Appendix A

Summary of Scoping

A new Resource Management Plan (RMP) is necessary due to the boundary changes that created the Lake Havasu Field Office in 1992. The Lake Havasu Field Office was established in 1992 in response to boundary changes, so a new Resource Management Plan is being developed. (Currently, the Lake Havasu Field Office manages resources under four different Land Use Plans.) The scoping process for the proposed RMP began when the Notice of Intent (NOI) to prepare the RMP/EIS was published in the Federal Register on August 3, 2001. BLM solicited input on how to manage the public lands that it administers within the LHFO boundary by holding public meetings and receiving comments at the meetings, through the mail, and via e-mail. Additional information on the planning process is presented in Chapter 1 of the Environmental Impact Statement (EIS). In August 2002, BLM published the "Lake Havasu Field Office Resource Management Plan Scoping Report." This document summarized the procedures, issues, and management concerns that were identified as part of the scoping process for the RMP. A summary of the issues (identified by the public) and the management concerns (identified by BLM staff) is presented below.

Issue 1: Aquatic Habitat (Fisheries)

LHFO manages public lands to ensure healthy, naturally functional, and productive aquatic habitat within the Colorado River watershed. LHFO is responsible for the management of aquatic habitat in Lake Havasu from the river channel to the high water mark. Fish resources include both game and threatened and endangered (T&E) species. Lake Havasu is critical habitat for the endangered bonytail chub (*Gila elegans*), and segments of the Colorado River are critical habitat for the endangered razorback sucker (*Xyrauchen texanus*). Since 1992, LHFO has been in partnership with national, State, and local agencies, private groups, and other concerned organizations and individuals. This partnership has set goals to restore fish habitat, restore native fish populations, and create barrier-free public access for recreational fishing on Lake Havasu. Public comments on this issue included "No additional fish habitat needs to be created," "Create more fish habitat, and have more fish," and "Improve access to river and backwaters for fishing."

Related implementation issues are as follows:

- Should LHFO change existing management to improve or sustain the productivity of aquatic habitats?

- How should habitat be managed to protect preferred endangered fish spawning and other critical habitat needs?
- How does LHFO control invasive, undesirable aquatic species and at what levels should controls be implemented?
- How should expansive, single-species stands of emergent riparian vegetation be managed to improve aquatic species diversity and productivity?
- How can LHFO best manage critical aquatic habitat for special status species while sustaining multiple uses?
- Should additional waters under federal management be closed to public access to protect preferred spawning or rearing habitat?
- Should certain areas be limited to fishing?
- Should LHFO continue to stock native fish?
- Is the current public access to reservoir and river shorelines adequate to meet recreational angling demand, and are existing facilities of that nature maintained in a manner that is safe for the public and environment?
- What practices or improvements could LHFO make to enhance the awareness of the general public that their actions on the surface can negatively impact fish species survival?

Issue 2: Cultural Resource Protection

LHFO must protect cultural resources located on public lands. Cultural resources are defined as sites, buildings, objects, features, and artifacts (usually more than 50 years old) that indicate past life ways and represent our collective past. These include, but are not limited to, prehistoric and historic period archaeological sites that are managed for the benefit of all Americans. Public comments on this issue ranged from "We need to protect sites so they won't be destroyed" to "Don't protect 40 acres for a 1-acre site."

Related implementation issues are as follows:

- Are there lands with significant cultural resources that should be managed as ACECs and/or nominated to the National Register of Historic Places (NRHP)?
- Are there prehistoric or historic archaeological sites (e.g., Camp Bouse, Swansea, Intaglio sites) that should be managed with for public use (e.g., recreation, education)?
- Are there lands with Native American values/traditional uses (Traditional Cultural Properties) that should be managed as ACECs and/or nominated to the NRHP?

Issue 3: Disposal and Acquisition of Public Lands

The LHFO planning area encompasses nearly 1.4 million acres of public lands in the Mohave and Sonoran Deserts along the Colorado River, Lake Havasu, and the uplands to the east. Land identified for disposal is a major RMP issue. To resolve this issue, the LHFO will determine criteria for disposal and subsequently dispose of those lands

meeting the criteria through exchange, sale, and Recreation and Public Purposes Act (R&PP) patent. In addition, the LHFO in Arizona is currently involved in a large-scale state and private exchange program designed to consolidate land administered by individual agencies (e.g., BLM, U.S. Forest Service, and others) to allow for more efficient management. Public comments on this issue ranged from "Parker needs a shooting range" to "It's our public lands, why does BLM not want us to enjoy them?"

- Related implementation issues are as follows:
- Lands need to be identified for retention, acquisition, or donation to LHFO.
- Which public lands are needed for management purposes as retention, acquisition, or donation?
- Lands need to be identified for disposal through exchange, sale, and R&PP patent.
- Which public lands should be identified for a commercial lease?

Issue 4: Livestock Grazing

The proper allocation of forage for livestock grazing is critical to maintaining vegetative and watershed values in a healthy condition. The needs of all uses and important resources, including special status species, soil stability, and water quality, must be carefully considered. Seventeen allotments are currently available for grazing by cattle. Public comments on this issue ranged from "Public rights are as important as animal rights" to "Restrict grazing in damaged or endangered areas to allow return to native habitat (grasses)."

Related implementation issues are as follows:

- If a grazing permit or preference is voluntarily relinquished, will the allotment continue to be available for grazing?
- What measures are needed to avoid impacts to wildlife and restore any damaged areas?
- Should any of the allotments currently available for grazing be removed from grazing?
- Should any land, currently not available for grazing, be made available for grazing?
- How will grazing objectives be updated to reflect Desired Plant Communities and incorporate provisions of the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997)?
- If an evaluation identifies an allotment where Land Health Standards cannot be met, what will the effects be on availability of the allotment for grazing?
- What animal type restrictions are needed?
- Are any changes needed in Ephemeral or Perennial/Ephemeral designations?
- Are certain requirements needed for livestock grazing to be compatible with other resources such as wildlife and watershed?

- What guidelines and criteria are needed for future adjustments in permitted use, season of use, or other grazing management practices?
- Are allotment categories (Maintain, Improve, or Custodial) used to prioritize allotments for range improvements? Are any changes needed in the current allotment categories?

Issue 5: Minerals Management

The management of mineral activity on public lands in the LHFO is separated into three categories: locatable minerals, leasable minerals, and saleable minerals. Locatable minerals include precious metals such as gold, silver, and copper; and industrial minerals such as gypsum and clay, which may be removed with possession of a valid mining claim. Leasable minerals include oil, gas, coal, sodium, potassium, sulfur, and geothermal resources, which are explored for or developed by obtaining a mineral rights lease to a particular parcel of land. Saleable minerals (also known as "mineral materials") include common varieties of sand, gravel, clay, and decorative stone, usually associated with construction or landscaping. Not infrequently, BLM may hold surface rights to certain lands but the subsurface rights are under different ownership, or vice versa. These lands are referred to as "split estate" lands. Public comments on this issue ranged from "Leave open recreational mining" to "Development and utilization of these resources is imperative to sustain our growing population and industries."

Related implementation issues are as follows:

- Are split estates, privately owned minerals, and publicly owned surface in conflict with resource management? What will be the criteria used by LHFO to consolidate split-estate lands?

Saleable Minerals

- Do some communities need more mineral material sites (e.g., sand and gravel)?
- Should LHFO designate mineral material sites near communities for either community use and/or individual contracts?

Leasable Minerals

- Are there areas that will be segregated to oil and gas leasing (e.g., ACECs)?

Locatable Minerals

- Are there any areas within the LHFO planning area that should be segregated or closed to mineral entry?

Issue 6: Off-Highway Vehicles

Off-highway vehicle (OHV) use of all types has increased even faster per capita than the population. LHFO manages over 1 million acres potentially suitable for OHV travel. Managing OHV requires providing a safe, enjoyable recreation opportunity while protecting the desert environment, including natural and cultural resources. It is the goal of the planning process to designate public lands open, limited, or closed to OHV use. Resolution of recreation issues is highly dependent on land tenure adjustments, clarification of T&E species and other wildlife issues, and cultural resource concerns. Public comments on this issue ranged from "We do not want Standard Wash to be designated as a play area" to "Should be able to drive anywhere on public land."

Related implementation issues are as follows:

- How does LHFO develop acceptable strategies to manage impacts (e.g., seasonal closures/restrictions, enforcement/protection strategies, increased access) when deemed necessary and appropriate?
- Which public lands should be open to OHV use and which should be closed? On which public lands should OHVs be limited to existing or designated roads and trails (including washes) by type of vehicle or by season of use?
- Are there patterns of public use that indicate a need for designated OHV areas?
- Are designated OHV courses the preferred management tool for competitive speed or commercial OHV events?

Issue 7: Protection of Paleontological Resources

Paleontological resources consist of the remains of past, often ancient life preserved in sedimentary rock. These include both vertebrate and invertebrate fossils, plant fossils, tracks (footprints) and trackways, and trace "fossils" such as worm tracks, fossilized dinosaur dung, and gastroliths (stomach or gizzard stones). Paleontological resources are important for reconstructing the geology, geography, and history of ancient land and marine sediments, and the changes and adaptations of organisms through time. Public comments on this issue ranged from "Let's save the fossils rather than have them destroyed by weathering" to "Sites of importance need to be protected but not at the expense of access."

Related implementation issues are as follows:

- Are there appropriate areas for paleontological ACECs?
- Are there guidelines and criteria for protecting paleontological resources?
- Are there appropriate protection measures and scientific, educational, and recreational use opportunities for paleontological sites?

Issue 8: Recreation on Public Lands

The LHFO planning area is located in one of the fastest-growing areas of the United States and plays host to a variety of recreation uses, summer and winter, with each use having a strongly developed and proactive constituency. Recreation/tourism pursuits are the dominant economic force in the region, with nearly all recreation uses occurring on, or adjacent to LHFO public lands. In some cases, recreation uses are a source of conflict among user groups. LHFO will have to prescribe and regulate recreation uses across concentrated and dispersed recreation areas for millions of public land visitors. The majority of public visitation for recreation purposes occurs on the Parker Strip and Lake Havasu shoreline. The lake is a highly prominent, sensitive body of water used for irrigation, potable water delivery for millions of people, and recreation. Administration is shared, and access provided, by numerous federal, State, tribal, county, and municipal entities. Public comments on this issue ranged from "With all the closures, what happens to 'family recreation'?" to "Target shooting areas need to be designated" and "Need a boat ramp at the south end of Lake Havasu."

Related implementation issues are as follows:

- What public lands should be considered for management with emphasis on outdoor recreation opportunities?
- What type of recreation opportunities should be considered for continued agency support or encouragement?
- What services and facilities should LHFO provide?
- What public lands should be managed for education and interpretation?
- Should surveys be conducted to determine who is actually using LHFO public lands for recreation purposes, what activities they are engaged in, and what services they expect, in order for the LHFO to make informed land use decisions?
- How should LHFO manage camping on public lands?
- Should LHFO consider creation of Long Term Visitor Use Areas (LTVA), concessions, or shared administration of leases issued to local governments or other public entities?
- Should LHFO participate in the National Recreation Lakes Program?
- Are changes needed in the locations and policy for dispersed or casual use camping?

Issue 9: Special Status Species

LHFO recognizes a special status species as an animal or plant that has become vulnerable to disappearing from the area because of declining population levels, limited ranges, or rarity. These species meet one of the following criteria: (1) it is federally listed as T&E; (2) it is federally proposed as T&E; (3) it is a federal candidate for listing; (4) it is a state listed species of special concern; or (5) it has been designated by the LHFO State Director as a sensitive species. The goal for the management of special status species is to prevent these species from vanishing from an area by addressing the issues of concern early enough to secure long-term viability. Public comments on this

issue ranged from "God gave these supposed endangered species the ability to live, eat and take care of themselves, and they don't need our help" to "Must address how BLM plans to avoid direct impacts to T&E and special status species."

Related implementation issues are as follows:

- Are there lands with significant special status and Endangered Species Act (ESA) species that should be managed as ACECs or under other special management?
- Can additional lands suitable for ACEC status or other special management (e.g., desert tortoise habitat) be identified?
- Have all lands that were specifically purchased for special status species (e.g., desert tortoise, desert bighorn sheep) been identified and used for that purpose?
- Have all lands in the planning area been evaluated as potential habitat for T&E, proposed, candidate, and other special status species? Are those habitats identified and maintained and/or restored to support special status species survival?
- Is current surveying sufficient to identify species habitat utilization by federal T&E, proposed, candidate, and other special status species under the ESA (e.g., location, numbers, and potential management goals)?

Issue 10: Transportation and Access to Public Lands

Much of the planning area is in a mixed pattern of intermingled public, private, and state lands. The public often gains access to public lands only by crossing state or private lands and vice versa. In many cases, the public has no legal right to use roads on private and state land, and the landowner or manager can restrict access. Lack of legal access can cause problems in the administration of public lands. Public comments on this issue ranged from "No closure of BLM (our land) for any reason" and "Would like to see a trail completely around the lake."

Related implementation issues are as follows:

- How should LHFO manage for the development of the county/state transportation network, including any new or alternative means that meet the needs of local communities and the region?
- How will LHFO manage authorized use of utility corridors/rights-of-way, while assuring that casual use does not create resource conflicts and undesirable impacts?
- How should LHFO accommodate the access needs of physically disabled people under Americans with Disabilities Act (ADA)?
- Should LHFO amend present motorized vehicle policies on lands within the planning area to establish additional limitations for speed, stopping, parking, and camping?
- Should LHFO establish, develop, and manage areas and routes specifically for non-motorized multiple-use access opportunities (e.g., hiking, biking, equestrian)?

- How should LHFO inform the public about requirements for access on or across private and state lands adjacent to LHFO lands?
- Should LHFO develop public access easements across private or state lands so that the public can access federal lands and waterways?

Issue 11: Visual Resources

Visual Resource Management (VRM) provides a means for classifying public land into one of four categories based on the area's scenic value. VRM determines the visual values of an area by means of a visual resource inventory and addresses the potential visual impact of a proposed activity within that area. Visual resources are evaluated as part of the NEPA process. Using VRM, LHFO can consider the significance of a proposed project versus the visual sensitivity of the affected area. Changes in project design or location may be required to avoid negative impact on a highly scenic area. Public comments on this issue ranged from "Craggy Wash camping is too close to the airport and too congested during winter camping season" to "Dumping of trash is phenomenal & excessive and more effort needs to be established to prevent & detour [*sic*] littering public lands."

Related implementation issues are as follows:

- Are the existing VRM inventories of previous land use plans adequate to manage projects and evaluate impacts on scenic values in the LHFO planning area?
- How should LHFO manage the visual nuisance caused by 14-day camping congestion in areas close to population centers, such as Craggy Wash?
- How should LHFO manage illegal dumping on public lands to reduce or eliminate negative visual impacts?

Issue 12: Wild and Scenic Rivers

Twenty-one miles of the of Bill Williams River were identified in the *Kingman Resource Area Resource Management Plan* (1995) and the *Yuma District Resource Management Plan* (amended 1994) as eligible for further study in the Wild and Scenic River evaluation process. In 1995, the *Arizona Statewide Wild and Scenic Rivers Legislative Environmental Impact Statement* and recommendations based on that document were forwarded to Congress. Three segments of the Bill Williams River within the LHFO planning area are nominated for inclusion in the Wild and Scenic River System. Two sections of the river, located within the Rawhide Mountains Wilderness and the Swansea Wilderness, are recommended as eligible wild segments. The river between the two wilderness areas contains the scenic segment. Until Congress acts, eligible segments must be managed so as to not impair their suitability for inclusion into the Wild and Scenic River System. Outstandingly remarkable values must be protected and the free-flowing character of the stream segment cannot be modified. Public comments on this issue ranged from "Wild and Scenic Rivers are to be left open for all to enjoy" to "Public access to these lands should be granted so we can enjoy our river resources."

Related implementation issues are as follows:

- Have environmental or management conditions changed that would require LHFO to alter any of the established recommendations for the Bill Williams River?
- What operations at Alamo Dam and flow regimes in the Bill Williams River are necessary to maintain "natural conditions," preserve the area's wilderness character, and protect the river's outstandingly remarkable values?
- Is there a need for the development or acquisition of additional public access to those segments of the Bill Williams Rivers nominated for inclusion into Wild and Scenic River System?

Issue 13: Wild Horses and Burros

LHFO is responsible for the management and protection of wild burros as "living symbols of the historic and pioneer spirit of the West" as required by the Wild Free Roaming Horse and Burro Act of 1971. Herd Areas are the geographic areas identified as being used by a herd as its habitat in 1971. Management of wild burros must limit the animals' distribution to the Herd Areas. Herd Management Areas (HMAs) are established within Herd Areas for the maintenance of wild burro herds. The overall carrying capacity of an HMA is referred to as the Appropriate Management Level (AML). LHFO currently manages three HMAs: Alamo, with an AML of 200 burros; Havasu (Arizona), with an AML of 170 burros; and Havasu (California), with an AML of 150 burros. Public comments on this issue ranged from "Don't get rid of all the burros. They tell part of our history," to "Let the hunters draw tags to keep the population under control (just like all the other animals such as sheep, deer, elk etc.)."

Related implementation issues are as follows:

- Are any changes needed to the current AMLs?
- What guidelines and criteria are needed for adjusting herd size?
- Are any changes needed to the current HMA boundaries to facilitate long-term management?
- Should non-LHFO lands be included in the HMAs?
- Are there any Herd Areas or parts of a Herd Area where burros should be removed due to intermingled lands or lack of essential habitat components?
- Is designation of a wild burro range or other measure needed due to significant public value, such as an outstanding opportunity for public viewing?
- How will safety issues related to burros crossing highways and roads be managed?
- Are any area-wide limitations and modification of structures or restrictions in the HMAs needed to achieve wild burro management objectives (e.g., fence openings for burro access)?

Issue 14: Wilderness and Wilderness Study Areas

The Arizona Desert Wilderness Act of 1990 requires that LHFO manage the East Cactus Plain, Gibraltar Mountain, Harcuvar Mountains, Rawhide Mountains, and Swansea Wilderness Areas as part of the National Wilderness Preservation System. The boundaries of these areas were set by Congress and cannot be modified by this RMP. Under this legislation, these five areas will be managed in accordance with the provisions of the Wilderness Act of 1964. The California Desert Protection Act of 1994 also designated lands under LHFO management as portions of the Whipple Mountains, Chemehuevi Mountains, and Dead Mountains Wilderness Areas. Public comments on this issue ranged from "All remaining roadless area should be proposed for cow-free wilderness designation" to "No need for more wilderness."

Related implementation issues are as follows:

- Have environmental or management conditions changed, which would require LHFO to inventory lands with wilderness character to determine other available means to protect wilderness values?
- How does LHFO provide for valid resource uses and activities under the Special Provisions section of the Wilderness Act so as to have the least possible adverse effect to wilderness?

Issue 15: Wildlife Management

LHFO administers a rich assemblage of desert wildlife habitats through ecosystem management, seeking to maintain and enhance existing wildlife resources to assure long-term viability of these fragile desert ecosystems. Although management attention often spotlights rare species and their habitats, continuous efforts are made to ensure the health and productivity of all wildlife habitats, including widespread habitat types such as saguaro, palo verde, mesquite, creosote-bursage, and cottonwood-willow. Public comments on this issue ranged from "Reduce and eliminate exotic species" and "Protect key wildlife corridors to create the necessary linkages to our wild lands" to "No need to close the areas for bighorn sheep lambing."

Related implementation issues are as follows:

- Are there additional areas that need non-native noxious, invasive, or feral species control/eradication?
- To minimize transmission of disease, are changes needed to the policy that restricts domestic sheep and goats?
- Are there locations that have been designated for wildlife habitat management that should be reevaluated?
- Should LHFO designate, create, or encourage wildlife corridors (where wildlife can safely move from one habitat area to another)? Should LHFO also designate areas for forage production to increase wildlife utilization of specific areas?
- How can LHFO maintain viable populations of species within its jurisdiction?

- How should LHFO manage Sonoran desert tortoise habitat?
- How should LHFO protect bat habitat?

Management Concerns

In addition to issues identified during the scoping process, nine management concerns (i.e., concerns expressed by BLM resource specialists) were brought forward during the planning process. These concerns are presented below.

Management Concern 1: Back Country Byways

The National Back Country Byway Program is intended to promote partnerships and cooperation between public and private agencies, groups, and individuals by focusing on scenic, lesser-known backcountry roads and trails. The demand for pleasure driving contributes to local and regional economies through increased tourism and raises public awareness of outstanding recreation attractions on public lands.

- Should LHFO maintain the existing Parker Dam Road Backcountry Byway?
- Should LHFO identify additional Back Country Byway opportunities (such as Swansea/La Paz County, Plamosa Road, and Hovatter Road)?

Management Concern 2: Fire Ecology

BLM field offices work to coordinate with other agencies to manage fire in accordance with the nationwide BLM fire policy. The BLM Arizona State Office is currently preparing the *Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality Management*, which includes Arizona-specific information on all aspects of the BLM's nationwide fire plan, including first-response agreements with other government agencies, approved modified fire suppression plans, and prescribed fire (controlled burn) policies. Is there a danger or risk to the public from LHFO-controlled burns and illegal burns on LHFO lands?

- Is the current Fire Management Plan sufficient?

Management Concern 3: Public Health and Safety

BLM seeks to ensure public health and safety on public lands through an active LHFO safety program. This program, however, only regulates issues on LHFO public lands and does not regulate public waterways. As part of this program, LHFO is currently addressing abandoned mine land (AML) entrances that have created a safety hazard for the recreating public.

- How should LHFO manage target shooting on public lands? Can LHFO effectively implement safety parameters while providing for recreation opportunities?
- Unstable, exceedingly high vertical banks in, and associated with, high-use recreational areas pose health and safety issues to the recreating public. What criteria will be used for assessing the risk and developing a solution?

Abandoned Mines

- Abandoned mines pose health and safety issues to the recreating public. What criteria will be used for assessing the risk and developing a solution?

Hazardous Materials

- Unexploded ordnance (UXO) poses health and safety issues to the recreation public. What criteria will be used for assessing the risk and developing a solution?
- Are there additional sites containing potential hazardous materials within the LHFO planning area?

Management Concern 4: Renewable Energy

In May 2001, the President adopted a National Energy Policy that identified a major role for the public lands and resources to meet our nation's increasing energy needs. Over 40 initial short- and long-term tasks were adopted by the Department of Interior for implementation. The tasks identify opportunities to expedite expansion of energy supplies while preserving the health of public lands. A major component of this policy is close coordination with other federal agencies, State and tribal governments, local communities, industry, and the public.

- What sites are available in the LHFO planning area for future alternative energy needs (e.g., wind, solar)?

Management Concern 5: Riparian Areas and Wetlands

Riparian areas are valuable because of their importance to watershed protection; water quality, aquatic and terrestrial wildlife, T&E species, cultural resources, recreation opportunities, and wild burros. Special management attention is needed to ensure that these fragile areas are protected and improved while providing for their use. LHFO manages large tracts of riparian habitat on the Bill Williams River and also manages the Lower Colorado River between Davis and Headgate Dams. Natural ecological processes occur very infrequently on this highly modified segment of the Colorado River.

- What management objectives, including ecological status, should LHFO establish to protect and enhance riparian areas as well as provide for various public use demands?
- What types and level of uses will be allowable to meet these objectives?
- Because it is fiscally impossible to designate all riparian areas and wetlands in the LHFO for improvement projects, which lands should be given priority for these projects?
- What management objectives should LHFO establish for watersheds? What requirements are needed for roads and other construction to minimize impacts on the watershed? How will cooperation and coordination be achieved with multiple stakeholders within the watersheds to address issues on a watershed scale?

Management Concern 6: Special Management Areas

Public lands have a variety of important historic, cultural, scenic, wildlife, botanical, mineral, water, and recreational values. Designations for special management may be used to protect these areas. Special designations include ACECs, Outstanding Natural Areas (ONAs), Research Natural Areas (RNAs), Special Recreation Management Areas (SRMAs), and scenic areas. Such designations may also be used to identify and manage areas that are hazardous to human life and property. Currently there are three OHV areas, one ACEC (Three Rivers), one scenic area (Crossman Peak), one competitive-use designation, and one additional area (Aubrey Hills) not formally designated, but given special management prescriptions. A Recreational Area Management Plan (RAMP) was also completed for specific management prescription for the Parker Strip Recreational Area.

Management Concern 7: Utility and Communication Corridors

The private sector uses public lands for a variety of infrastructure-related purposes, including power transmission lines; oil, gas and coal pipelines; and telecommunication sites. Authorization for these uses takes careful planning to ensure that other resources are not significantly harmed. Section 503 of FLPMA requires that common rights-of-way located in designated corridors be used to the extent practical to minimize adverse environmental impacts and the proliferation of separate rights-of-way. Utility and communication corridors have been designated in response to the Western Utility Group's 1992 [updated 2002] *Western Regional Corridor Study*, which identifies present and future lines. The study reflects an attempt to keep these utilities in a limited area, eliminating unnecessary and undue degradation to lands.

- Where should utility corridors and telecommunication sites be maintained, modified, or established? Do the currently designated utility corridors and telecommunication sites meet future needs for power lines, fiber-optic lines, pipelines, and communications?

Management Concern 8: Vegetation

Vegetation is an integral part of an ecosystem. LHFO management of the vegetative resources on public lands affects the total health of the environment. Careful consideration is given by LHFO when managing the use of these resources.

- What actions and restrictions are needed to control noxious or invasive weeds?
- What are desired future conditions for vegetative resources? What actions and restrictions are needed to achieve the desired vegetative conditions?
- How should LHFO handle the casual, scientific, and commercial uses of vegetation on public land, including removal of state-protected plants and cactus skeletons, collection of seed, and firewood collection?
- What plant species and habitats should be given priority or recognized as significant? What management objectives should LHFO establish to protect and enhance

sensitive plant species and habitats, and what actions should be taken to achieve those objectives?

Management Concern 9: Water

Water is arguably the most precious commodity in the desert. The LHFO is unique in its management responsibilities on the Colorado River and tributary Bill Williams River. LHFO must manage these aquatic resources under the same congressional guidance as other resources. Water resources must be made available to public while ensuring compliance with the Clean Water Act. Objectives of the Clean Water Act are to restore or maintain the chemical, physical, and biological integrity of our nation's waters. This must be accomplished in cooperation with other federal and state authorities, local governments, and water users. Surface water and groundwater supplies are interconnected. Therefore, the same LHFO responsibilities apply to subterranean water sources. The future management of public natural resources must perpetuate, conserve, and meet the needs of authorized intended water uses.

- Does LHFO possess an adequate inventory or accounting of abandoned mines, tailings, or mineral deposits that present a potential threat to water resources?
- Do marinas and commercial concessions on LHFO lands affect water quality of adjacent water sources?
- Do activities on LHFO lands affect the salinity of the Colorado River?
- Are underground storage tanks documented entirely and remediated properly?
- Are initiatives or plans being made by parties on public or neighboring lands that involve large water diversions, either surface or subsurface, that could affect the quality or quantity of public land aquatic resources?
- What are the hydrologic needs of the Bill Williams River to meet Wilderness, Wild and Scenic River, and National Wildlife Refuge standards?
- Do OHV activities pose a pollution threat to surface waters, or to reservoir storage capacity?
- Does the LHFO know the effects of public land watershed management on urban and rural development?

Issues Considered but Not Analyzed in Detail

The following issues were considered during the scoping period but not analyzed in detail and were eliminated due to the stated reason(s).

Livestock Grazing

Comment: LHFO should control cattle that are walking across private occupied land.

Response: Arizona is an open range state, where state law requires private landowners to fence their property to keep out livestock.

Comment: LHFO must consider that the present regulations controlling the grazing fee formula regulations are probably in violation of law.

Response: LHFO is required to assess fees in accordance with current grazing regulations. Only Congress can change grazing fees.

Comment: All remaining roadless areas should be proposed for cow-free wilderness designation.

Response: The Wilderness Act allows for continued grazing use in the areas where grazing was authorized at the time of the Act.

Lands and Realty

Comment: The Western Utility Group (WUG) submitted three routes for BLM to consider. One of the routes overlapped the I-40 (WUG-3) corridor.

Response: Because of the overlapping UC-3 was considered but not analyzed further.

Comment: The people in Wenden will welcome the chance to spread out to the mountains round us and many of us were flooded out.

Response: The issue would require additional information, such as specific locations (legal land descriptions and acreage) for disposal or sale, etc., before it could be considered.

Comment: The Arizona State Land Department identified lands for exchange.

Response: In the late 1980s, the Arizona Supreme Court ruled that the current language of the Arizona Constitution does not allow the state to exchange its land for other federal land.

Comment: Provide a shooting area in LHC.

Response: A public shooting range is currently located at SARA Park. There are at present no other feasible locations for a shooting range in the immediate vicinity of Lake Havasu City.

Comment: Request BLM to rent acreages to willing farmers and young entrepreneurs.

Response: BLM does not have suitable farm and agricultural lands within the LHFO planning area.

Minerals Management

Comment: Increase the amount of rocks people can collect per year. What used to be limited to petrified wood (25 pounds) is being applied to recreational rock collecting too. What are the specific limitations to collecting rocks?

Response: You can collect reasonable amounts of specimens. In Arizona, BLM sets the reasonable limits for personal use as up to 25 pounds per day, plus one piece, with a total limit of 250 pounds per year. These limits are for mineral specimens, common invertebrate fossils, semiprecious gemstones, other rock, and petrified wood. Changing state guidelines for rock collecting is beyond the scope of this project.

Comment: The schools and the public want to know where they can go to see interesting geology and collect rocks. Are there going to be any areas identified for rock collecting purposes?

Response: The public may contact LHFO for information concerning the local geology. Rock collecting is permissible on public lands in reasonable amounts, but the public is advised to contact LHFO concerning mining claims and other possible restrictions. Pamphlets are available at LHFO giving more details concerning rockhounding in Arizona.

Comment: Continue to preserve the area just west of SARA Park (the crack-in-the-mountain trail area) for educational purposes. It is a great teaching tool for the different geologic rock types and rock formation/deformation.

Response: This area is west of SARA Park and goes to the lake. Currently, there is a year-round vehicle closure in the area due to bighorn sheep habitat. This closure will be carried forward into the No-Action Alternative (Alternative 1) of the proposed RMP.

Recreation on Public Lands

Comment: Is LHFO responsible for safety and environmental inspection of all lake marinas below the water level? Can LHFO address the issue of floating commercial uses of Lake Havasu? Is LHFO responsible for watercraft safety and carrying capacity on Lake Havasu? Can LHFO control the noise and size limits of boats on Lake Havasu? Can LHFO create one or two quiet days per month on the Lake when no motorized boats are allowed?

Response: BLM has very limited jurisdiction on the surface of the lake, and only in connection with LHFO-managed shoreline. The extent of LHFO's authority will be addressed within the RMP. Currently, the management of Lake Havasu is a collaborative effort of distinctively different authorities (including LHFO, BOR, U.S. Coast Guard, Arizona State Land Department, AGFD, Mohave County, San Bernardino County, City of Lake Havasu, Chemehuevi Tribe, and Colorado River Inter-Tribal Commission). The pressures of growing, developing communities and an increasing transient visitor base require a Cooperative Lake Management Plan. LHFO fully supports the development of such a plan and will participate as a cooperating agency if such a plan materializes.

Since LHFO has only minor authority on the lake, LHFO will address issues that pertain to its area of responsibility in a Recreation Activity Plan that will be developed after the completion of the RMP and based on the conclusions reached in that document.

Comment: Should Lake Havasu be designated as a National Recreation Area?

Response: A National Recreation Area may only be designated by an act of Congress. Currently, a study is being conducted by public groups to determine if Lake Havasu meets the criteria to recommend or nominate for this designation. This RMP does not discuss this process as it is beyond the scope of this plan.

Comment: Why didn't BLM analyze at least a portion of Standard Wash as a proposed "Open" OHV area?

Response: Lands cannot be proposed for "Open" area designation unless BLM completes Section 106 cultural inventory clearance and Section 7 coordination. BLM was unable to guarantee that the signing of the ROD would complete these coordination efforts.

Transportation and Access to Public Lands

Comment: Restrictions on Parker Dam should be lifted.

Response: BOR has closed access to RVs for security reasons. LHFO has no control over this issue and it is outside the scope of this project.

Comment: Identify management, authorization, and maintenance of RS 2477. Can LHFO close RS 2477 roads? Can RS 2477 roads be designated in the planning document?

Response: This issue is currently under legal review and outside the scope of this project.

Vegetation (Non-Forestry), Riparian, and Watershed

Comment: Provide detailed recovery plans for the following endangered species in your RMP: Coachella Valley milk vetch, desert chenopod scrub, fairyduster, crucifixion thorn, Arizona pholistoma, lobed ground-cherry, saguaro, and jackass clover.

Response: BLM does not write recovery plans. USFWS is responsible for recovery plans. Most of the plant species on the list do not occur in the LHFO area. None of the plant species that are within the LHFO planning area are on the endangered species list. The plan will address state-protected plants.

Wildlife Management

Comment: How can LHFO control the caddisfly along the Colorado River? Coyotes are moving in large packs around housing along the Colorado River. How can we control this species? Can LHFO control people catching more than the limit of fish?

Response: LHFO manages the habitat for wildlife but does not manage wildlife. These concerns have been referred to AGFD.

Comment: LHFO should provide the detailed recovery plans for endangered species in the RMP.

Response: LHFO does not write recovery plans. USFWS has the responsibility of writing endangered species recovery plans.

Comment: Let the hunters draw tags for burros to keep the population under control (just like all the other animals such as sheep, deer, elk, etc.).

Response: The Wild Free-Roaming Horse and Burro Act of 1971 charges BLM with protection and management of wild burros and prohibits maliciously causing the death or harassing any wild horse or burro. A hunting program for wild burros would not conform to the Act. Changes to the Act are beyond BLM's jurisdiction.

Wilderness Characteristics

Comment: BLM while safeguarding solitude should not prevent users, e.g., ranchers, hikers, and licensed hunters for an area, from using an area.

Response: BLM does not prevent users entering areas unless for public safety. Motorized vehicle access may be limited on public lands and is discussed under Transportation alternatives.

Wilderness and Wilderness Study Areas

Comment: Congress in the Arizona Desert Wilderness Act of 1990 did not release the Cactus Plain Wilderness Study Area from requirements of Section 603 of the Federal Land Policy and Management Act of 1976. Should LHFO recommend in this RMP that Cactus Plain be designated as wilderness or released from WSA status?

Response: The issue that kept Congress from designating the area as wilderness is whether the town site of Parker South will be developed. This issue is not within the scope of this project.

Appendix B

Applicable Laws, Regulations, Policy, and Planning Criteria

When considering the affected environment, physical, biological, economic, and social factors must be considered. In addition to the National Environmental Policy Act (NEPA), other environmental laws and Executive Orders (EOs) should be considered when preparing EAs and EISs. These laws are summarized below.

Clean Air Act (CAA) of 1970 and Amendments of 1977 and 1990

The CAA recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation's air resources, the CAA authorizes the Environmental Protection Agency (EPA) to set six National Ambient Air Quality Standards (NAAQSs), which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to State and local governments. States are directed to utilize financial and technical assistance as well as leadership from the Federal government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by the EPA as being in attainment or non-attainment to pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCR). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area is designated as unclassifiable where insufficient monitoring data exists. Section 309 of the CAA authorizes the EPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action may have on NAAQS due to short-term increases in air pollution during construction as well as long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency may also be subject to EPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal

immunity from complying with the CAA and states that all Federal agencies will comply with all Federal- and State-approved requirements.

Clean Water Act (CWA) of 1977

The CWA, a 1977 amendment to the Federal Water Pollution Control Act of 1972, is administered by the EPA and sets the basic structure for regulating discharges of pollutants into waters of the United States. The CWA requires the EPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by EPA or the appropriate State if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredged and fill material into waters of the United States. Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into United States waters from construction, or the discharge of pollutants as a result of facility occupation.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the Superfund Amendments and Reauthorization Act of 1986 (SARA)

CERCLA authorizes the EPA to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a Federal "Superfund" to respond to emergencies immediately. Although the "Superfund" provides funds for clean up of sites where potentially responsible parties (PRPs) cannot be identified, the EPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters. SARA mandates strong cleanup standards, and authorizes the EPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with "hazardous substances" or "extremely hazardous substances" to prepare comprehensive emergency plans and to report accidental releases. EO 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements," requires Federal agencies to comply with the provisions EPCRA. If a Federal agency acquires a contaminated site it can be held liable for clean up as the property owner/operator. A Federal agency can also incur liability if it leases a property, as the courts have found lessees liable as "owners." However, if the agency exercises due diligence by conducting a Phase I Environmental Site Assessment, it may claim the "innocent purchaser" defense under CERCLA. According to

Title 42 United States Code (USC) 9601(35), the current owner/operator must show it undertook "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" before buying the property to use this defense.

Resource Conservation and Recovery Act (RCRA) of 1976

RCRA, an amendment to the Solid Waste Disposal Act, authorizes the EPA to provide for "cradle-to-grave" management of hazardous waste, and sets a framework for the management of non-hazardous municipal solid waste. Under RCRA, hazardous waste is controlled from generation to disposal through tracking and permitting systems, and restrictions and controls on the placement of waste on or into the land. Under RCRA, a waste is defined as hazardous if it is ignitable, corrosive, reactive, toxic, or listed by the EPA as being hazardous. With the 1984 Hazardous and Solid Waste Amendments (HSWA), Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA amendments strengthen control of both hazardous and nonhazardous waste and emphasize the prevention of pollution of groundwater.

Safe Drinking Water Act (SDWA) of 1974

The SDWA establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new Federal enforcement responsibility on the part of the EPA. The 1986 amendments to the SDWA require the EPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs) and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current Federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

Federal Land Policy and Management Act (FLPMA) of 1976

FLPMA and the regulations contained in 43 CFR Part 1600 govern the Bureau of Land Management planning process. Land Use Plans ensure that public lands are managed in accordance with the intent of Congress as stated in FLPMA, under the principles of multiple use and sustained yield. As required by FLPMA, the public lands must be managed in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition, that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for

outdoor recreation and human occupancy and use by encouraging collaboration and public participation throughout the planning process. In addition, the public lands must be managed in a manner that recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands.

Taylor Grazing Act of 1934, as amended and supplemented

The Taylor Grazing Act was the Federal government's first effort to regulate grazing on federal public lands. The act established grazing districts of vacant, unappropriated, and unreserved land from any parts of the public domain (excluding Alaska) that are not national forests, parks, and monuments; Indian reservations; railroad grant lands; or revested Coos Bay Wagon Road grant lands; and which are valuable chiefly for grazing and raising forage crops. Residents and stock owners pay an annual fee to obtain a grazing permit that is used to manage livestock grazing in established districts. Grazing Administration Regulations (43 CFR 4100) provide for the development of state Standards for Rangeland Health and Guidelines for Grazing Management. The Standards and Guidelines are approved through Bureau of Land Management planning and NEPA processes.

