feet per year of water as well as sufficient money to develop agricultural and other beneficial uses of water on the reservation.

One success story concerning water quality is that the Fort McDowell Farm has about 300 acres of citrus trees, and 1,000 acres of pecan trees, and 600 acres of alfalfa (sold to the local horse market).

Pascua-Yaqui: Tribal water resources are included within the Pima – Pinal – Phoenix Active Management Area (AMA). Groundwater recharge is largely from mountain front and stream channel recharge (ADWR 2010).

Domestic water for the Community is provided by the City of Tucson Water Services. There is little or no perennial/permanent surface waters located on Tribal lands.

10.2.1 Impacts of Alternative A (No Action)

Impact Analysis. Fire, particularly high-severity wildland fire, can reduce ground cover and increase overland flow of water and soils, resulting in erosion. Sediment and ash may be transported into water bodies, increasing turbidity and eutrophication (Ecosystem Management 2007).

High-severity fire has the greatest potential to degrade water quality. Ground water recharge will occur when sufficient soil water exists to percolate down through the soil layers to the saturated zone below.

The Salt River and Ft. McDowell Communities are the most vulnerable to high-severity fires due to relatively heavy localized vegetation, particularly in the arroyos and drainage areas. Impacts to surface water quality and quantity would be adverse, minor, indirect, short-term, and localized. For the Pascua-Yaqui Community, impacts on water-related resources from most wildland fires would be adverse, localized, and short-term.

Suppression actions on wildland fires in untreated fuels would have negligible to adverse, short-term, and localized indirect impacts of minor intensity on watersheds, water quality, and quantity for all three Indian Communities.

Cumulative Impacts. Reasonably foreseeable future cumulative impacts, should any planned developments with potential for release of waste petroleum products into the watershed upstream of the Salt River or Ft. McDowell Indian Communities riparian areas combined with fire management actions under this alternative, would be anticipated to be negligible.

Conclusion. Impacts under the no-action alternative would be negligible to minor and adverse, indirect, localized, and short-term.

10.2.2 Impacts of Alternative B (Preferred)

Impact Analysis. Potential impacts to water quality from prescribed fire may occur short- or long-term depending on the size of the treatment, terrain slope, vegetation regrowth, rainfall, etc. The effect varies greatly between the types of fire on the land.

Overall, the types of herbicide and application methods will not pose a hazard to water quality if mitigation measures are implemented.

Short-term effects on perennial and intermittent water resources resulting from implementing a WFMP would be negligible, and as potential wildland fire severity is decreased over the long term through meeting fuels treatment objectives, moderate beneficial and localized, indirect effects would result on all affected Indian Community lands.

Cumulative Impacts. Reasonably foreseeable future cumulative impacts, should any planned developments with potential for release of waste petroleum products into the watershed upstream of the Indian Communities' riparian areas, combined with fuels treatment and fire management actions under the preferred alternative, would be anticipated to be negligible.

Conclusion. Under alternative B, impacts on water quality would range from negligible over the short term to beneficial, moderate, indirect, and localized long-term effects over all Indian Community lands addressed in this EA.

10.2.3 Impacts of Alternative C

Impact Analysis. Effects resulting from alternative C would be similar to that in alternative B, but with negligible intensity over the long term. The difference between this alternative and that addressed in the preferred alternative is that there would be an absence of prescribed fire, including pile burning. The impacts to vegetation and thus surface waters would be more controlled through manual and mechanical fuels work only, with appropriate mitigation measures applied, would likely be negligible.

Cumulative Impacts. Reasonably foreseeable future cumulative impacts, should any planned developments with potential for release of waste petroleum products into the watershed upstream of Indian Communities' riparian areas combined with fuels and fire management actions under alternative C, would be anticipated to be negligible.

Conclusion. Over the long term, impacts under alternative C would be negligible to surface water quality and quantity across the three Indian Communities.

10.3 VEGETATION/EXOTIC PLANTS

Affected Environment. The three Indian Communities addressed in this EA are within the Lower Sonoran Desert; vegetation types are typical of this region, such as the Palo Verde (*Cercidium* spp.), velvet mesquite (*Prosopis velutina*), cacti (primarily hedgehog (*Echinocereus engelmannii*), barrel (*Echinocactus grusonii*), prickly pear (*Opuntia* spp.)), and cholla (*Opuntia acanthocarpa*), saltbush (*Atriplex canescens*), creosote bush (*Larrea tridentata*), tamarisk (*Tamarix chinensis*), bursage (*Ambrosia deltoidea*), and a wide variety of forbs, native and non-native grasses.

The Desert Shrub-Scrub vegetation association is the largest natural land cover within the WUI; it occurs on drier upland sites and includes areas of bare ground and rock habitats supporting a variety of grass, herbaceous, scrub, and shrub species. This major vegetative fuel type ranges from lower desert scrub-creosote bush-bursage associations to mixed desert scrub types to the palo verde-mixed cacti desert scrub association.

During normal rainfall years and the typical fire season, the majority of the lowest-elevation associations (mixed desert scrub and creosotebush-white bursage associations) do not support high intensity wildfires with high rates of spread, and many wildfires self-extinguish from a lack of contiguous ground or aerial fuels. However, during periods of above average rainfall in the fall, winter, and spring months, the growth of winter annuals and forbs, in synergy with the presence of invasive grasses and forbs (e.g., buffelgrass (*Pennisetum cilare*), Mediterranean grass (*Schismus arabicus*), red brome (*Bromus rubens*), and mustards (*Brassica* spp.)), can produce areas of hazardous fuels and potentially high intensity wildfires

The Shrublands vegetation association includes the mesquite upland scrub that can provide movement corridors and foraging areas for a variety of wildlife species. Adjacent vegetation associations are often a mix of semidesert grassland and desert scrub. The understory of the shrub types will vary from a mix of non-native grass with some areas of native grasses (Maricopa County 2010a).

Many areas are under cultivation including vegetables, cotton, alfalfa, wheat, barley, corn, sorghum, corn, and other crops (Ecosystem Management 2007). There are also agricultural lands which have been fallow for a number of years, as well as other disturbed lands on the Reservations. These areas are dominated by early successional plant communities that include Russian thistle, annual grasses, forbs, and desert broom.

Further, river channels, large desert washes, and tailwater drainage areas that are scoured by high velocity flows are habitat for invasive species. These include Russian thistle (*Salsola tragus*), Johnson grass (*Sorghum halepense*), tamarisk (saltcedar; *Tamarix chinensis*), sorrel (*Erigonum polycladon*), and knotweed (*Polygonum aviculare*). Dense stands of desert broom (*Baccharis sarothroides*) also occur within the area.

The role of fire varies widely within the three Indian Communities. Hillsides, arroyos, and north-facing slopes likely have the greatest potential for wildland fire, whereas on lower slopes and lowlands, fire potential remains low to nearly non-existent, except for unusually wet years when continuous vegetative strata (primarily grasses) can carry fire as mentioned above.

Salt River (SRPIC) and Ft. McDowell Indian Communities: SRPMIC recognizes that Arizona has some of the rarest and most unusual native plants species in the United States. Most of them are many centuries old and the fragile Sonoran Desert climate that supports them makes regeneration of many species difficult. Native plants are natural resources of aesthetic, ecological, educational, historical, medicinal, nutritional, scientific, recreational, cultural, and religious value to the Community. They are in need of protection from poachers, as the SRPMIC is surrounded by an urban environment where these plants may be in demand (SRPMIC 2008).

Fire effects on the trees found within the two Communities vary depending on the species. Blue palo verde (*Cercedium* spp.) and foothills palo verde are rarely consumed in wildfires, but can be easily killed by scorching the thin bark. Palo verde grows very slowly and may require over 20 years to recolonize a burned area and return to pre-fire densities.

Research indicates that fire-induced mortality to mesquite trees common to the Sonoran Desert is

dependent on fire intensity, trunk diameter, and the degree of top kill. Mesquite has the ability to root sprout even after 100 percent top kill; however, if the fire is intense enough to cause damage to the root system, then root sprouting will not occur. The larger the tree, the less fire induced mortality. Mesquites have thicker outer bark than palo verde trees, providing some protection from wildfires. In general, smaller trees receive more crown damage and tend to recover by basal sprouting, while larger trees recover by refoliation with crown sprouts. It should be noted, as with other species, that sprouting from root systems following fire increased fire frequency. Short fire return intervals will gradually diminish tree ability to resprout by any means (Ecosystem Management 2007).

Other important tree species in the Sonoran Desert include ironwood (*Olynea tesota*) and the catclaw acacia (*Acacia greggii*). The catclaw acacia is easily top killed by wildfire, but produces numerous root sprouts from the basal stem. The majority of fire effects studies indicate that catclaw acacia recovery is rapid. Postfire sprouting typically makes pre- and postburn densities and coverages similar for catclaw acacia (Gucker 2005).

Non-Native (Exotic) Plants and Fire. Much of the following discussion on non-native, or exotic plants and their relationship to fire is excerpted from the Fire Effects Information System (USDA 2010) (found online at <http://www.fs.fed.us/database/feis>). This information is intended to relate several authors' viewpoints of three non-native species, based on studies.

Pascua-Yaqui Indian Community: Buffelgrass (*Pennisetum ciliare*). Buffelgrass can persist after fire by sprouting from rhizomes, tillers, or buds that survive fire. Sources describe buffelgrass as simply "sprouting" or "rapidly resprouting" after fire, without indicating the source of sprouts. Other research states that buffelgrass resprouts rapidly from the root crown after fire. New buffelgrass growth can appear as soon as 5 to 10 days following complete top-kill by summer fires; however, postfire response of buffelgrass may depend on season of burning and postfire weather conditions.