Public Rangelands Improvement Act of 1978

The Public Rangelands Improvement Act was instituted to improve the conditions on public rangelands. Rangelands are defined as lands administered by the Secretary of the Interior through the Bureau of Land Management or the Secretary of Agriculture through the Forest Service in 16 contiguous western states, including Arizona, on which there is domestic livestock grazing or which the appropriate Secretary determines may be suitable for domestic livestock grazing. Rangeland quality is determined by soil quality, forage values, wildlife habitat, watershed and plant communities, the current state of vegetation in a site in relation to its potential, and the relative degree to which the kinds, proportions, and amounts of vegetation in a plant community resemble the desired plant community. The act requires a national rangelands inventory and consistent federal management policies. In addition, the act provides funding for range improvement projects.

Toxic Substance Control Act (TSCA) of 1976

Title I of the Toxic Substance Control Act established requirements and authorities to identify and control toxic chemical hazards to human health and the environment. TSCA authorized the EPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated bi-phenyls (PCBs) for regulation, which as a result are being phased out. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, cleanup, and release reporting requirements for numerous chemicals like PCBs. PCBs are persistent when released into the environment and accumulate in the

tissues of living organisms. They have been shown to cause adverse health effects on laboratory animals and may cause adverse health effects in humans. TSCA Title II provides statutory framework for "Asbestos Hazard Emergency Response," which applies only to schools. TSCA Title III, "Indoor Radon Abatement," states indoor air in buildings of the United States should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, "Lead Exposure Reduction," directs Federal agencies to "…conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards." Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, State, interstate, and local requirements concerning lead-based paint.

The Wilderness Act of 1964 (P.L. 88-577)

Established the National Wilderness Preservation System to be composed of federally owned areas designated by Congress as wilderness areas. These areas should be administered for the use and enjoyment of the American people in such a way that will leave them unimpaired for the future use and enjoyment as wilderness, to provide for the protection of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.

Criteria set by Congress within this Act states that wilderness areas have the following characteristics: (1) Generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and confined types of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic or historical value. The Wilderness Act also set the accepted uses of designated Wilderness Areas and what uses are prohibited. The act sets special provisions for an agency's continuing management of existing or grandfathered rights such as mining and grazing and other agency mission related activities.

The provisions of the Wilderness Act were not applied to BLM administered lands when this act was first passed. It was not until the passage of FLPMA in 1976 that the BLM was directed to begin inventories for its lands as possible candidates for inclusion into the National Wilderness Preservation System.

The Arizona Desert Wilderness Act of 1990 (P.L. 101-628)

In furtherance of the purpose of the Wilderness Act, the following public lands in five areas within LHFO were designated as components of the National Wilderness Preservation System: approximately 14,630 acres as East Cactus Plain Wilderness, 41,600 acres as Rawhide Mountains Wilderness, 25,287 acres

as Harcuvar Mountains Wilderness, 18,805 acres as Gibraltar Mountain Wilderness, and 15,755 acres as Swansea Wilderness. The Act also retained 57,800 of public lands as "Cactus Plain Wilderness Study Area," (WSA). This WSA continues to be managed under section 603 of Federal Land Policy and Management Act of 1976, pertaining to its management in a manner that does not impair its suitability for preservation as wilderness at a later date.

The California Desert Protection Act (CDPA) of 1994 (P.L. 103-433)

This act designated lands in the California Desert as wilderness, established Death Valley and Joshua Tree National Parks, and established the Mojave National Preserve. The law designated certain lands in the California Desert Conservation Area, and the Yuma District (including LHFO) as three wilderness areas: 1) approximately 70,520 acres, which will be known as the Whipple Mountain Wilderness, 2) approximately 64,320 acres which will be known as the Chemehuevi Mountains Wilderness Area, 3) approximately 48,850 acres which will be known as the Dead Mountains Wilderness. Each wilderness area designated would be administered by BLM in accordance with the provisions of the Wilderness Act, except that any reference to the effective date of the of the Wilderness Act shall be deemed to be a reference to the effective date of this title.

Wild and Scenic Rivers Act (WSRA) of 1968

By recognizing the outstandingly remarkable values of specific rivers of the Nation, the WSRA provides for a national wild and scenic river system. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition and that has one or more of the outstandingly remarkable values mentioned in the act is eligible for inclusion, and can be authorized as such by an Act of Congress, an act of State legislature, or by the Secretary of Interior upon the recommendation of the Governor of the State(s) through which the river flows.

EO 11988, "Floodplain Management," May 24, 1977

EO 11988 directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If no practicable alternative is found, the agency must minimize potential harm to the floodplain and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

EO 11990, "Protection of Wetlands," May 24, 1977

EO 11990 directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

Pollution Prevention Act (PPA) of 1990

The PPA encourages manufacturers to avoid the generation of pollution by modifying equipment and processes, redesigning products, substituting raw materials, and making improvements in management techniques, training, and inventory control. EO 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements," requires Federal agencies to comply with the provisions of the PPA and also requires Federal agencies to ensure all necessary actions are taken to prevent pollution. In addition, in Federal Register Volume 58 Number 18 (January 29, 1993), the Council on Environmental Quality provides guidance to Federal agencies on how to "…incorporate pollution prevention principles, techniques, and mechanisms into their planning and decision making processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA."

Biological Factors

Endangered Species Act (ESA) of 1973

The ESA establishes a Federal program to conserve, protect and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the U.S. Fish and Wildlife Service (FWS) maintains the list. A list of Federal endangered species may be obtained from the Endangered Species Division, U.S. Fish and Wildlife Service (703-358-2171). States may also have their own lists of threatened and endangered species, which may be obtained by calling the appropriate State Fish and Wildlife office. Some species, such as the bald eagle, also have laws specifically for their protection (e.g., Bald Eagle Protection Act).

Migratory Bird Treaty Act of 1918, amended in 1936, 1960, 1968, 1969, 1974, 1978, 1986, and 1989

The Migratory Bird Treaty Act implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the Act makes it unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. The Act also make it unlawful to ship, transport or carry from one state, territory, or district to another, or through a foreign country, any bird, part, nest or egg that was captured, killed, taken, shipped, transported or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest or egg obtained contrary to the laws of the province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the Act.

EO 13186, "Conservation of Migratory Birds," January 10, 2001

EO 13186 creates a more comprehensive strategy for the conservation of migratory birds by the Federal government. The Order provides a specific framework for the Federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. The Order provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in Memoranda of Understanding (MOU) within 2 years of its implementation. The Order will be coordinated and implemented by he Fish and Wildlife Service. The MOU will outline how Federal agencies will promote conservation of migratory birds. The Order will requires the support of various conservation planning efforts already in progress; incorporation of bird conservation considerations into agency planning, including NEPA analyses; and reporting annually on the level of take of migratory birds.

EO 11514, "Protection and Enhancement of Environmental Quality," March 5, 1970

EO 11514 states the President, with assistance from the CEQ, will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their policies, programs, and plans. Agencies should also continually monitor and evaluate their activities to protect and enhance the quality of the environment. Consistent with NEPA, agencies are directed to share information about existing or potential environmental problems with all interested parties, including the public, in order to obtain their views.

Economic and Social Factors: Environmental Quality Improvement Act (EQIA) of 1970

The EQIA ensures that each Federal agency conducting or supporting public works activities affecting the environment implements policies that are established under existing law. The EQIA also created the Office Environmental Quality to provide professional and administrative staff for the Council on Environmental Quality (CEQ). The Director of the Office of Environmental Quality assists and advises the President on Federal policies and programs affecting environmental quality. The Office of Environmental Quality reviews the adequacy of existing environmental monitoring and predicting systems, and assists Federal agencies in appraising the effectiveness of existing and proposed facilities that affect environmental quality.

National Historic Preservation Act (NHPA) of 1966

The NHPA sets forth national policy to identify and preserve properties of State, local, and national significance. The Act establishes the Advisory Council on Historic Preservation (Council), State Historic Preservation Officers, and the National Register of Historic Places (NRHP). The Council advises the President, Congress, and Federal agencies on historic preservation issues. Section 106 of the act directs Federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for NRHP. Section 110 sets inventory, nomination, protection and preservation responsibilities for federally owned cultural properties. Section 106 of the act is implemented by regulations of the Council, 36 CFR Part 800. The Bureau of Land Management in Arizona complies with Section 106 according to a national Programmatic Agreement dated March 26, 1997, supplemented by a Protocol between the BLM Arizona State Director and the Arizona State Historic Preservation Officer.

The agency should coordinate studies and documents prepared under Section 106 with NEPA where appropriate. However, NEPA and NHPA are separate statutes and compliance with one does not constitute compliance with the other. For example, actions that qualify for a categorical exclusion under NEPA may still require Section 106 review under NHPA. The agency official is responsible for to identifying properties in the area of potential effects and whether they are included or eligible for inclusion in the National Register of Historic Places. Section 110 of the NHPA requires Federal agencies to identify, evaluate, and nominate historic property under agency control to the National Register of Historic Places.

Archaeological Resource Protection Act (ARPA) of 1979

ARPA protects archaeological resources on public and Indian lands. It provides felony-level penalties for the unauthorized excavation, removal, damage, alteration or defacement of any archaeological resource, defined as material remains of past human life or activities which are at least 100 years old. Before archaeological resources are excavated or removed from public lands, the Federal land manager must issue a permit detailing the time, scope, location and specific purpose of the proposed work. ARPA also fosters the exchange of information about archaeological resources between governmental agencies, the professional archaeological community, and private individuals. ARPA is implemented by regulations found in 43 CFR Part 7.

American Indian Religious Freedom Act of 1978 and Amendments of 1994

The American Indian Religious Freedom Act of 1978 recognizes that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of Federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. The 1994 Amendments provide clear legal protection for the religious use of peyote cactus as a religious sacrament. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

Native American Graves Protection and Repatriation Act (NAGPRA) of 1990

NAGPRA establishes rights of Indian tribes to claim ownership of certain "cultural items," defined as Native American human remains, funerary objects, sacred objects and objects of cultural patrimony held or controlled by Federal agencies. Cultural items discovered on Federal or tribal lands are, in order of primacy, the property of lineal descendants, if these can be determined, the tribe owning the land where the items were discovered, of the tribe with the closest cultural affiliation with the items. Discoveries of cultural items on Federal or tribal land must be reported to the appropriate Indian tribe and the Federal agency with jurisdiction over the land. If the discovery is made as a result of a land use, activity in the area must stop and the items must be protected pending the outcome of consultation with the affiliated tribe.

EO 11593, "Protection and Enhancement of the Cultural Environment," May 13, 1971

EO 11593 directs the Federal Government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all Federal sites under their jurisdiction or control that may qualify for listing on the National Register of Historic Places. Agencies must allow the Advisory Council on Historic Preservation to comment on the alteration, demolition, sale, or transfer of property that is likely to meet the criteria for listing as determined by the Secretary of the Interior in consultation with the State Historic Preservation Officer. Agencies must also initiate procedures to maintain Federally owned sites listed on the National Register.

EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," February 11, 1994

EO 12898 directs Federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address adverse human health and/or environmental effects its activities have on minority and low-income populations and develop agency-wide environmental justice strategies. The strategy must list "…programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations." A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with this EO lies with each Federal agency.

EO 13007, "Indian Sacred Sites," May 24, 1996

EO 13007 provides that agencies managing Federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate Indian religious practitioners' access to and ceremonial use of Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites. Federal agencies are responsible for informing tribes of proposed actions that could restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites.

EO 13287, "Preserve America," March 3, 2003

EO 13287 orders the Federal Government to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the Federal Government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties. The order established new accountability for agencies with regard to inventories and stewardship.

Planning Criteria

During preparation of the plan, the BLM with input from the public, develops planning criteria that serves to:

- Constrain and guide the development of the Plan
- Determine how the planning team approaches the development of alternatives
- Determine how the planning team approaches selection of the Preferred Alternative.

Additional planning criteria can be added at any point in the planning process. The following are the Draft Planning Criteria as of the printing of this document:

1. The Plan will be completed in compliance with the Federal Land Management and Policy Act, The Endangered Species Act, the National Environmental Policy Act, and all other relevant federal law and executive orders (including wilderness legislation), and management policies of the BLM.
2. The planning team will work collaboratively with the States of Arizona and California, Mohave, La Paz, Maricopa, Yavapai and San Bernardino Counties, tribal governments, municipal governments, other Federal agencies and all other interested groups, agencies and individuals.
3. Where planning decisions have previously been made that still apply, those decisions will be carried forward into these Plans.
4. The planning process will include an Environmental Impact Statement that will comply with the National Environmental Policy Act standards.
5. The Plan will set forth a framework for managing recreational activities in order to maintain existing natural landscapes and to provide for the enjoyment and safety of the visiting public.
6. Laws and regulations regulate the management of grazing. The Plan will incorporate the statewide standards and guidelines established by the Arizona Bureau of Land Management State Director and approved by the Secretary of the Interior. It will present out a strategy for ensuring that proper grazing practices are followed while preserving habitats for sensitive plant and wildlife species. Livestock grazing is permitted, pursuant to the terms and conditions of existing permits and leases. Appropriate best management practices will be followed to protect rangeland resources, and where

necessary, to mitigate any conflicts with other uses and values. Administrative actions to assure compliance with existing permit/lease requirements, to modify permits and leases, to monitor and supervise grazing use, and to remedy unauthorized grazing use will continue.

7. Native American tribal consultations will be conducted in accordance with policy and tribal concerns will be given due consideration. The planning process will include the consideration of any impacts on Indian trust assets.
8. Coordination with the Arizona State Historic Preservation Office (SHPO) will be conducted throughout the Plan.
9. The Plan will identify opportunities for using cultural properties for scientific, educational, recreational, or experimental purposes.
10. The lifestyles of area residents, including activities of grazing, hunting, motorized use and recreation, will be recognized in the Plan.
11. The Plan will recognize the State's authority to manage wildlife, including hunting and fishing, within the planning area in accordance with the current Memorandum of Understanding (MOU).
12. The Plan will address transportation, route management, and access, and identify which routes/roads should remain open to accommodate resource users, recreational users, protection of resource values, and administrative needs.
13. The existing BLM wilderness inventory and vehicle route inventory will provide a basis for consideration of any new wilderness-related proposals. Such proposals will be assessed consistent with appropriate BLM policy and guidance.
14. Lands that will be open to mineral leasing will be identified in the Plan. Where the plan identifies lands as open to mineral leasing, it will also define any constraints to surface use.
15. Ecological status and Ecological Site Inventory will be completed as necessary consistent with rangeland management policy.
16. Visual Resource Management classification will be conducted to address the public's concerns about open space and natural vistas.
17. The Plans will designate which acquired lands currently not segregated from mining by overriding actions (i.e., Wilderness) should be opened to mining location.
18. Consultations with the Fish and Wildlife Service will take place throughout the Plan process in accordance with the recent MOU.
19. Minerals management will be consistent with FLPMA and existing policy and regulation including the Mining and Minerals Policy Act of 1970, Section 102(a)(12) of FLPMA, the National Materials and Minerals Policy, Research and Development Act of 1980, and current BLM Mineral Resources policy.

20. National, State, and local policy on management of Noxious Weeds will be considered in the plans. Where possible, management practices that control invasive plant species will be emphasized.

21. Management of wild burros within the California portion of the Havasu HMA will be in accordance with the NECO Plan. Management of wild burros within the Arizona portion of the Havasu HMA will be in accordance with the existing Herd Management Area Plan, as amended by subsequent land use plans. Management of the Alamo Herd Management Area will be guided primarily by management prescriptions developed through the Lake Havasu RMP, since Alamo HMA only has an interim Herd Management Area Plan. There are existing monitoring studies on these HMAs and future adjustments in the AML, either up or down, will be based on the monitoring data.

SUPPLEMENTARY RULES

LAKE HAVASU FIELD OFFICE

43 CFR 8365.1-6

PART I – September 15, 2003

1. Lake Havasu Shoreline
2. Parker Strip Recreation Area
3. Craggy Wash

Part II – October 12, 1995

1. Swansea
2. Aubrey Hills Area
3. Desert Bighorn Sheep Habitat

Part III – Supplemental rules that are still valid

1. BLM lands in Arizona
2. BLM lands in California
3. BLM lands in Yuma, Lake Havasu Field Office and California Desert District.

Part I – September 15, 2003

[Federal Register: September 15, 2003 (Volume 68, Number 178)]
[Notices]
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[DOCID:fr15se03-108]

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[AZ-070-07-1230-00: 8371]

Notice of Final Supplementary Rules for the BLM-Managed Shoreline of Lake Havasu, the Parker Strip Recreation Area, and the Craggy Wash Area, in Mohave and La Paz Counties, AZ and in San Bernardino County, CA

AGENCY: Lake Havasu Field Office, Bureau of Land Management (BLM), Interior.

SUMMARY: This notice contains Supplementary Rules for the BLM-managed shoreline of Lake Havasu, a manmade lake on the Colorado River located in Arizona and California, including the boat-access campsites; supplementary rules for the Parker Strip Recreation Area, located along the Colorado River downstream from Lake Havasu; and supplementary rules for the Craggy Wash area, located north of the Lake Havasu City Municipal Airport (AZ). These supplementary rules are part of the implementation of the ongoing management of the Lake Havasu Shoreline Program. The supplementary rules replace existing rules for the Parker Strip Recreation Area and for the Crossroads and Empire Landing Campgrounds. Heavy visitation during the fall, winter and spring makes new supplementary rules for Craggy Wash necessary. The supplementary rules will help reduce conflicts among a wide variety of multiple users.

EFFECTIVE DATE: October 15, 2003.

FOR FURTHER INFORMATION CONTACT: Mike Henderson, Assistant Field Manager, or Bryan Pittman, Field Staff Law Enforcement Ranger, Bureau of Land Management, Lake Havasu Field Office, 2610 Sweetwater Avenue, Lake Havasu City, Arizona 86406, telephone (928) 505-1200.

SUPPLEMENTARY INFORMATION:

I. Background
II. Discussion of Supplementary Rules
III. Procedural Matters

I. Background

The supplementary rules for the Lake Havasu Shoreline areas are part of the ongoing management of the Lake Havasu Shoreline Program. The program, initiated in 1997, manages the shoreline riparian area. It includes the pre-existing shoreline campsites as Federal fee recreation sites under the authorities described in 36 CFR part 71. The sites had been developed as designated fee sites by the Arizona State Parks Department while these lands were under a lease administered by the Bureau of Land Management. The lease was voluntarily terminated, leaving the sites to return to the jurisdiction of BLM.

The primary purpose of the Lake Havasu Shoreline Program is to provide areas for boating, camping and day use. The recreation sites, designated as camp or day use sites, are in most cases the traditional use areas of boat camping visitors. Arizona State Parks selected designated sites using criteria based on visitor use patterns, availability of shoreline access, and a need to establish sanitation facilities along heavily used shoreline areas. This program was established to accommodate the increasing demand for boat accessible site safety and property, to provide natural resource protection through improved management of the camping use and the riparian area. The designation of fee campsites assures that specific locations are available for such use year after year.

The Parker Strip Recreation Area is a heavily used area that contains campgrounds, day use areas, boat ramps, picnic areas, concession operated resorts, and a National Backcountry Byway.

Authority for the designation of fee campsites is contained in Title 43, Code of Federal Regulations, part 8360, subpart 8365, sections 2 and 2-3. Authority for the payment of fees is in 36 CFR, subpart 71. Authority for including this program in the Fee Demonstration Pilot Program was contained in the Omnibus Budget Reconciliation Act of 1993 (Pub. L. 103-66) and the FY 1996 Appropriations Act (Pub. L. 104-134).

The Craggy Wash area is located north of the Lake Havasu City Municipal Airport and east of State Route 95. It is a heavily used dispersed camping area during the cooler part of the year. The area is also frequented by target shooters, off-road vehicle operators, sightseers, bicyclists and hikers. More than 300 people may be present at the same time on frequent occasions.

The Proposed Supplementary Rules for the BLM-Managed Shoreline of Lake Havasu, the Parker Strip Recreation Area, and the Craggy Wash Area, in Mohave and LaPaz Counties, AZ, and San Bernardino County, CA, were published in the Federal Register on June 16, 2003. Changes in the proposed rules to the final rules resulted from internal review of comments received from the Arizona Game and Fish Department. These changes related to the distance (one-quarter mile) from occupied recreation sites that firearms may be discharged (Rules 14 and 27); and that except in designated OHV Open areas, vehicles must be operated on existing roads, trails, and washes (Rule 31).

II. Discussion of Supplementary Rules

The final supplementary rules for Lake Havasu Shoreline supercede the Rules for Lake Havasu Shoreline, published on May 21, 1998 (63 FR 27995). The shoreline supplementary rules would apply to the BLM-managed lands located within 1,000 linear feet of the high water mark (450 foot elevation line) of Lake Havasu, located in Mohave and La Paz Counties, Arizona and in San Bernardino County, California. These rules also apply to the portions of Lake Havasu located within 500 linear feet of designated campsites, day use sites, boat ramps, fishing docks, boat docks and swimming beaches. Included in this are the following currently designated campsites listed generally from North to South:

Bluebird 1, 2
Wren Cove 1,2,3
Mallard Cove 1,2,3,4,5,6
Teal Point 1,2
Widgeon Key 1,2,4
Road Runner 2,3,4
Solitude Cove
Balance Rock Cove
Friendly Island 1,2,3,4
Goose Bay 1,2
Pilot Rock 1,2,3
Steamboat Cove 1,2,3,4
Buzzard Cove
Eagle Cove
Eagle Point
Ewe Camp
Rachel’s Camp
Burned Camp
Linda’s Camp
Sand Isle 1,2,3,4
Standard Wash 1,2,3,4,5,6

Echo Cove 1,2,3,4
Coyote Cove 1,2
BLM 1,2
Whyte's Retreat 1,2
Rocky Landing 1,2,3,4
Satellite Cove 1,2,3
Hum Hum Cove 1,2
Cove of the Little Foxes
Disneyland 1,2,3,4
Gnat Keys 1,2,3,4
Hi Isle 2,4,5,6,7,8,10,11,12,14,15
Big Horn 1,3,4
Bass Bay 1,2
Larned Landing 1,2,3,4,5
Bill Williams 1,2,3,4,5

The final supplementary rules for the Parker Strip Recreation Area supercede Rules for Parker Strip Recreation Area, published on October 12, 1995 (60 FR 53194), and rules for Empire Landing and Crossroads Campgrounds, published on May 18, 1998 (63 FR 27316). The Parker Strip rules apply to the Parker Strip Recreation Area, which is defined as follows:

Gila and Salt River Meridian, Arizona
T11N, R18W, Sec. 15, 16, 22, 28 and 34.
T10N, R18W, Sec. 5 (W1/2, NW1/4, SW1/4), Sec. 6, Sec. 7, Lots 1-4, (NE1/4, N1/2, SE1/4, SW1/4, SE1/4), Sec. 18 (Lot 1, NW1/4, NE1/4).
T10N, R19W, Sec. 12, Sec. 13 (N1/2, N1/2, N1/2, SW1/4, NE1/4, NW1/4, SE1/4, NE1/4, N1/2, SE1/4, NW1/4, SW1/4, NW1/4, W1/2, SW1/4), Sec. 14, 22 and 23. Section 24 (W1/2, NW1/4).

San Bernardino Meridian, California
T2N, R27E, all.
T2N, R26E, Sec. 1, 11-15, 21-27 and 34-36.
T1N, R26E, Sec. 2, 3, 10 and 11.

The final supplementary rules for Craggy Wash dispersed camping area would be new, made necessary by heavy visitation during the fall, winter, and spring. The Craggy Wash area is defined as public lands located with the following legal description:

T14N, R20W, sec. 4 (N1/2), sec. 3 (N1/2), sec. 2 (N1/2).
T15N, R20W, sec. 33, 34, 35, 36.

BLM has developed the shoreline, Parker Strip, and Craggy Wash supplementary rules to manage continued multiple use of the sites. These rules will be available in the Lake Havasu Field Office, and BLM will post them at the sites affected. Most of the shoreline supplementary rules that follow were first published in 1998. We have expanded the area of applicability to include all of the BLM-managed shoreline of Lake Havasu in Arizona and California. The previous supplementary rules applicable to the lake shoreline were limited to the areas in the vicinity of the shoreline campsites. The term ``recreation site'' includes any developed campsite, day-use site, or similar recreational development. The supplementary rules that follow also apply to the surface of Lake Havasu located within 500 linear feet

of designated campsites. Acts occurring in that portion of the lake have a direct impact on, and connection with, public safety and resource protection of the campsite areas.

III. Procedural Matters

The principal author of these supplementary rules is Bryan Pittman, Field Staff Law Enforcement Ranger, BLM Lake Havasu Field Office.

Regulatory Planning and Review (E.O. 12866)

These supplementary rules are not significant and are not subject to review by the Office of Management and Budget under Executive Order 12866.

(1) These supplementary rules will not have an effect of $100 million or more on the economy. They will not adversely affect in a material way the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities.
(2) These supplementary rules will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.
(3) These supplementary rules do not alter the budgetary effects or entitlements, grants, user fees, or loan programs or the rights or obligations of their recipients.
(4) These supplementary rules do not raise novel legal or policy issues.
The supplementary rules will not affect legal commercial activity, but merely contain rules of conduct for public use of a limited selection of public lands.

Regulatory Flexibility Act

The Department of the Interior certifies that these supplementary rules will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.). The supplementary rules will not affect legal commercial activity, but will govern conduct for public use of a limited selection of public lands.

Small Business Regulatory Enforcement Fairness Act (SBREFA)

These supplementary rules do not constitute a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. These supplementary rules:

- Do not have an annual effect on the economy of $100 million or more. (See the discussion under Regulatory Planning and Review, above.)
- Will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. See the discussion above under Regulatory Flexibility Act.

- Do not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises.

Unfunded Mandates Reform Act

These supplementary rules do not impose an unfunded mandate on state, local, or tribal governments or the private sector of more than $100 million per year. The supplementary rules do not have a significant or unique effect on state, local, or tribal governments or the private sector. The supplementary rules have no effect on governmental or tribal entities. A statement containing the information required by the Unfunded Mandates Reform Act (2 U.S.C. 1531 et seq.) is not required.

Takings (E.O. 12630)

In accordance with Executive Order 12630, the supplementary rules do not have significant takings implications. The enforcement provision in the supplementary rules does not include any language requiring or authorizing forfeiture of personal property or any property rights. E.O. 12630 addresses concerns based on the Fifth Amendment dealing with private property taken for public use without compensation. The land covered by the supplementary rules is public land managed by the Bureau of Land Management; therefore, no private property is affected. A takings implications assessment is not required.

Federalism (E.O. 13132)

In accordance with Executive Order 13132, BLM finds that the supplementary rules do not have sufficient federalism implications to warrant the preparation of a federalism summary impact statement. The supplementary rules do not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. The supplementary rules do not preempt state law.

Civil Justice Reform (E.O. 12988)

In accordance with Executive Order 12988, the Office of the Solicitor has determined that these supplementary rules do not unduly burden the judicial system and meet the requirements of sections 3(a) and 3(b)(2) of the Order.

Consultation and Coordination with Indian Tribal Governments (E.O. 13175)

In accordance with Executive Order 13175, we have found that this final rule would not include policies that have tribal implications. The supplementary rules would not affect lands held for the benefit of Indians, Aleuts, or Eskimos.

Paperwork Reduction Act
These supplementary rules do not contain information collection requirements that the Office of Management and Budget must approve under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq.

National Environmental Policy Act

These supplementary rules do not constitute a major Federal action significantly affecting the quality of the human environment. A detailed statement under the National Environmental Policy Act of 1969 is not required.
Under the authority of 43 U.S.C. 1733a and 43 CFR 8360.0-7, BLM establishes the following supplementary rules.

Dated: August 4, 2003.
Elaine Y. Zielinski, State Director, Bureau of Land Management, Arizona.

Supplementary Rules for Lake Havasu Shoreline Area

1. You must purchase a permit in order to use a designated recreation site, including occupying a site for any use exceeding 20 minutes.
2. You must not moor any watercraft or floating platform at a recreation site or offshore in the vicinity or cove of any such site for more than 20 minutes without purchasing a permit. The fee for a use permit will be in accordance with the fee schedule, requirements, and procedures that BLM established under the Recreation Fee Demonstration Pilot Program, and are payable in U.S. funds only.
3. You must present the appropriate use permit upon demand to any authorized BLM official inspecting the site. If you are away from the campsite, the permit must be visibly displayed in accordance with posted instructions, or in the manner directed by a BLM official.
4. You must not reassign or transfer your permit to another individual or group and/or campsite(s).
5. Any authorized BLM official may revoke your permit, without reimbursement, if you violate any BLM rule or regulation. If BLM revokes your permit, you must remove all personal property and leave the recreation site within one hour of notice.
6. A recreation site is considered occupied after you have paid the appropriate permit fee, you have taken possession of the site by placing personal property at the site, and the permit is displayed in accordance with written instructions or as directed by a BLM official. You must not occupy a site in violation of instructions from a BLM official, or when there is reason to believe that the unit is properly occupied by another person or persons.
7. Except for authorized Federal, state or local personnel, during the commission of their duties, a permitted site cannot be occupied by other visitors without the consent of the permittee.
8. You must not occupy a site designated as ``day use'' between sunset and sunrise.
9. A single vessel and its occupants may not occupy more than one site.

10. During the hours of 10 p.m. to 6 a.m., in accordance with applicable state time zone standards, you must maintain quiet within normal hearing range of the designated recreation sites.

11. You must not cut or collect any firewood, including dead and down wood and all other vegetative material.

12. You must not moor vessels to vegetation, signs, shade ramadas, tables, grills or fire rings, toilets, trash receptacles, or other objects or structures not designed for such use.

13. You must not beach or moor a vessel in excess of posted time limits.

14. You must not discharge or use firearms or projectile weapons inside or within a quarter-mile of any occupied recreation site.

15. You must not discharge or possess any fireworks.

16. You must keep the site free of litter and trash during the period of occupancy. You must remove all personal property, and the site must be clean, upon your departure.

17. You must keep pets on a leash no longer than six (6) feet.

18. You must not leave pets unattended, and you must remove pet waste from the site or dispose of it in available trash receptacles.

19. You must not violate any provisions of boating laws as described in Title 5, Chapter 3, of the Arizona Revised Statutes or in the California Harbors and Navigation Code (as applicable).

20. Possession of alcoholic beverages by a person under the age of 21 years is prohibited.

21. Consumption of alcoholic beverages by a person under the age of 21 years is prohibited in the portions of the affected area that are located within Arizona.

22. You must not possess glass beverage containers on land or in the water. You may possess glass beverage containers only within the confines of a vessel.

23. Reserving recreation sites in any manner, including leaving personal property unattended overnight, is prohibited.

24. Recreation sites used for camping activities must be occupied overnight by the permittee.

25. You must not leave personal property unattended for more than 24 hours. Personal property left unattended beyond such time limit is subject to disposition under the Federal Property and Administration Services Act of 1949, as amended (40 U.S.C. 484(m)).

Supplementary Rules for the Parker Strip Recreation Area

Rules number 1, 3, 4, 5, 6, 7, 8, 15, 16, 20, 21, 23, 24 and 25 of the Lake Havasu Shoreline Supplementary Rules also apply to the Parker Strip Recreation Area. In addition, the following rules apply to the Parker Strip Recreation Area:

26. You must not park or operate vehicles in violation of posted restrictions.

27. Except in designated OHV Open areas, you must operate vehicles only on existing roads, trails, and washes.

28. Vehicles operated between Parker Dam Road and the Colorado River in California must be legal for highway operation. You may operate non-highway legal golf carts in this area only within concession resorts and facilities, and within BLM-managed campgrounds.

29. Within one-half mile of Parker Dam Road, you may camp only in designated campsites.

30. Disorderly conduct is prohibited.

31. You must not discharge or use firearms in California within one mile of Parker Dam Road. In Arizona, you must not discharge or use firearms within one quarter-mile of any occupied recreation site or residential structure.

32. In BLM-managed campgrounds, no more than 8 persons may occupy a single campsite.

Supplementary Rules for Craggy Wash

From October 1 through April 30 of each year, the following supplementary rules are in effect:

1. You must maintain your campsite free of trash and litter.
2. You must not discharge a firearm for the purpose of target practice or plinking. You may engage in legitimate hunting activities.
3. You must not operate a motor vehicle at a speed greater than 15 mph.
4. You must maintain quiet within hearing range of any other person or camp unit between 10 p.m. and 6 a.m. You must not operate a generator during these hours.
5. You must not collect firewood, including any dead and down wood, or any other vegetative material.
6. You must restrain a pet with a leash not longer than six (6) feet.
7. You must not leave a pet unattended.
8. You must not possess or discharge fireworks.
9. You must not leave personal property unattended for more than 24 hours.

Penalties

The authority for these supplementary rules is provided in 43 CFR 8365.1-6. Persons who violate these rules are subject to arrest, and upon conviction may be fined up to $100,000 and/or imprisoned for not more than 12 months, as amended by 18 U.S.C. 3571 and 18 U.S.C. 3581.

Part II - October 12, 1995

[FR Doc. 03-23445 Filed 9-12-03; 8:45 am]
BILLING CODE 4310-32-P

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[Notices]
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DEPARTMENT OF THE INTERIOR
[AZ-050-05-1210-00; 8365]

Arizona: Establishment of Supplementary Rules for the Parker Strip Recreation Area, Swansea Townsite, Aubrey Hills, and Desert Bighorn Sheep Lambing Grounds

AGENCY: Bureau of Land Management, Interior.

ACTION: Publication of supplementary rules for the Parker Strip Recreation Area, Swansea Townsite, Aubrey Hills, and Desert Bighorn Sheep Lambing Grounds.

SUMMARY: To implement decisions of the Yuma Resource Management Plan and the Parker Strip Recreation Management Plan, to protect valuable and fragile natural and cultural resources, and to provide for public safety and enjoyment, the following supplementary rules are established for the lands described.

EFFECTIVE DATE: October 12, 1995.

FOR FURTHER INFORMATION CONTACT: Leslie Allert, Outdoor Recreation Planner or Mark Harris, Ranger, Havasu Resource Area, 3189 Sweetwater Avenue, Lake Havasu City, Arizona 86406, telephone (520) 855-8017.

SUPPLEMENTARY INFORMATION: To protect valuable and fragile natural and cultural resources and to provide for public enjoyment the following supplementary rules are established for the areas described.

Parker Strip recreation Area

This section is replaced by Supplemental rules in Federal Register: September 15, 2003 (Volume 68, Number 178).

Swansea Townsite

The following rules apply within the Swansea Townsite area, which is described as follows:

Gila and Salt River Meridian, Arizona

T. 10 N., R. 15 W.,
Sec. 28, W1/2 SW1/4;
Sec. 29, S1/2;
Sec. 32, N1/2;
Sec. 33, W1/2 NW1/4.

Vehicles

Taking any vehicle through, around, or beyond a restrictive sign, recognizable barricade, fence, or traffic control barrier is prohibited. Operation of a vehicle in a wash, off a roadway, or on an unsigned historic roadway is prohibited.

Camping

Camping is permitted only at designated sites. Camping stay is limited to 3 days in any 30-day period.

Wood Collection
No wood collection is permitted within the Townsite, including but not limited to dead and down wood, live plants, and lumber from historic structures.

Collection of Artifacts
No item may be collected or removed from the Townsite without the written permission of the Havasu Resource Area Manager. This includes but is not limited to old cans, nails, lumber, bricks, or glassware, whole or broken.

Safety
Climbing, leaning, sitting, or walking on the remains of the walled structures at Swansea inherently damages the structures, is unsafe, and is therefore prohibited. No person shall enter into any fenced area, shaft, tunnel, or structure.

Fires
Fires are allowed only at the designated sites and must be located in the fire ring provided. Construction of new fire rings is prohibited.

Aubrey Hills Area

The Aubrey Hills Area is defined as that public land south of the Lake Havasu City limits, west of Highway 95, east of the Colorado River, and north of the Bill Williams River, not including the area of SARA Park. No motorized vehicles are allowed off paved roads. This does not include authorized agency service vehicles for authorized rights-of-way or for ownership access to private land.

Desert Bighorn Sheep Lambing Grounds and Year Long Use Areas

The following rules apply to public lands during the period of January 1 through June 30 in any year in all bighorn sheep lambing grounds and year-round use areas whose boundaries are defined as follows.

Gila & Salt River Meridian, Arizona

North Mohave Mountains
T. 15 N., R. 20 W.,
Sec 4, 5, 8-10, 15, 16, 20-22, 28, & 29;
Sec 27 NW1/4.

Crossman Peak
T. 14 N., R. 18 W.,
Sec 7 W1/2 W1/2;
Sec 17 SW1/4;
Sec 18-20.
T. 15 N., R. 18 W.,
Sec 31 SW1/4.
T. 14 N., R. 19 W.,
Sec 1 W1/2 W1/2;
Sec 2-4;
Sec 5 E1/2;
Sec 9-16.

T. 15 N., R. 19 W.,
Sec 28, 30, & 32-36.
T. 15 N., R. 20 W.,
Sec 25 NE1/4.

Paloma Wash
T. 12 N., R. 17 W.,
Sec 17 S1/2 S1/2;
Sec 19 NE1/4;
Sec 21 SW1/4;
Sec 27 SW1/4 SW1/4;
Sec 33 N1/2 N1/2;
Sec 34 NW1/4 NW1/4.

Little Black Mountains
T. 11 N., R. 17 W.,
Sec 3, 10, 11, 14, 15, 22, 23, & 26;
Sec 12 W1/2, W1/2 SE1/4;
Sec 13 W1/2, W1/2 E1/2;
Sec 21 E1/2;
Sec 25 W1/2;
Sec 27 NE1/4.
T. 12 N., R. 17 W.,
Sec 34 SE1/4;
Sec 35 SW1/4 SW1/4.

The North Mesa
T. 11 N., R. 17 W.,
Sec 19 SW1/4;
Sec 28 SW1/4;
Sec 29 S1/2;
Sec 30 all,
Sec 31 N1/2;
Sec 32 N1/2;
Sec 33 N1/2.
T. 11 N., R. 18 W.,
Sec 22 NE1/4;
Sec 23-26;
Sec 27 E1/2 E1/2;
Sec 35 N1/2 N1/2;
Sec 36 N1/2, N1/2 SE1/4.

No motorized vehicles are allowed off paved roads. This does not include authorized agency service vehicles for authorized rights-of-way or for ownership access to private land.

Authority: The authority for establishing supplementary rules is contained in Title 43 Subpart 8365, Section 1-6. These rules will be available in the Havasu Resource Area Office, which manages these lands. A violation of a supplementary rule is punishable as class A misdemeanor.

Dated: October 2, 1995.
Judith I. Reed,
District Manager.
[FR Doc. 95-25208 Filed 10-11-95; 8:45 am]
BILLING CODE 4310-32-P

Part III - Supplementary Rules brought forward from past rules that are still valid.

See attached Federal Regulations as sited after each rule.

All BLM Lands in Arizona

1. Minor in possession of alcohol is prohibited. Minor consumption of alcohol is prohibited. FR 98-21831
This rule went into effect October 1, 1998.

All BLM Lands in California

1. Minor in possession of alcohol in prohibited. FR 93-7611
This rule went into effect April 2, 1993

All BLM Lands in the Yuma and Lake Havasu Field Offices and the California Desert District

1. Camping is restricted to 14 days within any period of 28 consecutive days. After the 14th day campers must move outside of a 25-mile radius of the previous location. FR 64-30021
This rule went into effect July 30, 1964.

Appendix C

Planning Process Overview

Under the planning regulation (43 CFR 1610.4), the preparation and implementation of a RMP is completed in nine steps as described below.

Step 1 – Identification of Issues[1]

This step identifies resource management issues, concerns or conflicts that can be resolved through the planning process. The public identifies issues and BLM and other government entities identify management concerns. The planning process focuses on resolving the identified issues and concerns, which is an ongoing process that ties to the NEPA scoping process.

Step 2 – Development of Planning Criteria[1]

During this step, preliminary decisions are made regarding the kinds of information needed to resolve the issues, the types of alternatives to be developed and the factors to be considered in evaluating alternatives and selecting a preferred alternative. Preliminary planning criteria developed by BLM can be modified through public comment.

Step 3 – Collection of Inventory Data and Information[1]

This step involves the collection of resource, environmental, social, economic or institutional data needed to resolve the planning issues and concerns. The inventory information is used to determine how the public land resources will respond to each of the alternatives.

Step 4 – Analysis of the Management Situation[1]

This step calls for an assessment of the current situation. It includes a description of current BLM guidance, discussion of existing problems and opportunities to resolve them and consolidation of existing data that is needed to analyze and resolve the identified issues and concerns.

[1]These steps may be revisited throughout the planning process and may overlap other steps.

Step 5 – Formulation of Alternatives[1]

During this step, BLM formulates a range of alternatives (including one for no action) to manage the resources in the RMP area to resolve the planning issues and management concerns while emphasizing either environmental protection or resource production or a balance between the two extremes.

Step 6 – Estimation of the Effects of Alternatives

The physical, biological, economic, and social effects of implementing each alternative are estimated in order to allow for a comparative evaluation of impacts. These effects are compared before a preferred alternative is selected.

Step 7 – Selection of the Preferred Alternative

Based on the information generated during Step 6, the Field Manager and the District Manager recommend to the State Director a preferred alternative that best resolves planning issues and promotes balanced multiple use objectives. The State Director approves the selection of the preferred alternative.

The Draft RMP/EIS document is then distributed for public review by such measures as publishing the Notice of Availability in the *Federal Register*, using the media, and distributing mailings. The NOA notifies the public of the availability of the Draft RMP/EIS and provides for a 90-day public review and comment period.

Step 8 – Selection of the RMP

Considering the results of public review and comment, the Field Manager will select a preferred alternative plan and publish it along with a Final EIS. BLM will publish a second NOA and file a copy of the Proposed RMP/EIS Proposed Decision with EPA. These actions initiate the 30-day protest period under 43 CFR 1610.5-2. Simultaneously, inconsistencies with State or local plans are identified during a 60-day Governor's Review period.

A final decision can then be made after a 30-day protest period on the final EIS. The final decision is documented in a ROD prepared by the Field Manager. Unresolved protests are not included in the ROD and a decision will be deferred until the protested portions are resolved. The ROD is a separate environmental document and is not considered as a part of the Final RMP/EIS document.

Step 9 – Monitoring and Evaluation

This step involves the collection and analysis of long-term resource condition and trend data to determine the effectiveness of the plan in resolving the identified issues and management concerns. Monitoring will also assure that implementation of the plan is achieving the desired results. Monitoring continues from the time the RMP is adopted until changing conditions require a revision of the plan.

Appendix D

Existing Land Use Planning Decisions

On July 27, 2000, prior to the start of the LHFO RMP planning process, BLM conducted a statewide Land Use Plan Evaluation (LUPE) review of all existing land use plan decisions. The four tables in this appendix list and categorize the decisions that affect the LHFO planning area as one of the following classifications: *Desired Outcomes, Land Use Allocations, Special Designations and Land Tenure*. The LUPE also listed implementation and administrative actions from RMPs. These types of actions are not land use planning decisions, and have not been included in this appendix. (The LUPE document is part of the Administrative Record for the RMP.)

The following codes were used to identify the existing RMP's *Record of Decision* (ROD) that created each decision:

- YRMP Yuma District Resource Management Plan
- KRMP Kingman Resource Management Plan
- LGNMFP Lower Gila North Management Framework Plan
- LGSRMP Lower Gila South Resource Management Plan

In 1997, there was a statewide amendment of land use plans in Arizona for Implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, which is identified as ASWPA in this Appendix.

During compilation of the DEIS, it was discovered that the LUPE did not include decisions from LGSRMP. Those decisions have been incorporated into the table below. The table was also revised to identify decisions that were not carried forward from the LUPE and the reason (e.g., some decisions were for areas outside of the LHFO boundary).

To facilitate tracking the coding system presented in the above-mentioned collection of decisions, the decisions were reformatted to a table with item numbers. The table includes an original code and decision number by program:

(CL) Cultural Resources Management
(FM) Fire Management
(GM) Grazing Management
(HB) Wild and Free Roaming Horse And Burro
(LH) Land Health Standards
(LR) Lands/Realty

(MI) Minerals
(RP) Riparian
(RR) Recreation and Off Highway Vehicles
(SM) Special Management Areas
(TE) Special Status Species
(VM) Vegetation Management
(VR) Visual Resources
(WD) Wilderness
(WF) Wildlife/Fisheries
(WR) Wild and Scenic Rivers
(WS) Soil, Water and Air

Table D-1. Desired Outcomes

Item	RMP	Code	Decision
1.	ASWPA	LH01	Standard 1: Upland Sites. Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform (ecological site). Guidelines: 1-1. Management activities will maintain or promote ground cover that will provide for infiltration, permeability, soil moisture storage, and soil stability appropriate for the ecological sites within management units. The ground cover should maintain soil organisms and plants and animals to support the hydrologic and nutrient cycles, and energy flow. Ground cover and signs of erosion are surrogate measures for hydrologic and nutrient cycles and energy flow. 1-2. When grazing practices alone are not likely to restore areas of low infiltration or permeability, land management treatments may be designed and implemented to attain improvement.
2.	ASWPA	LH02	Standard 2: Riparian-Wetland Sites. Riparian-wetland areas are in properly functioning condition. Guidelines: 2-1. Management practices maintain or promote sufficient vegetation to maintain, improve or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability, thus promoting stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform. 2-2. New facilities are located away from riparian-wetland areas if they conflict with achieving or maintaining riparian-wetland function. Existing facilities are used in a way that does not conflict with riparian-wetland functions or are relocated or modified when incompatible with riparian-wetland functions. 2-3. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect ecological functions and processes.
3.	ASWPA	LH03	Standard 3: Desired Resource Conditions. Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained. Guidelines: 3-1. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands, non-intrusive, non-native plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) cannot achieve ecological objectives as well as non-native species, and/or (d) cannot compete with already established non-native species.

Item	RMP	Code	Decision
			3-2. Conservation of Federal threatened or endangered, proposed, candidate, and other special status species is promoted by the maintenance or restoration of their habitats. 3-3. Management practices maintain, restore, or enhance water quality in conformance with State or Federal standards. 3-4. Intensity, season and frequency of use, and distribution of grazing use should provide for growth and reproduction of those plant species needed to reach desired plant community objectives. 3-5. Grazing on designated ephemeral (annual and perennial) rangeland may be authorized if the following conditions are met: Ephemeral vegetation is present in draws, washes, and under shrubs and has grown to useable levels at the time grazing begins; Sufficient surface and subsurface soil moisture exists for continued plant growth; Serviceable waters are capable of providing for proper grazing distribution; Sufficient annual vegetation will remain on site to satisfy other resource concerns, (i.e., watershed, wildlife, wild horses and burros); and Monitoring is conducted during grazing to determine if objectives are being met. 3-6. Management practices will target those populations of noxious weeds, which can be controlled or eliminated by approved methods. 3-7. Management practices to achieve desired plant communities will consider protection and conservation of known cultural resources, including historical sites, and prehistoric sites and plants of significance to Native American peoples.
4.	LGNMFP	CL20	Conserve a representative sample of site types in the planning area for future use. (51.) LGN-MFP-3-CR-3.1
5.	YRMP	FM01	Fires on or threatening public lands will be suppressed in accordance with BLM fire policy, initial attack agreements with other government agencies, and approved modified fire suppression plans. 1987 RMP, p. 14 YFO, LHFO
6.	YRMP	GM01	Grazing management objectives are to maintain the ecological rangeland condition for those areas currently in good to excellent condition and to improve those areas that are currently in fair or poor condition, while remaining consistent with the management guidelines established in this plan for priority wildlife habitat and special management areas. 1987 RMP, p. 17 YFO, LHFO
7.	YRMP	GM02	In the Cactus Plain area proposed for special management, grazing use

Item	RMP	Code	Decision
			will be to ensure maintenance of the area's existing plant species composition and stabilized sand dune ecosystem. 1987
8.	YRMP	GM08	Grazing management which provides for plant growth and reproduction of those plant species needed to reach desired plant community objectives will be applied to all allotments under year-long grazing. (This decision is from the April, 1997 State-wide Standards and Guidelines Plan amendment. It supplements decision G-7, G-8, and G-9.) 1987 RMP, p. 18 YFO, LHFO
9.	YRMP	GM10	Management efforts will be concentrated in those allotments where grazing management actions are most needed to improve the basic resource or to resolve serious resource-use conflicts. The Yuma District will re-categorize allotments as management needs or objectives shift, or the potential for improvement changes. 1987 RMP, p. 9 YFO, LHFO
10.	YRMP	GM11	Intensive management will be provided to improve the usefulness of the range for grazing, to improve livestock distribution, and to maintain desirable ecological rangeland conditions. 1987 RMP, p. 9 YFO, LHFO
11.	YRMP	LR07	Yuma District policy is to not dispose of lands occupied by listed or proposed threatened or endangered species. If other public uses outweigh the value of a parcel, as Federally owned threatened or endangered species habitat, disposal may be considered on a case-by-case basis. In this instance, consultation or conferencing with U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act will be required. Exchange for other parcels of habitat will be encouraged. Compensation for loss of habitat value will be required where a compensation policy exists. Other mitigation may also be required. 1996 Yuma Lands Amendment YFO, LHFO
12.	YRMP	MI02	As part of the land ownership adjustment program in the District, the Yuma District will consolidate surface and subsurface (minerals) estates under one ownership whenever possible (in order to eliminate potential problems associated with split estate) and thereby improve manageability of the Federal, State or privately-owned lands involved. Split-estate consolidation will be achieved by exchanges with the states or private owners and in accordance with guidelines set out in Section 206 of FLPMA. Any lands acquired by the Yuma District will include both the surface and mineral estate whenever possible. 1987 RMP, p.11 YFO, LHFO
13.	YRMP	RR16	Additional Federal lands will be available for the expansion of existing or development of new recreation concessions and leases in order to ensure that public recreation needs are being met. However, such expansion and development must be compatible with the resource base. Where adverse impacts to natural values would result from recreation development, such development will either not be allowed or will be mitigated in a manner which protects the full integrity of the natural values. 1987 RMP, p. 22 YFO, LHFO
14.	YRMP	WS02	Soils are managed to maintain biological productivity and to minimize erosion. 1987 RMP, p. 14 YFO, LHFO

Item	RMP	Code	Decision
15.	KRMP	WR01	Eligible stream segments will be managed so as to not impair their suitability for inclusion into the Wild and Scenic River System. Outstandingly remarkable values must be protected and the free-flowing character of the stream segments cannot be modified. (Alt. 1, page 42 - carried forward in Alt. 2, page 79. See also Table 16, page 139) (SR02/A1)
16.	LGNMFP	HB03	Maintain a viable, color-diverse burro population of 200 animals in the Alamo HMA; however, burro numbers in the remaining herd areas should be reduced to zero by 1986. (B-1.)
17.	YRMP	WF01	The Yuma District will discourage the introduction of “exotic” species on public lands. 1987 RMP, p. 7 YFO, LHFO
18.	YRMP	WF02	Wildlife habitat use of riparian lands is managed in a manner consistent with BLM Manual 6740 (Wetland-Riparian Area Protection and Management), Federal floodplain management regulations, Bureau of Reclamation needs, and floodway clearance obligations of the International Boundary and Water Commission. 1987 RMP, p.8 YFO, LHFO
19.	YRMP	WF04	Wildlife habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining wildlife habitat condition. These projects will be identified through cooperative management plans (under the Sikes Act) or coordinated resource management activity plans. 1987 RMP, p. 8 YFO, LHFO
20.	YRMP	WF05	No activities or projects that would jeopardize the continued existence of federally listed threatened or endangered plant or wildlife species, or species proposed for listing will be permitted on BLM-administered lands. 1987 RMP p. 8 YFO, LHFO

Table D-2. Land Use Allocations

Item	RMP	Code	Decision
1.	YRMP	CL01	Cultural resources on 33 sites and areas totaling approximately 6,800 acres will be managed under the "conservation for future use" category, i.e., preserved in place. 1987 RMP, p. 16 YFO, LHFO
2.	YRMP	CL03	Off-highway vehicle use on the 33 cultural resource sites and areas is restricted to existing roads and trails. 1987 RMP, p. 16 YFO, LHFO
3.	YRMP	CL04	Allowable uses on the 33 cultural resource sites and areas include activities that are compatible with the objective of preserving these resources in place for future use. 1987 RMP, p. 16 YFO, LHFO
4.	YRMP	CL05	Improvements on the 33 cultural resource sites and areas are restricted to those that are compatible with the cultural resources or those required for mining. Approximately 6,000 acres (88 percent) of the 33 cultural resource sites and areas are under Bureau of Reclamation withdrawal and therefore segregated from mineral entry and development. Mining activity on the remaining sites and areas will be managed so as to avoid disruption or, where this is not possible, minimize damage to cultural values using regulatory standards contained in 43 CFR 3800. 1987 RMP, p. 16 YFO, LHFO
5.	YRMP	CL06	Surface occupancy for oil and gas leases, sand and gravel permits, and utility rights-of-way will not be authorized on the 33 cultural resource sites and areas. 1987 RMP, p. 16 YFO, LHFO
6.	KRMP	CL08	Continue support of the Site Steward Program, Proposed Plan Alternative 1. Develop cultural resource protection systems for selected cultural resources that have either a high level of significance or a history of vandalism.
7.	KRMP	CL12	Nominate the most significant cultural resource for listing in the national register of historic places, Proposed Plan Alternative 1. (CL07/B2)
8.	LGNMFP	CL18	Allocate cultural resources identified through inventory for scientific uses. (D-5)
9.	LGNMFP	CL	Reduce or eliminate indirect impacts of land uses on cultural resources as identified through study plots. LGN-MFP-3-CR-1.1
10.	LGNMFP	CL	Identify and evaluate areas and properties with socio-cultural values to reduce potential impacts of other land uses on these resources. LGN-MFP-3-CR-2.1
11.	LGNMFP	CL	Provide immediate and long-term in-place preservation and protection of selected cultural resources that are threatened or deteriorating. LGN-MFP-3-CR-3.2
12.	LGNMFP	CL	Allocate cultural resources identified through inventory for scientific uses. LGN-MFP-3-CR-4.1
13.	LGSRMP	CL	BLM will continue to manage cultural resources for their cultural values. Certain significant sites or areas may be protected and preserved for future use as funds become available. LGS-RMP-Cultural Resources

Item	RMP	Code	Decision
14.	Federal Register	CL	Swansea is managed as a Public Use site. A 1995 Federal Register Notice, 60 FR 53194-53195, details specific allocations and management prescriptions for Swansea, effectively changing Swansea from Conservation for Future Use to Public Use. No sites are designated for Traditional Use.
15.	Federal Register	CL	In accordance with 60 FR 53194-53195**,** BLM would: 1) Limit camping and fires to designated campgrounds at Swansea. 2) Prohibit firewood collection within the town site at Swansea. 3) Prohibit driving in Swansea except on designated open and signed routes.
16.	YRMP	GM03	No initial adjustments have been made to the authorized annual stocking rate of 3,998 animal-unit months for the District's four perennial-ephemeral (P-E) allotments (Ganado, Nine-Mile, Muse, and Bishop). 1987 RMP, p. 18
17.	YRMP	GM04	Seasonal increases in grazing use will be considered for the District's four perennial-ephemeral (P-E) allotments in order to utilize big galleta grass when it is green and palatable. These increases will be authorized on a temporary nonrenewable basis after review of the allotment situation. 1987 RMP, p. 18
18.	YRMP	GM06	The other eight ephemeral allotments (approximately 780,075 acres) will continue to be administered in accordance with the special ephemeral rule published in the Federal Register in December 1968. 1987 RMP, p. 18
19.	YRMP	GM07	The Nine-Mile and Ganado allotments have been assigned to the "I" improve category and will be managed under allotment management plans (AMPs) prepared in consultation and cooperation with the allotment operator and other affected parties. Objectives will be to: a) open up a large part of the previously unused rangeland to grazing; b) allow the overused areas to be rested; and c) maintain good and excellent rangeland condition on an average of 67 percent of the acreage. Site-specific objectives will be outlined in AMPs. 1987 RMP, p. 18
20.	YRMP	GM08	The Muse allotment (P-E) is placed in the "M" maintain category and present grazing management practices will not change. 1987 RMP, p. 18 supplemented. (Placement in categories is no longer an RMP level decision. Therefore, the decision was not carried forward.)
21.	YRMP	GM13	In the Cactus Plain area proposed for special management, only those new rangeland developments that are essential to maintaining the area's unique plant community and to the stability of the dune ecosystem will be authorized. 1987 RMP, p. 18 LHFO
22.	KRMP	GM19	Cancel grazing permits on Silver Creek, Chino and Alamo grazing allotments and reserve forage for wildlife and burros. (RM03/B1) (This has been completed; Alamo is the only one in LHFO and it has been cancelled. Therefore, the decision was not carried forward.)
23.	KRMP	GM21	Close public lands within 9 miles of bighorn sheep habitat to domestic sheep and goats subject to immediate impoundment. (RM05/B1)
24.	KRMP	GM23	ate forage when private or state lands are acquired (RM07/B2). (The LHFO RMP evaluation determined that this decision is policy and

Item	RMP	Code	Decision
			should be dropped. Therefore, the decision was not carried forward.)
25.	KRMP	GM24	Disposal lands will be managed and licensed for livestock grazing management until their disposal but no new BLM range improvements are allowed. (RM08/B3)
26.	KRMP	GM25	Classify grazing allotments on or adjacent to the area critical environmental concern for use by cattle, prohibiting grazing by feral goats and sheep. (BM12/B2)
27.	LGNMFP	GM31	Decrease cattle densities in bighorn habitat to relieve competition between bighorn sheep and livestock for space, water, and browse. Graze domestic sheep as far from bighorn habitat as possible to decrease bighorn disease vectors. Management will begin by 1990. Implementation of this recommendation will be met through range management in the following allotments: Aguila-intensive, Calhoun [now in Yuma], and Ohaco-nonintensive. Implementation of this recommendation will be met through Habitat Management Plans for the remaining allotments or as a result of planning for Lower Gila South, including: Crowder Cattle Company (portion lying within LGN), K-Lazy-B (portions lying within LGN), Carter-Herrera, Muse (portion lying within LGN), Clem (portion lying within LGN), and Orosco. Domestic sheep will graze as far from bighorn habitat as practicable. (R-21.)
28.	LGNMFP	GM34	Allocate forage on all 78 allotments based on preference. Initiate monitoring studies which include actual use, utilization, trend in condition, and climate, using the Bureau's Selective Management Policy (Appendix 34) to set priorities. These studies will be used to adjust stocking rates, either upward or downward to meet multiple resource management objectives. (RM-1.)
29.	YRMP	LR03	The District will establish community gravel pits where appropriate (all sales would be made from these pits). 1987 RMP, p. 7
30.	YRMP	LR05	The District will cooperate with appropriate counties to determine suitable sites for county sanitary landfills or dump stations in order to accommodate the needs of county residents. 1987 RMP, p. 7
31.	YRMP	LR15	Agricultural lands that are not leased will revert to uses that would benefit other programs carried out by the Yuma District such as development for recreational use or return to natural condition for use as wildlife habitat. 1987 RMP, p. 20
32.	YRMP	LR16	Nine existing and proposed rights-of-way (307 total miles) are designated as utility corridors to accommodate recent and future development needs. The length and width of each corridor are shown in Table 2-5 (Approved Plan). These designated corridors apply to BLM-administered lands only. 1987 RMP, p. 20
33.	YRMP	LR17	Portions of the Parker-Liberty, California Desert Conservation Area "F", Davis-Parker "A", and Parker-Blaisdell corridors are constrained or routed to protect natural values and to promote consistency with other government agencies. 1987 RMP, p. 20 LHFO
34.	YRMP	LR18	Nine communication sites (101.3 total acres) will be designated to accommodate present and future needs. The designated sites and their

Item	RMP	Code	Decision
			acreage are listed in Table 2-6 (Approved Plan). 1987 RMP, p. 21 YFO, LHFO
35.	YRMP	LR19	New utility and communications facilities will be located in designated corridors and sites, unless an evaluation of the project shows that location outside of a designated area is the only practicable alternative. 1987 RMP, p. 20 YFO, LHFO
36.	YRMP	LR20	Locating facilities outside of designated corridors and sites will be prohibited in special management areas. 1987 RMP, p. 20
37.	YRMP	LR21	Locating facilities outside of designated corridors and sites will be avoided insofar as possible in priority wildlife habitat areas. 1987 RMP, p. 20 YFO, LHFO
38.	KRMP	LR35	Major transmission facilities will be restricted to the 11 corridors listed on page 66, where practical. The power line corridors are restricted to aerial rights-of-way. All other corridors are restricted to buried rights-of-way, with the exception of Highway 93 and Interstate 40, which may be used for both. (II) Page 66-67; Map 14, page 68 (LR13/B3)
39.	KRMP	LR	Limit construction of new roads in crucial habitat areas. (BM02/B2)
40.	LGNMFP	LR	Establish the following seven multiple-use utility corridors along existing rights-of-way in Lower Gila North. In these corridors, all utility uses (including transportation, pipelines, and electrical transmission lines) will be allowed when the uses are compatible. (D-19.)

Name	Width
C.A.P. (Granite Reef Aqueduct)	1 mile
Wendon-Wickenburg	1 mile
Parker-Liberty	2 miles
Mead-Phoenix,	2 miles
Palo Verde-Devers	2 miles (restricted between Burnt Mt. and Big Horn Mts.)
Palo Verde-Westwing	2 miles
El Paso Natural Gas Company	2 miles (1 mile @ Bill Williams River crossing)

41.	KRMP	MI*	Withdraw approximately 24,300 acres from mineral entry in areas of critical environmental concern (Table 12 and Map 10) subject to a mineral report. (MI01/B1)
42.	KRMP	MI*	Manage mining exploration and development activities to minimize the impacts on desert bighorn sheep lambing grounds from December 1 through May 31 and on wild burro foaling grounds from May 1 through July 31. (BM04/B3) (LHFO does not have foaling areas. This decision was not carried forward.)
43.	KRMP	MI*	Prohibit oil and gas production facilities inside the boundaries of lambing grounds. (BM05/B3) (This decision is not applicable to

Item	RMP	Code	Decision
			LHFO and therefore was not carried forward.)
44.	KRMP	MI*	Mineral material disposal would be authorized only when no reasonable management alternative can be identified and the disposal would not conflict with objectives for the area. (BM06/B2)
45.	LGNMFP	MI**	Restrict any actions or withdrawal in the planning area that would "segregate" leasable minerals unless there is strong evidence that the area is not conducive to mineralization. Leave the planning area open to mineral leasing. (D-23.)
46.	LGNMFP	MI**	Allow development of sites for salable minerals where they do not conflict with wilderness study areas and proposed ACEC designation. (D-24.)
47.	LGNMFP	MI**	Leave the planning area open to mineral location and development. (M-1.)
48.	LGNMFP	MI**	Leave the planning area open to mineral leasing. (M-2.)
49.	LGSRMP	MI	Locatable minerals: Exploration and development in the RMP/EIS area will continue to be administered in accordance with existing surface and mineral management regulations (43 CFR 3809 and CFR 3802). (LGSRMP Decisions, Section 2, page 9.)
50.	LGSRMP	MI	Saleable minerals: Demand for saleable minerals will be met by sales or free-use permits on a case-by-case basis. (LGSRMP Decisions, Section 2, page 9.)
51.	LGSRMP	MI	Leasable minerals: Leasable minerals will be managed under the leasing regulations. (LGSRMP Decisions, Section 2, page 9.)
52.	YRMP	RR3	The Pittsburg Point area (approximately 1,100 acres) of Lake Havasu State Park has been transferred to the State of Arizona and Lake Havasu City. All other present recreation use areas on BLM-administered lands will continue to be used and managed for recreation. 1987 RMP, p.21 LHFO
53.	YRMP	RR8	Along the Parker Strip, only flood-proofed day-use facilities will be allowed within the 100-year floodplain. New overnight facilities and structures on the Parker Strip will be located outside the 100-year floodplain. Existing permanent structures will be allowed to remain in the 100-year floodplain until they are substantially damaged from inundation, their useful life is gone, or the present leases expire. 1987 RMP, p.22 LHFO
54.	YRMP	RR9	On the rest of the Colorado River, only those permanent new facilities that can be flood-proofed will be allowed in the 100-year floodplain. Examples include, but are not limited to: Boat Service Facilities, Ramadas, Boat Ramps, Picnic Tables, Grills, Trash Cans, Outdoor Showers, RV Sites, Electric Hookups, and Mobile Retail Concessions. Existing permanent structures are allowed to remain in the 100-year floodplain on the rest of the Colorado River until they are inundated, their useful life is gone, or the present leases expire. 1987 RMP, p. 22 YFO, LHFO
55.	YRMP	RR10	-term camping is allowed in the 100-year Colorado River floodplain during periods of normal water levels, except where specifically prohibited. Prohibited areas will be indicated to the public by use of signs or fencing. 1987 RMP, p. 22 YFO, LHFO

Item	RMP	Code	Decision
56.	YRMP	RR11	Long-term winter visitor camping is permitted in the 100-year floodplain only within concession areas. 1987 RMP, p. 22 YFO, LHFO
57.	YRMP	RR12	No new development of any kind will be allowed in the floodplain of desert washes. 1987 RMP, p. 22 YFO, LHFO
58.	YRMP	RR13	The length of stay for camping is limited to 14 days within any 28-day period, except in concessions, public agency leases and long-term visitor areas. 1987 RMP, p. 22 YFO, LHFO
59.	YRMP	RR17	Continuous occupancy of mobile homes in concession areas is restricted to one 5-month period in a single year. Permanent residential use will be phased out as existing permanent residents leave the concession areas. 1987 RMP, p. 22 YFO, LHFO
60.	YRMP	RR18	The maximum length of stay for campers within developed concessions or other leased areas is 5 months. 1987 RMP, p. 22 YFO, LHFO
61.	YRMP	RR25	The approved resource management plan classifies 640 acres as open to intensive off-highway vehicle use, 13,985 acres as limited to designated roads and trails, and 22,420 acres as closed to off-highway vehicle use. Off-highway vehicle use is limited to existing roads and trails on the remaining 1,154,955 acres in the District. ("Existing" refers to those roads and trails that were present in the District at the date the plan was adopted.) 1987 RMP, p. 23 YFO, LHFO
62.	YRMP	RR27	Changes in off-highway vehicle designations will be addressed in the appropriate activity plans to avoid potential conflicts with other recreation uses, off-highway vehicle-related impacts on resources, or other management concerns. 1992 Yuma RMP Amendment YFO, LHFO
63.	YRMP	RR28	New competitive-use off-highway vehicle areas will be designated in the appropriate activity plans to meet the increasing public need for such areas. Competitive-use, off-highway vehicle events not scheduled for the SCORE Parker 400 course must comply with District off-highway vehicle designations and special recreation use permit provisions. Special recreation use permits would be issued on a case-by-case basis. Completion of NEPA compliance documentation is necessary before these events would be approved. 1992 Yuma RMP Amendment YFO, LHFO
64.	YRMP	RR29	One competitive-use off-highway vehicle event route is designated in the District, the Parker 400. 1987 RMP, p. 23 LHFO
65.	YRMP	RR31	The season of use for the Parker 400 is December 1 to February 28. 1987 RMP, p. 24 LHFO
66.	YRMP	RR33	The Standard Wash Off-Highway Vehicle Area is designated in the Havasu Resource Area. 1995 Havasu Amendment LHFO
67.	YRMP	RR34	On areas with high wildlife values or where heavy recreational use has denuded an area of firewood, no wood collecting is permitted. Specific non-collection areas are not designated in this plan; however, an estimated 7 percent of the District will eventually be designated as closed to wood collection through recreation activity plans. 1987

Item	RMP	Code	Decision
			RMP, p. 24 YFO, LHFO
68.	YRMP	RR35	On the remainder of the District, no permits or fees are necessary for recreationists collecting dead and detached firewood in the vicinity of their campsites for campfires. 1987 RMP, p. 24 YFO, LHFO
69.	YRMP	RR36	Collection of small quantities of plant material for non-commercial recreation, hobby or landscaping purposes is permitted, except that the collection and possession of ironwood at any one time will be limited to three pieces with an approximate weight not to exceed 10 pounds. 1987 RMP, p. 24 YFO, LHFO
70.	YRMP	RR37	Domestic and commercial collection or sales of fuelwood for home heating purposes will not be authorized. 1987 RMP, p. 24 YFO, LHFO
71.	YRMP	RR39	Off-highway vehicle use in priority wildlife habitat areas is limited to existing roads and trails. 1987 RMP, p. 15 YFO, LHFO
72.	YRMP	RR40	Off-highway vehicle use will be limited to existing roads and trails on Crossman Peak and to designated roads and trails on the Big Marias. 1987 RMP, p. 16 YFO, LHFO
73.	YRMP	RR41	Off-highway vehicle use on the (non-designated) areas managed under special prescriptions is limited to existing roads and trails. 1987 RMP, pp. 16-17 YFO, LHFO
74.	KRMP	RR**	Limit off-highway vehicle use to existing roads, trails and navigable washes on public land not included in Special Management Areas or designated wilderness (Alt. 2, page 79 and Table 16, page 138) 0(OH02/B1)
75.	KRMP	RR**	Manage off-highway vehicle use within Special Management Areas according to prescriptions defined in Table 11, pages 89–93 and Management Prescriptions, pages 97–111. (OH03/B1)
76.	KRMP	RR**	Allow off-road use by authorized public land users that hold a permit or license in areas where vehicles are limited to existing roads, trails and navigable washes and in areas not designated as ACECs or wilderness, if such travel is required to fulfill their license or permit. (Alt. 2, page 79) (OH05/B1)
77.	KRMP	RR**	Do not designate any areas as Long Term Visitor Areas. (Alt. 1, page 42 - carried forward in Alt. 2, page 75. Also see Table 16, page 138) (RR13/B1)
78.	KRMP	RR**	Motorized vehicles must park within 100 yards of an existing road, trail or navigable wash for the purpose of camping in areas in which vehicle travel is limited to existing roads, trails and navigable washes. (Alt. 2, page 79) (OH06/B1)
79.	KRMP	RR**	Require prior BLM approval for any off-road vehicle travel in areas where vehicles are limited to designated roads, trails and navigable washes. (Alt. 2, page 79) (OH07/B1)
80.	KRMP	RR**	Motorized vehicles must park within 50 feet of designated roads, trails or navigable washes in areas where off-highway vehicles are limited to designated roads, trails and navigable washes. (Alt. 2, page 79)

Item	RMP	Code	Decision
			(OH08/B1)
81.	YRMP	SM3	Allowable uses on the two designated special management (Crossman Peak and Big Maria) areas include compatible activities or those uses whose impacts can be mitigated to preserve or enhance the recognized values. 1987 RMP, p. 16 YFO, LHFO
82.	YRMP	SM4	Improvements on the two designated special management areas are restricted to those compatible with the natural or cultural resources for which the area is recognized and, on Crossman Peak, to those permitted by the mining laws. 1987 RMP, p. 16 YFO, LHFO
83.	YRMP	SM6	Surface occupancy for oil and gas leases will be authorized on the Crossman Peak Natural Scenic Area. 1987 RMP, p. 16 LHFO
84.	YRMP	SM7	No additional sand and gravel permits are authorized in either designated special management area. 1987 RMP, p. 16 YFO, LHFO
85.	YRMP	SM8	No additional utility rights-of-way would be authorized in the Big Marias Area of Critical Environmental Concern or the Crossman Peak Natural Scenic Area, except applications for terminal utility distribution lines to serve private land may be accepted and considered to the extent needed to provide reasonable access pursuant to Federal law. 1987 RMP, p. 16 YFO, LHFO
86.	YRMP	SM12	Cultural, natural, and riparian values are a priority consideration on these areas (Whipple Mountains, Aubrey Hills, Cactus Plain, Milpitas Wash). Allowable uses on special management areas for cultural, natural, and riparian resources include compatible activities or those uses which, with mitigation as needed, preserve or enhance the recognized values. 1987 RMP, pp. 16–17 LHFO
87.	YRMP	SM13	Improvements on the four areas managed under special prescriptions are restricted to those compatible with the natural or cultural resources for which the area is recognized and to those permitted by the mining laws. 1987 RMP, pp. 16–17 YFO, LHFO
88.	YRMP	SM14	Surface occupancy for oil and gas leases will be permitted on all of the four areas managed under special prescriptions. 1987 RMP, p. 17 YFO, LHFO
89.	YRMP	SM15	No sand and gravel permits or new utility rights-of-way will be authorized on the four areas managed under special prescriptions. 1987 RMP, p. 17 YFO, LHFO
90.	YRMP	SM16	In the Cactus Plain, grazing use is managed as described for this area under Range Management. 1987 RMP, p. 17 LHFO
91.	YRMP	SM18a	Allowable uses within the Bill Williams Riparian Management Area are limited to compatible activities or uses, which, with mitigation as needed, preserve or enhance the area's recognized values. Improvements are limited to those compatible with the natural resources for which the area is recognized and those permitted by mining laws. 1992 Yuma RMP Amendment #3 LHFO
92.	YRMP	SM18b	In the Bill Williams Riparian Management Area, no additional mineral material removal permits or utility rights-of-way will be authorized. Off-highway vehicle use will continue to be limited to

Item	RMP	Code	Decision
			existing roads and trails. 1992 Yuma RMP Amendment #3 LHFO
93.	KRMP	SM**	Limit off-highway vehicle use in riparian areas to designated roads and trails (White Margined Penstemon, Burro Creek, Three Rivers). (SM04/B1)
94.	KRMP	SM **	Require mining plans of operation and mandatory bonding for all mineral exploration and development activities, other than casual use (Grand Wash Cliffs, Black Mountains, Wright and Cottonwood creeks, White Margined Penstemon, McCracken, Poachie, Aubrey Peak, Burro Creek, and Three Rivers). (SM05/C3)
95.	KRMP	SM**	Withdraw 10,228 acres in the riparian zone from mineral entry, subject to valid existing rights. (TR01/C2) (This area is within 3 Rivers ACEC and is covered under Item 61.)
96.	KRMP	SM**	Do not allow mineral material disposals in riparian zones. (TR02/B3)
97.	KRMP	SM**	Restrict development of campgrounds to areas outside of riparian zones and the 100-year floodplain. (TR07/C2)
98.	KRMP	SM**	Prohibit camping, hiking and off-highway vehicles within 1/4 mile of a bald eagle nest during breeding season (January 1 to June 1). (TR09/B1)
99.	KRMP	SM**	Prohibit helicopter flights within 2 miles of active aeries during the breeding season (January 1 to June 1). (TR10/B1)
100.	KRMP	SM**	Prohibit road development within 2 miles of a bald eagle aerie. (TR11/B1).
101.	KRMP	TE**	In categories I and II desert tortoise habitat, only range improvements, which will not conflict with tortoise populations, will be allowed. (Page 54) (TE07/C1)
102.	LGNMFP	VM**	Designate all of the planning units open to firewood collection, except for areas that may be identified at a later date. Firewood permits are no longer free. A fee will be charged and the limit has been raised from one to five cords per family. (A copy of the updated Firewood Permit conditions is attached as Appendix 77.). (V-1.)
103.	KRMP	VR**	Manage visual resources according to the Visual Resource Management Classes as shown on Map 19, page 81 and Table 16, page 138. (VR01/B1)
104.	KRMP	HB**	Public lands within HMAs would be closed to domestic horses and burros, subject to immediate impoundment. (HB**-KRMP-Item 115)
105.	YRMP	HB*	Wild horses and burros would continue to be managed in accordance with the herd plans. Excess animals would be removed as necessary to protect forage resources. (HB*-YRMP-Item 114)
106.	YRMP	HB1	The Yuma District will not allow water developments for horses and burros that would expand their present herd areas. 1987 RMP, p. 8 YFO, LHFO
107.	YRMP	HB*	Wild horses and burros would continue to be managed in accordance with the herd plans. Excess animals would be removed as necessary to protect forage resource. 1987 RMP, p. 14