June burns increased buffelgrass density and productivity, except in a year with below-normal precipitation. In fire effects studies conducted in Sonora, Mexico, the following was observed: Buffelgrass density and cover, measured one and two growing seasons after fire, were significantly greater on burned than unburned plots. Buffelgrass productivity was also significantly greater on burned than unburned plots in most cases. The study revealed the following fire management implications: in years with below-normal precipitation and in areas where fine fuels have been reduced by grazing, prescribed fire would probably have little effect on plant cover (Hauser 2008).

Salt River and Ft. McDowell Indian Communities: Saltcedar (*Tamarix chinensis*) is usually top-killed by fire, and severe fire may kill the root crown. The immediate effect of fire on saltcedar depends on fire severity, which is largely a function of the quantity and quality of fuels present. Saltcedar leaves are not highly flammable due to high moisture content, even though they contain volatile oils. Saltcedar flammability increases with the build up of dead and senescent woody material within the plant. When high fuel loads occur, plants burn more severely and the likelihood of killing the root crown increases. Saltcedar can sprout from the root crown and form new plants following top-kill. Thus, canopy cover of saltcedar can increase after fire and

flowering may increase.

Saltcedar response to fire depends on fire timing (regulating temperature and moisture conditions and phenological stage of saltcedar), fire severity, and post-fire plant competition. Fire timing can affect saltcedar response due to its effects on fire severity, subsequent climatic conditions, or susceptible phenological stage. Under stressed conditions, as many as half of the shrubs may not survive burning. Ongoing research in New Mexico is being conducted to determine the best phenological stage in which to burn and reburn saltcedar to reduce density, canopy, and hazardous fuel load. Phenological stages in which treatments have been applied include dormancy, leaf elongation, first bloom, full canopy, and leaf senescence. Burning during the peak of summer may have the strongest adverse effect on saltcedar, presumably due to ensuing water stress. Fire severity can affect how many plants in a stand are top-killed and how many suffer complete mortality. Severe fires kill all aboveground portions of trees, but may result in extensive and rapid growth from the root crown in saltcedar. Arrowweed (*Pluchea sericea*) may have large increases after fire and thus share dominance with saltcedar in burned riparian vegetation. Flooding may help reduce the impact of fires by increasing decomposition and reducing the standing stock of forest floor organic matter at sites dominated by cottonwoods or saltcedar. Use of fire alone to control saltcedar is generally ineffective. Saltcedar is highly flammable only in dense stands with heavy fuels. High water and salt content make saltcedar difficult to burn, and burning may only kill aboveground portions of the plant, leaving the root crown intact and able to produce vigorous sprouts (Zouhar 2003).

Many invasive non-native species, such as cheatgrass (*Bromus tectorum*), employ an ecological strategy of early season maturation and seed dissemination. For this type of species, summer burning may not provide effective control, as their seeds would already be released and surface temperatures under fast moving summer fires may not be high enough to kill the seeds. Cheatgrass is a strong competitor in the post-fire environment, where it takes advantage of increased resource availability and produces an abundant seed crop.

Russian-thistle (*Salsola spp.*). Russian thistle aids in spreading fire. It burns easily because the stems are spaced in an arrangement that allows for maximum air circulation. Also, dead plants contribute to fuel load by retaining their original shape for some time before decomposing.. Russian thistle will colonize a burn area when off-site; abscised plants blow across it, spreading seed.

10.3.1 Impacts of Alternative A (No Action)

Impact Analysis. Wildland fires would be suppressed in all three Indian Community lands at the smallest reasonable acreage commensurate with safety and resource values at risk. Most wildland fires have been small acreages (i.e., less than 10 acres), with a few exceptions. However, under extreme fire weather conditions with relatively continuous and increasing fuels concentrations, the potential exists for larger fires (i.e., greater than 10 acres).

The direct impacts of wildland fire include removal of above-ground biomass. Some mortality of grass, shrub, and tree species would result, especially if the residence time of the flaming front and the fireline intensity increase in heavily fueled areas. This type of fire behavior would add to

local plant mortality.

The timing and intensity of wildland fire may result in an indirect effect with a slight shift in species composition, although the degree of shift would likely be minor.

Indirect impacts of wildland fire also may range from expansion of non-native species in the burned area (e.g., cheatgrass, buffelgrass, thistles) and suppressed vigor of non-native species. The response is largely dependent upon the time and intensity of burning as well as secondary factors such as competition with native species and moisture availability post-burn.

The direct impacts of wildland fire under the no-action alternative, particularly given the low occurrence of wildland fire and small acreages burned as mentioned above, would be localized, short-term, and moderate under more extreme conditions. The indirect impacts would be adverse, localized, and of minor to potentially moderate intensity long-term, depending on the severity of wildland fires.

Cumulative Impacts. The potential for adjacent development in the form of subdivisions and attendant increases in human impacts to date would be among those activities that would contribute cumulatively to the potential loss of vegetation on the Indian Communities from unwanted high-severity wildland fire. Native seed sources would likely decline further, as would overall habitat quality, particularly during drought conditions and insect infestations. Any planned Community facility construction, together with routine maintenance activities, would have long-term adverse impacts in the immediate construction area, but the area affected would likely be sufficiently small that the overall impacts to vegetation communities would be minor. Cumulative impacts would be adverse, long-term, and of minor to moderate intensity.

Conclusion. Alternative A would result in moderate, direct, localized, and short-term adverse effects and long-term negligible to localized, indirect and minor adverse impacts to native vegetative communities during the analysis period.

10.3.2 Impacts of Alternative B (Preferred)

Impact Analysis. Wildland fires managed under the preferred alternative would likely be similar to alternative A on lands of the three Indian Communities. Long-term comparative benefits to vegetative communities from reduced suppression impacts employing minimum impact suppression techniques are more likely, especially if there are consecutive years of adequate moisture following fire. Thus, long-term benefits would be minor, indirect, long-term, and localized to individual burn areas.

Prescribed fire treatments under the 10-year treatment schedule may cause direct, short-term, minor decreases in herbaceous production of localized and adverse effect but would show increases in overall herbaceous and shrub production, diversity, and abundance over the long term. As restoration objectives are met with combinations of non-fire and prescribed-fire strategies, fuel densities would begin to decline, spacing would be improved, and more openings and reduced competition would result. Over the long term, indirect and more widespread beneficial impacts of minor to moderate intensity would result. Closely monitored burns (e.g.,

pile burns, small broadcast burns) should be considered as part of adaptive management to improve future treatments.

Pile burning would likely kill the surface and ground vegetation and microflora immediately under the piles. Therefore, this strategy would result in very localized, short-term, and minor adverse impacts. However, long-term indirect impacts would be beneficial, more widespread, and of minor to moderate intensity for native vegetation communities, particularly on Salt River and Ft. McDowell Community lands.

The impacts of burning non-native species (described above) are less certain than with fire-adapted native plants and may range from temporary declines of some non-native species to stimulation of others. Each prescribed fire plan that involves patches dominated by nonnative species would consider the species present and design the burn to discourage non-native species and encourage native species through mitigation. Further investigation and monitoring of initial prescribed burns would help to refine prescriptions for use of fire in management of invasive non-native species. Therefore, impacts on native vegetation from exotic species spread on some treatment sites following thinning and/or burning would range from adverse, localized, minor, indirect, and short-term to minor, localized, indirect, and beneficial over the long term.

Cumulative Impacts. There likely would be an increased cumulative effect under alternative B from added wildland fire acreage resulting from the use of barriers to minimize suppression impacts. However, this effect would be negligible. Any anticipated facility construction, depending on location, would have adverse impacts in the immediate construction area, but the area affected would be sufficiently small that the overall impacts to vegetation communities in Indian Country would be minor. The cumulative effect on vegetation would be adverse, minor, and localized in the short term, but negligible to some localized minor benefits in the mid- to long-term.

Conclusion. The preferred alternative would have direct localized, short-term, and minor adverse impacts on vegetation communities within the three Reservations addressed in this EA. Long-term indirect impacts would be minor to moderate and beneficial as some fire-adapted vegetative communities are restored and maintained. Impacts on native vegetation from exotic plant responses following treatments would range from minor, localized, direct, short-term, and adverse to long-term, beneficial, localized, and indirect.

10.3.3 Impacts of Alternative C

Impact Analysis. The impacts of alternative C would be similar to those of alternative B, except that prescribed fire would not be included in the management strategies. Thus, fuels management under the 10-year treatment schedule would likely take longer to accomplish and would result in additional impacts, as mechanical, hand, and herbicide fuels treatments would require additional vehicle trips to project sites. This additional impact over time would result in adverse, direct and indirect, localized, short- and long-term minor adverse impacts to vegetative communities (native and non-native).

Cumulative Impacts. There would likely be an increased adverse cumulative effect under

alternative C as compared to alternative B resulting from past, present, and anticipated increased future vehicle traffic from agency and tribal vehicles off-road. This adverse cumulative effect would likely decrease to a degree over the long term as fuels and vegetation are managed to reduced levels, and motorized traffic is restricted. Any anticipated facility construction, depending on location, would have adverse impacts in the immediate construction area, but the area affected would be sufficiently small that the overall impacts to vegetation communities would be minor.

Conclusion. Alternative C would result in adverse, minor, direct and indirect, localized, short- and long-term impacts to vegetative communities, including potential for invasive species introductions primarily on Salt River and Ft. McDowell Community lands over the analysis period.

10.4 WILDLIFE

Affected Environment. Wildlife populations frequenting or living on Indian Community lands are typical of the Lower Sonoran Desert. Animals such as raccoon (*Procyon lotor*), Sonoran pronghorn (*Antilocapra americana sonoriensis*), coyote (*Canis latrans*), ringtail (*Bassariscus astutus*), skunk (*Spilogale gracilis*), and desert cottontail (*Silvilagus audubonii*) are thought to be in moderate numbers. However, precise population and abundance data of these species are not available.