Item	RMP	Code	Decision
108.	LGNMFP	HB	Maintain free access for wild burros to livestock-watering facilities in the Alamo Herd Area. (B-2.)
109.	LGNMFP	HB	Maintain access to Alamo Lake for the wild burro herd in the Alamo HMA. LGNMFP RM-3
110.	LGNMFP	HB	Limit or modify construction of new structures within herd management areas that would restrict burro movement. (B-3.)
111.	YRMP	WF9	Wildlife habitat is a priority consideration on approximately 332,160 acres. These areas with important wildlife values are referred to as priority wildlife habitat. 1992 Yuma RMP Amendment #3, p. 10 YFO, LHFO
112.	YRMP	WF10	All of the remaining riparian areas administered by the Yuma District along the Colorado, Bill Williams, and Gila Rivers are managed as priority wildlife areas (approximately 23,100 acres). 1987 RMP, p. 15 YFO, LHFO
113.	YRMP	WF11	Riparian areas around springs are also managed as priority habitat in order to maintain their high value for wildlife. 1987 RMP, p. 15 YFO, LHFO
114.	YRMP	WF12	Bighorn sheep yearlong use areas (216,960 acres) are managed as priority wildlife habitat areas. 1987 RMP, p. 16 YFO, LHFO
115.	YRMP	WF13	Approximately 520,220 acres of public lands in the District will be designated for management as Category I, II, or III desert tortoise habitat. Management levels appropriate to each category goal will be applied to habitat areas, consistent with the BLM's Desert Tortoise Rangewide Plan. 1992 Yuma RMP Amendment #3, p. 9 YFO, LHFO
116.	YRMP	WF14	Category I and II desert tortoise habitat areas will be managed as priority wildlife habitat (approximately 84,420 acres). 1992 Yuma RMP Amendment #3, p. 10 YFO, LHFO
117.	YRMP	WF17	The Parker-Liberty corridor narrows to 330 feet where it passes adjacent lambing grounds in the Buckskin Mountains. 1987 RMP, p. 16 LHFO
118.	YRMP	WF18	Roads traversing bighorn sheep lambing grounds (11,100 acres) are closed during the lambing season from January 1 to June 30. Exceptions to this seasonal closure may be made through applicable Federal regulations for rights-of-way, mining, and off-road vehicle uses. 1987 RMP, p. 16 YFO, LHFO
119.	YRMP	WF21	Allowable uses on priority wildlife habitat areas include compatible activities or those uses whose impacts could be mitigated to preserve or enhance wildlife values. 1987 RMP, p. 15 YFO, LHFO
120.	YRMP	WF22	Improvements on priority wildlife habitat areas are restricted to those that are compatible with wildlife habitat or cultural resources, and those required by mining. 1987 RMP, p. 16 YFO, LHFO
121.	YRMP	WF23	No sand and gravel permits will be authorized on priority wildlife habitat areas. 1987 RMP, p. 15 YFO, LHFO

Item	RMP	Code	Decision
122.	YRMP	WF24	Surface occupancy for oil and gas leases will be allowed on all priority wildlife habitat areas except on bighorn sheep lambing grounds (11,100 acres) and lands immediately adjacent to springs in priority wildlife habitat (approximately 40 surrounding acres at each spring). 1987 RMP, p. 15 YFO, LHFO
123.	YRMP	WF25	Surface occupancy is prohibited on future oil and gas leases on riparian lands along the Bill Williams River and on all other riparian areas in the Yuma District. 1992 YRMP Amendment #3 LHFO
124.	YRMP	WF26	Long-distance and transmission-class utility rights-of-way within priority wildlife habitat will be confined to designated corridors whenever practical. 1995 Havasu Amendment YFO, LHFO
125.	YRMP	WF27	Roads accessing utilities in priority habitat will be designated as limited in, or closed to, public entry. 1995 Havasu Amendment YFO, LHFO
126.	KRMP	WF**	Thirteen wildlife movement corridors and lands between mountains in southern Mohave County are established (Page 79 Plan Actions, Map 20) (WL02/B1)
127.	KRMP	WF**	Domestic or feral sheep or goats will not be allowed on public lands within nine miles surrounding desert bighorn habitat. (Page 84, Big Game) (WL05/B1)
128.	KRMP	WF**	Mineral leasing would be allowed in identified lambing grounds subject to special stipulations under ACEC management prescriptions. (Page 100 and 107, Page 84, Big Game) (WL07/B3) (This decision is not applicable to LHFO and therefore was not carried forward.)
129.	KRMP	WF**	In riparian areas in ACECS identified on Map 11, mineral leasing would be allowed with a No Surface Occupancy stipulation. (Page 84, Big Game) (WL08/B3)
130.	LGNMFP	WF**	Allocate additional forage to big game species as forage production increases so that carrying capacities can be increased to those listed in this objective and decrease browse utilization by 10 percent in the following allotments: Auza, Brown, Santa Maria Community, Loma Linda, Palmerita, Lambertson, Carco, and Ridgeway-Kong. (WR-4.)
131.	LGNMFP	WF**	Protect bighorn sheep lambing areas and a 2-mile buffer zone (20,000 acres) in the Little Harquahala Mountains and Harquahala Mountains from habitat and behavioral disturbances created by: a) land disposal; b) excess fencing; c) structure building; d) land clearing and wood cutting; e) mining activity between December 15 and April 15 (within the framework of the 3809 regulations); f) road building; g) intense recreational use and development; h) rights-of-way; and i) utilization of key browse in excess of 40 percent. (R-19)
132.	LGNMFP	LR	Establish the CAP corridor with a 1-mile wide corridor. All new rights-of-way will be issued south of the existing aqueduct. Decision L-2.1-2
133.	LGNMFP	LR	Establish the Parker to Liberty corridor with strict control on the placement of the future rights-of-way. Future rights-of-way will be constructed as closely as possible to existing structures to lessen

Item	RMP	Code	Decision
			impacts to the sand dune habitat. Decision L-2.1-6
134.	LGNMFP	LR	Establish a 2-mile wide El Paso Natural Gas Company corridor, reducing the size of the corridor to 1 mile in width at the Bill Williams River crossing. Decision L-2.1-11

Table D-3. Special Designations

Item	RMP	Code	Decision
1.	YRMP	CL02	Additional sites will be added to the list of special management areas for cultural resources as they are identified. 1987 RMP, p. 16 YFO, LHFO
2.	KRMP	RR**	Designate six Special Recreation Management Areas (SRMAs) and prepare management plans for them per BLM policy. (Alt. 2, page 75, Table 7, Map 17, page 77 and Table 16, page 137) (RR04/B1)
3.	KRMP	RR**	Designate that portion of the resource area not lying within SRMAs as the Kingman Extensive Recreation Management Area. (Alt. 2, page 75 and Table 16, page 138) (RR05/B1)
4.	YRMP	SM01	Two areas (31,360 acres) are designated special management areas -- Crossman Peak as a Natural Scenic Area (26,080 acres) and the Big Marias (5,280) acres as an Area of Critical Environmental Concern. (Crossman Peak Natural Scenic Area is within a grazing allotment.) 1987, p. 16 YFO, LHFO
5.	YRMP	SM10	Four other areas totaling 115,990 acres are not formally designated, but are managed under special prescriptions to protect their cultural, natural, and riparian values. These areas are the Whipple Mountains (15,170 acres), Aubrey Hills (20,000 acres), Cactus Plain (76,060 acres), and Milpitas Wash (4,760 acres). (Cactus Plain is within grazing allotments.) 1987 RMP, p. 16 YFO, LHFO
6.	YRMP	SM17	The Bill Williams corridor (1,720 acres) is designated as a riparian management area. 1992 Yuma RMP Amendment #3 LHFO
7.	YRMP	SM20	Segment C of the Bill Williams River will be considered for eligibility and potential inclusion into the National Wild and Scenic Rivers System. Segment C is 5 miles long and extends from the old District boundary to Planet Ranch. 1994 Bill Williams Amendment, p. 5 LHFO
8.	KRMP	SM**	Designate 315,712 acres encompassed by the twelve areas described in table 11 as “Areas of Critical Environmental Concern. (SM01/B1)

Table D-4. Land Tenure Decision

Item	RMP	Code	Decision
1.	KRMP	CL**	Acquire 2,746 acres containing important cultural resources (see Appendix 20). (IV) (CL10/C2) (None of the identified lands are within LHFO.)
2.	YRMP	GM17	There will be no acquisition of private or state land for grazing purposes. 1987 RMP, p. 18 YFO, LHFO
3.	YRMP	L06.	All land disposal actions are discretionary. Exchange is the preferred method of disposal in order to assure an optimum final land ownership pattern and provide better overall land management. Sales will be considered where more efficient. Disposal of these lands will be made on a case-by-case basis, and will be accomplished by the most appropriate disposal authority. 1996 Yuma Lands Amendment (check legality of this statement). YFO, LHFO
4.	YRMP	LR08.	All Federal lands in Areas 1-8 and 10-19 (57,759 acres) are available for disposal. Area 10 (approximately 1,100 acres) is available for disposal only in full compensation for the Federal land debt resulting from the Central Arizona Project. This debt settlement may involve transfer of Area 10 lands to: a) the State of Arizona and b) Lake Havasu City under Recreation and Public Purposes authority (refer to Map 9 in the Final RMP and attachments). 1987 RMP, p.19 YFO, LHFO
5.	YRMP	LR09	Areas 11 and 12 (approximately 11,200 acres) are available for transfer to Arizona through exchange or State Indemnity Selection. All other disposal areas are available for transfer through exchange or sale, with exchange being the preferred method of disposal (Map 9). 1987 RMP, p.19 LHFO
6.	YRMP	LR10	Land acquisitions will be considered on a case-by-case basis through exchange, purchase, or donation. 1996 Lands Amendment YFO, LHFO
7.	YRMP	LR11	The Yuma District will attempt to acquire 31,220 acres through exchange to benefit Federal programs. These lands will all be open to mineral entry and development in accordance with mining law and regulations. 1987 RMP, p.19 YFO, LHFO
8.	YRMP	LR12	Additional private lands in the Yuma District are identified for acquisition to benefit Federal programs. These lands total 18,950 acres. 1992 Yuma RMP Amendment YFO, LHFO
9.	KRMP	LR**	Designate approximately 180,000 acres of public land for disposal, preferably through exchange, near growing communities for the purposes of community development, mine expansion, industrial development, etc. The disposal lands are identified on Map 13 and in Appendix 12 and the primary acquisition areas are private lands high in resource values as such as wilderness inholdings and those lands identified in Table 6, page 59 and Appendix 20, page 511-520. (LR01/B1)
10.	KRMP	LR**	Dispose of public land through exchange to the State of Arizona, when able, as identified in Appendix 12 for state lands high in resource values as such as wilderness inholdings and those lands identified in Table 6, page 59 and Appendix 20, page 511-520. State lands currently being leased for the Kingman wild horse and burro regional holding

Item	RMP	Code	Decision
			facility will also be acquired through exchange. (LR02/B2)
11.	KRMP	LR**	Dispose of federal minerals underlying state and private land and acquire non-federal minerals underlying public lands to eliminate split estate. (LR04/B2)
12.	KRM	LR**	Lands outside of designated disposal areas would be considered for disposal on a case-by-case basis. (LR06/B2)
13.	KRMP	LR**	Retain and acquire lands not identified for disposal and in areas of blocked public ownership. (LR07/B2)
14.	KRMP	LR**	Dispose of public land identified in Appendix 17 only through the Recreation and Public Purposes (R&PP) Act to qualified organizations; i.e., government and non-profit entities. Refer to: Page 66; Appendix 17, page 507 (LR10/B2)
15.	KRMP	LR**	Other lands may be considered for R&PP if they are in disposal areas as shown in Appendix 12 or on other public lands if the use is not compatible with nearby uses. Refer to: Page 66, Appendix 17, page 507 (LR12/B2)
16.	KRMP	LR**	Sales will be considered as identified on page 70, on small isolated tracts to adjacent landowners or to resolve inadvertent trespass. (LR21/B2) pg70
17.	KRMP	LR**	Acquire 2,360 acres of state and 8,040 acres of private lands (surface and subsurface) and 27,925 acres of non-federal subsurface identified in Appendix 22. (BM07/C2)
18.	LGNMFP	LR**	Recommend lands for disposal. (D-21.)
19.	LGNMFP	LR**	Lower Gila North Management Framework Plan Amendment – Land Tenure Adjustment (AZ-027-85-30)(1985) The land tenure adjustment portion of the MFP will be changed to read as follows: "Public lands within the planning area not identified in this list will be considered for disposal to accommodate the following lands actions only: 1. State selections and exchanges. 2. Mineral estate exchanges. 3. Special legislation."
20.	LGSRMP	LR	Approximately 73,000 acres of public land within the planning unit will be available for either state or private exchanges, or transferred under special legislation or public sale. These lands are identified in Appendix 3 of the final RMP/EIS. ROD, page 1.
21.	LGSRMP	LR	Approximately 37,000 acres of non-public lands are identified for acquisition. Acquisition of these lands will benefit wildlife, botanical wilderness and multiple-use values. These lands are identified in Appendices 4, 5, 6, 7 and 8 of the final RMP/EIS. ROD, page 2.
22.	YRMP	RR04	Whether currently leased or managed by BLM, present recreation lands (with the exception of Pittsburg Point) will be retained in federal ownership to ensure that a full range of public opportunities for Colorado River recreation will continue to be available in the future.

Item	RMP	Code	Decision
			1987 RMP, p. 21 and 22 YFO, LHFO
23.	YRMP	RR07	With the exception of the Pittsburg Point area of Lake Havasu State Park, lands in or adjacent to the floodplain will all be retained in Federal ownership to ensure that public opportunities for Colorado River recreation continue to be available in the future. 1987 RMP, p.22 YFO, LHFO
24.	LGNMFP	RP**	Negotiate with the State Land Department to facilitate exchange of S. 26, T. 7N., R. 11W., provided that the riparian habitat can be feasibly maintained. (R-16.)
25.	YRMP	SM19	The Yuma District will attempt to expand the Bill Williams Riparian Management Area from 1,720 acres to 5,440 acres through the acquisition of private lands along the Bill Williams River. 1992 Yuma RMP Amendment #3 LHFO
26.	KRMP	SM**	Acquire 14,496 acres of private and 3,655 acres of state lands (surface and subsurface) and close to mineral entry. (TR03/C2 IV)
27.	YRMP	WF16	With the exception of the Pittsburg Point area (along the Lake Havasu shoreline), all public lands within priority wildlife habitat will be retained in federal ownership unless patented under the mining laws. 1987 RMP, p. 22
28.	YRMP	WF19	The Yuma District will attempt to acquire through exchange 27,540 acres of State and private lands adjacent to or encompassed by priority wildlife areas. 1987 RMP, p. 16
29.	YRMP	WF20	The District will attempt to acquire 7,240 acres of private lands within Category I and II desert tortoise habitat areas through purchase or exchange. 1992 RMP Amendment #3.
30.	LGSRMP	MI	Acquire approximately 112,160 acres of state private mineral and dispose of approximately 23,645 acres of federal mine that underlie state or privately owned surface estates. The mineral estate to be acquired is shown in Appendix 9 (LGSRMP), and the mineral estate to disposed of is show in Appendix 10 (LGSRMP). Appendix 7 (LGSRMP) list surface and minerals to be acquired for wilderness.

** Kingman, Yuma, or Phoenix Field Office's coded number is the controlling decision number and can be found in parentheses at the end of the decision.

Appendix E

Cultural Resources

Introduction

Cultural resources are locations of human activity, occupation or use. They include archaeological, historic, and architectural sites with important public and scientific uses. They also include places of traditional cultural or religious importance to Native Americans and other cultural groups. Numerous authorities provide a basis for making decisions on actions that could affect cultural resources, including (but not limited to) the National Historic Preservation Act (NHPA), as amended, the American Indian Religious Freedom Act, the Archaeological Resources Protection Act, and Executive Order 13007, "Indian Sacred Sites."

Section 106 of the NHPA and its implementing regulations (30 CFR 800) require federal agencies to take into account the effects of their undertakings on historic properties. As defined in 30 CFR 800.14, a historic property is "…any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places..." The term also encompasses artifacts, records, and remains related to such properties. Compliance with Section 106 of the NHPA will be completed on a project-specific basis before decisions are made on activities that could affect cultural resources.

A wide range of prehistoric, historic, and traditional cultural/religious sites occur throughout Arizona. Table E-1, Cultural Resource Site Types in Lake Havasu Field Office, describes the site types known to occur within the state and on BLM-managed land. A chronology of human occupation in the state is provided below and in Chapter 3. The Lake Havasu Field Office of BLM manages approximately 1.4 million acres of land in Arizona. Four Areas of Critical Environmental Concern (ACECs) have been recommended entirely or partly to provide management and protection of cultural resources.

The existing Resource Management Plans (RMPs) describe site types and general distribution throughout the individual planning areas. It is important to note that these represent *known* sites only, given that relatively small portions of the planning areas have been subjected to cultural resource surveys. Individual management activities carried out under this plan will be preceded by a complete review of known resources and field survey, as appropriate, to identify cultural resources that might be affected by any proposed activities.

Prehistoric Resources

Thousands of archaeological sites representing over 13,000 years of human occupation have been recorded on BLM-managed land in Arizona. Prehistoric sites tend to concentrate near seeps and springs in mountain ranges, and along perennial streams such as the Bill Williams and Colorado Rivers. They include properties as diverse as archaic hunting camps, giant ground figures (intaglios), lithic or food procurement sites, temporary camps and rock art. Some significant prehistoric resources are listed below:

- Extensive (36 sq. mi.) macro-flaking industry, trails, petroglyphs and rock rings
- Thunderbird Intaglio
- Rattlesnake Intaglio
- Park Moapi Intaglios
- Beale's Slough Intaglios
- Topock Mystic Maze
- Arrastra Canyon petroglyphs
- Avilla petroglyphs
- Mohave Mesa geoglyphs, petroglyphs and campsite
- Mississippi Springs pictographs
- Mojave Winged Serpent intaglio
- Osborne, Black Tank, and Screwbean campsites
- Granite Pass petroglyph, milling, and campsite

Historic Resources

Historic resources in Arizona pertain primarily to Spanish, Mexican, and Anglo-American activities since the mid-1500s. They include ghost towns, historic ranches, and numerous historic trails and wagon roads such as Beale's Wagon Road. Resources pertaining to mining and Anglo-American settlement date from the end of the 1800s, and numerous "ghost towns" (i.e., abandoned settlements) occur throughout the area. Many resources, such as the turn-of-the-century historic mining town of Swansea, are considered historically significant and are accessible to the public. Some additional historic resources are listed below:

- Beale's Wagon Road – Wagon road and old Indian trail
- Fort Mohave-Prescott Toll Road (Hardy Toll Road)
- Mohave & Milltown Railroad and Trail
- U.S. Route 66
- Old National Trails Highway
- A & P Railroad

- Santa Fe Railroad
- Schwanbeck's Store
- Cienega Mining District
- McGuffie Cabin
- Hargus Cabin
- Bouse WWII Camp

Places of Traditional Cultural Importance

Places of traditional cultural importance provide a sense of spiritual and social continuity to Native Americans and other cultural groups. Some places may have religious significance. Others may be used for the observance of traditional ceremonial activities, or for hunting or gathering plants for food or medicinal use.

Within the context of the NHPA, a Traditional Cultural Property (TCP) is a property that is eligible for inclusion on the National Register of Historic Places due to its association with the cultural practices or beliefs of a living community when those practices or beliefs have been passed down through the generations and are important in maintaining the cultural identity and integrity of that group. Because they are not usually recognizable to an outsider through archeological or historical investigations, the existence and locations of TCPs may often be identified only through consultation with members of the groups who ascribe value to those places.

The BLM is consulting specifically with Indian tribes to provide an opportunity for tribes to identify any places of traditional religious or cultural importance relevant to the proposed land use plan amendments. Many Native American belief systems require that the identity and location of traditional religious and cultural properties not be divulged. BLM has a commitment to keep specific information regarding such resources confidential to the fullest extent allowed by law.

Table E-1. Cultural Resource Site Types In Lake Havasu Field Office

Prehistoric Archeological Sites	
Village (Rancheria)	Usually a permanent habitation area for several families over an extended period of time.
Temporary Camp	A temporary habitation area.
Farm Camp	Temporary camp occupied during planting or harvesting times, usually found along the Colorado River.
Trail Camp	Very temporary camp used for a night or two during migrations.
Hunting/Gathering Camp	Temporary camp used for a few weeks as a base camp for hunting and gathering activities.
Rock Shelter	A temporary camp found within a natural rock shelter.
Cleared Circle	Also known as "Sleeping Circles," a cleared and/or smoothed depression area on desert pavement terraces, usually used for sleeping.
Rock Circles	Usually a cleared area with rocks around the edge, thought to have served as anchors for temporary brush huts.
Quarry/Lithic Source	A source area for raw lithic materials used for tool manufacture or for minerals used for paints.
Roasting Pit	A concentration of thermally affected rocks usually with ash in the soil. These may occasionally be cremation sites.
Rock Cairn	A trail marker, monument, or "shrine" resulting from stones placed in a pile or cluster.
Midden	A refuse area usually associated with permanent or semi-permanent annually occupied villages or camps.
Milling Station	A food preparation area where one or more grinding stones (metates, mortars, or pestles) are present.
Knapping Station	An area where cores or raw lithic materials were reduced to blanks, performs, or tools, evidenced by concentrations of large chunks or flakes of the same material.
Lithic Scatter	A location used to manufacture lithic tools, as evidenced by a scatter of lithic flakes or cores.
Ceramic Scatter	A location with scattered broken pottery shards, possibly the result of the breakage of a single vessel.
Hunting Blind	A semi-walled locality, usually on hilly or mountainous slopes, used to hunt primarily bighorn sheep and deer.
Burial/Cremation	Evidence or human burial or cremation, the latter usually containing ash and pieces of human bone.
Trail	An aboriginal footpath used to travel from area to area. Trails are primarily identified by association with artifacts and/or features.
Aboriginal Art	Geometric, zoomorphic, or anthropomorphic design created by aboriginal peoples.
Petroglyphs	Designs pecked, rubbed, or scratched onto rock.

Table E-1. Cultural Resource Site Types In Lake Havasu Field Office	
Prehistoric Archeological Sites (continued)	
Pictographs	Designs painted on rock.
Intaglios	Large designs created on desert pavement by removal of surface gravel.
Rock Alignments	Large designs created by the alignment of rocks and gravel.
Isolated Artifacts	Artifacts, such as pottery shards, lithic tools, etc., found without association to an identifiable site.
Historic Archeological Sites	
Mine	Evidence of ore removal for mineral extraction (e.g., pits, holes, shafts, adits, tailings).
Mill	Structures (or the remains of structures) associated with processing minerals.
Town	Aggregation of structures and other physical remains of a multifamily occupation in historic periods.
Home or Cabin	Single structure and associated physical remains of a single person or family occupancy.
Historic Campsite	Evidence of temporary occupation by one or more families. Usually associated with temporary mining or river-related activities.
Road or Trail	Evidence of historic use as a wagon or pack train route
Military	Site of a military camp or other activities. Primarily remnants of General Patton's World War II maneuvers.
Trash Dump	Historic refuse associated with any of the above.
Grave/Cemetery	One or more historical burials.
Traditional Cultural/Religious Sites	
Ceremonial Site	A prehistoric or historic area of sacred character. Physical evidence of ceremonial activities are usually present in the form of dance patterns, vision quest circles, intaglios, rock cairns, etc.
Sacred Area	A prehistoric or historic area of sacred character. Evidence of physical activities is not always present. Certain mountaintops, power places and vision quest locations are examples of sacred areas.
Traditional Use Area	An area of traditional use for hunting, gathering (of food or medicinal plants), fishing, or traveling.

Settlement and subsistence sites represented by relatively permanent farming rancherias in the valleys of the Lower Colorado River and exploitation of the resources, from seasonal and temporary camps, along the tributaries, adjacent mountain ranges and deserts of Arizona, California, Nevada and Mexico. Ceremonial sites are represented by geoglyphs (figure "intaglios" and paths created by dance or other group activities) on desert pavement terraces, trail shrines, and petroglyph and pictograph sites. Chronology is based on association of Lower Colorado River Buffwares with dated types from other cultures found in stratigraphic context, radiocarbon dates from features, and absence of Patayan I (Ancestral Yuman) types at well-dated sites of later periods. Lower Colorado

River Buffwares are classified by surface treatment, vessel forms, and rim treatment. Patayan I period (A.D. 700–1000) ceramics are characterized by direct rims, the Colorado shoulder, incised or textured design, burnishing and red clay slips, usually considered as confined to the lower Colorado River south of Parker, Arizona and rare 30 miles east of the Colorado Gila confluence. Patayan II (Ancestral Yuman) period ceramics (A.D. 1000–1500) discards the Patayan I jar forms, adopts recurved rims and stucco finishes. Patayan III (Ancestral Yuman) period, protohistoric and historic times after A.D. 1500, reinforced rim bands, and late in period, development of forms for trade to Anglos. During Lowland Patayan I period (A.D. 700–1000), most occupation was south of the Bill Williams River confluence, along the lower Gila River, on the adjacent desert areas, and west to the eastern shores of Lake Cahuilla. Expansion north to Mohave Valley began by A.D. 900. Patayan II (A.D. 1000–1500) was a period of expansion from the previous period. Patayan III (A.D. 1500–1900) is characterized as a time of alliances, warfare, and trade networks.

Cultural Affiliation: Yuman (Ft. Mojave, Colorado River Indian Tribes, Ft. Yuma Quechan), Maricopa (Salt River Pima-Maricopa, Ak-Chin, and Gila River), Cocopah (West Cocopah and East Cocopah).

Evidence of early occupation in the Lower Colorado River valleys is poorly preserved due to inundation by reservoirs (Lakes Mohave and Havasu) and the historic development and intensive agricultural practices in those valleys not flooded. Relatively permanent habitation structures on terraces adjacent to the floodplain are documented from the late Patayan III period in Mohave Valley. They consist of square to rectangular jacal-walled surface structures with associated trash scatters containing Patayan ceramics, lithics (chipped and shaped ground stone), and historic glass and metal. Features interpreted as cremations have been found associated with habitation structures. A horse geoglyph was obviously created during the Patayan III period. Other geoglyph sites usually lack temporal or cultural diagnostics, but are geographically restricted to the Lowland Patayan area as defined by material culture. Quarries associated with Ground Stone Tool Manufacturing are accessible from major occupational areas and are found on the bajadas of every major Colorado River valley. Finished tools and debitage associated with reshaping these tools are found at habitation sites on the flood plain. Trail networks link ceremonial, occupational, resource exploitation areas and economic trade routes. Stone features (rock alignments and shrines with diagnostic artifacts incorporated) and diagnostic artifact scatters are found along trails.

Historical/Ethnohistorical: Spanish explorers in the 1600s encountered Mojave people in Cottonwood Valley (now Lake Mohave) south to Parker Valley. The Quechan were reported from the modern location of San Luis, Mexico north through Cibola Valley to the Palo Verde Valley, and the Cocopa occupied the delta area, mostly south of the international border. The Parker Valley was shared by the Chemehuevi and Mojave after the Quechan and Mohave battled and ousted the Halchidhoma, Kohuana, and Halyikwamai between 1827 and 1829. Recent studies of Maricopa social organization and ethnohistory stress the unity among the river Yumans of the Gila and the Colorado River (Harwell 1979). In consultation, Mojaves state that people who died away from home may have been buried instead of cremated.

Oral Traditions/Folklore: Kroeber documented territory and trade routes as described in song cycles in the Mohave Myth Trilogy. Geographical place locations and extensive tales of real and dreamed travel are a foundation for oral tradition and myths. Yuman

groups share the same stories, with conformance and variance exhibited between different groups. Some geoglyphs and petroglyph figures are interpreted as representing key components or characters of creation and other legends. All Yuman tribes today regard Avikaame (Spirit Mountain), as the place of origin, and the trail (Xam Kwatcam) and associated ceremonial sites from the delta area to the mountain, and the Black Canyon north of Avikaame as important to all Yuman people.

Anthropological: Ethnographer William Kelly (1977) commented that although they practiced floodwater agriculture, the Cocopa are not considered agricultural tribes. They did not depend only on farmed crops, nor did they develop religious or social patterns usually associated with agricultural people. The same is true for the cultural and social patterns of the Quechan and Mojave. The Quechan, Mojave, and Cocopa also share similar technology, clothing and adornment, warfare, and life cycle practices.

Biological: No physical anthropological research has been done with human remains from the Lower Colorado River, in part probably due to cremation being the preferred disposition of human remains.

Kinship: See Oral Traditions/Folklore above.

Linguistic: The Yuman language of the Hokan language family is characteristic of this area. It is divided into four branches; two are in the Lowland Patayan, the Colorado delta groups (Cocopa, Kohuana, and Halyikwamai), and the river groups of the Colorado and Gila Rivers (Quechan, Mojave, Halchidhoma, Kaveltcadom, and Maricopa). Historical linguists believe that Yuman languages emerged as a separate classification at about A.D. 1., the source being from the south and migrating and diffusing to the north. Maricopa and Quechan languages exhibit similarities. Mojave language has been defined as a bridge between the Lowland and Upland Patayan.

Geographical: Mojave and Quechan informants (see Oral Tradition/Folklore above) cited named places including settlements, natural features and other significant locations. Place names from oral tradition correlate to geographical area of occupation as defined by material culture in archaeological record.

Cultural History and Overview

The cultural history for this area is covered in detail by Stone (1991). A summary of that work, in addition to the research of others, is presented here. The author has borrowed extensively from Stone (1991) and LaForge (2001).

Paleoindian Period

People may have traveled through the area between 12,000 B.P. to 7,000 B.P. This Period is poorly understood in this area and no known sites have been identified. If people were here during this time period, which is likely because of the river resources, they probably would have been mobile, following game and harvesting wild plants. Malcolm Roger's earliest definition was based on a three-phase chronology, originally the Malpais, Playa I, and Playa II, which were renamed the San Dieguito I, II, and III. These phases are defined by mostly non-diagnostic tool types, "sleeping circles," rock

rings, topographic association, and variability in the weathering and patina on the artifacts (Rogers 1939, 1958, 1966). The vagueness of the cultural evidence has led to criticism of the sequence and a question of the cultural unit as defined (McGuire and Schiffer 1982:169, Warren 1967:171). Similarities between San Dieguito II and III materials and artifacts in Campbell's Lake Mohave complex have been noted by Warren and True (1961:267). The Lake Mohave complex includes the distinctive Lake Mohave and Silver Lake projectile points. A fluted Clovis Point was identified in 2001 at the Type Site for Lake Mohave. Generally dated from 10,000 to 7,000 B.P., Huckell believes the complex may have persisted to 4,000 B.C. (1984).

Archaic Period

The Archaic Period, circa 7,000 B.P.–1500 B.P. and perhaps as late as 1300 B.P., begins with a change in settlement and subsistence that corresponds to environmental changes in the desert environment. This period corresponds to Rogers "Amargosa" Tradition (Rogers 1939.) There was an increased exploitation of plant foods, grass, and other seeds evidenced by an increase in ground stone and reduction of reliance on "big game" hunting. Introduction of cultigens and climatic changes that altered the distribution of plants and animals contributed to cultural change and an eventual shift to a more sedentary lifestyle (La Forge 2001). The Archaic Period is divided into Early, Middle, and Late (Huckell 1984, 1986).

The Early Archaic period, which lasted until ca. 6000 B.P., is represented by projectile point styles that include Lake Mohave and Silver Lake points, as well as percussion-flaked scrapers and choppers, and thin slab grinding tools.

The Middle Archaic period, from circa 6,000 to 4,000 B.P., is represented in the archaeological record by diagnostic artifacts that include Pinto series, Elko series, and Gypsum projectile points, as well as the appearance of the basin metate. Bighorn Cave, a stratified site approximately 40 miles north of the project area, was occupied prior to 5000 B.P. based on radiocarbon dates of perishable materials (Geib and Keller 1987).

The Late Archaic, from approximately 4,000 B.P. to 1500/1300 B.P., has Gypsum-style points in the early part of the period and the continuation of Elko style points (Huckell 1984). Cultigens may have entered the region early in the period, not later, as previously thought. Paleoenvironmental information indicates that the first two-thirds of this time period, 2000 B.C. to A.D. 1, was relatively cool and moist, with most moisture coming in the winter rains. Base camps were occupied more frequently, or for longer intervals, and were located near watercourses (Stone 1991). From A.D. 1 to 500, warmer climatic conditions may have increased aridity or rain cycles may have returned to summer rainfall.

Patayan/Ancestral Yuman

By 1300 B.P., ceramics appear in the archaeological record along the Lower Colorado River, as does the bow and arrow. Roger's (1945) defined three phases, labeled Yuman I, II, and III. This label was changed to "Patayan," a Yuman word for "old people". Patayan is a lower Colorado Basin culture recognized as separate from the Anasazi, Mogollon, and Hohokam traditions in the Southwest. Patayan is further subdivided into

Patayan I, Patayan II, and Patayan III. By A.D.900, four branches had developed ("Laquish," "Cerba," "Prescott," and "Cohonina"), all of which are considered ancestral to modern-day Yuman groups (Rogers 1945). Some Yuman speakers have suggested that Ancestral Yuman may be more accurate than Patayan or the competing term "Hakataya."

During this period, floodplain agricultural may have supplemented hunting and gathering. Patayan I (A.D. 700 to 1,000), II (A.D. 1,000 and 1,500), and III (A.D. 1500 to historic, including Protohistoric Period following first contact) are defined by changes in ceramic types and forms. The current project is within the traditional territory of the Laquish Branch. Ethnographic studies conducted between 1900 and 1960 described the Yuman peoples in general, and the Mojave culture in detail, by recording oral history and the old life ways as remembered by the elders. Some of these studies have been described as "salvage ethnography, seeking to reconstruct aboriginal cultures as they existed prior to the establishment of reservations" (Stone 1991:24).

The Mojave depended on the flooding of the Colorado River to provide the necessary moisture to plant corn, beans, pumpkins, and melons. Risk of failure tempered dependence on agriculture, so crops were supplemented with native plants. The most important were mesquite, both the screw bean (*Prosopis pubescens*) and the honey-bean (*Prosopis juliflora*), with other forbs, seeds, and berries (Castetter and Bell 1951). Material culture met the basic needs with artistic or aesthetic expression through body painting, tattooing, and hairstyle. At death, a person was cremated and his or her belongings destroyed. If the death occurred away from Mojave homeland, the person may have been buried.

Two areas were reported in early accounts as highly populated areas: Mohave Valley and the Gila-Colorado River confluence. Smaller populations were located along the length of the river, exploiting the available resources. Schroeder (1952:4-6) synthesized the historic observation of settlements relevant to the study area as follows. During his exploration in 1605, Oñate identified the people above the Bill Williams River as the Amacava. In 1776, Garces reported the people north of the Bill Williams as the Jamajabs (similar to the name used today by the Mojave living in Mohave Valley, Ahamakav). These infrequent recorded visits by explorers and reported visits by "mountain men" all occurred before the disruption of the culture by the later exploration and contact. The historic use that followed in the mid-1800s had significant impact on the native populations.

In 1857, the Beale Wagon Road followed the footpath of the Mohave Indian Trail into Mohave Valley, 3 miles southeast of the project area. In 1858, the U.S. Army started battling the Mojave and Quechan at both ends of their territories. The Fort Mojave Military Reserve, located 3 miles south (as the crow flies) of the project area, was established near Beale's Crossing that year to protect wagon trains heading west (Malach 1980). It operated as a military fort with a break in service between 1861 and 1863. Soldiers from Camp Mohave supplemented their pay with mining in Silver Creek and the surrounding countryside, what would eventually become the Oatman mining district. Camp Mojave was used as a military fort until 1890 when it was decommissioned and utilized as an Indian School. The Atchison, Topeka and Santa Fe Railroad was built around the south end of the Black Mountains in 1883 and the Colorado River was crossed with a bridge at Topock. Interest in the mines of the Oatman District was renewed in

1900 and active exploration and development of high-grade gold ore was pursued. The town of Oatman was established about 1912.

Land Use Allocation for Cultural Resources

Special Cultural Resource Management Area

An area containing cultural resources (archaeological sites, historic sites or places of traditional cultural importance) that are particularly important for public use, scientific use, traditional use, or other uses as defined in BLM Manual 8110.4. Management prescriptions for these areas should reflect and support the primary values for which the areas are allocated. For example, management prescriptions for a Special Cultural Resource Management Area allocated primarily for public use should focus on developing and interpreting sites for public visitation, including heritage tourism. Management prescriptions for a special area allocated primarily for scientific use should focus on protecting sites for study, supporting field schools, and other research efforts. Management prescriptions for a special area allocated primarily for traditional use should seek to accommodate the traditional cultural practices of Indian tribes or other cultural groups that ascribe religious or other heritage values to the area. Management prescriptions for a special area allocated primarily to protect scarce sites of singular importance that should not be subjected to invasive studies or other uses that would threaten their present condition should focus on conserving sites for the future.

Management prescriptions for a single Special Cultural Resource Management Area can focus on more than one type of use, just as a single cultural property can be allocated to more than one of the use categories described in Manual 8110.4. For example, a special area might contain a set of cultural properties that, linked together and interpreted as a group, would make a good auto tour route for heritage tourism. At the same time, the area might contain several cultural properties of unusual historic importance that should be segregated from land or resources uses that might impair their present condition or setting. While both kinds of properties should receive management emphasis, they can be subsumed within a single land use allocation with management prescriptions tailored to support public visitation of the sites along the auto tour route, and protection for the sites that warrant segregation.

The primary purpose of this land use allocation is to differentiate some portions of a planning area from others in terms of cultural resource values. The allocation can denote priority for the expenditure of time and funds or the need for special protection to achieve management objectives. However, highlighting a geographic area for its special cultural resource values does not diminish the importance of cultural resources in other areas. Cultural resources on lands not included within special areas still need to be managed for the values they contain and opportunities they afford.

Table E-2. Allocation of LHFO Cultural Sites by Alternative

Alternative 2	
Conservation for Future Use (35)	
Intaglio	
Dough Boy	Desert Unit
Osborne Snake, etc	Desert Unit
Feathered Serpent	Desert Unit
CA intaglio	Colorado River Unit
CA intaglio	Colorado River Unit
Rock art	
Empire	Colorado River Unit
Arrastre Canyon	Desert Unit
Burro Canyon	Desert Unit
Hwy 60	Desert Unit
AhVilla	Colorado River Unit
4 Harcuvar Picto sites	Desert Unit
Harquar Tank	Desert Unit
Mississippi Spr	Bill Williams Unit
Kegley Lynch	Desert Unit
Public Use(6)	
Camp Bouse	Desert Unit
A&P RR	Colorado River Unit
Mohave/Milltown	Colorado River Unit
Hardy Toll Rd	Colorado River Unit
Schwanbeck's	Colorado River Unit
Swansea	Bill Williams Unit
Habitation/Complex	
Osborne Wash	Desert Unit
Mohave Mesa	Desert Unit
Black Tank	Desert Unit
Screwbean	Desert Unit
Bowman's Wash	Colorado River Unit
Beale's Road	Colorado River Unit
M:9:16 (ASM)	Bill Williams Unit
Bluebird	Colorado River Unit
Colorado River Nature Center	Colorado River Unit

Table E-2. Allocation of LHFO Cultural Sites by Alternative	
Bouse Well	Desert Unit
Owl Cliff shelter	Desert Unit
Centennial Wash	Bill Williams Unit
Mineral Sprs Wash	Desert Unit
Culling's Well	Desert Unit
Bison	Desert Unit
GSM complex	Colorado River Unit
Historic (2)	
Harquahala Mining	Desert Unit
Bonanza & Incline	Desert Unit
Traditional Use(7)	
Intaglio	
Beale Slough	Colorado River Unit
Thunderbird	Desert Unit
Rattlesnake	Desert Unit
Topock Maze	Colorado River Unit
Park Moapi	Colorado River Unit
Glyph	
Stateline glyph	Colorado River Unit
Complex	
Creation Site Area	Colorado River Unit
Alternative 3	
Conservation (25)	
Intaglio	
Dough Boy	Desert Unit
Osborne Snake, etc	Desert Unit
Feathered Serpent	Desert Unit
Rock art	
Empire	Colorado River Unit
Arrastre Canyon	Desert Unit
Burro Canyon	Desert Unit
Hwy 60	Desert Unit
AhVilla	Colorado River Unit
Harcuvar Picto sites	Desert Unit
Harquar Tank	Desert Unit

Table E-2. Allocation of LHFO Cultural Sites by Alternative	
Mississippi Spr	Bill Williams Unit
Habitation	
Osborne Wash	Desert Unit
Mohave Mesa	Desert Unit
Black Tank	Desert Unit
Screwbean	Desert Unit
Bowman's Wash	Colorado River Unit
Beale's Road	Colorado River Unit
M:9:16 (ASM)	Bill Williams Unit
Bluebird	Colorado River Unit
Colorado River Nature Center	Colorado River Unit
Bouse Well	Desert Unit
Owl Cliff's shelter	Desert Unit
Centennial Wash	Bill Williams Unit
Mineral Sprs Wash	Desert Unit
Bison	Desert Unit
Traditional (5)	
Beale slough	Colorado River Unit
Thunderbird	Desert Unit
Rattlesnake	Desert Unit
Creation Site Area	Colorado River Unit
Park Moabi/Topock	Colorado River Unit
Public (11)	
Camp Bouse	Desert Unit
A&P RR	Colorado River Unit
Mohave/Milltown	Colorado River Unit
Hardy Toll Rd	Colorado River Unit
Schwanbeck's	Colorado River Unit
Swansea	Bill Williams Unit
Culling's Well	Desert Unit
McGuffie Cabin	Bill Williams Unit
Hargus Cabin	Desert Unit
Harquahala Mining	Desert Unit
Bonanza & Incline	Desert Unit

Table E-2. Allocation of LHFO Cultural Sites by Alternative	
Alternatives 4 and 5 (Preferred)	
Conservation (28)	
Intaglio (3)	
Dough Boy	Desert Unit
Osborne Snake, etc	Desert Unit
Feathered Serpent	Desert Unit
Rock Art (10)	
Empire	Colorado River Unit
Arrastre Canyon	Desert Unit
Burro Canyon	Desert Unit
Hwy 60	Desert Unit
AhVilla	Colorado River Unit
Harcuvar Picto sites	Desert Unit
Harquar Tank	Desert Unit
Mississippi Spr	Bill Williams Unit
Kegley Lynch	Desert Unit
Bison	Desert Unit
Habitation (13)	
Osborne Wash	Desert Unit
Mohave Mesa	Desert Unit
Black Tank	Desert Unit
Screwbean	Desert Unit
Bowman's Wash	Colorado River Unit
Beale's Road	Colorado River Unit
M:9:16 (ASM)	Bill Williams Unit
Bluebird	Colorado River Unit
Colorado River Nature Center	Colorado River Unit
Bouse Well	Desert Unit
Owl Cliff's shelter	Desert Unit
Centennial Wash	Bill Williams Unit
Mineral Sprs Wash	Desert Unit
Historic (2)	
Harquahala Mining	Desert Unit
Bonanza & Incline	Desert Unit
Traditional (7)	

Table E-2. Allocation of LHFO Cultural Sites by Alternative	
Intaglio	
Beale Slough	Colorado River Unit
Thunderbird	Desert Unit
Rattlesnake	Desert Unit
Topock Maze	Colorado River Unit
Park Moapi	Colorado River Unit
glyph	
Stateline Glyph	Colorado River Unit
complex	
Creation Site Area	Colorado River Unit
Public (8)	
Camp Bouse	Desert Unit
A&P RR	Colorado River Unit
Culling's Well	Desert Unit
Hardy Toll Rd	Colorado River Unit
Schwanbeck's	Colorado River Unit
Swansea	Bill Williams Unit
McGuffie Cabin	Bill Williams Unit
Hargus Cabin	Desert Unit
Alt 1 – No Action	
Conservation	
Intaglio	
Park Moapi	Colorado River Unit
Beale's Slough	Colorado River Unit
Rattlesnake	Desert Unit
Mystic Maze	CU
Thunderbird	Desert Unit
Rock Art	
Arrastre Canyon	Desert Unit
AhVilla	Colorado River Unit
Habitation	
Osborne Wash	Desert Unit
Mohave Mesa	Desert Unit
Dough Boy/Osborne	Desert Unit
Black Tank	Desert Unit

Table E-2. Allocation of LHFO Cultural Sites by Alternative	
Screwbean	Desert Unit
Bowman's Wash	Colorado River Unit
Historic	
Hardy Toll Road	Colorado River Unit
Public	
Swansea	Bill Williams Unit

Cultural Resources: Basic Goals, Objectives, Allocations, and Actions

Goal 1: Preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations.

Objectives

- Allocate sites to cultural resource use categories, in accordance with BLM Manual 8110, to achieve the corresponding desired future conditions. Use categories include scientific use, conservation for future use, traditional use, public use, experimental use, and discharged from management.
- Implement physical protection measures at sites.
- Retain significant resources in public ownership.
- Acquire significant resources for protection and management under public ownership.
- Identify significant cultural landscapes and associated use allocations.
- Preserve sites that represent the range of time periods, cultural traditions, and functional types within the planning area.
- Consult with Indian tribes to identify places of traditional importance and access needs, and to evaluate and determine site use allocations and protection priorities.
- Encourage and permit scientific research and the documentation of oral histories and oral traditions.
- Provide opportunities for cultural heritage tourism and associated partnerships.
- Develop and maintain an active program of public education on the nature and values of cultural resources and the need to preserve them. Direct educational efforts toward a variety of age groups and audiences. Disseminate the results of scientific research to the public in an understandable format.
- Involve local communities in cultural resource protection and public education projects.

Allocations and Management Actions

- Identify priority areas for cultural resource management based on the relative importance and sensitivity of known and anticipated cultural properties. Management actions: these areas will be assigned a higher priority for inventory, scientific research, condition monitoring, and the implementation of protection measures and use restrictions. They will also receive relatively high

priority for National Register nomination, retention in federal ownership, and acquisition of in-holdings or properties of high significance on adjacent lands.

- Identify alternative sites and areas for varying intensities of public use
- Continue to maintain sites that have been developed for interpretive uses.
- Work with the recreation program to incorporate sites allocated to public use into systems of recreational trails, routes, and backcountry byways.
- Conduct ethnohistoric studies of selected areas to identify places of traditional cultural importance, tribal concerns, tribal needs for access and natural resource use, and protective measures.

Goal 2: Seek to reduce imminent threats and resolve potential conflicts, from natural or human-caused deterioration, or from other resource uses.

Objectives

- Where possible, work with BLM staff and land use applicants to develop project designs that avoid adverse impacts to significant cultural resources.
- Work with geologists to ensure that abandoned mine closures will not unnecessarily cause damage to cultural resources.
- Identify and protect historic structures and other fire-sensitive sites in areas designated for fuels treatment programs.
- Reduce the impacts of motorized and non-motorized recreational activities, including recreational prospecting, on archaeological sites.
- Reduce the impacts of commercial recreational activities and events, while providing opportunities for public enjoyment and education.
- In considering applications for leases under the Recreation & Public Purposes Act, identify and analyze NEPA alternatives that do not contain significant cultural resources.
- Review proposed grazing permit renewals to evaluate areas of livestock congregation where grazing activities are causing damage to significant sites, and take action to protect the sites.
- Maintain the visual integrity of cultural landscapes and settings of significant sites.

Allocations and Management Actions

- Conduct cultural resources inventories to identify significant resources, imminent threats, and potential conflicts with other resource uses (see Goal 3).
- Ensure that holders of special recreation permits monitor the condition of archaeological sites to which they are permitted to take visitors, and that they offer appropriate educational information about resource conservation.
- Establish limitations, restrictions, or stipulations to ensure that commercial tour operators will not damage cultural resources.
- Prohibit commercial tours to selected areas in order to protect cultural resources. Such areas may be allocated to a category of “conservation for future use.”
- Prohibit geocaching activities on archaeological sites.

- Limit vehicle traffic to designated routes or, if needed, close selected routes to vehicles to reduce physical damage or limit access to significant archaeological sites.
- Restrict livestock grazing where this activity is causing significant damage to sites.
- In evaluating alternative locations for leases granted under the Recreation & Public Purposes Act, assign preference to areas that do not contain significant cultural resources, or to areas that will be managed as open space with limited access. If leases are granted in areas that contain significant cultural resources, it is preferable to mitigate adverse effects through scientific data recovery rather than patent restrictions or reversionary clauses.
- Establish a policy that scientific and public uses of sites will avoid disturbance of Native American human remains and associated objects.

Goal 3: Identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources.

Objectives

- Conduct field inventories to identify significant cultural resources in order to determine threats and effective protection measures, and to allocate sites to appropriate uses.

Allocations and Management Actions

- Define priority areas for field inventories.
- Identify cultural landscapes and traditional cultural properties that may require protection or special management.
- Coordinate with adjacent Field Offices on priority inventories.

  - **Harcuvar Mountains:** The Harcuvar Mountains contain a variety of significant archaeological sites, including prehistoric camps, stone tool manufacturing sites, and petroglyphs. Unusual sites include rockshelters, pictographs, and occurrences of minerals and crystals. These sites have the potential to yield important information about prehistoric occupation of the area, particularly during the period between A.D. 700-1000. There may also be sites associated with transportation, commerce, and military activities during the 1800s.
  - **Harquahala Mountains:** This mountain range, a major zone of occupation by the historic Yavapai tribe, contains significant prehistoric sites including habitation camps, milling areas, and rock art. The significance of the cultural resources is consistent with a recommendation by wildlife biologists to establish an ACEC that includes the entire area of the range managed by PFO.

NOTE: **OBJECTIVES.** RMP may include numerous cultural resource objectives. The following are required. (Pertinent legal authorities are shown in parentheses.)

- **Objective 1.** Preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations. (FLPMA Sec. 103(c), 201(a), 202(c); NHPA Sec. 110(a); ARPA Sec. 14(a).)

- **Objective 2.** Identify priority geographic areas for new field inventory, based upon a probability for unrecorded significant resources, imminent threat from

natural or human-caused deterioration, or potential conflict with other resource uses (ARPA Sec. 14(a); NHPA Sec. 106, 110).

- **Objective 3.** Ensure that all authorizations for land and resource use will comply with Section 106 of the National Historic Preservation Act, consistent with and subject to the objectives established in the RMP for the proactive use of cultural properties in the public interest. (NHPA Sec. 106, 101(d)(6), 110(a)(2)(E); national BLM-ACHP-NCSHPO Programmatic Agreement of March 1997.)

- **Objective 4.** Identify priority geographic areas for new 'areas of critical environmental concern' (ACEC) (based upon a probability for significant cultural resources) where special management attention is required to protect and prevent irreparable damage to important historic or cultural resources.

Paleontological Resources

Paleontology is the study of flora and fauna (vertebrate and invertebrate) from past geological eras. Paleontological resources are fossils, or recognizable remains of past life, which have been preserved through various processes. The most typical process involving deposition of the organism in sediment which has either preserved the form of the organic material through replacement of the organic material by sediment, or through preservation of the form of the organism by impression in sediment. In some dry climates, preservation of organic material may occur.

Significant fossil sites on BLM-managed land in Lake Havasu Field Office include the Golden Shores Mammoth site, the Bouse Formation and the Chemehuevi Formation.

Appendix F
Grazing

Special Ephemeral Rule

Published in the Federal Register, Vol. 33, No. 238, Saturday, December 7, 1968 (Livestock Grazing Ephemeral Range: Arizona, California and Nevada).

In accordance with 43 CFR 4115.2-1 regarding special rules for grazing districts and pursuant to the receipt of recommendations of the State Directors for Arizona, California and Nevada and a factual showing of its necessity, a special rule for range designated as ephemeral is hereby approved.

Ephemeral (annual) ranges lie within the general southwest desert region extending primarily into southern Arizona, southern California and southern Nevada and include portions of the Mohave, Sonoran and Chihuahuan deserts. The region is characterized by desert type vegetation some of which may be classed as ephemeral only. Ephemeral range does not consistently produce forage, but periodically provides annual vegetation suitable for livestock grazing. In years of abundant moisture and other favorable climatic conditions a large amount of forage may be produced. Favorable years are highly unpredictable and the season is usually short lived. Ephemeral areas fall generally below the 3,200-foot contour and below the 8-inch precipitation isoline. A minor percentage of the total plant composition is made up of desirable perennial forage plants and potential to improve range condition and produce a dependable supply of forage by applying intensive management practices is lacking.

Because of the unique characteristics of ephemeral range the following special rule shall apply as follows:

- Applicable allotments or uses shall be formally designated by the District Manager as ephemeral range.
- An annual application by qualified licensees or permittees is not required unless grazing use is desired. On a year-to-year basis whenever forage exists or climatic conditions indicate the probability of an ephemeral forage crop, livestock grazing may be authorized upon application pursuant to any management requirements for the allotment.
- Use of base property (water base) during nonforage years is not feasible or economical and no use of base properties is required except during these periods when ephemeral forage is available and livestock grazing occurs.

Therefore:

- An annual application per 43 CFR 4115.2-1(c)(9), is not required unless grazing use is described.
- Grazing capacity per 43CFR 4115.2-1(c)(3) may be based on a reasonable potential for forage.
- Substantial use of grazing privileges per 43 CFR 4115(c)(10) is not required.
- A year round operation per 43 CFR 4115.2(c)(1) is not required.
- Substantial use of base property per 43 CFR 4115.2-1(c)(7) is not required.

This special rule shall immediately apply to the Phoenix, Safford, and Arizona Strip Districts in Arizona, the Bakersfield District in California, and the Las Vegas District in Nevada upon recommendation for adoption in that District by the respective District Advisory Board and concurrence by the State Director.

Criteria for Allotment Categorization

Table F-1. Criteria for Allotment Categorization

Criteria for Allotment Categorization	Categories		
	Maintain	Improve	Custodial
Resource Conditions	Meets Standard	No Meeting Standard	Not Applied
Resource Potential and Production	High Potential At Potential	High/Med Potential Not at Potential	Low Potential At Potential
Conflicts and/or Controversy	Some	High Conflicts and Controversy	None
Opportunities for positive economic return on public investment	Good	Good	Poor
Present Management Situation	Current Management is Satisfactory	Current Management is Non-Satisfactory	Management is not a factor

The assignment of all grazing allotments into a selective management category was made following established BLM program guidance. The three management categories are “Maintain,” “Improve,” and “Custodial.” Respective objectives are:

- Maintain current resource conditions.
- Improve current resource conditions.
- Manage existing resource values custodially.

The five standard criteria used by BLM in categorizing allotments are listed below.

1. Range condition
2. Resource potential
3. Resource use conflicts or controversy
4. Opportunity for positive economic return on public investments
5. Present management situation

Allotments in the Improve Category exhibit vegetative and watershed conditions not meeting objectives and standards; potential resource production is high to moderate but production is below potential; use conflicts exist; and anticipated benefits from management changes would justify expenditure of public funds.

Allotments in the Maintain Category exhibit vegetative and watershed conditions meeting objectives and standards; resource production is high and rangelands are producing near their potential; no critical use conflicts exist; existing management is maintaining objectives and standards, but some range developments could augment current management. Allotments in the Custodial Category exhibit vegetative and watershed conditions which may or may not meet objectives and standards; resource production potential is very low; few if any resource conflicts; and virtually no potential to respond to management changes.

Allotment categorization is used to establish priorities for distributing available funds and personnel during plan implementation to achieve cost-effective improvement of rangeland resources. Allotments may be moved from one category to another, as new information becomes available, resource conditions change, or management activities are implemented. Changes must be consistent with the category criteria, be supported by a document analysis showing the basis for the change, and must take an interdisciplinary approach and include public involvement.

Appendix G

Legal Descriptions of Lands Identified for Acquisition, Disposal, R&PP, and Exchange

Disposals

Table G-1. Alternative 1 - Land As Identified For Disposal From Existing Land Use Plans

Item #	Legal Description Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
1.	T.20 N., R 21 W., Sec. 8, S2S2SE	40			
2.	T.20 N., R 21 W., Sec. 18, NE	160			
3.	T.20 N., R 21 W., Sec. 20, N2NENW, N2SENENW, NESWNENW, NENENWNW, S2SWNWNW, NWSWNW, W2NESWNW, N2N2NWNWSW	52.5			
4.	T.20 N., R 21 W., 32, S2	320			
5.	T. 19 N., R. 21 W., Sec. 4, lots 1-4, S2N2, S2	644.6	2		
6.	T. 19 N., R. 21 W., Sec. 5, lots 1-4, S2N2, S2	643.92	2		
7.	T. 19 N., R. 21 W., Sec. 6, lots 1-7, S2NE, SENW, E2SW, SE	641.48	2		
8.	T. 19 N., R. 21 W., Sec. 7, lots 1-3, NE1/4; E2NW, NESW, SE1/4	559.95	1		
9.	T. 19 N., R. 21 W., Sec. 8 All	640	1		
10.	T. 19 N., R. 21 W., Sec. 9 All	640	1		
11.	T. 19 N., R. 21 W., Sec. 20, SW1/4SW1/4NW1/4NW1/4; W1/2SW1/4 NW1/4; W1/2NE1/4SW1/4NW1/4; SE1/4NE1/4 SW1/4NW1/4; SE1/4SW1/4NW1/4; SW1/4SE1/4NW1/2; S1/2SE1/4SE1/4NW1/4; N1/2NW1/4NE1/4SW1/4; NE1/4NE1/4SW1/4; NE1/4SE1/4NE1/4SW1/4; NW1/4NW1/4SE1/4; NW1/4SW1/4NW1/4SE1/4	85			
12.	T. 19 N., R. 21 W., Sec. 29, S2N2, NWNWSW, E2SW, W2SW, SE	450			
13.	T. 18 N., R. 21 W., Sec. 7, SE1/4	160			
14.	T. 18 N., R. 21 W., Sec. 8 All	640	1		
15.	T. 18 N., R. 21 W., Sec. 9 All	640	1		
16.	T. 18 N., R. 21 W., Sec. 16 All	640	1		

Item #	Legal Description Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
17.	T. 18 N., R. 21 W., Sec. 17 All	640	1		
18.	T. 18 N., R. 21 W., Sec. 18, E1/2	320			
19.	T. 18 N., R. 21 W., Sec. 20, All	640	1		
20.	T. 18 N., R. 21 W., Sec. 21, All	640	1		
21.	T. 18 N., R. 21 W., Sec. 28, All	640	1		
22.	T. 18 N., R. 21 W., Sec. 29, All	640	1		
23.	T. 18 N., R. 21 W., Sec. 33, All	640	1		
24.	T. 17 N., R. 21 W., Sec. 4 All	519	1		
25.	T. 17 N., R. 21 W., Sec. 9 All	640	1		
26.	T. 16 N., R. 21 W., Sec. 10, NE	160			
27.	T. 16 N., R. 21 W., Sec. 13, All	640			
28.	T. 16 N., R. 21 W., Sec. 14, Lots 1,4,5,8, 9, E2NE, S2SWNE, S2N2SWNE, SENESW, W2SWNESW.	366.92			
29.	T. 16 N., R. 21 W., Sec. 22, E2E2	160			
30.	T. 16 N., R. 21 W., Sec. 24, All	640			
31.	T. 16 N., R. 21 W., Sec. 26, E2NWSWNW	5			
32.	T. 15 N., R. 19 W., Sec. 2, Lots 1-4, S2N2, S2	637.2			
33.	T. 15 N., R. 19 W., Sec. 4, Lots 1-4, S2N2, S2	637.68			
34.	T. 15 N., R. 19 W., Sec. 6, Lots 1-6, S2NE, SENW, E2SW, SE	590.62			
35.	T. 15 N., R. 19 W., Sec. 8, All	640			
36.	T. 15 N., R. 19 W., Sec. 10. All	640			
37.	T. 8 N., R. 19 W., Sec. 11, E2, E2W2	480			
38.	T. 8 N., R. 19 W., Sec. 12, W2	320			
39.	T. 8 N., R. 19 W., Sec. 13, W2	320			
40.	T. 8 N., R. 19 W., Sec. 14, E2, E2W2, SWSE	520			
41.	T. 8 N., R. 19 W., Sec. 15, SESE	40			**X**
42.	T. 8 N., R. 19 W., Sec. 21, lot 1, E2, NENW, S2NW, S2	638.07			**X**
43.	T. 8 N., R. 19 W., Sec. 22, N2NE, N2N2NW, SWSW, SESE	200			**X**
44.	T. 8 N., R. 19 W., Sec. 23, All	640			**X**
45.	T. 8 N., R. 19 W., Sec. 24, W2	320			
46.	T. 8 N., R. 19 W., Sec. 25, W2	320			
47.	T. 8 N., R. 19 W., Sec. 26, All	640			
48.	T. 8 N., R. 19 W., Sec. 27, NWNW, E2SE	120			**X**
49.	T. 8 N., R. 19 W., Sec. 28, NE, S2NESW, W2SW, SESW, W2SWSE, SESWSE, SWSESE	220			**X**

Item #	Legal Description Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
50.	T. 8 N., R. 19 W., Sec. 29, lots 4-7, E2E2, SWSE	290.96			
51.	T. 8 N., R. 19 W., Sec. 32, lots 1-4, E2, E2SW	504.4			
52.	T. 8 N., R. 19 W., Sec. 33, All	640			
53.	T. 8 N., R. 19 W., Sec. 34, SWSENE, W2SESESE, W2NWNW, W2SENW, S2NW, SW, W2SE.	290			
54.	T. 8 N., R. 19 W., sec 35, NE, SESENW, S2.	490			
55.	T. 8 N., R. 19 W., sec 36, W2	320			
56.	T. 8 N., R. 14 W., Sec. 20, W2NE, N2SE	160			
57.	T. 8 N., R. 13 W., Sec. 1, Lot 1-4, S2	530.4			
58.	T. 8 N., R. 13 W., Sec. 11, All	640			
59.	T. 8 N., R. 13 W., Sec. 12, All	640			
60.	T. 8 N., R. 13 W., Sec. 13, All	640			
61.	T. 8 N., R. 13 W., Sec. 14, All	640			
62.	T. 8 N., R. 13 W., Sec. 22, All	640			
63.	T. 8 N., R. 13 W., Sec. 23, All	640			
64.	T. 8 N., R. 13 W., Sec. 24, All	640			
65.	T. 8 N., R. 13 W., Sec. 25 All	640			
66.	T. 8 N., R. 13 W., Sec. 26, All	640			
67.	T. 8 N., R. 13 W., Sec. 28, W2W2	160			
68.	T. 8 N., R. 13 W., Sec. 33, NWNW, S2NS, S2	520			
69.	T. 8 N., R. 13 W., Sec. 34, NENE, S2NS, S2	520			
70.	T. 8 N., R. 13 W., Sec. 35, All	640			
71.	T. 7 N., R. 19 W., Sec. 3, lots 2, 3, 4, SWNE, S2NW, SW, W2SE	479.89			
72.	T. 7 N., R. 19 W., Sec. 4, lots 1-4, S2N2, S2	639.96			
73.	T. 7 N., R. 19 W., Sec. 5, lots 1-4, S2N2, S2	638.17			
74.	T. 7 N., R. 19 W., Sec. 6, lots 5,6,7	77.81			
75.	T. 7 N., R. 19 W., Sec. 7, lots 3-6, W2E2, SESW	288.36			
76.	T. 7 N., R. 19 W., Sec. 8, All	640			
77.	T. 7 N., R. 19 W., Sec. 9, All	640			
78.	T. 7 N., R. 19 W., Sec. 10, W2E2, W2	480			
79.	T. 7 N., R. 17 W., Sec. 23, E2	320			
80.	T. 7 N., R. 17 W., Sec. 26, N2NE	80			
81.	T. 7 N., R. 17 W., Sec. 36, T. 7 N., R. 17 W., Everything southwest of highway: needs cadastral survey: Approx. 350.00 acres.	350			
82.	T. 6 N., R. 16 W., Sec. 1, Lot 1	51.68			

Item #	Legal Description Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
83.	T. 6 N., R. 16 W., Sec. 2, Lot 1-4, S2N2, S2	685.98			
84.	T. 6 N., R. 16 W., Sec. 3, Lot 1-4, S2N2, S2	684.51			
85.	T. 6 N., R. 16 W., Sec. 4, Lot 1-4, S2N2, S2	682.70			
86.	T. 6 N., R. 16 W., Sec. 5, Lot 1-4, S2N2	200.64			
87.	T. 6 N., R. 16 W., Sec. 6, Lot 1-7, S2NE, SENW, E2SW, SE	688.51			
88.	T. 6 N., R. 16 W., Sec. 7, Lot 1, 2, 3, NE1/4, E1/2NW1/4, NE1/4SW1/4, E1/2SE1/4	486.34			
89.	T. 6 N., R. 16 W., Sec. 8, N2, N2SW	400			
90.	T. 6 N., R. 16 W., Sec. 18, Lot 3, 4, SESW	124.55			
91.	T. 6 N., R. 16 W., Sec. 19, Lot 1-4, E2W2	329.28			
92.	T. 6 N., R. 16 W., Sec. 29, W1/2	320			
93.	T. 6 N., R. 16 W., Sec. 30, Lot 1-4, E2W2	329.24			
94.	T. 6 N., R. 16 W., Sec. 31, Lot 1-4, E2, E2W2	649.28			
95.	T. 6 N., R. 16 W., Sec. 32, W1/2	320			
96.	T. 6 N., R. 15 W., Sec. 10, All	640			
97.	T. 6 N., R. 15 W., Sec. 11, All	640			
98.	T. 6 N., R. 15 W., Sec. 13, N2	320			
99.	T. 6 N., R. 15 W., Sec. 14, N2, SW	480			
100.	T. 6 N., R. 15 W., Sec. 15, All	640			
101.	T. 6 N., R. 15 W., Sec. 22, All	640			
102.	T. 6 N., R. 15 W., Sec. 23, S2NE, NW, S2	560			
103.	T. 5 N., R. 16 W., Sec. 4, Lots 1, 2, S1/2NE1/4, S1/2	478.67			
104.	T. 5 N., R. 16 W., Sec. 5, Lots 3, 4, S1/2NE1/4, S1/2	480.92			
105.	T. 5 N., R. 16 W., Sec. 9, NE1/4	160			
106.	T. 5 N., R. 16 W., Sec. 10, NW1/4	160			
107.	T. 5 N., R. 12 W., Sec. 6, Lot 1	40.04			
108.	T. 4 N., R. 16 W., Sec. 14, E1/2	320			
109.	T. 4 N., R. 16 W., Sec. 24, E1/2	320			
110.	T. 4 N., R. 15 W., Sec. 30, Lots 3, 4, E1/2SW1/4	154.56			
111.	T. 4 N., R. 15 W., Sec. 31, All the public land north of Interstate 10; approximately 499.9 acres	499.9			
112.	T. 4 N., R. 15 W., Sec. 32, All the public land north of Interstate 10; approximately 601.66	601.66			

	Legal Description San Bernardino Meridian	Acres	Exchange	Sale	R&PP Patent
114.	T. 9 N., R22. E., Sec. 13, SENESW	10			
115.	San Bernardino Meridian, San Bernardino County California T. 8 N., R. 23 E., Sec. 27, (that portion with Yuma District situated north and east of Interstate Highway 40) (approximately 460 areas)	460			

From Kingman RMP

1 = primarily for exchange to the state of Arizona

2 = for exchange to the state of Arizona only

Table G-2. Existing Recreation and Public Purposes Leases Available For Disposal

Item #	Legal Tract Gila & Salt River Meridian	ACRES	R&PP Patent
1.	T. 20 N., R. 22 W., sec 12, portion of lot 5.	5.73	**X**
2.	T. 20 N., R. 22 W., sec 20, N2.	320	**X**
3.	T. 20 N., R. 21 W, Sec. 18, NE.	160.00	**X**
4.	T. 20 N., R. 21 W., Sec. 20, N2N2NWNWSW	2.50	**X**
5.	T. 20 N., R 21 W., Sec. 20, N2NENW, NESWNENNENENWNW, S2SWNWNW, W2NESWNW, NWSWNW	50.00	**X**
6.	T. 19 N., R. 22 W., sec 2, lots 1, 2, N2S2NE, S2N2SE, S2SE.	240.56	**X**
7.	T. 19 N., R. 22 W., Sec. 24, SESWNW, SWSENW	20.00	**X**
8.	T. 18 N., R.21 W., Sec. 7, S2NWNE, N2SWNE	40.00	**X**
9.	T. 17 N., R. 21 W., Sec. 5, lots 3 & 4.	79.04	**X**
10.	T. 16 N., R. 21 W., Sec. 14, lots 1, 4, 5, & 9, NWNWSE.	56.19	**X**
11.	T. 16 N., R. 21W., sec 26, E2NWSWNW	5.00	**X**
12.	T. 16 N., R. 19 W., Sec. 16, SWSE (within).	11.25	**X**
13.	T. 15 N., R. 19 W., Sec. 6, S2SESWSE;	5.00	**X**
14.	T. 14 N., R.20 W., Sec. 13, SWSW, S2NWSW, Sec. 14, S2SE, S2N2SE.	180.00	**X**
15.	T. 13 N., R. 19 W., Sec. 20, NESE, SESE, Sec. 21, S2, Sec. 22, lot 4, N2SWSW, SWSWSW, Sec. 28, N2, N2SW, Sec. 29, E2NE, NESE.	1042.11	**X**
16.	T. 8 N., R. 19 W., Sec. 21, SE; Sec. 22, SWSW.	200.00	**X**
17.	T. 7 N., R. 17 W., Sec. 22, SESW, Sec. 27, NENW.	80.00	**X**
18.	T. 7 N., R. 17 W., Sec. 28, N2NENE	20.00	**X**
19.	T. 7 N., R. 17W., Sec. 36 SENE, NESE; (within) T. 7 N., R. 16 W., Sec. 31, lots 2 & 3, SENW, NESW (within)	78.74	**X**
20.	T. 5 N., R. 15 W., Sec. 36, SWSW.	40.00	**X**
21.	T. 5 N., R. 14 W., Sec. 12, lot 1	32.56	**X**
22.	T. 5 N., R. 12 W., Sec. 4, S2SENW.	20.00	**X**

	Legal Tract San Bernardino Meridian CA	ACRES	R&PP Patent
23.	T. 4 1/2 N., R. 24 E., Sec. 36, portion of lot 1.	2.50	**X**
24.	T. 2 N., R. 26 E., Sec. 36, portion of NW.	2.50	**X**

Table G-3. Alternative 2 - Land As Identified For Disposal

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
1. *	T.20 N., R 21 W., Sec. 8, S2S2SE	40	**X**	**X**	**X**
2. *	T. 19 N., R. 21 W., Sec. 20, SW1/4SW1/4NW1/4NW1/4; W1/2SW1/4		**X**	**X**	**X**
	NW1/4; W1/2NE1/4SW1/4NW1/4; SE1/4NE1/4 SW1/4NW1/4; SE1/4SW1/4NW1/4; SW1/4SE1/4NW1/2; S1/2SE1/4SE1/4NW1/4; N1/2NW1/4NE1/4SW1/4; NE1/4NE1/4SW1/4; NE1/4SE1/4NE1/4SW1/4; NW1/4NW1/4SE1/4; NW1/4SW1/4NW1/4SE1/4	85			
3. *	T. 19 N., R. 21 W., Sec. 29, S2N2, NWNWSW, E2W2SW, E2SW, SE	450	**X**	**X**	**X**
4. *	T. 18 N., R. 21 W., Sec. 7, E2NE, N2NWNE, S2SWNE	120	**X**	**X**	**X**
5. *	T. 18 N., R. 21 W., Sec. 7, SE.	160	**X**	**X**	**X**
6. *	T. 18 N., R. 21 W., Sec. 8 All	640	**X**	**X**	**X**
7. *	T. 18 N., R. 21 W., Sec. 9 All	640	**X**	**X**	**X**
8. *	T. 18 N., R. 21 W., Sec. 16 All	640	**X**	**X**	**X**
9. *	T. 18 N., R. 21 W., Sec. 17 All	640	**X**	**X**	**X**
10. *	T. 18 N., R. 21 W., Sec. 18, E1/2	320	**X**	**X**	**X**
11. *	T. 18 N., R. 21 W., Sec. 20, All	640	**X**	**X**	**X**
12. *	T. 18 N., R. 21 W., Sec. 21, All	640	**X**	**X**	**X**
13. *	T. 18 N., R. 21 W., Sec. 28, All	640	**X**	**X**	**X**
14. *	T. 18 N., R. 21 W., Sec. 29, All	640	**X**	**X**	**X**
15. *	T. 18 N., R. 21 W., Sec. 33, All	640	**X**	**X**	**X**
16. *	T. 17 N., R. 21 W., Sec. 4, lots 1-4, S2N2, S2	638.12	**X**	**X**	**X**
17. *	T. 17 N., R. 21 W., Sec. 9 All	640	**X**	**X**	**X**
18. *	T. 16 N., R. 21 W., Sec. 10, NE	160	**X**	**X**	**X**
19. *	T. 16 N., R. 21 W., Sec. 13, All	640	**X**	**X**	**X**
20. *	T. 16 N., R. 21 W., Sec. 14, E2NE, S2SWNE.	100	**X**	**X**	**X**
21.	T. 16 N., R. 21 W., Sec. 14, E2SE, NENWSE, E2SENWSE.	95			**X**
22. *	T. 16 N., R. 21 W., Sec. 22, E2E2	160	**X**	**X**	**X**
23. *	T. 16 N., R. 21 W., Sec. 24, All	640	**X**	**X**	**X**
24. *	T. 16 N., R. 21 W., Sec. 25, All	640	**X**	**X**	**X**
25. *	T. 15 N., R. 19 W., Sec. 2, Lots 1-4, S2N2, S2.	637.2	**X**	**X**	**X**
26. *	T. 15 N., R. 19 W., Sec. 4, Lots 1-4, S2N2, S2.	637.68			**X**
27. *	T. 15 N., R. 19 W., Sec. 6, Lots 1-6, S2NE, SENW, E2SW, SE.	585.62	**X**	**X**	**X**
28. *	T. 15 N., R. 19 W., Sec. 8, All	640	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
29. *	T. 15 N., R. 19 W., Sec. 10. All	640	**X**	**X**	**X**
30. *	T. 8 N., R. 19 W., Sec. 11, E2, E2W2.	480	**X**	**X**	**X**
31. *	T. 8 N., R. 19 W., Sec. 12, W2.	320	**X**	**X**	**X**
32. *	T. 8 N., R. 19 W., Sec. 13, W2.	320	**X**	**X**	**X**
33. *	T. 8 N., R. 19 W., Sec. 14, E2, E2W2, SWSE	520	**X**	**X**	**X**
34.	T. 8 N., R. 19 W., Sec. 15, SESE.	40			**X**
35.	T. 8 N., R. 19 W., Sec. 21, lot 1, NE, NENW, S2NW, SW.	478.07			**X**
36.	T. 8 N., R. 19 W., Sec. 22, N2NE, N2N2NW, SWSW, SESE.	200			**X**
37. *	T. 8 N., R. 19 W., Sec. 23, All	640	**X**	**X**	**X**
38. *	T. 8 N., R. 19 W., Sec. 24, W2	320	**X**	**X**	**X**
39. *	T. 8 N., R. 19 W., Sec. 25, W2	320	**X**	**X**	**X**
40. *	T. 8 N., R. 19 W., Sec. 26, All	640	**X**	**X**	**X**
41.	T. 8 N., R. 19 W., Sec. 27, NWNW, E2SE	120			**X**
42.	T. 8 N., R. 19 W., Sec. 28, NENE	40			**X**
43. *	T. 8 N., R. 19 W., Sec. 35, E2, SESENW, E2W2SW, E2SW.	450	**X**	**X**	**X**
44. *	T. 8 N., R. 19 W., Sec. 36, W2	320	**X**	**X**	**X**
45. *	T. 7 N., R. 19 W., Sec. 3, lots 2-4, SWNE, S2NW, SW, W2SE.	479.89	**X**	**X**	**X**
46. *	T. 7 N., R. 19 W., Sec. 4, lots 1-4, S2N2, S2.	639.96	**X**	**X**	**X**
47. *	T. 7 N., R. 19 W., Sec. 9, All	640	**X**	**X**	**X**
48. *	T. 7 N., R. 19 W., Sec. 10, W2E2, W2	480	**X**	**X**	**X**
49. *	T. 7 N., R. 17 W., Sec. 36, All the public land southwest of AZ highway 72. Approx. 350 acres	350			
50. *	T. 6 N., R. 16 W., Sec. 1, Lot 1	51.68	**X**	**X**	**X**
51. *	T. 6 N., R. 16 W., Sec. 2, Lot 1-4, S2N2, S2.	685.98	**X**	**X**	**X**
52. *	T. 6 N., R. 16 W., Sec. 3, Lot 1-4, S2N2, S2.	684.51	**X**	**X**	**X**
53. *	T. 6 N., R. 16 W., Sec. 4, Lot 1-4, S2N2, S2.	682.70	**X**	**X**	**X**
54. *	T. 6 N., R. 16 W., Sec. 5, Lot 1-4, S2N2.	200.64	**X**	**X**	**X**
55. *	T. 6 N., R. 16 W., Sec. 6, Lot 1-7, S2NE, SENW, E2SW, SE	688.51	**X**	**X**	**X**
56. *	T. 6 N., R. 16 W., Sec. 7, Lot 1, 2, 3, NE1/4, E1/2NW1/4, NE1/4SW1/4, E1/2SE1/4	486.34	**X**	**X**	**X**
57. *	T. 6 N., R. 16 W., Sec. 8, N2, N2SW	400	**X**	**X**	**X**
58. *	T. 6 N., R. 16 W., Sec. 18, Lot 3, 4, SESW	124.55	**X**	**X**	**X**
59. *	T. 6 N., R. 16 W., Sec. 19, Lot 1-4, E2W2	329.28	**X**	**X**	**X**
60. *	T. 6 N., R. 16 W., Sec. 29, W1/2;	320	**X**	**X**	**X**
61. *	T. 6 N., R. 16 W., Sec. 30, Lot 1-4, E2W2	329.24	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
62. *	T. 6 N., R. 16 W., Sec. 31, Lot 1-4, E2, E2W2	649.28	**X**	**X**	**X**
63. *	T. 6 N., R. 16 W., Sec. 32, W1/2.	320	**X**	**X**	**X**
64. *	T. 5 N., R. 16 W., Sec. 4, Lots 1, 2, S1/2NE1/4, S1/2;	478.67	**X**	**X**	**X**
65. *	T. 5 N., R. 16 W., Sec. 5, Lots 3, 4, S1/2NE1/4, S1/2;	480.92	**X**	**X**	**X**
66. *	T. 5 N., R. 16 W., Sec. 9, NE1/4;	160	**X**	**X**	**X**
67. *	T. 5 N., R. 16 W., Sec. 10, NW1/4.	160	**X**	**X**	**X**
68. *	T. 5 N., R. 12 W., Sec. 6, Lot 1	40.04	**X**	**X**	**X**
69. *	T. 4 N., R. 16 W., Sec. 14, E1/2;	320	**X**	**X**	**X**
70. *	T. 4 N., R. 16 W., Sec. 24, E1/2.	320	**X**	**X**	**X**
71. *	T. 4 N., R. 15 W., Sec. 30, Lots 3, 4, E1/2SW1/4;	154.56	**X**	**X**	**X**
72. *	T. 4 N., R. 15 W., Sec. 31, All the public land north of Interstate 10; approximately 499.9 acres	499.9	**X**	**X**	**X**
73. *	T. 4 N., R. 15 W., Sec. 32, All the public land north of Interstate 10; approximately 601.66 acres	601.66	**X**	**X**	**X**