Rodents that may be found include the desert shrew (*Notiosorex crawfordii*); roundtail ground squirrel (*Citellus tereticaudus*), rock squirrel (*Citellus variegates*), desert pocket mouse (*Perognathus penicillatus*), desert kangaroo rat (*Dipodomys deserti*), and desert pack rat (*Neotoma lepida*). Avian species that occur on the Salt River and Ft. McDowell Communities include the red-tailed hawk (*Buteo jamaicensis*), Gambel's quail (*Callipepla gambelii*), greater roadrunner (*Geococcyx californianus*), burrowing owl (*Athene cunicularidi*), Harris' hawk (*Parabuteo unicinctus*), and cactus wren (*Campylorhynchus brunnetcapillusi*) (Ecosystem Management 2007).

Snakes that occur include the banded sand snake (*Chilomenisous cinctus*) and rattlesnakes (*Crotalus* spp.). Lizard species include the fringe-toed lizard (*Uma notata*), desert homed lizard (*Phrynosoma platyrhinos*), and western whiptail (*Cnemidophorus tigris*).

There are no known exotic animal species occurring within or near the lands occupied by the Salt River, Ft. McDowell, or Pascua-Yaqui Indian Communities

Many species, particularly those occurring in upland habitats, have co-evolved with fire. An example is the Sonoran pronghorn, where early fires are thought to have contributed to the maintenance of grassland communities important to pronghorn habitat.

10.4.1 Impacts of Alternative A (No Action)

Impact Analysis. Given the relatively low fire occurrence for the three Indian Communities, the direct and indirect impacts of suppression actions on wildlife and habitats would be variable in

the short term. Direct impacts would include localized loss of habitat for short periods following fire, particularly in drought years and where fuels accumulations are excessive. Disruption of ground-nesting bird and mammal activity as a result of fireline construction and general firefighter presence would be adverse, direct, localized, short-term, and of minor intensity. Long-term indirect impacts in high severity burn areas that recover slowly also would be adverse and minor to moderate in intensity as habitats are less able to support wildlife populations. Impacts to habitat from fires at Pascua-Yaqui would likely be negligible because of the relatively sparse and discontinuous fuels in most areas.

Cumulative Impacts. Activities occurring on tribal wildlands such as illegal poaching, woodcutting, and off-road vehicle use may add cumulative impacts on species or habitats under the no-action alternative. Similarly, there would potentially be impacts resulting from other suppression actions on adjacent lands. However, impacts in the long term would likely be negligible except in the most rare cases where fire intensities from multiple fires in the area are extreme.

Conclusion. Impacts of alternative A would result in negligible to moderate, adverse, localized, short- and long-term impacts to wildlife or habitat on the Salt River and Ft. McDowell lands, and minor to negligible impacts for Pascua-Yaqui lands during the most extreme of fire seasons when wildland fire severity is high.

10.4.2 Impacts of Alternative B (Preferred)

Impact Analysis. Planned ignitions and non-fire treatment strategies contained in the 10-year treatment schedule would help maintain vegetation communities that would generally favor wildlife and habitat diversity over the long term. The minimum impact suppression approach to wildland fires where appropriate and safe would minimize inadvertent damage otherwise resulting from full and aggressive suppression operations under the no-action alternative. This would result in a beneficial, localized, indirect, long-term effect of minor to moderate intensity to wildlife and habitats.

Cumulative Impacts. Prescribed fire operations initially would disturb small mammals and expose cover over localized areas, but would benefit predator species. Those species dependent on heavier overstory cover and large trees may be affected adversely. Noise from chainsaw use and human presence also may disturb animals and birds temporarily. However, mitigation would minimize disturbance during breeding and nesting season. Within several post-treatment growing seasons, sprouting and regrowth of grasses, forbs, and shrub species would enhance habitat condition. Piles would provide temporary increased cover for small mammals but would probably not provide for changes in population. Snags (i.e., standing dead trees) with evidence of wildlife use would be retained in the stands. Motorized vehicle use on existing roads only in all approved treatment areas would have negligible impact on wildlife over the long term until fuels have been reduced. As resource objectives are met, long-term indirect impacts to habitat would be beneficial, localized, and of moderate intensity as species diversity and habitat condition continues to improve.

Cumulative Impacts. When considered with any other scheduled fire and non-fire management

treatments and maintenance actions on tribal and adjacent landscapes, the impacts of the preferred alternative on species and their habitat would range from negligible to short-term cumulative impacts of minor intensity.

Conclusion. Alternative B would produce beneficial, localized, long-term impacts of minor to moderate intensity on wildlife and habitats of the three Indian Communities addressed in this EA during the analysis period as overall habitat condition is improved.

10.4.3 Impacts of Alternative C

Impact Analysis. Impacts to wildlife and habitats resulting from strategies applied under alternative C would be similar to those under alternative B, except that without prescribed fire as a strategy, the overall habitat condition would not be improved in the short term.

Depending on the intensity of repeated vehicular traffic into existing tribal roads for non-fire project work, certain wildlife species may be more disturbed than with less frequent prescribed fire activities under alternative B. Wildlife likely would be subject to additional harassment from traffic and may be displaced for short periods of time. This effect would be considered direct, localized, adverse, short-term, and minor to moderate in intensity until fuels treatment objectives are met.

Cumulative Impacts. Impacts resulting from incremental past, present, and reasonably foreseeable future fire management activities, when considered with those actions described in alternative C, would be similar to alternative B except for additional repeated off-road traffic that would offset the beneficial impacts on wildlife and habitat, resulting in a negligible overall long-term effect.

Conclusion. Short-term indirect impacts would be adverse, localized, and minor to moderate in intensity as a result of disturbance from repeated vehicular traffic in to treatment areas under the 10-year treatment schedule. Long-term benefits would be similar to those under alternative B.

10.5 SPECIAL STATUS SPECIES

The Endangered Species Act (ESA) of 1973 as amended (16 U.S.C. 1531 *et seq.*, U.S. Congress 1973) defines an endangered species as any species that is in danger of extinction throughout all or a significant portion of its range. Further, the ESA defines “threatened” as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. ESA makes it unlawful to remove and reduce to possession any such species from areas under federal jurisdiction.

As no complete inventory of the reservation has been conducted, it is uncertain if these species are present on Indian Community lands. However, if any listed species is documented on or near tribal lands or suitable habitat is identified for any listed species in the future, the U.S. Fish and Wildlife Service should be consulted.

Threatened, endangered, and candidate species lists for the three counties (Maricopa, Pima, and

Pinal) were obtained from the U.S. Fish and Wildlife Service (2010a). From those lists, 11 species were determined to either be present or have potential habitat on tribal lands based on the habitat characteristics as detailed in these lists as well as on the distribution maps produced by Arizona Game and Fish Department (2009); in addition, the U.S. Fish and Wildlife Service (2010a) lists recovery plans for 7 of the 11 species. Table 4 lists threatened, endangered, and candidate species either present or having potential habitat on Salt River Agency lands.

TABLE 4. THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE WILDLIFE SPECIES ON THE SALT RIVER AGENCY

COMMON NAME	LATIN NAME	OCCURRENCE INFORMATION*			RECOVERY PLAN	CRITICAL HABITAT DESIGNATED	OCCURRENCE IN ANALYSIS AREA
		Maricopa County	Pima County	Pinal County			
ENDANGERED SPECIES							
California least tern	<i>Sterna antillarum browni</i>	M	M	N	Y		P
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Y	Y	Y	Y	CH	P
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	Y	N	Y	Y		P
Gila chub	<i>Gila intermedia</i>	N	Y	N	N		P
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	Y	H	N	N		P
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	Y	Y	Y	Y		P
Pima pineapple cactus	<i>Coryphantha scheeri</i> var. <i>robustispina</i>	N	P	N	N		P
THREATENED SPECIES							
Bald eagle	<i>Haliaeetus leucocephalus</i>	Y	Y	Y	Y		Y
Loach minnow	<i>Tiaroga cobitis</i>	N	N	H	Y	PCH	P
Spikedace	<i>Meda fulgida</i>	N	N	H	Y	PCH	P
FEDERAL CANDIDATE SPECIES							
yellow-billed cuckoo	<i>Coccyzus americanus</i>	M	M	M	N		P
<p><u>*Occurrence Information:</u> N = Outside known distribution/range of the species or suitable habitat not present. P = Occurrence of the species is possible; suitable habitat exists. Y = Species is known to occur. H = Historic occurrence. M = Migratory; occurrence of the species is possible, given suitable habitat.</p> <p><u>Critical Habitat Occurrence</u> PCH = Proposed Critical Habitat CH = Designated Critical Habitat</p>							

10.5.1 Affected Environment—Special Status Plants

Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*)

Occurs in alluvial valleys or on hillsides in rocky to sandy or silty soils. This species can be confused with juvenile barrel cactus (*Ferocactus*). However, the spines of the later are flattened, in contrast with the round cross-section of the *Coryphantha* spines. About 80-90% of individuals occur on state or private land (USFWS 2010).

Excerpt from AZGFD (2001):

Range: Southeastern Arizona. Known range bounded by Santa Cruz County, Santa Rita Mountains (east); Pima County, Baboquivari Mountains (west), Tucson (north), Arizona-Mexican border (south).

Habitat: Ridges in semidesert grassland and alluvial fans in Sonoran desertscrub. Desert Botanical Garden (1999) reports that “Plants are found on alluvial hillsides in rocky, sandy soils.... habitat type is primarily desert grassland....” Flat ridgetops with little slope. Soils are mostly rocky loams. Lower Sonoran Desertscrub and Semi-desert Grassland (dominated by *Acacia constricta* (white-thorn acacia), *Prosopis velutina* (velvet mesquite), *Gutierrezia microcephala* (thread snake weed), *Ambrosia deltoidea* (triangle-leaf bursage), and various other cacti and grasses. Plants very sparsely distributed. Densities can be lower than 1 plant per 4 acres. Seeds are viable; asexual reproduction (offsets) very important. Pollinated by small white and black bees. Fruit set and seed production very high in 1988 (Mills 1991). Obligate outcrossers. Bloom together one day a year (midday). Pollinated by honeybees.

10.5.2 Affected Environment—Special Status Animals**California least tern (*Sterna antillarum browni*)**

Excerpt from USFWS (2009):

Arizona Range: Primarily in California, may occur in different parts of Arizona where habitat components are adequate for nesting or feeding such as large lakes, recharge basins, or wetland areas. Breeding documented in Maricopa County. Transient migrants occur more frequently and have recently been documented in Mohave and Pima counties.

Habitat: Gregarious, forms nesting colonies on barren to sparsely vegetated areas. Nests in shallow depressions on open sandy beaches, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, and drainage systems.

The California least tern is also protected by the Migratory Bird Treaty Act (MBTA) (16 USC 703 e. seq.) and its implementing regulations (50 CFR Parts 20 and 21) which protects Least terns, their eggs, nests, and feathers from being killed, taken, captured, or pursued. The first documented nest site for the species in Arizona occurred in June 2009 in Maricopa County.

Southwest Willow Flycatcher (*Empidonax traillii extimus*)

Migratory riparian-obligate species that occupies breeding habitat from late April to September. Distribution within its range is restricted to riparian corridors. Critical habitat was finalized on

October 19, 2005 (50 CFR 60886). In Arizona there are critical habitat segments in Apache, Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pima, Pinal, and Yavapai counties (USFWS 2010).

Excerpt from Ecosystem Management, Inc. (2007):

This species is primarily water-oriented, and the majority of the populations occurring in the Southwest are found near streams and lakes. On the other hand, there are some "dry land" areas where these eagles occur regularly. The birds typically roost in groups in trees, usually in protected sites such as canyons. The nests reported from Arizona have been in trees and on cliffs, which are typical sites elsewhere as well. Eagles are known to use desert riparian deciduous woodland and marsh habitats. Woodlands, especially of cottonwoods, that occur where desert streams provide sufficient moisture for a narrow band of trees and shrubs along the margins are utilized. Eagles also have been noted in ponderosa pine forests, subalpine meadows, lowland annual grasslands, and near farms.

Excerpt from AZGFD (2002b):

Arizona Range: Also breeds at the headwaters of the Little Colorado River near Greer and Eagar; very locally along the middle Gila, Salt, and Verde rivers; middle to lower San Pedro River; and upper San Francisco River near Alpine. *E. t. extimus* arrives on breeding territory by late April to early May and migrates southward again in August and September.

Habitat: Nest is a compact cup built of shredded bark, cattail tufts, and grasses, lined with fine grasses and feathers. Preferred nesting habitat is mature *Populus fremontii*/*Salix gooddingii* forests along still or slow moving watercourses at lower elevations; also found in *Tamarix pentandra* thickets (Suckling et al. 1992). At higher elevations, some birds are found in pure willow stands (*Salix* spp.). Breeding colonies usually about 1.5 acres. Densities about 9-14 pairs per 100 acres. A riparian obligate that prefers dense canopy cover, large volume of foliage, and surface water during midsummer. They appear to avoid riparian areas found in steep, closed canyons. Critical Habitat initially designated in 1997, identifying 18 critical habitat units totaling 964 river km in Arizona, California, and New Mexico; Critical Habitat re-designated in 2005 after set aside by Ninth Circuit Court order in 2001.

Yuma clapper rail (*Rallus longirostris yumanensis*)

This species occurs along the lower Salt and Verde Rivers. Most individuals migrate to Mexico in late September and return in March or April. This species is associated with dense emergent riparian vegetation. They require a wet substrate such as mudflat or sandbar. Dense woody or herbaceous vegetation is required for nesting and foraging (Ecosystem Management, Inc. 2007).

Excerpt from AZGFD (2006):

Arizona Range: Lower Colorado River (LCR) from Gulf of California in Mexico to Virgin River and Las Vegas area in northern Arizona and Nevada (Garnett et al. 2004), with concentrations in the U.S. along the LCR from the vicinity of Laughlin, Nevada to Yuma, Arizona. Also around the Salton Sea in California, and on several major river

drainages in central and southwestern Arizona. Smaller populations occur along this range and along the Gila River where moderately extensive emergent vegetation is persistent, including backwaters. Most populations thought to be non-migratory (Eddleman 1989), possibly excepting those along the Gila River. Colorado River as far north as Lake Mead, Virgin River, Bill Williams River, the lower Gila River from near Phoenix to the Colorado River, and the lower Salt and Verde Rivers.

Habitat: Basic requirements of nest site availability, prey diversity and abundance, and protection from avian predators, is all met within a very small area of the wet marsh, often no larger than 0.12 ha (0.29 ac). Home ranges of individuals or pairs, may encompass up to 43.0 ha (106.25 ac), but year-round home ranges averaged 7.50 ha (18.53 ac), (Rosenberg et al. 1991).

Yuma clapper rails first breed after establishing breeding territories, around March-April; distant localities may occur later in early May. Territory is dependent on food base, available nest sites, and competition from other clapper rails. Energy reserves, particularly in females, may determine when egg laying actually begins. Most eggs hatch during first week of June. They prefer crustaceans including amphipods, but also take fish, frogs, clams, spiders, grasshoppers, crickets, dragonflies, aquatic plant seeds, and bird eggs, etc. Clapper rails forage while walking on prevailing substrate, including mud flats, sandbars, recumbent stems of marsh plants, and between stems of marsh plants, etc. (Todd 1986).

This is the only clapper rail to breed in freshwater marshes; also inhabit brackish water marshes and side waters. They prefer the tallest, densest cattail and bulrush marshes (Rosenberg et al. 1991). Most are found within the Lower Colorado Subdivision of the Sonoran Desertscrub biome.

Territories appear to be distributed along a zone where standing water gives way to saturated soil within marsh. Interface between water, soil and vegetation seems far more important than plant species that cover a site. Plants that typify *yumanensis* habitat include cattail (*Typha domingensis*), which is most dominant and most important plant in water saturated soil interface in U.S. portion of Lower Colorado River Drainage. Often, they are associated with giant bulrush (*Scirpus californicus*) along the Colorado River. Giant bulrush occurs mostly in pure stands, though it also mixes with cattail. It is capable of invading and persisting in somewhat deeper water than cattail, and produces mat of recumbent stems that clapper rails use. Common reed (*Phragmites australis*) marshes are mainly inhabited by Yuma clapper rails where it is bordered or mixed with cattail. Salt cedar (*Tamarix chinensis*), as minor associate of cattail, does form part of the cover used by territorial Yuma clapper rail in some areas.

In winter, most Yuma clapper rails are found in heavily overgrown, relatively narrow, wet sloughs and backwaters, which have more varied vegetation cover of mature and decadent herbaceous and woody vegetation than do lacustrine marshes. Stable water levels are important during nesting. Mosaic of variable-aged stands of emergent vegetation interspersed with shallow open-water pools are necessary for year-round

clapper rail habitat (Conway et al. 1993).

Nests usually built in dense vegetation near water's edge or, if available, on small high site within marsh. They commonly nest along channels where banks are slightly higher than adjacent marsh areas. Such nests are often placed beneath woody shrubs or small trees or in clumped herbaceous growth. Changes that determine habitat suitability include: rapid accretion from flood, bed scour and channel shifting, elevation of riverbed (determines seasonal and annual persistence of backwaters and sloughs), and volume and rate of water flow.

Threats: habitat destruction through river channelization, dredging, and drying and flooding of marshes; diversion of water sources; wildfires; toxic levels of heavy metals (selenium).

Gila chub (*Gila intermedia*)

Excerpt from AZGFD (2002c):

Arizona Range: Gila chub are normally found in the smaller headwater streams, cienegas and springs or marshes of the Gila River basin.

Habitat: They utilize diverse habitat types based on season and age. Adults have been collected from deep pools with heavily vegetated margins and undercut banks. Juveniles been collected from riffles, pools and undercut banks of runs. In larger stream systems they utilize heavily vegetated backwaters for cover and feeding. According to Minckley (AGFD Native Fish Diversity Review 1995), they occur in marginal sites (refuges), and likes permanent sites such as seeps etc. Broadleaf riparian vegetation consisting of cottonwood, willow, ash, alder, sycamore, walnut, and *Baccharis* spp. in association with submerged aquatic vegetation typical of cienega/marsh habitats.

Land management activities that affect watersheds, alter stream flow characteristics or affect the amount of perennial water in streams may affect populations of Gila chub, especially management activities that increase erosion and destroy stream banks.

Gila topminnow (*Poeciliopsis occidentalis occidentalis*)

Excerpt from AZGFD (2002d):

At one time, this was the most common fish found in the Gila River Basin. Competitive and predatory interactions with introduced fish species, especially mosquitofish, have greatly reduced the range and abundance of the Gila topminnow.

Range: Once occupied aquatic habitats in the Gila River drainage in New Mexico, Arizona and Mexico below 1,524 m (5,000 ft.) in elevation. Presently in Arizona, they are known to occupy several localities in the Gila River drainage, and one locality in the Bill Williams River drainage. Some of these localities contain re-introduced populations. Historically found in most perennial springs, streams and vegetated margins of rivers in the Gila River drainage in Yavapai, Gila, Pinal, Maricopa, Graham, Greenlee, Cochise, Pima, Santa Cruz and Yuma Counties.