	Legal Tract San Bernardino Meridian	Acres	Exchange	Sale	R&PP Patent
74. *	T. 9 N., R22. E., Sec. 13, SENESW	10	**X**	**X**	**X**
75. *	T. 8 N., R. 23 E., Sec. 27, (that portion within the LHFO situated north and east of Interstate Highway 40) (approximately 460 areas)	460	**X**	**X**	**X**

***** = Land identified for disposal that meets the requirements of the Baca bill

Table G-4. Alternative 3 - Land As Identified For Disposal

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP PATENT
1.	T. 20 N., R. 22. W., Sec. 12, the public land east of AZ highway 95; approximately 258 acres	258	**X**	**X**	**X**
2. *	T.20 N., R 21 W., Sec. 8, S2S2SE	40	**X**	**X**	**X**
3. *	T.20 N., R 21 W., 32, S2	320			**X**
4. *	T. 19 N., R. 21 W., Sec. 4 lots 1-4, S2N2, S2.	644.6			**X**
5. *	T. 19 N., R. 21 W., Sec. 5, lots 1-4, S2N2, S2.	643.92			**X**
6. *	T. 19 N., R. 21 W., Sec. 6, lots 1-7, S2NE, SENW,E2SW, SE.	641.48			**X**
7. *	T. 19 N., R. 21 W., Sec. 7, lots 1-3, NE1/4; E2NW, NESW, SE1/4	559.95	**X**	**X**	**X**
8. *	T. 19 N., R. 21 W., Sec. 8 All	640	**X**	**X**	**X**
9. *	T. 19 N., R. 21 W., Sec. 9 All	640	**X**	**X**	**X**
10. *	T. 19 N., R. 21 W., Sec. 20, SW1/4SW1/4NW1/4NW1/4; W1/2SW1/4 NW1/4; W1/2NE1/4SW1/4NW1/4; SE1/4NE1/4 SW1/4NW1/4; SE1/4SW1/4NW1/4; SW1/4SE1/4NW1/2; S1/2SE1/4SE1/4NW1/4; N1/2NW1/4NE1/4SW1/4; NE1/4NE1/4SW1/4; NE1/4SE1/4NE1/4SW1/4; NW1/4NW1/4SE1/4; NW1/4SW1/4NW1/4SE1/4	85	**X**	**X**	**X**
11.	T. 19 N., R. 21 W., sec 28, NE, S2NW, S2.	560	**X**	**X**	**X**
12. *	T. 19 N., R. 21 W., Sec. 29, S2N2, NWNWSW, E2W2SW, E2SW, SE.	450	**X**	**X**	**X**
13.	T. 19 N., R. 21 W., sec 33, All	640	**X**	**X**	**X**
14.	T. 18 N., R. 21 W., sec 4, lots, 1-4, S2N2, S2.	638.96	**X**	**X**	**X**
15.	T. 18 N., R. 21 W., Sec. 7, E2, N2NWNE,S2SWNE	120	**X**	**X**	**X**
16. *	T. 18 N., R. 21 W., Sec. 7, SE1/4	160	**X**	**X**	**X**
17. *	T. 18 N., R. 21 W., Sec. 8 All	640	**X**	**X**	**X**
18. *	T. 18 N., R. 21 W., Sec. 9 All	640	**X**	**X**	**X**
19. *	T. 18 N., R. 21 W., Sec. 16 All	640	**X**	**X**	**X**
20. *	T. 18 N., R. 21 W., Sec. 17 All	640	**X**	**X**	**X**
21. *	T. 18 N., R. 21 W., Sec. 18, E1/2	320	**X**	**X**	**X**
22. *	T. 18 N., R. 21 W., Sec. 20, All	640	**X**	**X**	**X**
23. *	T. 18 N., R. 21 W., Sec. 21, All	640	**X**	**X**	**X**
24. *	T. 18 N., R. 21 W., Sec. 28, All	640	**X**	**X**	**X**
25. *	T. 18 N., R. 21 W., Sec. 29, All	640	**X**	**X**	**X**
26. *	T. 18 N., R. 21 W., Sec. 33, All	640	**X**	**X**	**X**
27. *	T. 17 N., R. 21 W., Sec. 4, lots 1-4, S2N2, S2	638.12	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP PATENT
28.	T. 17 N., R. 21 W., Sec. 5, lots 1, 2, S2NE, SENW, E2SW, SE	439.04	**X**	**X**	**X**
29. *	T. 17 N., R. 21 W., Sec. 9 All	640	**X**	**X**	**X**
30. *	T. 16 N., R. 21 W., Sec. 10, NE	160	**X**	**X**	**X**
31. *	T. 16 N., R. 21 W., Sec. 13, All	640	**X**	**X**	**X**
32. *	T. 16 N., R. 21 W., Sec. 14, E2NE, S2SWNE.	100	**X**	**X**	**X**
33.	T. 16 N., R. 21 W., Sec. 14, E2SE, NENWSE, E2SENWSE.	95			**X**
34. *	T. 16 N., R. 21 W., Sec. 22, E2E2	160	**X**	**X**	**X**
35. *	T. 16 N., R. 21 W., Sec. 24, All	640	**X**	**X**	**X**
36. *	T. 16 N., R. 21 W., Sec. 25, All	640	**X**	**X**	**X**
37.	T. 16 1/2N., R. 20 1/2W., sec 24, lots, 1-4, S2N2, S2.	671.24	**X**	**X**	**X**
38.	T. 16 1/2N, R. 20 W., sec 20, lots, 1-4, S2N2, S2.	672.64	**X**	**X**	**X**
39.	T. 161/2N., R. 19 W., Sec. 36, portion south of I-40	54.00	**X**	**X**	**X**
40.	T. 16 N., R. 20.5 W., Sec. 10, lot 2	37.62	**X**	**X**	**X**
41.	T. 16 N., R. 20.5 W., Sec. 11, the public lands south of the railroad in the S2NW	25.6	**X**	**X**	**X**
42.	T. 16 N., R. 20.5 W., Sec. 13, lots 9 & 10,	65.03	**X**	**X**	**X**
43.	T. 16 N., R. 20.5 W., Sec. 14, lots 5, 7, 8, & 9,	62.85	**X**	**X**	**X**
44.	T. 16 N., R. 20.5 W., Sec. 15, lots 7 & 9,	7.62	**X**	**X**	**X**
45.	T. 16 N., R. 20.5 W., Sec. 22, lot 1, NENE,	77.68	**X**	**X**	**X**
46.	T. 16 N., R. 20.5 W., Sec. 23, lots 1 & 2	40	**X**	**X**	**X**
47.	T. 16 N., R. 20 W., sec 15, lots, 3,5, 8, 10, S2.	343.86	**X**	**X**	**X**
48.	T. 16 N., R. 19 W., Sec. 2, the public lands south of I-40	124	**X**	**X**	**X**
49	T. 16 N., R. 19 W., sec 18, lots, 3,4, 7, 9, 11, 13, E2SW, SE.	396.28	**X**	**X**	**X**
50.	T. 15 N., R. 20 W., Sec. 27, All	640	**X**	**X**	**X**
51.	T. 15 N., R. 20 W., Sec. 28, All	640	**X**	**X**	**X**
52.	T. 15 N., R. 20 W., Sec. 29, All	640	**X**	**X**	**X**
53.	T. 15 N., R. 20 W., Sec. 33, E2, E2SW,	400	**X**	**X**	**X**
54.	T. 15 N., R. 20 W., Sec. 34, All	640	**X**	**X**	**X**
55. *	T. 15 N., R. 19 W., Sec. 2, Lots 1-4, S2N2, S2.	637.2	**X**	**X**	**X**
56. *	T. 15 N., R. 19 W., Sec. 4, Lots 1-4, S2N2, S2.	637.68	**X**	**X**	**X**
57. *	T. 15 N., R. 19 W., Sec. 6, Lots 1-6, S2NE, SENW, E2SW, SE.	585.62	**X**	**X**	**X**
58. *	T. 15 N., R. 19 W., Sec. 8, All	640	**X**	**X**	**X**
59. *	T. 15 N., R. 19 W., Sec. 10. All	640	**X**	**X**	**X**
60.	T. 14 N., R. 20 W., sec 3 lots 1-4, S2N2, S2	638.24	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP PATENT
61.	T. 14 N., R. 20 W., Sec. 4, lots 1-4, S2NE, SENW, NENESW, W2NWSE, NWSWSE, E2SE.	398.12	**X**	**X**	**X**
62.	T. 14 N., R. 20 W., sec 5, S2SESENE, NENESE, S2SESESE	20	**X**	**X**	**X**
63.	T. 14 N., R. 20 W., sec 8, NENENE, W2NWNWNW.	15	**X**	**X**	**X**
64.	T. 14 N., R. 20 W., Sec. 9, All available land in section	61.88	**X**	**X**	**X**
65.	T. 14 N., R. 20 W., Sec. 10, N2, WSW, E2SW, SE.	600	**X**	**X**	**X**
66.	T. 14 N., R. 20 W., Sec. 11 lots 1, & 2, N2, SW, N2SE	638.1	**X**	**X**	**X**
67.	T. 14 N., R. 19 W., Sec. 28, W2NWNW.	20	**X**	**X**	**X**
68.	T. 14 N., R. 19 W., Sec. 29, S2N2NE, SENENW, S2S2NW, NESENW,	100	**X**	**X**	**X**
69.	T. 14 N., R. 19 W., Sec. 30, S2SENE.	20	**X**	**X**	**X**
70.	T. 13 N., R. 20 W., Sec. 13, E2SW, SE.	240	**X**	**X**	**X**
71.	T. 13 N., R. 20 W., sec 24, S2	320			**X**
72.	T. 13 N., R. 19 W., Sec. 20, NWSE	40			**X**
73.	T. 11 N., R. 13 W., Sec. 36, S2SE.	80			**X**
74.	T. 10 N., R. 19 W., 13, S2.	320	**X**	**X**	**X**
75.	T. 10 N., R. 19 W., 26, S2.	320	**X**	**X**	**X**
76.	T. 10 N., R. 19 W., sec 34, lot 7, S2NESE, SESE.	91.84	**X**	**X**	**X**
77.	T. 10 N., R. 13 W., Sec. 1, lots 1-3, S2NE, SENW.	240.83			**X**
78.	T. 10 N., R. 13 W., Sec. 2, SWSW.	80			**X**
79.	T. 10 N., R. 13 W., Sec. 11, N2NW, NWNE.	120			**X**
80.	T. 10 N., R. 13 W., Sec. 12, NWNW.	40			**X**
81.	T. 10 N., R. 12 W., Sec. 6, lots, 3-6, 11-14, E2SW.	356.61			**X**
82. *	T. 8 N., R. 19 W., Sec. 11, E2, E2W2.	480	**X**	**X**	**X**
83. *	T. 8 N., R. 19 W., Sec. 12, W2.	320	**X**	**X**	**X**
84. *	T. 8 N., R. 19 W., Sec. 13, W2.	320	**X**	**X**	**X**
85. *	T. 8 N., R. 19 W., Sec. 14, E2, E2W2, SWSE	520	**X**	**X**	**X**
86.	T. 8 N., R. 19 W., Sec. 15, SESE.	40			**X**
87.	T. 8 N., R. 19 W., Sec. 21, lot 1, NE, NENW, S2NW, SW.	478.07			**X**
88.	T. 8 N., R. 19 W., Sec. 22, N2NE, N2N2NW, SESE.	160			**X**
89. *	T. 8 N., R. 19 W., Sec. 23, All	640	**X**	**X**	**X**
90. *	T. 8 N., R. 19 W., Sec. 24, W2	320	**X**	**X**	**X**
91. *	T. 8 N., R. 19 W., sec 25, W2	320	**X**	**X**	**X**
92.	T. 8 N., R. 19 W., sec 25, E2	320	**X**	**X**	**X**
93. *	T. 8 N., R. 19 W., Sec. 26, All	640	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP PATENT
94.	T. 8 N., R. 19 W., Sec. 27, NWNW, E2SE	120			**X**
95.	T. 8 N., R. 19 W., Sec. 28, NENE.	40			**X**
96. *	T. 8 N., R. 19 W., Sec. 28, S2NESW, W2SW, SESW, W2SWSE, SESWSE, SWSESE.	180	**X**	**X**	**X**
97. *	T. 8 N., R. 19 W., Sec. 29, lots 4-2E2, SWSE.	290.96	**X**	**X**	**X**
98. *	T. 8 N., R. 19 W., Sec. 32, lots 1-4, E2, E2SW.	504.48	**X**	**X**	**X**
99. *	T. 8 N., R. 19 W., Sec. 33, All	640	**X**	**X**	**X**
100. *	T. 8 N., R. 19 W., Sec. 34, S2SWNE, NWNWNW, S2NWNW, S2NW, SW.	290	**X**	**X**	**X**
101. *	T. 8 N., R. 19 W., sec 35, NE, SESENW, S2.	490	**X**	**X**	**X**
102. *	T. 8 N., R. 19 W., sec 36, W2	320	**X**	**X**	**X**
103.	T. 8 N., R. 19 W., sec 36, E2	320	**X**	**X**	**X**
104.	T. 8 N., R. 12 W., Sec. 6, lot 2, 8, 9, & 10	72.90	**X**	**X**	**X**
105. *	T. 7 N., R. 19 W., Sec. 3, lots 2-4, SWNE, S2NW, SW, W2SE.	479.89	**X**	**X**	**X**
106. *	T. 7 N., R. 19 W., Sec. 4, lots 1-4, S2N2, S2.	639.96	**X**	**X**	**X**
107. *	T. 7 N., R. 19 W., Sec. 5, lots 1-4, S2N2, S2.	638.17	**X**	**X**	**X**
108. *	T. 7 N., R. 19 W., Sec. 6, lots 5, 6, 7.	77.81	**X**	**X**	**X**
109. *	T. 7 N., R. 19 W., Sec. 7, lots 3-6, W2E2, SESW.	288.36	**X**	**X**	**X**
110. *	T. 7 N., R. 19 W., Sec. 8, All	640	**X**	**X**	**X**
111. *	T. 7 N., R. 19 W., Sec. 9, All	640	**X**	**X**	**X**
112. *	T. 7 N., R. 19 W., Sec. 10, W2E2, W2.	480	**X**	**X**	**X**
113.	T. 7 N., R. 19 W., sec 11, All	640	**X**	**X**	**X**
114.	T. 7 N., R. 19 W., sec 14, All	640	**X**	**X**	**X**
115. *	T. 7 N., R. 17 W., Sec. 23, E2	320	**X**	**X**	**X**
116. *	T. 7 N., R. 17 W., Sec. 26, N2NE, S2SE.	75	**X**	**X**	**X**
117. *	T. 7 N., R. 17 W., Sec. 36. All the public land southwest of AZ highway 72; Approx. 350 acres;	350	**X**	**X**	**X**
118.	T. 7 N., R. 16 W., sec 8, All	640			**X**
119.	T. 7 N., R. 16 W., sec 9, All	640			**X**
120.	T. 7 N., R. 15 W., sec 26, W2	320	**X**	**X**	**X**
121. *	T. 6 N., R. 16 W., Sec. 1, Lot 1	51.68	**X**	**X**	**X**
122. *	T. 6 N., R. 16 W., Sec. 2, Lot 1-4, S2N2, S2.	685.98	**X**	**X**	**X**
123. *	T. 6 N., R. 16 W., Sec. 3, Lot 1-4, S2N2, S2.	684.51	**X**	**X**	**X**
124. *	T. 6 N., R. 16 W., Sec. 4, Lot 1-4, S2N2, S2.	682.70	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP PATENT
125. *	T. 6 N., R. 16 W., Sec. 5, Lot 1-4, S2N2.	200.64	**X**	**X**	**X**
126. *	T. 6 N., R. 16 W., Sec. 6, Lot 1-7, S2NE, SENW, E2SW, SE	688.51	**X**	**X**	**X**
127. *	T. 6 N., R. 16 W., Sec. 7, Lot 1, 2, 3, NE1/4, E1/2NW1/4, NE1/4SW1/4, E1/2SE1/4;	486.34	**X**	**X**	**X**
128. *	T. 6 N., R. 16 W., Sec. 8, N2, N2SW	400	**X**	**X**	**X**
129. *	T. 6 N., R. 16 W., Sec. 18, Lot 3, 4, SESW	124.55	**X**	**X**	**X**
130. *	T. 6 N., R. 16 W., Sec. 19, Lot 1-4, E2W2	329.28	**X**	**X**	**X**
131. *	T. 6 N., R. 16 W., Sec. 29, W1/2;	320	**X**	**X**	**X**
132. *	T. 6 N., R. 16 W., Sec. 30, Lot 1-4, E2W2	329.24	**X**	**X**	**X**
133. *	T. 6 N., R. 16 W., Sec. 31, Lot 1-4, E2, E2W2	649.28	**X**	**X**	**X**
134. *	T. 6 N., R. 16 W., Sec. 32, W1/2.	320	**X**	**X**	**X**
135.	T. 6 N., R. 15 W., Sec. 4, lots 1-4, S2N2, S2;	686.72	**X**	**X**	**X**
136.	T. 6 N., R. 15 W., Sec. 5, SENE, E2SE;	120	**X**	**X**	**X**
137.	T. 6 N., R. 15 W., Sec. 21, S2.	320	**X**	**X**	**X**
138.	T. 6 N., R. 15 W., Sec. 26, W2.	320	**X**	**X**	**X**
139.	T. 6 N., R. 15 W., Sec. 27, SWNW, SW.	200	**X**	**X**	**X**
140.	T. 6 N., R. 15 W., Sec. 28, E2, N2NW, NENW, NESW.	480	**X**	**X**	**X**
141.	T. 6 N., R. 15 W., Sec. 33, N2NE, SENE, E2SW.	200	**X**	**X**	**X**
142.	T. 6 N., R. 13 W., sec 27, N2, SE	480	**X**	**X**	**X**
143.	T. 6 N., R. 12 W., sec 7, lots 1-4, E2, E2W2.	633.44	**X**	**X**	**X**
144.	T. 6 N., R. 12 W., sec 8, All	640	**X**	**X**	**X**
145.	T. 6 N., R. 12 W., sec 9, W2NE, NW	240	**X**	**X**	**X**
146.	T. 6 N., R. 12 W., sec 18, lots 1-4, NE, W2NW, NESW, E2SE, NWSE.	554.24	**X**	**X**	**X**
147.	T. 6 N., R. 12 W., sec 24, All the public lands north of the highway US 60. Approximately 423.5 acres	423.5	**X**	**X**	**X**
148.	T. 6 N., R. 12 W., sec 26, All	640	**X**	**X**	**X**
149.	T. 6 N., R. 12 W., sec 27, E2NE, SE	240	**X**	**X**	**X**
150. *	T. 5 N., R. 16 W., Sec. 4, Lots 1, 2, S1/2NE1/4, S1/2;	478.67	**X**	**X**	**X**
151. *	T. 5 N., R. 16 W., Sec. 5, Lots 3, 4, S1/2NW1/4, S1/2;	480.92	**X**	**X**	**X**
152. *	T. 5 N., R. 16 W., Sec. 9, NE1/4,	160	**X**	**X**	**X**
153.	T. 5 N., R. 16 W., Sec. 9, W2	320	**X**	**X**	**X**
154. *	T. 5 N., R. 16 W., Sec. 10, NW1/4.	160	**X**	**X**	**X**
155.	T. 5 N., R. 16 W., sec 16, All	640	**X**	**X**	**X**
156.	T. 5 N., R. 16 W., sec 17, E2NE, SWNE, W2, SE.	600	**X**	**X**	**X**
157.	T. 5 N., R. 15 W., sec 8, N2.	320	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP PATENT
158.	T. 5 N., R. 15 W., sec 9, N2.	320	**X**	**X**	**X**
159.	T. 5 N., R. 15 W., sec 10, SW.	160	**X**	**X**	**X**
160.	T. 5 N., R. 15 W., sec 15, S2	320	**X**	**X**	**X**
161.	T. 5 N., R. 15 W., sec 16, All	640	**X**	**X**	**X**
162.	T. 5 N., R. 15 W., sec 17, All	640	**X**	**X**	**X**
163.	T. 5 N., R. 15 W., sec 18, lot 1, 2, NE, E2NW.	320.46	**X**	**X**	**X**
164.	T. 5 N., R. 15 W., sec 20, N2.	320	**X**	**X**	**X**
165.	T. 5 N., R. 15 W., sec 22, All	640	**X**	**X**	**X**
166.	T. 5 N., R. 15 W., sec 23, All	640	**X**	**X**	**X**
167.	T. 5 N., R. 15 W., sec 26, All	640	**X**	**X**	**X**
168.	T. 5 N., R. 15 W., sec 27, All	640	**X**	**X**	**X**
169.	T. 5 N., R. 15 W., sec 28, All	640	**X**	**X**	**X**
170.	T. 5 N., R. 15 W., sec 31, lots 1-4, E2, E2W2.	640.6	**X**	**X**	**X**
171.	T. 5 N., R. 15 W., sec 34, E2	320	**X**	**X**	**X**
172.	T. 5 N., R. 14 W., sec 32, All	640	**X**	**X**	**X**
173.	T. 5 N., R. 13 W., sec 7, lots 1-4,	157.16	**X**	**X**	**X**
174.	T. 5 N., R. 13 W., sec 23, NENE	40	**X**	**X**	**X**
175. *	T. 5 N., R. 12 W., Sec. 6, Lot 1	40.04	**X**	**X**	**X**
176.	T. 4 N. R.16 W., Sec. 1, lots 3, 4, S2NW, SW.	301.49	**X**	**X**	**X**
177.	T. 4 N. R.16 W., Sec. 2, lots 1-4, S2N2, S2.	601.66	**X**	**X**	**X**
178.	T. 4 N. R.16 W., Sec. 11, W2	320	**X**	**X**	**X**
179. *	T. 4 N., R. 16 W., Sec. 14, E1/2;	320	**X**	**X**	**X**
180.	T. 4 N. R.16 W., Sec. 15, E2E2, W2, SWSE	520	**X**	**X**	**X**
181.	T. 4 N. R.16 W., Sec. 16, All	640	**X**	**X**	**X**
182.	T. 4 N., R.16 W., Sec. 17, NE, W2.	480	**X**	**X**	**X**
183.	T. 4 N., R.16 W., Sec. 18, lots 3, 4, E2, E2SW	472.83	**X**	**X**	**X**
184	T. 4 N., R.16 W., Sec. 19, lots 3, 4, E2SW, SE	312.95	**X**	**X**	**X**
185.	T. 4 N. R.16 W., Sec. 20, All	640	**X**	**X**	**X**
186. *	T. 4 N., R. 16 W., Sec. 24, E1/2.	320	**X**	**X**	**X**
187.	T. 4 N. R.16 W., Sec. 25, All	640	**X**	**X**	**X**
188. *	T. 4 N., R. 15 W., Sec. 30, Lots 3, 4, E1/2SW1/4;	154.56	**X**	**X**	**X**
189. *	T. 4 N., R. 15 W., Sec. 31, All the public land north of Interstate 10; approximately 499.9 acres	499.9	**X**	**X**	**X**
190. *	T. 4 N., R. 15 W., Sec. 32, All the public land north of Interstate 10; approximately 601.66 acres	601.66	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP PATENT
191.	T. 4 N., R. 14 W., Sec. 4, lots 3, 4, S2NW	149.19	**X**	**X**	**X**
192.	T. 4 N. R.14 W., Sec. 5, lots 1-4, S2NE, S2NW.	297.08	**X**	**X**	**X**
193.	T. 4 N. R.14 W., Sec. 6, lots 3, 4, 5.	100.51	**X**	**X**	**X**
	Legal Tract San Bernardino Meridian	Acres	Exchange	Sale	R&PP
194.	T. 10 N., R. 22 E., Sec. 35, Lots 1,2, S2NE, SE.	309.27	**X**	**X**	**X**
195.	T. 9 N., R22. E., Sec. 2, Lots 1, 2, S2NE, SE.	316.23	**X**	**X**	**X**
196.	T. 9 N., R22. E., Sec. 11, E2.	320	**X**	**X**	**X**
197. *	T. 9 N., R22. E., Sec. 13, SENESW	10	**X**	**X**	**X**
198.	T. 9 N., R22. E., Sec. 14, NE.	160	**X**	**X**	**X**
199.	T. 9 N., R22. E., Sec. 24, SENE, W2, NWSE, S2SE.	480	**X**	**X**	**X**
200.	T. 8 N., R. 23 E., sec 4, lots 3, 5, 6, 7, & 8, S1/2NW, SW, SW	418.29	**X**	**X**	**X**
201. *	T 8 N., R. 23 E., Sec. 27, the public land situated north and east of Interstate Highway 40; approximately 460 areas	460	**X**	**X**	**X**
202.	T. 4 1/2 N., R. 24 E., Sec. 36, portion of lot 1, lots 2-5, N2SW, NWSW	317.88	**X**	**X**	**X**
203.	T. 4 N., R. 24 E., Sec. 1.	640	**X**	**X**	**X**
204.	T. 4 N., R. 24 E., Sec. 12.	640	**X**	**X**	**X**

***** = Land identified for disposal that meets the requirements of the Baca bill

Table G-5. Preferred Alternative And Alternative 4 - Land Disposal

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
1.	T. 20 N., R. 22. W., Sec. 12, the public land east of AZ highway 95; approximately 258 acres	258	**X**	**X**	**X**
2. *	T.20 N., R 21 W., Sec. 8, S2S2SE	40	**X**	**X**	**X**
3. *	T. 19 N., R. 21 W., Sec. 20, SW1/4SW1/4NW1/4NW1/4; W1/2SW1/4		**X**	**X**	**X**
	NW1/4; W1/2NE1/4SW1/4NW1/4; SE1/4NE1/4 SW1/4NW1/4; SE1/4SW1/4NW1/4; SW1/4SE1/4NW1/2; S1/2SE1/4SE1/4NW1/4; N1/2NW1/4NE1/4SW1/4; NE1/4NE1/4SW1/4; NE1/4SE1/4NE1/4SW1/4; NW1/4NW1/4SE1/4; NW1/4SW1/4NW1/4SE1/4	85			
4.	T. 19 N., R. 21 W., sec 28, W2SW.	80	**X**	**X**	**X**
5. *	T. 19 N., R. 21 W., sec 29, S2N2, NWNWSW, E2W2SW, E2SW, SE.	450	**X**	**X**	**X**
6.	T. 19 N., R. 21 W., sec 33, W2W2.	160	**X**	**X**	**X**
7.	T. 18 N., R. 21 W., sec 4, lots, 1-4, S2N2, S2.	638.96	**X**	**X**	**X**
8.	T. 18 N., R. 21 W., Sec. 7, E2, N2NWNE, S2SWNE.	120	**X**	**X**	**X**
9. *	T. 18 N., R. 21 W., Sec. 7, SE1/4.	160	**X**	**X**	**X**
10. *	T. 18 N., R. 21 W., Sec. 8 All	640	**X**	**X**	**X**
11. *	T. 18 N., R. 21 W., Sec. 9 All	640	**X**	**X**	**X**
12. *	T. 18 N., R. 21 W., Sec. 16 All	640	**X**	**X**	**X**
13. *	T. 18 N., R. 21 W., Sec. 17 All	640	**X**	**X**	**X**
14. *	T. 18 N., R. 21 W., Sec. 18, E1/2	320	**X**	**X**	**X**
15 *	T. 18 N., R. 21 W., Sec. 20, All	640	**X**	**X**	**X**
16 *	T. 18 N., R. 21 W., Sec. 21, All	640	**X**	**X**	**X**
17. *	T. 18 N., R. 21 W., Sec. 28, All	640	**X**	**X**	**X**
18. *	T. 18 N., R. 21 W., Sec. 29, All	640	**X**	**X**	**X**
19. *	T. 18 N., R. 21 W., Sec. 33, All	640	**X**	**X**	**X**
20. *	T. 17 N., R. 21 W., Sec. 4, lots 1-4, S2N2, S2	638.12	**X**	**X**	**X**
21.	T. 17 N., R. 21 W., Sec. 5, lots 1, 2, S2NE, SENW, E2SW, SE	439.04	**X**	**X**	**X**
22. *	T. 17 N., R. 21 W., Sec. 9 All	640	**X**	**X**	**X**
23. *	T. 16 N., R. 21 W., Sec. 10, NE	160	**X**	**X**	**X**
24. *	T. 16 N., R. 21 W., Sec. 22, E2E2	160	**X**	**X**	**X**
25. *	T. 16 N., R. 21 W., Sec. 24, N2SW, SE	240	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
26. *	T. 16 N., R. 21 W., Sec. 25, S2N2, S2.	480	**X**	**X**	**X**
27.	T. 16 1/2N., R. 20 1/2W., sec 24, lots, 1-4, S2N2, S2.	671.24	**X**	**X**	**X**
28.	T. 16 1/2N, R. 20 W., sec 20, lots, 1-4, S2N2, S2.	672.64	**X**	**X**	**X**
29.	T. 161/2N., R. 19 W., Sec. 36, the public land south of Interstate I-40; approximately 54 acres	54.00	**X**	**X**	**X**
30.	T. 16 N., R. 21 W., Sec. 22, E2E2	160	**X**	**X**	**X**
31.	T. 16 N., R. 20.5 W., Sec. 10, lot 2	37.62	**X**	**X**	**X**
32.	T. 16 N., R. 20.5 W., Sec. 11, the public lands south of the railroad in the S2NW	25.6	**X**	**X**	**X**
33.	T. 16 N., R. 20 W., sec 15, lots, 3,5, 8, 10, S2.	343.86	**X**	**X**	**X**
34.	T. 16 N., R. 19 W., Sec. 2, All the public land south of I-40; approximately 124 acres	124	**X**	**X**	**X**
35.	T. 16 N., R. 19 W., sec 18, lots, 3,4, 7, 9, 11, 13, E2SW, SE.	396.28	**X**	**X**	**X**
36. *	T. 15 N., R. 19 W., Sec. 2, Lots 1-4, S2N2, S2.	637.2	**X**	**X**	**X**
37. *	T. 15 N., R. 19 W., Sec. 4, Lots 1-4, S2N2, S2.	637.68	**X**	**X**	**X**
38. *	T. 15 N., R. 19 W., Sec. 6, Lots 1-6, S2NE, SENW, E2SW, SE.	588.82	**X**	**X**	**X**
39. *	T. 15 N., R. 19 W., Sec. 8, All	640	**X**	**X**	**X**
40. *	T. 15 N., R. 19 W., Sec. 10. All	640	**X**	**X**	**X**
41.	T. 14 N., R. 20 W., Sec. 4, lots 1-4, S2NE,SENW, NENESW,W2NWSE, NWSWSE, E2SE.	398.12			**X**
42.	T. 14 N., R. 20 W., sec 5, S2SESENE, NENESE, S2SESESE	20	**X**	**X**	**X**
43.	T. 14 N., R. 20 W., sec 8, NENENE, W2NWNWNW.	15	**X**	**X**	**X**
44.	T. 14 N., R. 20 W., sec 9, NESENE, E2SWSWNE, E2NWSENE	17.5			**X**
45.	T. 14 N., R. 20 W., Sec. 10, N2, E2NWSW, E2NESWSW, E2SW, SE.	580			**X**
46.	T. 13 N., 20 W., Sec. 24, S2.	320			**X**
47.	T. 13 N., 19 W., Sec. 20, NWSE.	40			**X**
48.	T. 11 N., R. 13 W., Sec. 36, S2SE.	80			**X**
49.	T. 10 N., R. 19 W., 13, S2.	320	**X**	**X**	**X**
50.	T. 10 N., R. 19 W., 26, S2.	320	**X**	**X**	**X**
51.	T. 10 N., R. 19 W., sec 34, lot 7, 8, S2NESE, SESE.	93.18	**X**	**X**	**X**
52.	T. 10 N., R. 19 W., sec 35, NENW	40	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
53.	T. 10 N., R. 13 W., Sec. 1, lots 1-3, S2NE, SENW.	440.83			**X**
54.	T. 10 N., R. 13 W., Sec. 2, SWSW.	40			**X**
55.	T. 10 N., R. 13 W., Sec. 11, N2NW, NWNE.	120			**X**
56.	T. 10 N., R. 13 W., Sec. 12, NWNW.	40			**X**
57.	T. 10 N., R. 12 W., Sec. 6, lots, 3-6, 11-14, E2SW.	356.87			**X**
58. *	T. 8 N., R. 19 W., Sec. 11, E2, E2W2.	480	**X**	**X**	**X**
59. *	T. 8 N., R. 19 W., Sec. 12, W2.	320	**X**	**X**	**X**
60. *	T. 8 N., R. 19 W., Sec. 13, W2.	320	**X**	**X**	**X**
61. *	T. 8 N., R. 19 W., Sec. 14, E2, E2W2, SWSW	520	**X**	**X**	**X**
62.	T. 8 N., R. 19 W., Sec. 15, SESE.	40			**X**
63.	T. 8 N., R. 19 W., Sec. 21, lot 1, E2, NENW, S2NW, S2.	478.07			**X**
64.	T. 8 N., R. 19 W., Sec. 22, N2NE, N2N2NW, SWSW, SESE.	160			**X**
65. *	T. 8 N., R. 19 W., Sec. 23, All	640	**X**	**X**	**X**
66. *	T. 8 N., R. 19 W., Sec. 24, W2	320	**X**	**X**	**X**
67. *	T. 8 N., R. 19 W., sec 25, W2	320	**X**	**X**	**X**
68.	T. 8 N., R. 19 W., sec 25, E2	320	**X**	**X**	**X**
69. *	T. 8 N., R. 19 W., Sec. 26, All	640	**X**	**X**	**X**
70. *	T. 8 N., R. 19 W., Sec. 27, NWNW, E2SE	120			**X**
71.	T. 8 N., R. 19 W., Sec. 28, NENE.	40			**X**
72.	T. 8 N., R. 19 W., sec 35, NE, SESENW, S2.	490	**X**	**X**	**X**
73. *	T. 8 N., R. 19 W., sec 36, W2	320	**X**	**X**	**X**
74.	T. 8 N., R. 19 W., sec 36, E2	320	**X**	**X**	**X**
75. *	T. 7 N., R. 19 W., Sec. 3, lots 2-4, W2NE, S2NW, SW, W2SE.	479.89	**X**	**X**	**X**
76. *	T. 7 N., R. 19 W., Sec. 4, lots 1-4, S2N2, S2.	639.96	**X**	**X**	**X**
77. *	T. 7 N., R. 19 W., Sec. 9, All	640	**X**	**X**	**X**
78. *	T. 7 N., R. 19 W., Sec. 10, W2E2, W2	480	**X**	**X**	**X**
79.	T. 7 N., R. 19 W., sec 11, All	640	**X**	**X**	**X**
80.	T. 7 N., R. 19 W., sec 14, All	640	**X**	**X**	**X**
81. *	T. 7 N., R. 17 W., Sec. 23, E2	320	**X**	**X**	**X**
82. *	T. 7 N., R. 17 W., Sec. 26, N2NE, S2SE.	80	**X**	**X**	**X**
83. *	T. 7 N., R. 17 W., Sec. 36, T. 7 N., R. 17 W., All the public land	350	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
	southwest of AZ highway 72; Approx. 350 acres				
84.	T. 7 N., R. 16 W., sec 8, All	640			**X**
85.	T. 7 N., R. 16 W., sec 9, All	640			**X**
86.	T. 7 N., R. 15 W., sec 26, W2	320	**X**	**X**	**X**
87. *	T. 6 N., R. 16 W., Sec. 1, Lot 1	51.68	**X**	**X**	**X**
88.	T. 6 N., R. 15 W., Sec. 26, W2.	320	**X**	**X**	**X**
89.	T. 6 N., R. 13 W., sec 27, N2, SE	480	**X**	**X**	**X**
90.	T. 6 N., R. 12 W., sec 18, lots 1-4, NE, N2NW, NESW	554.24	**X**	**X**	**X**
91.	T. 6 N., R. 12 W., sec 24, All the public land north of highway US 60; approximately 423.48 acres	423.48	**X**	**X**	**X**
92.	T. 6 N., R. 12 W., sec 26, All	640	**X**	**X**	**X**
93.	T. 6 N., R. 12 W., sec 27, E2NE, SE	240	**X**	**X**	**X**
94. *	T. 5 N., R. 16 W., Sec. 4, Lots 1, 2, S1/2NE1/4, S1/2;	478.67	**X**	**X**	**X**
95. *	T. 5 N., R. 16 W., Sec. 5, SE;	160	**X**	**X**	**X**
96. *	T. 5 N., R. 16 W., Sec. 9, NE,	160	**X**	**X**	**X**
97.	T. 5 N., R. 16 W., Sec. 9, W2	320	**X**	**X**	**X**
98. *	T. 5 N., R. 16 W., Sec. 10, NW1/4.	160	**X**	**X**	**X**
99.	T. 5 N., R. 16 W., sec 16, All	640	**X**	**X**	**X**
100.	T. 5 N., R. 16 W., sec 17, E2NE, SWNE, W2, SE.	600	**X**	**X**	**X**
101.	T. 5 N., R. 15 W., sec 8, N2.	320	**X**	**X**	**X**
102.	T. 5 N., R. 15 W., sec 9, N2.	320	**X**	**X**	**X**
103.	T. 5 N., R. 15 W., sec 10, SW.	160	**X**	**X**	**X**
104.	T. 5 N., R. 15 W., sec 15, S2	320	**X**	**X**	**X**
105.	T. 5 N., R. 15 W., sec 16, All	640	**X**	**X**	**X**
106.	T. 5 N., R. 15 W., sec 17, All	640	**X**	**X**	**X**
107.	T. 5 N., R. 15 W., sec 18, lot 1, 2, NE, E2NW.	320.46	**X**	**X**	**X**
108.	T. 5 N., R. 15 W., sec 20, N2.	320	**X**	**X**	**X**
109.	T. 5 N., R. 15 W., sec 22, All	640	**X**	**X**	**X**
110.	T. 5 N., R. 15 W., sec 23, All	640	**X**	**X**	**X**
111.	T. 5 N., R. 15 W., sec 26, All	640	**X**	**X**	**X**
112.	T. 5 N., R. 15 W., sec 27, All	640	**X**	**X**	**X**

Item #	Legal Tract Gila & Salt River Meridian	Acres	Exchange	Sale	R&PP Patent
113.	T. 5 N., R. 15 W., sec 28, All	640	**X**	**X**	**X**
114.	T. 5 N., R. 15 W., sec 31, lots 1-4, E2, E2W2.	640.6	**X**	**X**	**X**
115.	T. 5 N., R. 15 W., sec 34, E2	320	**X**	**X**	**X**
116.	T. 5 N., R. 14 W., sec 32, All	640	**X**	**X**	**X**
117.	T. 5 N., R. 13 W., sec 7, lots 1-4,	157.16	**X**	**X**	**X**
118.	T. 5 N., R. 13 W., sec 23, NENE	40	**X**	**X**	**X**
119. *	T. 5 N., R. 12 W., Sec. 6, Lot 1	40.04	**X**	**X**	**X**
120.	T. 4 N. R.16 W., Sec. 1, lots 3, 4, S2NW, SW.	301.49	**X**	**X**	**X**
121.	T. 4 N. R.16 W., Sec. 2, lots 1-4, S2N2, S2.	601.66	**X**	**X**	**X**
122.	T. 4 N. R.16 W., Sec. 11, W2	320	**X**	**X**	**X**
123. *	T. 4 N. R.16 W., Sec. 14, E2	320	**X**	**X**	**X**
124.	T. 4 N. R.16 W., Sec. 15, E2E2, W2, SWSE	520	**X**	**X**	**X**
125.	T. 4 N. R.16 W., Sec. 16, NE	160	**X**	**X**	**X**
126. *	T. 4 N., R. 16 W., Sec. 24, E1/2.	320	**X**	**X**	**X**
127.	T. 4 N. R.16 W., Sec. 25, All	640	**X**	**X**	**X**
128. *	T. 4 N., R. 15 W., Sec. 30, Lots 3, 4, E1/2SW1/4;	154.56	**X**	**X**	**X**
129. *	T. 4 N., R. 15 W., Sec. 31, All the public land north of Interstate 10; approximately 499.9 acres	499.9	**X**	**X**	**X**
130. *	T. 4 N., R. 15 W., Sec. 32, All the public land north of Interstate 10; approximately 601.99 acres	601.66	**X**	**X**	**X**
131.	T. 4 N., R. 14 W., Sec. 4, lots 3, 4, S2NW	149.19	**X**	**X**	**X**
132.	T. 4 N. R.14 W., Sec. 5, lots 1-4, S2NE, S2NW.	297.08	**X**	**X**	**X**
133.	T. 4 N. R.14 W., Sec. 6, lots 3, 4, 5.	100.51	**X**	**X**	**X**

Item #	Legal Description San Bernardino Meridian	Acres	Exchange	Sale	R&PP
134.	T. 10 N., R. 22 E., Sec. 35, Lots 1,2, S2NE, SE.	309.27	**X**	**X**	**X**
135.	T. 9 N., R22. E., Sec. 2, Lots 1, 2, S2NE, SE.	316.23	**X**	**X**	**X**
136.	T. 9 N., R22. E., Sec. 11, E2.	320	**X**	**X**	**X**
137. *	T. 9 N., R22. E., Sec. 13, SENESW	10	**X**	**X**	**X**
138.	T. 9 N., R22. E., Sec. 14, NE.	160	**X**	**X**	**X**
139.	T. 9 N., R22. E., Sec. 24, SENE, W2, NWSE, S2SE.	480	**X**	**X**	**X**
140.	T. 8 N., R. 23 E., sec 4, lots 3, 5, 6, 7, & 8, S1/2NW, SW, SWSE.	418.29	**X**	**X**	**X**
141. *	T. 8 N., R. 23 E., Sec. 27, the public land situated north and east of Interstate Highway 40; approximately 460 acres	460	**X**	**X**	**X**
142.	T. 4 1/2 N., R. 24 E., Sec. 36, portion of lot 1, lots 2-5, N2SW, NWSW	317.88	**X**	**X**	**X**
143.	T. 4 N., R. 24 E., Sec. 1.	640	**X**	**X**	**X**
144.	T. 4 N., R. 24 E., Sec. 12.	640	**X**	**X**	**X**

***** = Land identified for disposal that meets the requirements of the Baca bill

Alt 1 Acquisitions

Table G-6. Alternative I - Lands to be Acquired KRMP

Township and Range	Section	Subdivision	Acres
T. 11 N., R 13 W	24	S1/2 SE1/4	80
T. 11 N., R. 13 W	25	NE1/4 NE1/4; W1/2NE1/4; E1/2NW1/4; W1/2SW1/4	280
T. 11 N., R. 13 W	26	E1/2 SE1/4	80
T. 11 N., R. 13 W	34	E1/2 E1/2	160
T. 11 N., R. 13 W	35	NE1/4 1/2	480
T. 11 N., R. 12 W	14	S1/2 NE1/4; E1/2 NW1/4; NE1/4 SE1/4	200
T. 11 N., R. 12 W	17	NW1/4; NW1/4SW1/4	200
T. 11 N., R. 12 W	18	NE1/4 SE1/4; S1/2 SE1/4	120
T. 11 N., R. 12 W	19	N1/2; SW1/4	472
T. 10 N., R. 15 W	1	W2 SW	80
T. 10 N., R. 15 W	2	E2 SE	80
T. 10 N., R. 15 W	10	All	640
T. 10 N., R. 15 W	11	All	640
T. 10 N., R. 15 W	12	Lots 1-4, S2 N2, S2	626.60
T. 10 N., R. 14 W	4	SW1/4 NW1/4; W1/2 SW1/4	120
T. 10 N., R. 14 W	5	S1/2 NE1/4; SE1/4 NW1/4; SW1/4; N1/2 SE1/4	360
T. 10 N., R. 14 W	6	S1/2	316
T. 10 N., R. 14 W	9	W1/2 NW1/4	80
T. 10 N., R. 14 W	14	S1/2	320
T. 10 N., R. 14 W	15	S1/2	320
T. 10 N., R. 13 W	17 & 18	MINING CLAIMS	182

Table G-7. Alternative I - Lands to be Acquired LGSRMP

Township and Range	Section	Subdivision	Acres
T. 5 N., R. 17 W	16	S1/2	320
T. 5 N., R. 17 W	32	SW1/4 SW1/4	40

Table G-8. Alternative I - Lands to be Acquired YRMP

Township and Range	Section	Subdivision	Acres
YRMP			
T. 15 N., R. 20 W	17		640
T. 15 N., R. 19 W	19		640
	21		640
	23		640
	25		640
	27		640
	29		640
	31		640
	33		640
	35		640
T. 15 N., R. 18 W	31	NW1/4	160
	32	SW1/4	160
T. 14 N., R. 18 W	5		640
	9		640
	15		640
	23		640
T. 13 N., R. 17 W	11		80
T. 12 N., R. 17 W	1		640
	3		640
	5		640
	7		640
	9		640
T. 12 N., R. 18 W	1		320
	2		640
	3		640
	11		640
	13		640
	15		640
T. 12 N., R. 19 W	3		640
	11		640
T. 3 N., R. 24 E	16		640

Township and Range	Section	Subdivision	Acres
T. 11 N., R. 17 W	2		640
	24		640
T. 11 N., R. 18 W	2		640
T. 10 N., R. 18 W	31		640
	32		640
T. 9 N., R. 16 W	32		640
T. 9 N., R. 18 W	16		80
T. 8 N., R. 16 W	2		400
T. 8 N., R. 17 W	2		640
	16		640
	36		640
T. 8 N., R. 18 W	2		640
	16		640
	36		160
T. 9 N., R. 22 W	9	Lot 1	2.07
T. 15 N., R. 18 W	6	Lots 1-4, S2 NW2, SW1/4	492.72
T. 14 N., R. 18 W	1	Lots 1&2, S2 N2, S2 SW1/4, SE1/4	
T. 15 N., R. 18 W	9	S2 S2	
	17	All	

Appendix H

Recreation

BLM's Priorities for Recreation and Visitors Services – Goals & Objectives

- Improve Access to Appropriate Recreational Opportunities on the Department of the Interior (DOI) Managed or Partnered Lands and Waters
- Ensure a Quality Experience and Enjoyment of Natural and Cultural Resources on DOI managed or Partnered Lands and Waters
- Provide for and Receive Fair Value in Recreation

Special Recreation Permit Stipulations

LHFO Special Recreation Permit (SRP) stipulations AZ-330-SRP-00-00

Cultural Stipulations

1. Permittee shall comply with all State and Federal laws relating to prehistoric or historic archaeological sites or artifacts. Actions other than those explicitly approved by the Bureau of Land Management which result in impacts upon archaeological resources, shall be subject to the judicial proceedings of the Archaeological Resources Protection Act of 1979, as amended, and the Federal Land Policy and Management Act of 1976. As property of the United States, no person may, without authorization, excavate, remove, damage, or otherwise alter or deface any historic or prehistoric site, artifact, or object of antiquity located on public lands.
2. Surface collection of artifacts (either historic or prehistoric) or fossils, by permittee or tour participants on or near any designated route is prohibited. The definition of an artifact is anything that has been made, used or modified by a human. Permittee is required to inform all participants that collecting artifacts, theft or vandalism of any cultural property is a violation of the above-mentioned Federal and/or State laws.

Recreation Stipulations

1. By virtue of the permit, permittee is allowed to use public routes across public land while conducting a commercial recreation activity, consisting of a poker run type OHV public event.
2. All permitted designated routes remain open for public use; the permittee has no exclusive use of any public route.
3. All vehicle use is limited to the designated routes.
4. Permittee and all participants are prohibited from stopping at, or entering any and all known and unknown abandoned mine features.
5. All vehicle use will be conducted in a safe manner, reckless driving and/or excessive speed is a permit violation and is prohibited.
6. No overnight or camping use is associated with this permit.
7. The permittee is expected to be familiar with and to practice “Leave No Trace” and “Tread Lightly” land use ethics principles.
8. All trash and litter, as a result of the tour will be disposed of in a proper manner.
9. Violation of one or more of the listed stipulations is grounds to deny any future permit applications.

Wildlife, Desert Tortoise and Protected Plant Stipulations

1. Desert Tortoise. Care shall be taken not to disturb or destroy tortoises or their burrows. Handling, collecting, damaging, or destroying desert tortoises are prohibited by Arizona State Law. During all activity special care should be given to watch for and avoid any desert tortoise that may be present on a route or roadway.
2. Handling of Desert Tortoise. If a tortoise is endangered by any activity that activity shall cease until either the tortoise moves out of harm's way of its own accord, or until an authorized biologist is able to remove the tortoise to safety. Tortoises shall be handled only by a BLM authorized Wildlife Biologist, and shall be moved solely for the purpose of preventing death or injury. The authorized biologist shall be responsible for taking appropriate measures to ensure any desert tortoise relocated from the project site is not exposed to temperature extremes, which could be harmful to the animal.
3. Inspection under Vehicles. If a vehicle is left for any occasion the driver shall inspect underneath any parked vehicles immediately prior to moving. If a desert tortoise is beneath the vehicle, the authorized biologist shall move the tortoise from harm's way. Otherwise, the vehicle shall not be moved until the desert tortoise has left of its own accord.
4. Native Plants. State protected plant species (all cacti) shall not be disturbed, damaged, or destroyed without prior authorization from the BLM.

5. Migratory Birds. All migratory birds shall be observed from a distance. Any injured wildlife shall be reported to the Arizona Game & Fish Dept. at (928) 342-0091.

Vending

Vending on Public Lands

The following criteria would be applied to determine vending locations, with LHFO planning for those parties seeking permission to vend necessary and appropriate services or products:

- No vending would occur in any location that could impact threatened or endangered species, or negatively impact the natural resources.
- No vending would occur within limits or zone of authority, governed by any political entity (city, state, county), that otherwise refuses to approve vending therein.
- No vending would occur in a location which provided unfair or undue competition to legitimately permitted vendors of similar products or services located on land in the supporting communities.
- All vendors will have a BLM-assigned location. Vending operations would be subject to sign restrictions stipulated by BLM.
- Vendors would have to remain in their assigned location during vending operations.
- A self-contained restroom would be required.

The following criteria, if applicable, would be applied to determine to whom permits would be issued and how they would be administered:

- No vender could operate for a period longer than 6 months per year, as stipulated in the permit, and the vendor would have to remove all materials at the end of each operation period.
- Permits would be issued on the basis of cost recovery of BLM expenses incurred, in the granting and administration of the permit.
- Permit applicants would have to secure and conform with all other necessary permits and requirements stipulated by all other involved political entities, including a permit from the Arizona Department of Environmental Quality (ADEQ) with the necessary spill collection and containment plan.
- Permittee rights may be enhanced by being designated exclusive if BLM determines that it will issue one permit only for various products (for example, one permit only for food products). Exclusivity may be determined to be a reasonable and fair way to limit the number of permits available and therefore limit the impact on the natural resource.

- No permit may be subleased, transferred, or sold. Permits must be surrendered without compensation to BLM if the permittee is not able to be the primary person conducting or managing vending activities. No permittee has any right to renewal at the end of the permit term, preferential or otherwise.
- If the permittee violates any BLM rules or requirements related to the vending operation, or in the interests of the public health, safety and welfare, the permit may be revoked with 30 days' written notice to the permittee without compensation of any kind.

The following additional criteria would be applied to determine vending locations on the water for those parties seeking permission to vend necessary and appropriate services or products:

- No vending would occur within 200 feet of any shoreline.
- No vending could occur within the Safety Zone of Bureau of Reclamation facilities.
- Approved vending locations could be set forth in a limited vending zone established by BLM, in conformance with these criteria and/or any other land use plan or allocation system developed by BLM and other agencies or political entities participating in the public administration and protection of Lake Havasu.

The following additional criteria would be applied if applicable to determine to whom permits would be issued for on-the-water vending and how they would be administered:

- Permit applicants would be required to secure appropriate licensing for all watercraft in use by their vending operation from the state department of motor vehicles.
- All watercraft in use would have to be U.S. Coast Guard-approved.
- A self-contained restroom would be required.
- The vendor would be required at the end of each annual operational period to remove the craft used from Lake Havasu.

Recreation Opportunity Spectrum

Recreation Opportunity Spectrum (ROS)

BLM's goal of providing a satisfying leisure experience to visitors can be measured by participating in preferred activities in favorable environmental settings. Opportunities for achieving satisfying experiences depend on natural elements such as vegetation, landscape and scenery, and conditions controlled by land management agencies, such as developed sites, roads, and regulations. The goal of recreation managers is to provide the opportunities to obtain such experiences by managing the natural setting and the activities within. The

Recreation Opportunity Spectrum (ROS) is a framework to inventory, plan, and manage recreational opportunities.

The ROS has two key essentials, recreation opportunity settings and recreation opportunity classes.

Recreation Opportunity Settings

Seven elements provide the basis to inventory and delineate recreational settings. These factors describe the overall environment in which an activity occurs, influence the types of activities, and ultimately determines the types of recreation that can be achieved. For each person, her/his recreational experience depends on the setting and individual differences based on background, education, sex, age, and place of residence.

Access

Includes the mode of travel used within the area and influences both the level and type of recreational use an area receives.

Remoteness

Concerns the extent to which individuals perceive themselves removed from human activity. Vegetation or topographic variation can increase this sense of remoteness. Lack of remoteness is important for some recreational experiences.

Naturalness

Concerns the varying degrees of human modification of the environment, often described in terms of scenic quality influenced by the degree of change to the natural landscape.

Site Management

Refers to the level of site development. Lack of site modifications can facilitate feelings of self-reliance and naturalness, while highly developed facilities can enhance comfort and increase the opportunity to meet and interact with others.

Visitor Management

Includes both regulation and control of visitors as well as providing them with information and services. A continuum of visitor management can be described, ranging from subtle techniques, such as site design, to strict rules and regulations. In some recreational settings controls are expected and appropriate; in others, on-site controls detract from the desired experience.

Social Encounters

Involves the number and type of others met in the recreation area. Also measures the extent to which an area provides experiences for solitude or social interaction.

Visitor Impacts

The affects to natural resources such as soil, vegetation, air, water, and wildlife (even low levels of use) can produce measurable ecological impacts, and these impacts can influence the visitor's experience.

Recreation Opportunity Classes

Based on the seven elements described above, six recreation opportunity classes have been developed and are described in the table below. Reclassification of lands can occur in response to alternative management prescriptions. The classes range from essentially natural, low-use areas (resource-dependent recreational opportunities) to highly developed, intensive use areas (facility/vehicle-dependent recreational opportunities). Each class is defined in terms of three main components: the environmental setting, the potential activities, and the desired experience(s).

Table H-1. Recreation Opportunity Classes

Opportunity class	**Desired Experiences**	**Environmental Setting**	**Potential Activities**
Primitive (P)	Opportunity for isolation from the sights and sounds of humans to feel a part of the natural environment. Challenge, adventure, risk, and self-reliance are important	The remote area is managed to be essentially free from evidence of human restrictions and controls. Only facilities essential for resource protection are used.	Eco-adventure travel, non-motorized recreation, such as backpacking, equestrian use, hiking, climbing, rafting or canoeing, enjoyment of scenery or natural features, nature study, and photography.
Semi-primitive (SP)	Opportunity for high degree of interaction with the natural environment, moderate challenge and risk, use of outdoor skills.	Concentration of users is very low. On-site controls and restrictions may be present but are subtle. Facilities are provided only for the protection of resources value and the safety of users. Includes primitive trails for all type of users.	All activities listed previously plus remote camping, mountain biking, hunting, and fishing. Motorized vehicles used minimally. Motorized use mostly to access non-motorized recreation opportunities.
Rural Natural (RN)	Opportunity to relieve stress and to get away from built environment is important, while prospect of using motorized equipment to explore natural environment is valued.	Concentration of users is low, but often there is evidence of other area users present. Moderate level of management presence. Facilities are provided to help to manage use and limit contacts.	Plus: disperse camping or from vehicles (car/boat camping) and auto touring includes off-road vehicle use, four-wheel drive, dune buggy, dirt bike, and boating.
Rural Developed (RD)	About equal opportunities for association with other users and for isolation from sights and sounds of people. Opportunities for both motorized and non - motorized recreation are present.	Concentration of users is low to moderate with some facilities provided for moderate user convenience and comfort. On-site controls and restrictions offer a sense of safety and security.	Plus: Dispersed camping or using developed campsites with larger recreational vehicles, RV or trailers, water skiing, interpretive use.
Suburban (S)	Watching and meeting other visitors is expected and desired. Range of recreation experiences is sought from relaxation to physical exertion and from contemplation to thrills and challenges.	Substantially modified natural environment. Resource modification and use and practices are obvious. Concentration of users is often moderate to high. Developed sites, roads, and trails are designed for moderate to high use.	Plus: competitive games, spectator sports, bicycling, jogging, and developed resorts.
Urban (U)	Recreational activities with other individuals and groups are customary. Key part of the experience is socializing with family and friends. The natural environment and the use of outdoor skills secondary or unimportant.	Highly modified surroundings, although the background may have natural elements. Facilities developed for the convenience of a large number of people. Controls and restrictions are obvious and numerous. Often attractive to short time visitors, and may serve as staging area for travels to non-urban settings.	Plus: guided or facilitated recreational activities such as tour boat sightseeing, on site rental of recreational equipment.

RECREATION: SRMAs & Other Areas

Additional Competitive Use Race Courses

Additional competitive-use OHV course(s) would be established to meet the increasing public need if the following criteria are met:

- Basis of a demonstrated need as shown by public request and local community support.
- On existing and/or designated routes.
- Public lands adjacent (within 2 miles) to or encompassed by Parker 400 course are excluded from an additional course.
- Course would be outside areas listed for VRM Classes I, II and/or special designated areas such as but not limited to ACECs, riparian wetlands, and cultural sites.
- Course would be outside Category I and II desert tortoise habitat and WHMAs.
- Compatibility with other ongoing resource uses.
- NEPA process would determine number of events and season of use on any proposed new courses.

Paintball Activities on Public Land

The following stipulations guiding paintball activities on public land include the following:

- Require SRPs for paintball activities with more than 15 participants, unless otherwise specified in special management areas.
- Require nontoxic, biodegradable, and water-soluble paintball capsules.
- Allow temporary obstacles or structures to be used but require them to be removed at the end of the visit to the public lands.
- Allow no mechanized or motorized cross-country travel to set up or remove structures.
- Prohibit the use of natural features, such as boulders and vegetation, as paintball targets.
- Require participants to pick up and remove from the area all items related to paintball activities, including capsules and any other trash.

Long Term Visitor Areas (LTVAs)

BLM would establish an LTVAs and/or new camping area if the following criteria can be met:

- Basis of a demonstrated need as shown by existing dispersed camping use.
- Within approximately 10 miles of local community and with that community's support.
- Where natural terrain accommodates a minimum of 40 acres and would be no more than 640 acres. Adjacent land would be closed to dispersed 14-day camping.
- LTVA/camping area(s) would be required to be compatible with other potential and ongoing resource uses.
- Site would have to be in Visual Resource Management (VRM) Class III or IV areas.
- Site would be outside of Category I and II desert tortoise habitat and any Wildlife Habitat Management Area (WHA).
- Site would not be within areas having riparian vegetation and/or eligible cultural sites.

Appendix I

Transportation

AZ Route Inventories

Since 2000, BLM, four Arizona National Forests, and the Arizona State Land Department have cooperatively inventoried OHV routes throughout the state. Approximately 19,000 miles (14,500 BLM) have been inventoried for the land use planning efforts of the three respective agencies. A common data dictionary, approved by all agencies, is used to record each route along with important attributes (e.g., observed uses, route width/surface, camping areas, and major maintenance concerns). The LHFO was the first Field Office to print an Arizona Access Guide (map) for a significant part of its management area in 1998. Three of the five LHFO Access Guides were completed by 2002. These guides were completed only after a route inventory of the area was completed using BLM staff or contractors. The LHFO Inventory Maps are based on the Access Guide format, and each guide will be updated once the RMP is completed and again when the Travel Management Network Plan is completed.

LHFO Inventory

LHFO completed its route inventory in 2004. The DRMP/DEIS will have one 11x17 map representing the existing route inventory and an index for of the actual route inventory maps. LFHO has six route inventory maps printed at the 62.5 scale: Bullhead, Lake Havasu, Cactus Plain, Alamo, Bouse, and Wenden, which will be published in conjunction with the DRMP/DEIS. These detailed maps are available free of charge by contacting the LHFO. The public will have 90 days to comment. Each route is numbered on the six detailed inventory maps to assist the public in identifying routes or areas to comment on.

Route Evaluation

AZ BLM has adapted the Route Evaluation Tree, designed by a California contractor (first used in the Western Mohave Plan), for designating routes and developing its transportation networks. The Tree applies a standard analytical method to existing routes to determine whether they will be retained, closed, or rerouted. Commercial, recreation, and resource data are compiled for each route for this process. Most of BLM's roads and trails are user defined. The Tree process will allow each Field Office to eventually develop sustainable travel

networks. Adjoining Forests and Arizona State Lands are evaluating the Tree method to determine if they will apply it to their respective land units. AZ BLM has analyzed approximately 15% of its estimated 30,000 miles of routes using the Evaluation Tree method.

Proposed Route Evaluation Criteria

When using the Evaluation Tree BLM would analyze following detailed variables or criteria for each route and there by determine the value of said route in open, limited or closed status. Additional criteria may be added through working with the public and BLM staff to complete the Travel Management Plan. The criteria would be noted in a database for each route.

COMMERCIAL, ADMINISTRATIVE, PRIVATE PROPERTY **(CAPP) Issues**:

- **Administrative Uses, such as**:
  - *Aggregate Borrow Pit*
  - *Compliance/Enforcement Monitoring*
  - *Fire Suppression*
  - *Monitoring Site*
  - *Other*
  - *Predator Control*
  - *Resource Treatment*
  - *Training Area/Facility (e.g., Search and Rescue)*
  - *Weather Station*
  - *Weed Abatement*
  - *Wildlife Agency Facility*
  - *Wildlife Agency Monitoring*
  - *Wildlife Catchments*
  - *Wildlife Water / Guzzler*
- **Commercial Ranching Facility, such as**:
  - *Allotment Boundary Fence Line*
  - *Base Waters*
  - *Cattleguard*
  - *Corral*
  - *Fence Line (not allotment boundary)*
  - *Gate*
  - *Other*
  - *Pipeline*
  - *Ranch HQ*
  - *Ranch Shack*
  - *Salt Lick*
  - *Spring Development*
  - *Springs*
  - *Tank, Trough*
  - *Trailing Route*
  - *Water Catchments*
  - *Well*
  - *Windmill*
  - *Military Facility*
  - *Mining*

- **Officially Recognized in Federal Planning Document and Maintained**
- **Connectivity**
  *Published in guidebook or on maps***.**
- **Private Property**
- **Tourism**
- **Utilities, such as**
  Communication Site
  Electrical Transmission / Powerline
  Gas Pipeline
  Irrigation Canal
  Other
  Telephone
  Water Pipeline
  Wind Energy

Similarly, under the Special Resources section, some categories may be broken down into greater detail while others may not. This is a short example.

RESOURCE ISSUES:

- **Known Cultural Site / Area / Polygon**
- **Area of Critical Environmental Concern (ACEC)**
- **T&E Species, Special Status Species, Sensitive Species, such as:**
  Bighorn Sheep
  Desert Tortoise
  Ironwood
  [Apply specifics for Planning Area wildlife and plants]
- **Within WHA**
- **Within identified Wildlife Movement Corridor**
- **Wilderness characteristics of an area.**
- **Within SRMA**
- **Within Wilderness or Wilderness Study Area**
- **Within potential Wild & Scenic River Area.**
- **Sensitive Habitat**
  Riparian Habitat
  Soils
  Water
  Air

PUBLIC USES ISSUES

- **4x4 (Standard Stock 4x4)**
- **Astronomy / Night Sky Concerns**
- **ATV Use**
- **Birding**
- **Boating/Access**
- **Camping** –
  Developed
  Primitive/Dispersed
  Primitive/Extended Stay
  Vehicle Based
- **Commercial Recreation Permit**

- **Cultural/Historical Sightseeing**
- **Dog Trials**
- **Dual Sport Touring**
- **Equestrian**
- **ERMA**
- **Fishing**
- **Geocaching**
- **Golf Carts (Modified)**
- **Hiking**
- **Hill-Climbing**
- **Hunting**
- **Long Term Visitor Area (LTVA)**
- **Motorcycle Trials**
- **Motorcycle Use**
- **Mountain Biking**
- **Mountain, Rock Climbing**
- **OHV**
- **Parking Area**
- **Permitted Equestrian**
- **Permitted Motorcycle / ATV**
- **Permitted Mountain Bike**
- **Public Safety**
- **Public Use Site Access / Interpretative Panel**
- **River and Stream Access / Put In-Out**
- **Rockhounding**
- **Shooting**
- **Special Recreation Permit**
- **Staging Area(s)**
- **SUV Touring**
- **Technical 4 WD**
- **Technical, Site Specific (Extreme/Rock Crawling Within a Specified Area, Not a Trail)**
- **Technical, Trail (Extreme/Rock Crawling Within Trails)**
- **Trailheads**
- **Train Spotting**
- **Vistas, Sightseeing, Photography**
- **Wilderness Access**
- **Wildlife Watching**
- **Other**

Route Evaluation Decision Tree© Main Features Include:

1. Logical, standardized, balanced, and repeatable approach to route designation.
2. Systematic questions to assess compliance with a variety of pertinent statutory requirements including:
   - Valid existing rights and other vested rights or permitted uses
   - Degree of impact or degradation (including permanent impairment) to specially protected resources, such as species protected by the Federal Endangered Species Act (ESA) and cultural, historic, and scientific objects protected by the Historic Preservation and Antiquities Acts (e.g., Monument Proclamations, Section 106) and wilderness values as protected by the Wilderness Act.
   - Implementation of the Federal Land Policy & Management Act (FLPMA) and its charge to balance the public's need/desire for access to federal lands with resource protection through a philosophy of management for "multiple use." Such consideration includes recognizing the value of providing a range of recreational opportunities and treating those opportunities in accordance with FLPMA as a resource worthy of protection.
3. Systematic consideration of access opportunities and resource protection needs on both a narrowly focused route-by-route assessment, as well as a broad-based cumulative assessment of the total network's effect.
4. Systematic consideration of mitigation and/or limited designation as a means by which to ameliorate resource impacts. Designation options include a range from open to closed and a number of intermediate actions as a means by which to balance access needs and resource protection.
5. Systematic recording of data allowing for future retrieval and review/updating of decision information as needed (i.e., "decision pathways" are numerically coded).
6. Systematic ability to assess a route's final recommended designation status based upon the management goals of each individual alternative.

How does the Decision Tree© Work?

1. The region or management area in which the route is located is thoroughly evaluated. Resource protection, recreation, and commercial access concerns pertinent to route designation are identified. The patterns of these identified uses and concerns, as well as their trends, are also noted. Other related issues such as law enforcement, route maintenance, and user conflicts are further identified.
2. The desired future condition and management goals of each proposed alternative are identified and reviewed.
3. Each route is systematically numbered. This both allows for tracking the designation process and enables the public to make comment on specific routes.
4. Each route is then systematically assessed by sequentially answering the questions in the Decision Tree. This is done for each alternative. Specifically, the questions are assessed and answered in the context of the regional concerns identified in Step #1 and the management goals identified in Step #2 for each of the alternatives.
5. The determination of the final designation for each route under each alternative is dictated by addressing the management goals for that alternative.
6. The specific answers to each question for each route are recorded by the final coded answer.
7. Detailed information that may have been critical to the answer of any question(s) or in the determination of the final outcome is recorded as part or the individual route designation decision record.

Route Definitions

Close 01

Close 01 .....

Mitigate/ Limit 09

Mitigate/Limit 09 .....

Limit 05

Limit 05 .....

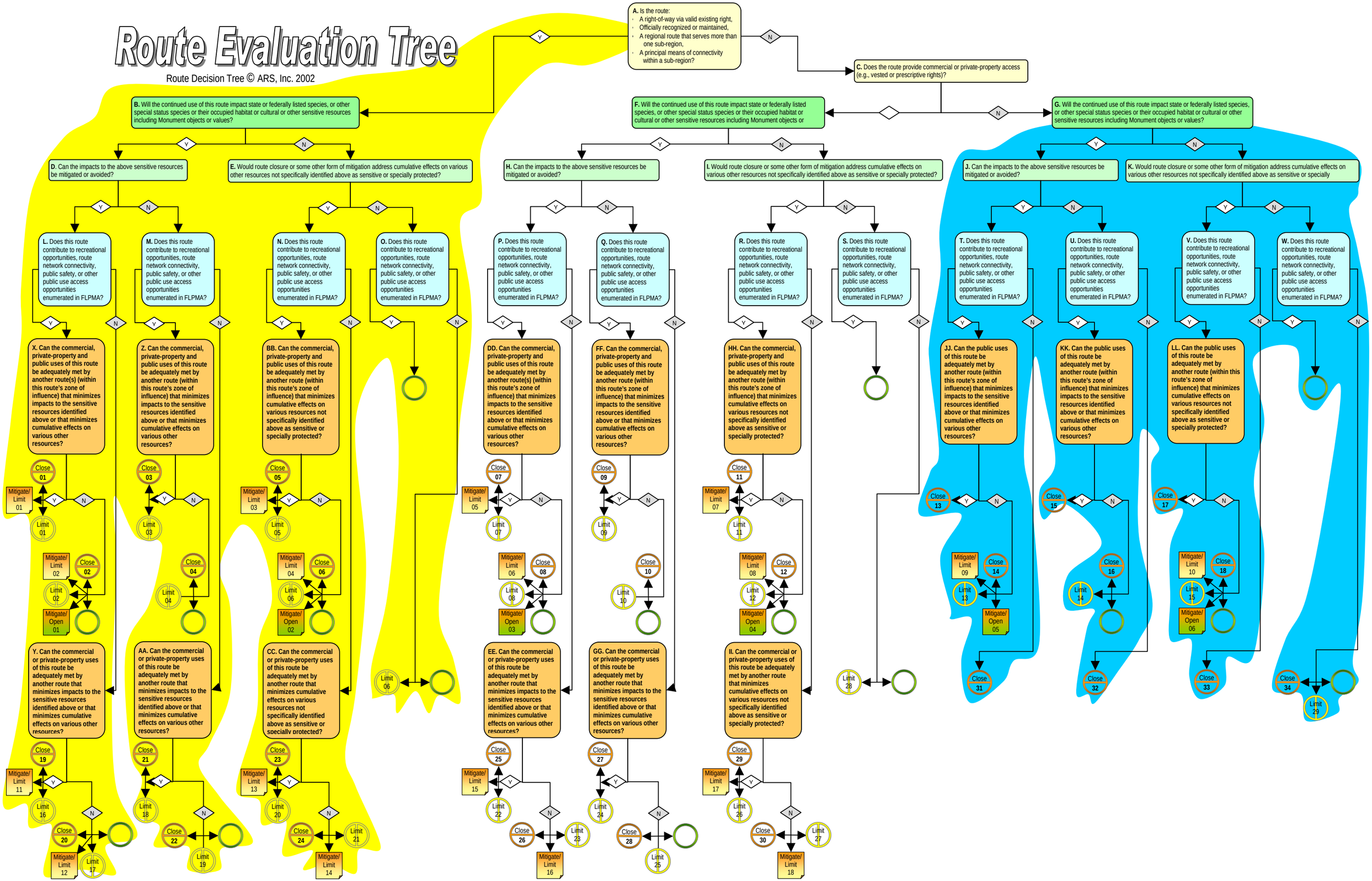
Mitigate/ Open 05

Mitigate/Open 05 .....

Open 02 .....

Route Evaluation Tree

Route Decision Tree © ARS, Inc. 2002



Appendix J

Biological Resources

The species listed in the following tables come from personal staff observations, information provided by partnering agencies, and texts listed in the reference section.

Vegetation

Table J-1: Vegetation Communities within LHFO Boundaries

Vegetation Community	Acres	LHFO Land (%)	Plant Growth Form	Dominant Species	Elevation (Feet)	Climate	Precipitation (inches)
Lower Sonoran Desertscrub	567,107.08	41.74%	Shrub-microphyllous	Creosotebush (*Larrea tridentata*) White bursage (*Ambrosia dumosa*) Ocotillo (*Fouquieria splendens*) Brittlebrush (*Encelia farinose*) Fourwing saltbrush (*Atriplex canescens*) Blue palo verde (*Parkinsonia florida*) Foothill palo verde (*Parkinsonia microphylla*.) Saguaro (*Carnegiea gigantea*) Mesquite (*Prosopis* sp.)	<3,000	Subtropical	2–9

Vegetation Community	Acres	LHFO Land (%)	Plant Growth Form	Dominant Species	Elevation (Feet)	Climate	Precipitation (inches)
				Ironwood (*Olneya tesota*) Catclaw acacia (*Acacia greggii*) Smoketree (*Psorothamnus spinosus*) Big galleta grass (*Pleuraphis rigida thurb*)			
Upper Sonoran Desertscrub	621,834.72	45.8%	Shrub-microphyllous	Blue palo verde (*Parkinsonia florida*) Foothill palo verde (*Parkinsonia microphylla*.) Ironwood (*Olneya tesota*) Creosotebush (*Larrea tridentate*) White bursage (*Ambrosia dumosa*) Ocotillo (*Fouquieria splendens*) Jojoba (*Simmondsia chinensis*) Cholla (*Opuntia* spp.) Fish-hook pincushion (*Mammillaria grahamii*) Compass cactus (*Ferrocactus cylindracens*) Saguaro (*Carnegiea gigantea*)	984–3,280	Subtropical	3–10

Vegetation Community	Acres	LHFO Land (%)	Plant Growth Form	Dominant Species	Elevation (Feet)	Climate	Precipitation (inches)
Mohave Desertscrub	73,519.24	5.4%	Shrub microphyllous	Creosotebush (*Larrea tridentata*) Joshua tree (*Yucca brevifolia*) All-scale atriplex (*Atriplex plycarpa*) Brittlebush (*Encelia farinosa*) Desert holly (*Atripex hymenelytra*) White burrobrush (*Hymenolea salsola*) Shadescale (*Atriplex confertifolia*) Blackbrush (*Coleogyne ramosissima*) Engleman hedgehog (*Echinocereus engelmannii*) Silver cholla (*Opuntia echinocarpa*) Mojave pricklypear (*Opuntia phaeacantha*) Beavertail cactus (*Opuntia basilaris*) Many-headed barrel cactus (*Echinocactus polycephalus*) Big galleta grass (*Pleuraphis rigida*) Numerous ephemeral forbs	980–4,000	Warm-Temperate	1–8
Great Basin Pinyon-Juniper Woodland	254.53	0.02%	Tree-Conifer	California juniper (*Juniperus californica*) Singleleaf pinyon pine (*Pinus monophylla*) Big sagebrush (*Artemisia tridentata*) Snakeweed (*Gutierrezia sarothrae*) Rabbitbush (*Ericameria* spp.) Winterfat (*Ceratoides lanata*) Cliffrose (*Purshia stansburiana*) Apache plume (*Fallugia paradoxa*) Blue gramma (*Bouteloua gracilis*)	5,000–5,100	Warm-Temperate	5–15

Vegetation Community	Acres	LHFO Land (%)	Plant Growth Form	Dominant Species	Elevation (Feet)	Climate	Precipitation (inches)
				Galleta grass (*Pleuraphis jamesii*) Indian rice grass (*Achratherum hymenoidesi*) Western wheatgrass (*Agropyron smithii*) Several muhleys (*Muhlenbergia* sp.) Dropseeds (*Sporobolus* sp.)			
Interior Chaparral	35,139.24	2.48%	Shrub–sclerophyll	Shrub live oak (*Quercus turbinella*) Skunkbush sumac (*Aromatica vartrilobata*) Silktassel (*Garrya flavescens*) Desert ceanothus (*Ceanothus greggii*) Cliffrose (*Purshia stansburiana*) Arizona rosewood (*Vauquelina californica*) Sideoats gramma (*Bouteloua curtipendula*) Hairy gramma (*Bouteloua hirsute*) Plains lovegrass (*Eragrostis intermedia*) Wolftail (*Lycurus setosus*) Single threeawn (*Aristida schiedeana*).	3,280–6,070	Warm-Temperate	5–15
Riparian	5,253.11	0.4%	Tree–deciduous	Mesquite (*Prosopis* sp.) Gooddings willow (*Salix gooddingii*) Netleaf hackberry (*Celtis reticulata*) Cottonwood (*Populus fremontii*) Arrow-weed (*Pluchea sericea*) Quailbush (*Atriplex lentiformis*) Saltcedar (*Tamarix* sp.)	Various	Various	Various

Vegetation Community	Acres	LHFO Land (%)	Plant Growth Form	Dominant Species	Elevation (Feet)	Climate	Precipitation (inches)
Mesquite/ Ephemeral Wash Woodland	43,443.69	3.2%	Tree-deciduous	Mesquite (*Prosopis* sp.) Desert star vine (Brandegea bigelovii) Cat's claw acacia (*Acacia greggii*) Blue palo verde (*Parkinsonia florida*), Ironwood (*Olneya tesota*) Saltcedar (*Tamarix* sp.)	Various	Various	Various
Agriculture	1,765.84	0.13%					
Urban	1,872.77	0.13%					
Water	8,198.58	0.6%					
	1,358,389.14	100%					

Brown 1982.