Habitat: Cottonwood/willow or burrobrush/seep willow terrestrial riparian communities, in association with aquatic plants such as green algae, *Nasturtium*, *Chara*, and *Potamogeton* spp. Currently, disjunct populations exist in 9-11 natural locations and 22-24 re-introduced locations within the Gila River drainage and one location in the Bill Williams River drainage (Yerba Mansa). Of these localities, 15 are springs while the remaining localities are creeks and washes. Gila topminnows occupied headwater springs, and vegetated margins and backwater areas of intermittent and perennial streams and rivers. This species prefers shallow warm water in a moderate current with dense aquatic vegetation and algae mats.

Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*)

Excerpt from AZGFD (2003):

Range: Southern Arizona from the Picacho Mountains southwesterly to the Agua Dulce Mountains and southeasterly to the Galiuro and Chiricahua mountains and then southerly into Mexico and beyond. Also 2 late-summer records of immature individuals from the Phoenix area and 1 from the Pinaleno Mountains. Not present in Arizona during winter months.

Habitat: Desert grassland and shrubland up to oak transition. They roost in caves, mine tunnels, and occasionally in old buildings and reported once in a culvert (M. Gilbert, USFS, pers comm September 1992) in Madera Canyon, Santa Rita Mountains. They forage in areas of saguaro, ocotillo, paloverde, prickly pear and organ pipe cactus and later in the summer among agaves. There appear to be seasonal differences in when certain habitats are occupied.

There appear to be both sexual and seasonal differences in their Arizona range. During the early part of their stay (late April to late July) pregnant females congregate at traditional roost sites, give birth, and raise their young at lower elevations within the range of columnar cacti. Males and perhaps nonpregnant females do not arrive until sometime in July. By late July most females and young have dispersed from the maternity colonies and some have moved to higher elevations where they are found feeding on agave flowers. By late September or October all of these bats are migrating south to Mexico, exactly where is not known. *L. curasoae* is considered an important pollinator of various agave species, columnar cacti and other Mexican plant species. Listed as a Priority vulnerable species in the Pima County Sonoran Desert Conservation Plan.

Bald eagle (*Haliaeetus leucocephalus*)

Excerpt from USFWS (2010):

Some birds are nesting residents while a larger number winters along rivers and reservoirs. Once endangered (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) because of reproductive failures from pesticide poisoning and loss of habitat, this species was downlisted to threatened on August 11, 1995, and delisted August 8, 2007. Threatened status reinstated for Desert nesting bald eagles.

Excerpt from AZGFD (2010a):

Range: A small resident population can be found in Central Arizona, while a wintering population of bald eagles is found in both Central and Northern Arizona. Territories and nesting localities have occurred in the Bill Williams River Drainage, upper and lower Verde and Salt Rivers (including winter and non-breeding sightings on the Black River, and on Cherry Creek), Roosevelt Lake, Gila River (only when favorable conditions are available), Colorado River (sporadically observed wintering individuals), and the Mogollon Rim and White Mountain Lakes (Tibbits, Cross, and Ward 1990).

Habitat: Lower and Upper Sonoran Life Zones, including Saguaro-paloverde, desert grassland, chaparral, and pinyon-juniper community types. Bald Eagles inhabit coastal areas, estuaries, unfrozen inland waters, and some arid areas of the western interior and southwestern portion of the U.S. They like areas with high water-to-land edge, and areas with unimpeded views including both horizontal and vertical aspects. Areas selected for as wintering habitat will have an adequate food supply, and have open water such as river rapids, impoundments, dam spillways, lakes, and estuaries. Nesting habitat as described by Palmer (1988), consists of areas with tall trees (usually old growth) that are taller than surroundings. Ideally, the nest lies below the top of the crown in a live tree, where young are sheltered above from the elements. In treeless areas, the nest is usually on a high place such as a cliff face. Bald Eagles nesting in Arizona typically nest on cliff faces, ledges, and pinnacles (Grubb 1985). Cliff nests are generally located within 183.0 m (600.0 ft) of the river bank and approximately 92.0 m (300.0 ft) above water (USFWS 1982).

Bald Eagles in Arizona have a diet comprised mainly of fish (catfish, suckers, and carp; and yellow bass <6 in), followed by small mammals (jackrabbits, cottontails, squirrels, and woodrats), carrion (including large mammals), avian (normally waterfowl, mainly American Coots), and to a lesser extent various herps, such as the Sonora Mud and Spiny Softshell turtles, and unidentified snakes that are usually dead (Grubb 1988). Fish consumption increases in the diet as the nesting season progresses, while the consumption of mammals declines.

Loach minnow (*Tiaroga cobitis*)

Excerpt from AZGFD (2010b):

Range: Historically was endemic to Gila River Basin near and upstream of Phoenix, and included the Agua Fria, Gila, Salt, San Pedro, and Verde River systems in Arizona. Historically in Arizona, the loach minnow occupied as much as 2,000 stream km (1,243 miles), but now are found in less than 200 stream km (124 miles) (Propst et al. 1988). This range has been dramatically reduced and fragmented, due to habitat destruction, and competition and predation by introduced fish species. It is now considered rare to uncommon in Arizona, except Aravaipa Creek and Blue River.

The cryptic, solitary, and sedentary loach minnow occupies turbulent, rocky riffles of mainstream rivers and tributaries. They prefer moderate to swift current velocity and gravel or cobble substrates. Sometimes associated with dense, filamentous green algae. It is restricted almost exclusively to a bottom dwelling habitat because of a reduced gas bladder.

Spikedace (*Meda fulgida*)

Excerpt from AZGFD (2002e):

Range: Historically, spikedace were common and locally abundant throughout the upper Gila River basin of Arizona and New Mexico. In Arizona this included the Agua Fria, San Pedro, and San Francisco River systems, and the Gila, Salt and Verde Rivers and major tributaries upstream of present day Phoenix.

Habitat: The spikedace occupies mid-water habitats of runs, pools, and swirling eddies (Rinne and Minckley 1991). Prefers moving in water less than 1.0 m (3.3 ft.) deep and 0.3-0.6m/sec (1-2ft/sec). They concentrate in the downstream ends of riffles and eddies although many have been collected in the upstream portions of shear zones less than 0.33 m (1.1 ft.) deep. In larger streams, found only at the mouth of creeks (Minckley 1973). Young in-habitat backwaters over silt and sand. Proposed Critical Habitat under consideration as of October 28, 2010.

Yellow-billed cuckoo (*Coccyzus americanus*)

Excerpt from USFWS (2010):

Neotropical migrant that winters primarily in South America and breeds primarily in the U.S. (but also in southern Canada and northern Mexico). As a migrant it is rarely detected; can occur outside of riparian areas. Cuckoos are found nesting statewide, mostly below 5,000 feet in central, western, and southeastern Arizona. Concern for cuckoos is primarily focused upon alterations to its nesting and foraging habitat. Nesting cuckoos are associated with relatively dense, wooded, streamside riparian habitat, with varying combinations of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk. Some cuckoos have also been detected nesting in velvet mesquite, netleaf hackberry, Arizona sycamore, Arizona alder, and some exotic neighborhood shade trees.

Excerpt from AZGFD (2002a):

Range: Southern and central Arizona and extreme northeast (Monson and Phillips 1981).

Habitat: In Arizona, streamside cottonwood, willow groves, and larger mesquite bosques for migrating and breeding preferred. Rarely observed as transient in xeric desert or urban settings (Corman 1992). Mainly mature cottonwood-willow stands, to a lesser extent willows or isolated cottonwoods mixed with tall mesquites (Rosenberg et al. 1990). Both male and female build nest, often in willow or mesquite thickets, from 4 to 30 ft above ground. Nest is stick platform, thinly lined with leaves, mesquite and cottonwood strips, grass and catkins with little depression to hold eggs.

10.5.3 Impacts of Alternative A (No Action)

Impact Analysis. With the no-action alternative, all wildland fires are aggressively suppressed, thus minimizing any potential disturbance of special status plant and animal species and their habitats. All wildland fire personnel assigned to fires would practice minimum impact

suppression techniques.

Vehicle use associated with wildland fire suppression would occur in habitats potentially occupied by the Pima pineapple cactus, with the effect of temporarily compressing vegetation. The impact may affect, but not adversely affect, the cactus, unless smashed directly.

Should any high severity wildland fires resulting from increased insect damage and drought occur, the potential for damage or loss to the larger trees that may be important bird roosting or perching habitat components would increase. Wildland fires and suppression actions may cause short-term, minor to moderate direct, adverse effects if they occurred during nesting season. However, under present conditions, both the direct and indirect impacts of the no-action alternative to special status bird species may affect, but not adversely affect, bird species and habitat.

There are no anticipated impacts from alternative A on listed fish species above.

Cumulative Impacts. The locations of any proposed or planned activities and support facilities on Indian Community lands would likely be outside habitats used by special status species. Therefore, the cumulative effects associated with the no-action alternative would be negligible.

Conclusion. The impacts of alternative A may affect, but not adversely affect, bird special status species and habitat. The no-action alternative also may affect, but not adversely affect, other special status species.

10.5.4 Impacts of Alternative B (Preferred)

Impact Analysis. Under the proposed 10-year treatment schedule, prescribed fire and non-fire treatment strategies would benefit special species habitat through restoration of more diverse and sustainable habitat components, particularly in the arroyos and grassland ecotypes. For example, long-term increased herbaceous understory cover would likely result in rodent prey base increases that would benefit raptor habitats. Fuels treatments using hand tools or mechanical equipment would have negligible impact on listed species, as these treatments would largely be around residential areas occupied by Community members. From December through June, the bald eagle population would be sensitive to human presence from activities described above, and thus monitoring and mitigation measures would be applied if indicated.

With the mitigations identified for this alternative above, any potential direct adverse impact on special status species would be negligible on habitat. The use of prescribed fire may affect, but is not expected to adversely affect, listed species residing in forest and grassland habitats. Vehicle use on existing roads to access areas of identified hazardous fuels conditions and altered vegetative structure would result in negligible impacts to special status species or habitats as management objectives under the WFMP were met.

The impacts resulting from implementation of the preferred alternative would affect, but not likely adversely affect, special status plant and animal species or habitats.

Cumulative Impacts. It was determined that any actions planned on any Indian Community lands in this analysis would be outside habitats used by special status species. Therefore, the cumulative effects associated with the preferred alternative would be negligible.

Conclusion. Alternative B impacts would be similar to those as described for alternative A. However, impacts from prescribed fires and non-fire fuels management operations with mitigation may affect, but not likely adversely affect, special status species or habitats.

10.5.5 Impacts of Alternative C

Impact Analysis. Alternative C would have similar impacts to alternative B, except that the absence of prescribed fire under this alternative would likely result in increased vehicular traffic resulting from more trips to accomplish project objectives. This may cause localized trampling of vegetation and possibly disturbance to birds. With appropriate mitigation and restrictions on vehicle use in sensitive habitats, impacts would be largely negligible on special status species plant and animal habitats over the short term and would remain negligible in the long term.

Cumulative Impacts. The locations of proposed or planned access, activities, and support facilities on Community lands would likely be outside habitats used by special status species. Therefore, the cumulative effects associated with alternative C would be negligible.

Conclusion. The impacts of alternative C on most special status species and habitats would be negligible in the short and long term as restoration objectives are met.

10.6 AIR QUALITY

Affected Environment. Prescribed fire activity is subject to the regulations of the Arizona Department of Environmental Quality. Burning approval, through a permit system from the Arizona Department of Environmental Quality (ADEQ), is required before broadcast or pile burn ignition.

The Maricopa area is considered in “nonattainment” for coarse particulate matter (PM-10); the air quality fails to meet national standards for this pollutant. The State of Arizona submitted a plan in 2007 intended to ensure that coarse particulate matter was reduced by 5 percent each year until the standard was attained. The State did not correctly inventory the sources of PM-10, resulting in a plan that does not satisfy the requirements of the federal Clean Air Act (Maricopa County 2010b).

The nonattainment area is located in the eastern portion of Maricopa County and encompasses the cities of Phoenix, Mesa, Scottsdale, Tempe, Chandler, Glendale, and 17 other jurisdictions and unincorporated County lands.

SRPMIC: Ambient air quality is monitored to ensure compliance with the National Ambient Air Quality Standards for PM10, PM 2.5, and ozone. The program also develops codes and ordinances to establish jurisdictional authority for sources of air pollution within the exterior boundaries of the Community. Additionally, the program participates in regional and national air

quality related initiatives and educates the Community about the effects and sources of air pollution.

The SRPMIC Code of Ordinances is being modified to include an addition to Article 5 of Chapter 18 (Sec. 18-81 to 18-94), that addresses the topic of open burning.

Ft. McDowell: Monitoring is ongoing for O₃ (ozone) and PM₁₀ (McCalvin 2005).

Pascua Yaqui: the air quality status for the Indian Community is unknown; however, Pima County is in attainment for all criteria pollutants under the National Ambient Air Quality Standards (NAAQS), including carbon monoxide, ozone, PM₁₀, PM_{2.5}, nitrogen dioxide, and sulfur dioxide. (PDEQ 2010).

10.6.1 Impacts of Alternative A (No Action)

Impact Analysis. The only smoke produced on tribal lands of the Salt River and Ft. McDowell Communities would result from wildfires deemed as emergencies under NEPA and BIA Agency guidelines. Direct and localized impacts from wildland fire smoke and visual quality would be minor, short-term, and adverse. The continuing risk of wildland fires consuming areas of high fuel loadings would have the effect of continuing adverse, long-term, moderate impacts on air quality, depending on the location.

Cumulative Impacts. Vehicle emissions and other urban activities, along with fire management activities, as well as other fire activity in the region would be adverse, direct, localized, short-term, and minor.

Conclusion. Under alternative A, impacts on air quality would be minor, short term, and adverse with continuing adverse, long-term, moderate impacts as fuels accumulate.

10.6.2 Impacts of Alternative B (Preferred)

Impact Analysis. Under the proposed WFMP and 10-year fuels treatment schedule, vegetation would be cut with hand tools and chainsaws in treatment areas containing heavy fuels that, if burned, would produce high levels of emissions for very short periods as mitigation measures are followed for smoke management. However, once fuels have been reduced to more natural ranges of variability, negligible to beneficial minor indirect effects on local air quality over the long term (>5 years) for the three Communities would result as smoke emissions from potential future fires are reduced.

Various mitigation measures would be used to reduce the air emissions produced by prescribed fires and wildland fires on Indian Community lands. Together with overall priorities, such as firefighter and public safety, prescribed and wildland fire and suppression actions would be conducted so that the effects of smoke and other emissions on air quality and visibility would be lessened. Over the long term, air emissions would be decreased by reducing the area or numbers of piles burned, reducing fuel loading (e.g., chipping and hauling away), or managing fuel consumption. Therefore, the effects of alternative B on air quality-related values would be

beneficial, long term, and of moderate intensity.

Cumulative Impacts. Cumulative impacts under the preferred alternative would be similar to alternative A, except that long-term impacts with implementation of a fuels treatment plan would likely be negligible to beneficial, localized, and minor in intensity.

Conclusion. Implementation of alternative B would result in adverse to beneficial, short- and long-term, and of minor to moderate intensity.

10.6.3 Impacts of Alternative C

Impact Analysis. Without the use of prescribed fire in the WFMP, impacts to air quality, both local and regional, would be negligible; wildland fires would bring similar impacts to those as described in alternatives A and B.

Cumulative Impacts. Cumulative impacts would likely be negligible under alternative C.

Conclusion. Impacts under alternative C would be negligible to minor, localized, and beneficial as fuels are reduced under the 10-year treatment schedule without prescribed fire.

10.7 CULTURAL RESOURCES

A cultural landscape comprises all cultural and natural resources associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values within a given geographic area. Shaped through time by historical land use and management practices, as well as politics and property laws, levels of technology and economic conditions; cultural landscapes provide a visual chronicle and living record of an area's past. The dynamic nature of modern human life, however, contributes to the reshaping of cultural landscapes, making them a good source of information about specific times and places, but rendering their long-term preservation a challenge.

Affected Environment. In 1986, the Salt River Pima-Maricopa Indian Community adopted its own "Antiquities Ordinance" (SRO 102-86, SRPMIC 1986). It contains a statement that all pre-historic and historic features, artifacts, etc. shall be protected for the benefit and educational value of the Community. It further provides protocols for any proposed ground-disturbing activities, including provision for cultural and archaeological clearances.

Sites and features on Indian Community lands, in general, consist of pueblo ruins, field houses, lithic and ceramic scatters, rock art, dams, reservoirs, and historic trash dumps. It is estimated that sites date generally from 800 BC to the early 1200s AD, and contain material culture and architecture that reflect the growth and development of several distinct groups of prehistoric peoples.

Ethnographic resources are those cultural and natural resources to which Indian Communities ascribe cultural significance and that continue to play a role in a Community's identity and way of life. Only members of the Communities to whom the resources hold cultural value can

determine ethnographic resources and potential impacts to them. Although these resources are generally confidential information, mitigating measures can be considered during wildfire events.

10.7.1 Impacts of Alternative A (No Action)

Impact Analysis. It is generally concluded that there exists several relationships between wildland fire and cultural remains on Indian Community lands. They are the following:

- Some sites and features are open to the elements (e.g., fire).
- Wildfires are generally fast-moving in light fuels. If fires occur often enough in these fuels, they would generally not build to potentially damaging levels to surface cultural resources.
- It is suspected that many sites may have experienced one or more wildland fires in the past and most fire impacts, or effects, occurred during the first fire event.

Under alternative A, there would be continued full suppression of all wildland fires with potential increases in fuel loading over time. Direct adverse effects of heating from wildland fires on any surface cultural materials would generally result in minor to moderate scorching, fracturing, charring, and spalling, depending on heat released and residence time of the flaming front on exposed materials. If artifacts are buried under as little as 1 cm of soil, these effects decrease sharply. Head fires (generally the fastest spread rate and burning with the wind or directly upslope) generate a smaller downward heat pulse than do backing fires (generally slowest spread rate, burning into the wind or downslope).

During suppression operations, known cultural resources would be avoided through mitigation such as assigning a fire-qualified archeologist/cultural resource specialist ahead of any ground disturbing suppression activities. However, without fuels reduction work in the high hazard areas, there would be an increased possibility of damage to previously unrecorded cultural resources from suppression activities. Also, minor, indirect, adverse effects from collection and other disturbance such as vehicle use and presence of fire personnel assigned to incidents are possible but could be minimized by mitigation.

Cumulative Impacts. Cultural resources on Indian Community lands continue to be subject to natural processes of weathering and decay, and with this effect, the rarity and importance of these non-renewable resources will increase. When considered cumulatively with past, present, and reasonably foreseeable future wildland fire operations, alternative A would result in minor to long-term adverse impacts to cultural resources.

Conclusion. Effects from the no-action alternative would be adverse, localized and minor, direct and indirect, and short and long-term on archaeological and historic resources from suppression operations.

10.7.2 Impacts of Alternative B (Preferred)

Impact Analysis. The proposed undertaking is in compliance with the provisions of Section 106 of the NHPA and its implementing regulations (36 CFR 800). Projects may proceed under the

following stipulations:

1. Any identified sites shall be avoided by a minimum of 50 feet. A qualified cultural resource specialist would flag the boundaries of the sites prior to project implementation. All vehicular traffic shall remain on existing roads and avoid all the sites.
2. All land-altering activities would be surveyed for cultural resources. The Archaeological Resources Protection Act prohibits the excavation, removal, damage, alteration or defacement, or attempt to excavate, remove, damage, alter, or deface any archaeological resources (cultural resources) located on Indian lands.

The amount of fire on the landscape would increase slightly under the preferred alternative. With options available for management of wildland fires, acreage may increase slightly as natural and manmade barriers are often used in lieu of constructed fireline.

Negligible impacts would be expected as a result of potentially less line construction and soil disturbance.

With prescribed fire use directed by a 10-year treatment schedule, impacts would be similar in effect to many of those covered in alternative A, except that under established protocols in the WFMP planning and preparation would serve to mitigate potential adverse impacts. Burn units would be surveyed prior to preparation activities such as constructing control line, installing water handling equipment, identifying routes for vehicles to avoid cultural features, and assigning a cultural resource advisor to the project where necessary. If, during scheduled project planning and preparation activities, previously unknown archaeological resources are discovered, resources would be identified and documented and appropriate mitigation developed in consultation with a Tribal cultural resource specialist. If human remains were uncovered as a result of project implementation, all work in the area would cease until requirements of the Native American Graves Protection and Repatriation Act (NAGPRA) are met. Tribes would be consulted during early planning for potential ethnographic resource effects.

Cumulative Impacts. As cultural resources continue to be incrementally impacted, along with those natural processes of weathering and decay, the rarity and importance of these non-renewable resources will increase. However, when activities under the preferred alternative are considered with reasonably foreseeable future wildland fire operations, adverse long-term cumulative impacts would be minor, with long-term beneficial impacts with decreasing risk of high severity wildland fires.

Conclusion. Under alternative B, there would be short term, minor, adverse, direct and indirect impacts to some materials, but long-term, beneficial, indirect, localized impacts of moderate intensity as fuels reduction and restoration objectives were accomplished.

10.7.3 Impacts of Alternative C

Impact Analysis. Impacts from this alternative would be similar in effect to the preferred alternative, except for prescribed fire's absence as a strategy to accomplish objectives. With mitigation measures applied as appropriate for all fuels management projects, impacts are

anticipated to be negligible in the short term but beneficial and of minor intensity in the long term.

Cumulative Impacts. Under alternative C, cumulative impacts would be anticipated to be similar to those under alternative B.

Conclusion. Impacts would be anticipated to be negligible in the short term to beneficial and minor over the long term as fuels management objectives are accomplished.

10.8 HUMAN HEALTH AND SAFETY

Affected Environment. Some Indian Community areas may be at risk for wildland fire, particularly where untreated fuels interface with wildlands. Emergency response plans currently exist to provide for evacuation procedures, closures, notifications, and restrictions.

Airborne particulates are a serious threat to human health. Major concerns include effects on breathing and respiratory systems, damage to lung tissue, cancer, and premature death. The elderly, children, and people with chronic lung disease, influenza, or asthma, are especially sensitive to the effects of particulate matter. A study released in 2009 by Arizona State University showed that when the levels of PM-10 (particulate matter up to 10 micrometers in diameter) in Central Phoenix were high, there was a significant increase in asthma incidents in children (Maricopa County 2010b). These effects are particularly concerning in the SRPMIC and Ft. McDowell Communities. It is not known if the Pascua Yaqui Indian Community is subject to similar health impacts.

10.8.1 Impacts of Alternative A (No Action)

Impact Analysis. One important health impact is the impacts of smoke on Tribal members, visitors, and Tribal employees, which was briefly addressed as an impact topic under Air Quality above.

The increased chances of wildland fire escapes along highways would create an element of risk to surrounding residents, visitors, and firefighters. There would also be continued inability to provide immediate contact regarding wildland fire activity when a high intensity fire ignites along public roadways. Protection of motorists or Tribal members from any short-term, rapidly spreading fires may or may not be possible without preventive fuels management interventions to reduce risk.

Impacts would be adverse, short-term, direct, localized, and of minor intensity on public safety, and would be partially mitigated by implementing existing Indian Community emergency response plans. Direct and indirect effects to firefighters would be largely mitigated by application of the Ten Standard Firefighting Orders, LCES, and other risk mitigation actions.

Cumulative Impacts. Cumulative effects of the no-action alternative would be increased duration of exposure to hazards associated with fire and suppression activities on and adjacent to Indian Community lands. These events may combine with past, present, and foreseeable future fire operational safety hazards resulting in minor short- and long-term adverse cumulative

impacts on wildland firefighter and public safety.

Conclusion. Impacts associated with the no-action alternative would be minor and adverse, direct, localized, and short term under high intensity wildland fire incident conditions.

10.8.2 Impacts of Alternative B (Preferred)

Impact Analysis. Long-term impacts under alternative B would be reduction in potential for high intensity wildland fires as treatments are applied under the 10-year fuels treatment schedule around values at risk and fuels concentrations in the three Indian Communities. Prescribed fire, thinning, and removal operations would result in reduced safety threats to the public, Tribal members, and adjacent community residents. Unauthorized human presence in or around project areas would be regulated, and projects would be planned to minimize exposure to humans in and adjacent to Indian Community lands.

As long-term objectives are accomplished, the impact of the proposed alternative would be negligible to minor, beneficial, short-term, and very often localized from reduced potential for high intensity, rapid spread of wildland fires that could threaten health and safety.

Cumulative Impacts. Firefighters, visitors, and Community members are also exposed regularly to hazards associated from vehicle use and other work activities on Indian Community lands. When considered with reasonably foreseeable impacts of the fire proposed fire management program, cumulative effects of the preferred alternative would be negligible for the three Communities.

Conclusion. Impacts of the preferred alternative on human health and safety would be localized, minor, beneficial, and short-term as fuels are managed to reduced levels under the proposed treatment schedule.

10.8.3 Impacts of Alternative C

Impact Analysis. Risk to human health and safety from wildland fires would be similar to those measures as described for alternative A and the preferred alternative B. Off-road motorized equipment use by wildland fire personnel during fuels project work would result in negligible impacts if appropriate safety guidelines are followed. Without the impact of smoke under alternative C, human health impacts would also likely be negligible.

Cumulative Impacts. Cumulative effects of alternative C would be similar to those of alternatives A and B, except as a result of additional motorized vehicle traffic combined with past, present, and reasonably foreseeable future Indian Community normal and illegal off-road vehicle use, there would be minor adverse impacts.

Conclusion. The impacts to public and firefighter health and safety resulting from implementing alternative C would be similar to those of alternative B.

10.9 NATIVE AMERICAN TRADITIONAL VALUES

Affected Environment. Many of the geographic features and natural and cultural resources identified by the Indian Communities as culturally significant are historically or ceremonially interconnected with other landscape elements, geographic features, and archeological sites throughout the Communities' entire customary land bases. Also, several vegetative species are known to provide raw materials for crafts and arts.

10.9.1 Impacts of Alternative A (No Action)

Impact Analysis. Suppression operations, considered as emergency incidents, would likely have some localized, short-term, direct and indirect adverse effects of minor intensity on traditional use areas and those individuals involved in activities. Ongoing tribal consultations between the Agency and affected Indian Communities would provide for measures identified in advance that are designed to minimize such impacts. As necessary, consultations would occur during and following incidents. As for wildland fire vehicular traffic interfering with traditional activities, effects would be negligible as a result of the temporary presence of emergency vehicles.

Cumulative Impacts. As most traditional uses would remain relatively constant, negligible cumulative impacts would be expected under alternative A.

Conclusion. Short-term negligible to adverse, localized, direct and indirect effects of minor intensity would result from the no-action alternative on Native American Traditional Values.

10.9.2 Impacts of Alternative B (Preferred)

Impact Analysis. Suppression activities under alternative B would present similar impacts as under the no-action alternative, except human presence to and on incidents managed under appropriate response strategy would be slightly increased. Patrols, monitoring, and less aggressive suppression actions to protect resources would be the primary activities affecting traditional uses. The timely mitigation would be consultation with affected Indian Communities utilizing traditional sites and/or traveling through the incident area. Impacts would be negligible to adverse, minor, short-term, localized, and indirect on Traditional Native American activities. Mechanical and hand fuels reduction under a 10-year treatment schedule would also involve off-road foot travel to and from project areas to accomplish stated program objectives. Impacts would be negligible as consultation with tribes would be completed well ahead of project activities. As long-term objectives are accomplished and activities are reduced to a more maintenance-oriented intensity, traffic and personnel presence would diminish proportionally and impacts on Native American traditional uses, materials, and activities would be beneficial, localized, long-term, moderate, and indirect because of the reduced wildland fire hazard.

Cumulative Impacts. Cumulative impacts of the preferred alternative B would be negligible in the long term when considered with past, present, or reasonably foreseeable future traditional uses and values.

Conclusion. Impacts would be adverse, minor, short-term, and indirect, similar to those of alternative A. However, long-term benefits to Native American Traditional Values would be

moderate, localized, and indirect.

10.9.3 Impacts of Alternative C

Impact Analysis. Impacts from suppression, fire use, non-fire fuels treatments and fire restoration program activities would be similar in type and intensity to those found in alternative B, except that motorized vehicle access off-road to proposed projects may also attract non-authorized or other traffic into traditional use areas. Impacts on these areas and access to traditional materials would result in long-term adverse, localized, minor impacts until program objectives have been accomplished.

Cumulative Impacts. Cumulative impacts of alternative C would be similar to those under alternative B.

Conclusion. Impacts resulting from implementation of alternative C would be similar to those of alternative B, in the short term, and long-term impacts would be adverse, minor, and localized until fuels management objectives are met.

TABLE 5. SUMMARY OF IMPACTS FOR ALTERNATIVES ANALYZED

IMPACT TOPIC	<i>Alternative A (No Action): Continue the current fire management program strategy that calls for management of all wildland fires and burned area rehabilitation where necessary.</i>	<i>Alternative B (Preferred): Develop a Wildland Fire Management Plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and using prescribed fire, mechanical, hand, and chemical treatments under a 10-year fuels treatment schedule to meet resource and protection objectives.</i>	<i>Alternative C: Develop a wildland fire and fuels management plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and uses mechanical, hand, and chemical treatment strategies only to meet resource and protection objectives.</i>
GEOLOGY/SOILS	The no-action alternative would result in localized, short- and long-term, minor, direct and indirect adverse impacts to geology and soils of the Salt River, Ft. McDowell, and Pascua-Yaqui Indian Communities.	Impacts would become beneficial, long-term, localized, and of minor intensity on soil erosion potential; negligible impacts on geological features would occur, with localized negligible to minor adverse short-term changing to beneficial long-term cumulatively.	Actions described in alternative C would be similar to those of the preferred alternative B, except that additional long-term effects on off-road soils from tire compression at would be direct, moderate, localized, and adverse.
WATER QUALITY	Impacts under the no-action alternative would be negligible to minor and adverse, indirect, localized, and short term.	Under alternative B, impacts on water quality would range from negligible over the short term to beneficial, moderate, indirect, and localized long-term effects over all Indian Community lands addressed in this EA,	Over the long term, impacts under alternative C would be negligible to surface water resources (quality and quantity) across the three Indian Communities.

<p>IMPACT TOPIC</p>	<p><i>Alternative A (No Action): Continue the current fire management program strategy that calls for management of all wildland fires and burned area rehabilitation where necessary.</i></p>	<p><i>Alternative B (Preferred): Develop a Wildland Fire Management Plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and using prescribed fire, mechanical, hand, and chemical treatments under a 10-year fuels treatment schedule to meet resource and protection objectives.</i></p>	<p><i>Alternative C: Develop a wildland fire and fuels management plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and uses mechanical, hand, and chemical treatment strategies only to meet resource and protection objectives.</i></p>
		<p>with negligible cumulative effects in the long term.</p>	
<p>VEGETATION/EXOTIC PLANTS</p>	<p>Alternative A would result in moderate, direct, localized, and short-term adverse effects and long-term negligible to localized, indirect and minor adverse impacts to native vegetative communities during the analysis period.</p>	<p>The preferred alternative would have direct localized, short-term, and minor adverse impacts on vegetation communities within the three Indian Communities addressed in this EA. Long-term indirect impacts would be minor to moderate and beneficial as some fire-adapted vegetative communities are restored and maintained. Impacts on native vegetation from exotic plant responses following treatments would range from minor, localized, direct, short-term, and adverse to long term, beneficial, localized, and indirect. Cumulative impacts would be negligible in the long term.</p>	<p>Alternative C would result in adverse, minor, direct and indirect, localized, short- and long-term impacts to vegetative communities, including potential for invasive species introductions, primarily on Salt River and Ft. McDowell Community lands over the analysis period.</p>
<p>WILDLIFE</p>	<p>Impacts of alternative A would result in negligible to moderate, adverse, localized, short- and long-term impacts to wildlife or habitat on the Salt River and Ft. McDowell lands, and minor to negligible impacts for Pascua-Yaqui lands during the most extreme of fire seasons when wildland fire severity</p>	<p>Alternative B would produce beneficial, localized, long-term impacts of minor to moderate intensity on wildlife and habitats of the three Indian Communities addressed in this EA during the analysis period as overall habitat condition is improved. Cumulative long-term effects would be beneficial.</p>	<p>Short-term indirect impacts would be adverse, localized, and minor to moderate in intensity as a result of disturbance from repeated vehicular traffic in to treatment areas under the 10-year treatment schedule. Long-term benefits would be similar to those under alternative B.</p>

<p>IMPACT TOPIC</p>	<p><i>Alternative A (No Action): Continue the current fire management program strategy that calls for management of all wildland fires and burned area rehabilitation where necessary.</i></p>	<p><i>Alternative B (Preferred): Develop a Wildland Fire Management Plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and using prescribed fire, mechanical, hand, and chemical treatments under a 10-year fuels treatment schedule to meet resource and protection objectives.</i></p>	<p><i>Alternative C: Develop a wildland fire and fuels management plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and uses mechanical, hand, and chemical treatment strategies only to meet resource and protection objectives.</i></p>
	<p>is high.</p>		
<p>SPECIAL STATUS SPECIES</p>	<p>The impacts of alternative A may affect, but not likely to adversely affect, bird special status species and habitat. The no-action alternative also may affect, but not likely to adversely affect, other special status species.</p>	<p>Alternative B impacts would be similar to those described for alternative A. However, impacts from prescribed fires and non-fire fuels management operations with mitigation may affect, but not likely to adversely affect, special status species or habitats with negligible cumulative impacts anticipated.</p>	<p>The impacts of alternative C on most special status species and habitats would be negligible as short and long term as restoration objectives are met.</p>
<p>AIR QUALITY</p>	<p>The impacts of Alternative C on air quality would be minor, short term, and adverse with continuing adverse, long-term, moderate impacts as fuels accumulate.</p>	<p>Implementation of alternative B would result in adverse to beneficial, short- and long-term, and of minor to moderate intensity and negligible to beneficial cumulative impacts.</p>	<p>Impacts under alternative C would be negligible to minor, localized and beneficial as fuels are reduced under the 10-year treatment schedule without prescribed fire.</p>
<p>CULTURAL RESOURCES</p>	<p>Effects from the no-action alternative would be localized and minor, direct and indirect, and short- and long-term on archaeological and historic resources from suppression operations under alternative A.</p>	<p>Under alternative B, there would be short-term, minor, adverse, direct and indirect impacts to some materials, but long-term, beneficial, indirect, localized impacts of moderate intensity as fuels reduction and restoration objectives were accomplished and beneficial cumulative effects in the long term.</p>	<p>Impacts would be anticipated negligible short-term to beneficial and minor over the long term as fuels management objectives are accomplished.</p>

IMPACT TOPIC	<i>Alternative A (No Action): Continue the current fire management program strategy that calls for management of all wildland fires and burned area rehabilitation where necessary.</i>	<i>Alternative B (Preferred): Develop a Wildland Fire Management Plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and using prescribed fire, mechanical, hand, and chemical treatments under a 10-year fuels treatment schedule to meet resource and protection objectives.</i>	<i>Alternative C: Develop a wildland fire and fuels management plan that directs an appropriate management strategy for wildland fires, rehabilitation of burned areas, and uses mechanical, hand, and chemical treatment strategies only to meet resource and protection objectives.</i>
HUMAN HEALTH AND SAFETY	Impacts associated with the no-action alternative would be minor and adverse, direct, localized, and short-term under high intensity wildland fire incident conditions.	Impacts of the preferred alternative on human health and safety would be localized, minor, beneficial, and short-term as fuels are managed to reduced levels under the proposed treatment schedule and with negligible cumulative impacts.	The impacts to public and firefighter health and safety resulting from implementing alternative C would be similar to those of alternative B.
NATIVE AMERICAN TRADITIONAL VALUES	Short term negligible to adverse, localized, direct and indirect effects of minor intensity would result from the no-action alternative on Native American Traditional Values.	Impacts would be adverse, minor, short-term, and indirect similar to those of alternative A. However, long-term benefits to Native American Traditional Values would be moderate, localized, and indirect with negligible cumulative effects.	Impacts resulting from implementation of alternative C would be similar to those of alternative B in the short term, and long-term impacts would be adverse, minor, and localized until fuels management objectives are met.

11.0 CONSULTATION/COORDINATION

11.1 PUBLIC SCOPING

Public scoping was conducted and included distribution of flyers to each of the Community Centers and a website that contains the draft environmental assessment and draft wildland fire management plan. The newsletter outlined the proposal, purpose, fire management goals and objectives, and proposed alternatives and solicited input from the public. Following the receipt of written comments, a summary will be prepared.

Written comments will be considered when developing specific aspects of alternative B and the impact analysis.

Upon completion, this EA will be sent to the Arizona SHPO for review and comment in partial completion of Section 106 of the NHPA.

A copy of this EA will be sent to the USFWS for review as part of compliance with Endangered Species Act, Section 7 consultation requirements.

This EA will be made available at the Agency office in Sacaton, and posted online websites for Salt River, Ft. McDowell, and Pascua Yaqui Indian Communities; also, a notice will be placed in public media locally. All comments received during public review will be assessed by the preparers for substance and applicability. Should substantive comments be received, a decision will be made as to whether the EA should be rewritten or a full EIS be prepared.

12.0 LIST OF PREPARERS AND PRINCIPAL CONTRIBUTORS

<i>Name</i>	<i>Role on Project</i>	<i>Title</i>	<i>Office</i>
John Lissoway	Author – EA	Planner	Wildland Fire Associates, LLC
Alan Sinclair	COR	FMO	BIA – Sacaton, AZ
Richard Powskey	SME	NEPA Spec.	BIA – WRO, Phoenix
David Bunce	Information	Fire Chief	Scottsdale, AZ
Leon Ben	Policy	FMO	WRO, Phoenix, AZ
Carlos Nosie	Nat. Resources	NRS	WRO, Phoenix, AZ
Andre Matus	Information	Fire Chief	Pascua-Yaqui AZ
Mark Openshaw	Information	Fire Chief	Ft. McDowell, AZ
Daniel Daggett	Cultural Spec.	Res. Mgr.	SRPMIC

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