Table J-2: Submerged and Aquatic Plants of Lake Havasu and Lower Colorado River

Type	Scientific Name	Common name	Origin
Submerged aquatic species	*Ceratophyllum dermersum*	Coon's tail	Native
	Chara sp.	Muskgrass	Native
	Potamogeton sp.	Pondweed	Native
	Najas marina	Spiny naiad	Native
	Myriophyllum sp.	Watermilfoil	Non-Native
Emergent	*Typha* sp.	Cattail	Native
	Hydrocotyle sp.	Pennywort	Native
	Juncus sp.	Rush	Native
	Scirpus olneyi	Salt marsh sedge	Native
	Rorippa sp.	Watercress	Native
	Ruppia sp.	Widgeon grass	Native
Floating	*Lemna* sp.	Duckweed	Native

Minckly pers comm.; Blair pers comm., 2005.

Table J-3: Plants Possibly Found in the LHFO Boundary

Family Name	Scientific Name	Common Name	Classification
		Algae	
CHARACEAE **Green Algae**	*Nitella hyaline*	Muskgrass	
		Ferns and Fern Allies	
DRYOPTERIDACEAE **Wood Fern**	*Woodsia oregano*	Oregon woodsia	Perennial herb
EQUISETACEAE **Horsetail**	*Equisetum hyemale*	Common scouringrush	
	Equisetum funstonii	California horsetail	
PTERIDACEAE **Brake**	*Adiantum capillus-veneris*	Venus hair fern, Maidenhair fern	Perennial herb
	Cheilanthes covillei	Coville's lipfern	Perennial herb
	Cheilanthes parryi	Parry's cloakfern	Perennial herb
	Pallaea mucronata var. *californica*	Birdsfoot fern	Perennial
	Pentagramma triangularis	Goldback fern	Perennial herb
		Gymnosperms	
CUPRESSACEAE **Cypress**	*Juniperus californica*	California juniper	Tree
PINACEAE **Pine**	*Pinus monophylla*	Singleleaf pinyon pine	Tree
EPHEDRACEAE **Ephedra**	*Ephedra faciculata*	Mohave ephedra	Shrub
	Ephedra funereal	Death Valley ephedra	Shrub
	Ephedra nevadensis	Nevada Morman Tea	Shrub
	Ephedra torreyana	Torrey ephedra	Shrub
		Angiosperms (Dicots)	
AZIOECEAE **Carpetweed**	*Sesuvium verrucosum*	Western sea purslane	Perennial herb
	Trianthema portuacastrum	Horse purslane	Annual
AMARANTHACEAE **Amaranth**	*Amaranthus blitoides*	Prostrate pigweed	Annual
	Amaranthus fimbriants	Fringed amaranth	Annual
	Amaranthus retroflexus	Red root pigweed	Annual

Family Name	Scientific Name	Common Name	Classification
	Tidestromia lanuginose	Espanta vaqueros	Annual
	Tidestromia oblongifolia	Honeysweet	Perennial herb
APIACEAE **Carrot, Parsley**	*Bowlesia incana*	Bowlesia, Pennywort	Annual
	Cymopteris purpurascens	Widewing spring parsley	Perennial herb
	Hydrocotyle verticillata	Water (whorled) pennywort	Perennial herb
	Lomatium foeniculaceum	Desert parsley	Perennial herb
	Lomatium parryi	Parrys lomatium	Perennial herb
	Yabea microcarpa	California hedge parsley	Annual
APOCYNACEAE **Dogbane**	*Amsonia tomentosa*	Woolly amsonia	Perennial herb
	Apocynum cannabinum	Indian hemp	Perennial herb
ASCLEPIADACEAE **Milkweed**	*Asclepia erosa*	Desert milkweed	Perennial herb
	Asclepia subulata	Rush milkweed	Shrub
	Asclepia albicans	White-stemmed milkweed	Perennial
	Asclepias subverticillata	Whorled milkweed	Perennial herb
	Cynanchum utahense	Swallowwort	Perennial herb
	Sarcostemma hirtellum	Trailing milkweed	Perennial vine
	Sarcostemma heterophyllum	Climbing milkweed	Perennial vine
ASTERACEAE **Sunflower**	*Acamptopappus sphaerocephalus*	Goldenhead	Shrub
	Acourtia wrightii	Wrights perezia	Shrub
	Adenophyllum cooperi	Coopers glandweed	Perennial
	Adenophyllum porophylloides	San Diego dyssodia	Perennial herb
	Ambrosia acanthicarpa	Sand bursage, Sandbur	Annual
	Ambrosia ambrosiodes	Ambrosia leaved burbrush	Shrub
	Ambrosia dumosa	White bursage	Shrub
	Ambrosia eriocentra	Woolly bursage	Shrub
	Amphipappus fremontii	Chaffbrush	Shrub
	Anisocoma acaulis	Scalebud	Annual
	Artemisia carruthii	Carruths wormwood	Perennial herb
	Artemisia ludoviciana	Western mugwort	Perennial herb

Family Name	Scientific Name	Common Name	Classification
	Aster eatonii	Eaton aster	Perennial herb
	Aster exilis	Slender aster	Annual
	Aster tephrodes	Ash-colored aster	Biennial
	Atrichoseris pltyphylla	Gravel ghost, Parachute Plant	Annual
	Baccharis brachyphylla	Shortleaf seepwillow	Shrub
	Baccharis emoryi	Emory's seepwillow	Shrub
	Baccharis salicifolia	Sticky seepwillow	Shrub
	Baccharis sarothroides	Broom baccharis	Shrub
	Baccharis sergiloides	Squaw waterweed, desert baccharis	Shrub
	Baccharis vimenea	Mulefat	Shrub
	Baileya multiradiata	Desert marigold	Perennial herb
	Baileya pleniradiata	Woolly desert marigold	Annual
	Bebbia juncea	Sweetbbush	Shrub
	Brickellia arguta	Spiny brickellbush	Shrub
	Brickellia atractyloides	Spiny brickellbush	Shrub
	Brickellia califonica	California brickellbush	Shrub
	Brickellia desertorum	Desert brickellbush	Shrub
	Brickellia incana	Woolly brickellbush	Shrub
	Brickellia longifolia	Willowleaf brickellbush	Shrub
	Brickellia oblongifolia	Mohave brickellbush	Perennial herb
	Calycoseris parryi	Yellow tackstem, Perrys tackstem	Annual
	Calycoseris wrightii	White tackstem	Annual
	Chaenactis carphoclinia	Pebble pincushion	Annual
	Chaenactis fremontii	Fremonts pincushion, Desert pincushion	Annual
	Chaenactis macrantha	Mojave pincushion	Annual
	Chaenactis stevioides	Esteves pincushion, Desert pincushion	Annual
	Chloracantha spinosa	Mexican devilweed	Subshrub
	Chrysopsis villosa	Golden aster	Perennial herb
	Cirsium arizonicum	Arizona thistle	Biennial
	Cirsium mohavense	Mojave thistle	Biennial
	Cirsium neomexicanum	New Mexico thistle	Biennial
	Cirsium wheeleri	Wheelers Thistle	Perennial herb
	Conyza canadensis	Horseweed	Annual
	Conyza coulteri	Coulters horseweed	Annual

Family Name	Scientific Name	Common Name	Classification
	Crepis intermedia	Grays hawksbeard	Perennial herb
	Dicoria canescens	Dune dicoria, desert dicoria, Grays sandplant, bug seed	Annual
	Eclipta prostrate	Wormbane	Annual
	Encelia farinose	Brittlebush	Shrub/Common
	Encelia frutescens	Bush encelia, rayless encelia	Shrub
	Encelia virginensis	Virgin encelia	Shrub
	Enceliopsis argophylla	Sunray	Perennial herb
	Ericameria cooperi	Cooper's goldenbrush	Shrub
	Ericameria cuneata	Wedgeleaf goldenbrush	Shrub
	Ericameria laricifolia	Turpentinebrush	Shrub
	Ericameria linearifolia	Mohave goldenbrush	Shrub
	Ericameria nana	Dwarf goldenbrush	Shrub
	Ericameria nauseosus	Rubber rabbitbrush	Shrub
	Ericameria paniculatus	Mohave rabbitbrush	Shrub
	Ericameria teretifolius	Needleleaf rabbitbrush	Shrub
	Erigeron concinnus	Elegant fleabane	Perennial herb
	Erigeron lobatus	Lobeleaf fleabane	Annual
	Eriophyllum lanosum	White woolly daisy	Annual
	Eriophyllum wallacei	Woolly daisy, wallace daisy	Annual
	Eupatorium herbaceum	White thoroughwort	Perennial herb
	Filago califonica	Fluffweed	Annual
	Filago depressa	Little fluffweed	Annual
	Geraea canescens	Desert sunflower	Annual
	Glyptopleura marginata	Crustweed	Annual
	Gnaphalium palustre	Lowland everlasting	Annual
	Gnaphalium stramineum	Yellow everlasting	Biennial
	Gnaphalium wrightii	Wrights everlasting	Perennial herb
	Gutierrezia microcephala	Matchweed	Shrub
	Gutierrezia sarothrae	Snakeweed	Shrub
	Helianthus annuus	Common sunflower	Annual
	Helianthus anomalus	Sand sunflower	Annual
	Heterotheca psammophila	Camphorweed, Sand golden aster	Annual/Biennial
	Hymenoclea salsola	Cheesebush	Shrub

Family Name	Scientific Name	Common Name	Classification
	Hymenoxys richardsonii	Colorado rubberplant	Perennial herb
	Isocoma acradenia	Alkali goldenbush	Shrub
	Iva axillaries	Poverty weed	Perennial herb
	Lactuca tatarica	Blue lettuce	Perennial herb
	Layia glandulosa	White layia	Annual
	Machaeranthera arida	Silver Lake daisy	Annual
	Machaeranthera asteroids	Emorys aster	Perennial herb
	Machaeranthera canescens	Thickleaf aster	Biennial
	Machaeranthera pinnatifida	Spiny goldenbush	Perennial herb
	Malacothrix clevelandii	Cleveland desert dandelion	Annual
	Malacothrix coulteri	Snakeshead	Annual
	Malacothrix glabrata	Desert dandelion	Annual
	Malacothrix sonchoides	Yellow saucers	Annual
	Monoptilon bellidiforme	Desert star	Annual
	Monoptilon belioides	Mohave Desert star	Annual
	Palafoxia arida	Spanish needle	Annual
	Pectis papposa	Chinchweed	Annual
	Perityle congesta	Compact rockdaisy	Perennial herb
	Perityle emoryi	Rockdaisy	Annual
	Perityle megalocephala	Largehead rockdaisy	Perennial
	Peucephyllum schottii	Pygmy cedar, desert fir	Shrub
	Pleurocoronis pluriseta	Arrowleaf	Shrub
	Pluchea odorata	Saltmarsh fleabane	Shrub
	Pluchea sericea	Arrowweed	Shrub
	Porophyllum gracile	Odora	Subshrub
	Prenanthella exigua	Prenanthella	Annual
	Psathyrotes annua	Mealy rosettes	Annual
	Psathyrotes pilifera	Piliferous turtleback	Annual
	Psathyrotes ramosissima	Turtleback	Annual
	Psilostrophe cooperi	Paperflower	Shrub
	Rafinesquia californica	California chicory	Annual
	Rafinesquia neomexicana	Desert chicory	Annual

Family Name	Scientific Name	Common Name	Classification
	Senecio flaccidus	Groundsel	Perennial herb
	Senecio mohavensis	Mohave groundsel	Annual
	Senecio multilobatus	Vinta groundsel	Perennial herb
	Solidago confines	Southern goldenrod	Perennial herb
	Sonchus asper	Prickly sowthistle	Annual
	Sonchus oleraceus	Common sowthistle	Annual
	Stephanomeria pauciflora	Wire lettuce	Perennial herb
	Stephanomeria thurberi	Thurbers wire lettuce	Perennial
	Stylocline intertexta	Morefield neststraw	Annual
	Stylocline micropoides	Desert neststraw	Annual
	Stylocline psilocarphoides	Pecks neststraw	Annual
	Taraxacum officinale	Dandelion	Perennial herb
	Tetradymia canescens	Horshbrush	Shrub
	Tetradymia stenolepis	Mojave horsebush	Shrub
	Thymophylla pentachaeta	Scale glandbush	Low shrub
	Trichoptilium incisum	Yellowheads	Perennial herb
	Trixis californica	Trixis	Shrub
	Uropappus lindleyi	Silver stars, silver puffs	Annual
	Viguiera parishii	Goldeneye	Shrub
	Xanthium strumarium	Cocklebur	Annual
	Xylorhiza tortifolia	Desert aster	Shrub
BIGNONIACEAE **Bignonia**	*Chilopsis linearis*	Desert willow	Shrub/Tree
BORAGINACEAE **Forget-Me-Not**	*Amsinckia eastwoodiae*	Tarweed fiddleneck	Annual
	Amsinckia menziesii	Ranchers fireweed	Annual
	Amsinckia tessellate	Rough fiddleneck	Annual
	Cryptantha angustifolia	Narrowleaf cryptantha	Annual
	Cryptantha barbigera	Bearded cryptantha	Annual
	Cryptantha cinerea	Bownut cryptantha	Perennial herb
	Cryptantha circumscissa	Opening cryptantha	Annual
	Cryptantha decipiens	Beguiling cryptantha	Annual
	Cryptantha dumetorum	Greenes cryptantha	Annual

Family Name	Scientific Name	Common Name	Classification
	Cryptantha holoptera	Winged cryptantha	Annual
	Cryptantha maritime	Guadalupe cryptantha, white-hared forget-me-not	Annual
	Cryptantha micratha	Redroot cryptantha	Annual
	Cryptantha muricata	Prickly cryptantha	Annual
	Cryptantha nevadensis	Nevada cryptantha	Annual
	Cryptantha pterocarya	Wingnut cryptantha	Annual
	Cryptantha racemosa	Baja cryptantha	Annual
	Cryptantha recurvata	Recurved cryptantha	Annual
	Cryptantha utahensis	Scented cryptantha	Annual
	Cryptantha virginensis	Virgin River cryptantha	Biennial/Perennial herb
	Heliotropium convolvulaceum	False morning glory	Annual
	Heliotropium curassavicum	Helioptrope	Perennial herb
	Lappula occidentalis	Western stickseed	Annual
	Pectocarya heterocarpa	Unequal combseed	Annual
	Pectocarya platycarpa	Flattened combseed	Annual
	Pectocarya recurvata	Bent combseed	Annual
	Pectocarya setosa	Saucer combseed	Annual
	Plagiobothrys arizonicus	Arizona popcornflower	Annual
	Plagiobothrys jonesii	Jones popcornflower	Annual
	Plagiobothrys leptocladus	Hairy popcornflower	Annual
	Tiquilia canescens	Woody tiquilia	Perennial
	Tiquilia latior	Matted tiguilia	Perennial
	Tiquilia palmeri	Palmers tiquilia	Perennial herb
	Tiquilia plicata	Pleated tiquilia, Crinkle mats, Plicate codenia	Perennial
BRASSICACEAE **Mustard**	*Arabis glaucovalula*	Mustard	Perennial herb
	Arabis gracilipes	Rockcress	Perennial herb
	Arabis perennans	Common rockcress	Perennial herb
	Arabis pulchra	Princess rockcress	Perennial herb
	Brassica juncea	Indian mustard	Annual
	Brassica tournefortii	Sahara mustard	Annual

Family Name	Scientific Name	Common Name	Classification
	Capsella bursa-pastoris	Shephards purse	Annual
	Caulanthus cooperi	Coopers wild cabbage	Annual
	Descurainia obtuse	Desert tansymustard	Annual
	Descurainia pinnata	Pinnate tansymustard	Annual
	Descurainia Sophia	Flixweed	Annual
	Dithyrea californica	Spectaclepod	Annual
	Draba cuneifolia	Wedgeleaf	Annual
	Erysimum capitatum	Wallflower	Perennial herb
	Erysimum repandum	Spreading wallflower	Annual
	Guillenia lasiophylla	California mustard	Annual
	Lepidium densiflorum	Densecress	Annual
	Lepidium dictyotum	Alkali peppergrass	Annual
	Lepidium fremontii	Desert alyssum	Shrub
	Lepidium lasiocarpum	Peppergrass	Annual
	Lepidium montanum	Mountain pepperplant	Perennial herb
	Lesquerella tenella	Beadpod	Annual
	Lobularia maritime	Sweet alyssum	Perennial herb
	Malcolmia Africana	African malcolmia	Annual
	Physaria newberryi	Newberrys twinpod	Perennial herb
	Rorippa nasturtium-aquaticum	Watercress	Perennial
	Sinapis arvensis	Charlock	Annual
	Sisymbrium altissimum	Tumble mustard	Annual
	Sisymbrium irio	London rocket	Annual
	Stanleya pinnata	Princes plume	Perennial
	Streptanthella longirostris	Longbeak twistflower	Annual
	Thelypodium integrifolium	Tall thelypody	Biennial
	Thelypodium wrightii	Wrights thelypody	Annual
	Thlaspi arvense	Pennycress, fanweed	Annual/Biennial
	Thysanocarpus curvipes	Lacepod, fringepod	Annual
BUDDLEJACEAE **Buddleja**	*Buddleja utahensis*	Panamint butterflybush	Shrub
CACTACEAE **Cactus**	*Echinocactus polycephalus*	Cottontop cactus	Perennial

Family Name	Scientific Name	Common Name	Classification
	Echinocereus engelmannii	Hedgehog cactus	Perennial
	Echinocereus fasciculatus	Arizona hedgehog	Perennial
	Ferocactus cylindraceus	Barrel cactus	Perennial
	Mammilaria grahamii	Millers fishhook	Perennial
	Mammilaria tetrancistra	Fishhook cactus, pincushion cactus	Perennial
	Opuntia acanthocarpa	Buckhorn cholla	Perennial
	Opuntia basilaris	Bakersfield cactus	Perennial
	Opuntia bigelovii	Teddybear cholla, jumpling cholla	Perennial
	Opuntia chlorotica	Pancake pricklypear	Perennial
	Opuntia echinocarpa	Silver cholla	Perennial
	Opuntia erinacea	Old man pricklypear, Mojave pricklypear	Perennial
	Opuntia parishii Orc.	Devil cholla, club cholla	Perennial
	Opuntia polyacantha	Central pricklypear, rufus-spine pricklypear	Perennial
	Opuntia ramosissima	Diamond cholla, pencil cholla	Perennial
	Sclerocactus johnsonii	Pigmy barrel cactus	Perennial
CAMPANULACEAE **Bellflower**	*Lobelia cardinalus*	Cardinal flower	Perennial
	Nemacladus glanduliferus	Slender threadplant	Annual
	Nemacladus sigmoideus	Curved threadplant	Annual
CAPPARACEAE **Caper**	*Wislizenia refracta*	Jackass clover	Annual
CAPRIFOLIACEAE **Honeysuckle**			
CARYOPHYLLACEAE **Pink**	*Achronychia cooperi*	Frostmat	Annual
	Arenaria macradenia	Shrubby sandwort, Desert sandwort	Subshrub
	Scopulophila rixfordii	Rixfords rockwort	Perennial
	Silene antirrhina	Annual catchfly	Annual
	Spergularia marina	Salt sandspurrey	Annual
	Stellearia nitens	Shining chickweed	Annual
CELASTRACEAE **Staff tree**	*Mortonia utahensis*	Mortonia	Shrub

Family Name	Scientific Name	Common Name	Classification
CHENOPODIACEAE **Goosefoot**	*Allenrolfea occidentalis*	Pickleweed	
	Atriplex canescens	Fourwing saltbush	Shrub
	Atriplex confertifolia	Shadscale	Shrub
	Atriplex elegans	Wheelscale	Annual
	Atriplex hymenelytra	Desert holly	Shrub
	Atriplex lentiformis	Quailbrush	Shrub
	Atriplex linearis	Narrow-leaved saltbush	
	Atriplex semibaccata	Australian saltbush	Perennial
	Bassia hyssopifolia	Bassi, Fourhorn smotherweed	Annual
	Chenopodium album	Lambs quarters, pigweed	Annual
	Chenopodium berlandieri	Berlandieris pigweed, pitseed goosefoot	Annual
	Chenopodium fremontii	Fremonts goosefoot	Annual
	Corispermum villosum	Bugseed	Annual
	Grayia spinosa	Hopsage	Shrub
	Kochia scoparia	Summer cypress	Annual
	Krascheninnikovia lanata	Winterfat	Shrub
	Suaeda moquinii	Seepbush Iodine weed	Perennial herb
CONVOLVULACEAE **Morning glory**	*Convolvulus arvensis*	Bindweed	Perennial herb
	Cuscuta denticulate	Desert dodder	
CRASSULACEAE **Stonecrop**	*Dudleya pulverulenta*	Arizona liveforever, Chalk liveforever	
CROSSOSOMATACEAE **Crossosoma**	*Crossosoma bigelovii*	Greeswood	Shrub
	Glossopetalon spinescens	Nevada greasewood	Shrub
CUCURBITACEAE **Gourd**	*Cucurbita palmate*	Coyote melon, palmate leaved gourd	Perennial vine
	Marah fabaceus	Manroot	Perennial vine
	Brandegea begelovii	Desert star vine	Perennial vine
CUSCUTACEAE **Dodder**	*Cuscuta californica*	California dodder	Annual vine/Parasitic
	Cuscuta denticulate	Desert dodder	Annual/Parasitic
	Cuscuta pentagona	Field dodder	Annual vine/Parasitic

Family Name	Scientific Name	Common Name	Classification
ELAEAGNACEAE **Oleaster**	*Elaeagnus angustifolia*	Russian olive	Tree
EUPORBIACEAE **Spurge**	*Chamaesyce albomarginata*	Sandmat, rattlesnake weed	Perennial herb
	Chamaesyce micromera	Desert spurge	Annual
	Chamaesyce ocellata	Valley spurge	Annual
	Chamaesyce parishii	Parishs spurge	Perennial herb
	Chamaesyce ploycarpa	Smallseed sandmat	Perennial herb
	Croton californicus	Sand croton	Shrub
	Ditaxis neomexicana	New Mexico ditaxis	Annual
	Euphorbia incise	Mojave spurge	Perennial herb
	Stillingia linearifolia	Narrowleaf stillingia	Perennial herb
	Stillingia spinulosa	Spiny stillingia	Perennial herb
	Tetracoccus hallii	Halls tetracoccus	Shrub
FABACEAE **Legume**	*Acacia greggii*	Catclaw acacia	Shrub
	Astragalus acutirostris	Sharpkeeled milkvetch	Annual
	Astragalus calycosus	Scapose milkvetch	Perennial herb
	Astragalus geyeri	Threecorner milkvetch	Annual
	Astragalus layneae	Layne milkvetch	Perennial herb
	Astragalus lentiginosus	Freckled milkvetch	Annual/Perennial
	Astragalus mokiacensis	Mokiak milkvetch	Perennial
	Astragalus newberryi	Newberry milkvetch	Perennial herb
	Astragalus nutallianus	Smallflower milkvetch	Perennial
	Astragalus praelongus	Stinking milkvetch	Perennial herb
	Astragalus preussii	Desert milkvetch	Perennial
	Astragalus sabulonum	Gravel milkvetch	Annual
	Astragalus tephroedes	Ashen milkvetch	Perennial herb
	Parkinsonia floridum	Blue Paloverde	Tree
	Parkinsonia microphyllum	Foothills Paloverde	Tree
	Dalea mollis	Silk Dalea	Annual
	Dalea mollissima	Silky prairieclover	Annual
	Dalea searlsiae	Searls prairieclover	Perennial herb
	Lotus humistratus	Low trefoil	Annual
	Lotus rigidus	Bush trefoil, Deervetch	Shrub

Family Name	Scientific Name	Common Name	Classification
	Lotus salsuginosus	Humble trefoil	Annual
	Lotus strigosus	Desert birdfoot trefoil	Annual
	Lupinus arizonicus	Arizona lupine	Annual
	Lupinus concinnus	Bajada lupine, Elegant lupine	Annual
	Lupinus flavoculatus	Yelloweye lupine	Annual
	Lupinus shockleyi	Desert lupine	Annual
	Lupinus sparsiflorus	Mojave lupine, Narrow leaf lupine	Annual
	Marina parryi	Parrys indigobush	Perennial herb
	Medicago lupulina	Black medick, Yellow trefoil	Annual
	Medicago polymorpha	California burclover	Annual
	Medicago sativa	Alfalfa	Perennial herb
	Melilotus alba	White sweetclover	Annual
	Melilotus indicus	Sourclover	Annual
	Melilotus officinalis	Yellow sweetclover	Annual
	Olneya tesota	Ironwood	Tree
	Parkinsonia aculeate	Mexican paloverde	Tree
	Pediomelum castoreum	Beaver dam breadroot	Perennial herb
	Prosopis glandulosa	Honey mesquite	Tree
	Prosopis pubescens	Screwbean mesquite	Tree
	Psorothamnus fremontii	Indigobush	Shrub
	Psorothamnus spinosus	Smoketree	Tree
	Senna armata	Spiny senna	Shrub
	Senna covesii	Coues cassia	Subshrub
	Sesbania macrocarpa	Colorado River hemp	
FAGACEAE **Oak**	*Quercus turbinella*	Shrub live oak	Shrub/Tree
FOUQUIERIACEAE **Ocotillo**	*Fouquieria splendens*	Ocotillo	Shrub
GARRYACEAE **Silk Tassel**	*Garrya flavescens*	Silk tassel	Annual
GENTIANACEAE **Gentian**	*Centaurium calycosum*	Centaury	Annual
	Eustoma exaltatum	Alkali chalice	
GERANIACEAE Geranium	*Erodium cicutarium*	Filaree	Annual
	Erodium texanum	Crane's bill	Annual/biennial

Family Name	Scientific Name	Common Name	Classification
HYDROPHYLLACEAE Waterleaf	*Emmenanthe penduliflora*	Whispering bells	Annual
	Eriodictyon angustifolium	Yerba santa	Shrub
	Eucrypta chrysanthemifolia	Common eucrypta	Annual
	Eucrypta micrantha	Desert eucrypta	Annual
	Nama demissum	Purplemat	Annual
	Nama hispidum	Hairy nama	Annual
	Nama pusillum	Small leaf nama	Annual
	Nemophila menziesii	Baby blue-eyes	Annual
	Phacelia affinis	Ally phacelia	Annual
	Phacelia anelsonii	Aven Nelsons phacelia	Annual
	Phacelia cicutaria	Caterpillar phacelia	Annual
	Phacelia crenulata	Fairy phacelia	Annual
	Phacelia crenulata	Wild heliotrope, Notchleaf phacelia	Annual
	Phacelia cryptantha	Cryptanth phacelia	Annual
	Phacelia distans	Common phacelia	Annual
	Phacelia fremontii	Yellow throats, Fremonts phacelia	Annual
	Phacelia glechomaefolia	Canyon phacelia	Annual
	Phacelia ivesiana	Ives phacelia	Annual
	Phacelia lemmonii	Lemmons phacelia	Annual
	Phacelia neglecta	Neglected phacelia	Annual
	Phacelia palmeri	Palmers phacelia	Biennial
	Phacelia parishi	Parish phacelia	Annual
	Phacelia pedicellata	Specter phacelia	Annual
	Phacelia perityloides	Panamint phacelia	Perennial herb
	Phacelia pulchella	Gooddings phacelia	Annual
	Phacelia rotundifolia	Roundleaf phacelia	Annual
	Phacelia vallis-mortae	Death Valley phacelia	Annual
	Pholistoma auritum	Desert fiestaflower	Annual
	Pholistoma membranaceum	White fiestaflower	Annual
	Tricardia watsonii	Three hearts	Perennial herb

Family Name	Scientific Name	Common Name	Classification
KRAMERIACEAE Rhatany	*Krameria ercta*	Rhatany, Pima rhatany, Purple heather	Shrub
	Krameria grayi	White rhatany	Shrub
LAMIACEAE Mint	*Hyptis emoryi*	Desert lavender	Shrub
	Monardella linoides	Monardella	Perennial herb
	Salazaria mexicana	Bladdersage, Paperbag plant	Shrub
	Salvia coumbariae	Chia	Annual
	Salvia dorrii	Desert sage	Shrub
	Salvia mohavensis	Mohave sage	Shrub
LENNOACEAE Lennoa	*Pholisma arenarium*	Scaly-stemmed Sand Food	
	Pholisma sonorae	Sand Food	
LOASACEAE Loasa, Stickleaf	*Eucnide urens*	Rocknettle	Subshrub
	Mentzelia affinia	Yellow comet	Annual
	Mentzelia albicaulis	Whitestem blazingstar	Annual
	Mentzelia integra	Virgin stickleaf	Perennial
	Mentzelia involucrate	Whitebract stickleaf	Annual
	Mentzelia jonesii	Jones stickleaf	Annual
	Mentzelia nitens	Venus blazingstar	Annual
	Mentzelia oreophila	Darlingtons stickleaf	Perennial herb
	Mentzelia pumila	Wyoming stickleaf	Biennial
	Mentzelia tricuspis	Blazingstar	Annual
	Mentzelia veatchiana	Veatch stickleaf	Annual
	Petalonyx parryi	Parrys sandpaper plant	Shrub
	Petalonyx thurberi	Thurbers sandpaper plant	Shrub
LYTHRACEAE Loosestrife	*Lythrum califonicum*	Common loosestrife	Perennial herb/Subshrub
	Ammania coccinea	Ammania	
MALVACEAE Mallow	*Eremalche exilis*	White mallow	Annual
	Eremalche rotundifolia	Desert fivespot	Annual
	Hibiscus denudatus	Desert hibiscus	Perennial herb
	Malvella leprosa	Alkali mallow	Perennial herb
	Sphaeralcea ambigua	Desert mallow, Globemallow	Perennial herb

Family Name	Scientific Name	Common Name	Classification
	Sphaeralcea angustifolia	Narrowleaf desert mallow	Perennial herb
	Sphaeralcea emoryii	Emorys globemallow	Annual
NYCTAGINACEAE Four o'Clock	*Abronia fragrans*	Frangrant sandverbena	Perennial herb
	Abronia villosa	Sand verbena	Annual
	Allionia incarnate	Windmills	Annual
	Boerhavia coccinea	Red/Scarlet spiderling	Perennial herb
	Boerhavia intermedia	Jones spiderling	Annual
	Boerhavia triquestra	Watsons spiderling	Annual
	Boerhavia wrightii	Wrights boerhaavia, Wright spiderling	Annual
	Mirabilis bigelovii	Desert four o'clock	Perennial herb
	Mirabilis multiflora	Giant four o'clock	Perennial herb
	Tripterocalyx micranthus	Sandpuffs	Annual
OLEACEAE Olive	*Forestiera pubescens*	Desert olive	Shrub
	Menodora scabra	Rough menodora	Perennial herb
	Menodora spinescens	Spiny menodora	Shrub
ONAGRACEAE Evening Primrose	*Camissonia boothii*	Booths primrose	Annual
	Camissonia brevipes	Sundrop, Suncup	Annual
	Camissonia californica	California primrose	Annual
	Camissonia chamaenerioides	Slenderpod camissonia	Annual
	Camissonia claviformis	Browneyed primrose	Annual
	Camissonia exilis	Meager camissonia	Annual
	Camissonia multijuga	Manylobe primrose	Annual
	Camissonia pallida	Pale camissonia	Annual
	Camissonia refracta	Narrow leaf primrose, Refract desert primrose, Decurved camissonia	Annual
	Camissonia walkeri	Walkers camissonia	Annual
	Gaura coccinea	Scarlet gaura, Wild honeysuckly	Perennial herb
	Gaura gracilis	Slender gaura	Perennial herb
	Oenothera albicaulis	Whitestem evening primrose	Annual

Family Name	Scientific Name	Common Name	Classification
	Oenothera caespitosa	Fragrant evening primrose	Perennial herb
	Oenothera cardiophylla	Long-tubed primrose	
	Oenothera californica	Watsons evening primrose	Perennial herb
	Oenothera cavernae	Munzs evening primrose	Perennial herb
	Oenothera deltoids	Birdcage dune primrose	Annual
	Oenothera pallida	Pale evening primrose	Annual/Perennial herb
	Oenothera primiveris	Spring evening primrose	Annual
OROBANCHACEAE Broomrape	*Orobanche cooperi*	Broomrape	Perennial herb/Parasitic
	Orobanche ludoviciana	Manyflower cancerroot	Perennial herb/Parasitic
PAPAVERACEAE Poppy	*Arctomecon californica*	Las Vegas bearpoppy	Perennial herb
	Argemone corymbosa	San Rafael pricklypoppy	Perennial
	Argemone munita	Pricklypoppy	Perennial herb
	Argemone platycera	Pricklypoppy	Perennial herb
	Eschscholzia californica	California poppy	Annual/Perennial
	Eschscholzia glyptosperma	Desert goldpoppy	Annual
	Eschscholzia minutiflora	Little goldpoppy	Annual
PHILADELPACEAE Mock Orange			
PLANTAGINACEAE Plantain	*Plantago major*	Common plantain	Perennial herb
	Plantago ovata Forsskal	Woolly plantain, Island plantain	Annual
	Plantago patagonica	Purshes plantain	Annual
	Plantago insularis	Mousetail plantain	Annual
PLUMBAGINACEAE Leadwort	*Limonium californicum*	Western marsh rosemary, Sea lavender	Shrub
POLEMONIACEAE Phlox	*Eriastrum diffusum*	Spreading woollystar	Annual
	Eriastrum eremicum	Mojave woollystar	Annual
	Gilia cana	Desert gilia	Annual
	Gilia filiformis	Threadstem gilia	Annual
	Gilia hutchinsifolia	Pale gilia	Annual

Family Name	Scientific Name	Common Name	Classification
	Gilia latifolia	Broadleaf gilia	Annual
	Gilia leptomeria	Great basin gilia, Lobeleaf gilia	Annual
	Gilia micromeria	Sand gilia	Annual
	Gilia ophthalmoides	Eyelike gilia	Annual
	Gilia scopulorum	Rock gilia	Annual
	Gilia sinuate	Wavy gilia	Annual
	Gilia setossissima	Prickly gilia	Annual
	Gilia stellata	Star gilia	Annual
	Gilia transmontana	Transmontane gilia	Annual
	Ipomopsis arizonica	Arizona skyrocket	Biennial
	Ipomopsis polycladon	Spreading skyrocket	Annual
	Langloisia setosissima	Lilac sunbonnet	Annual
	Langloisia setosissima	Mojave langloisia, Bristly langloisia	Annual
	Leptodactylon pungens	Granite phlox	Shrub
	Linanthus arenicola	Sand linanthus	Annual
	Linanthus aureus	Golden linanthus, Desert gold	Annual
	Linanthus aureus	White desert gold	Annual
	Linanthus bigelovii	Bigelows linanthus	Annual
	Linanthus demissus	Humble gilia, Low linanthus	Annual
	Linanthus jonesii	Jones linathus	Annual
	Loeseliastrum schottii	Schotts calico	Annual
POLYGALACEAE Milkwort	*Polygala subspinosa*	Cushion milkwort, Spiny milkwort	Subshrub
POLYGONACEAE Buckwheat	*Chorizanthe brevicornu*	Brittle spineflower	Annual
	Chorizanthe corrugate	Wrinkled sunflower	Annual
	Chorizanthe rigida	Spiny herb	Annual
	Eriogonum brachypodum	Parrys buckwheat	Annual
	Eriogonum cernuum	Nodding buckwheat	Annual
	Eriogonum deflexum	Skeleton buckwheat	Annual
	Eriogonum fasciculatum	California buckwheat	Shrub
	Eriogonum heermannii	Heermanns buckwheat	Shrub
	Eriogonum heermannii	Limestone buckwheat	Shrub
	Eriogonum inflatum	Desert trumpet	Perennial herb

Family Name	Scientific Name	Common Name	Classification
	Eriogonum insigne	Unique buckwheat	Annual
	Eriogonum maculatum	Spotted buckwheat	Annual
	Eriogonum microthecum	Slender buckwheat	Subshrub
	Eriogonum nidularium	Birdnest buckwheat	Annual
	Eriogonum palmerianum	Palmers buckwheat	Annual
	Eriogonum plumatella	Flattop buckwheat	Perennial herb
	Eriogonum pusillum	Yellow turban	Annual
	Eriogonum reniforme	Kidneyleaf buckwheat	Annual
	Eriogonum saxatile	Rock buckwheat	Perennial herb
	Eriogonum thomasii	Thomas buckwheat	Annual
	Eriogonum trichopes	Little trumpet	Annual
	Eriogonum viscidulum	Sticky buckwheat	Annual
	Eriogonum wrightii	Wrights buckwheat	Shrub
	Oxytheca perfoliata	Oxytheca, Saucerplant	Annual
	Polygonum hydropiperoides	Smartweed	Annual
	Polygonum aviculare	Knotweed, Chivalrygrass, Dishwatergrass	Annual
	Polygonum lapathifolium	Willowweed	Annual
	Pterostegia drymarioides	Woodland pterostegia	Annual
	Rumex hymenosepalus	Wild rhubarb	Perennial herb
	Rumex violascens	Mexican dock	Annual/Biennial
	Rumex salicifolius	Willow dock	Annual/Biennial
PORTULACACEAE Purslane	*Calyptidium monandrum*	Pussypaws	Annual
	Claytonia perfoliata	Miners lettuce	Annual
PRIMULACEAE Primrose	*Androsace elongate*	Rock jasmine	Annual
	Samolus parviflorus	Water pimpernel	Perennial herb
RANUNCULACEAE Buttercup	*Anemone tuberose*	Desert windflower	Perennial herb
	Delphinium parishii	Parishs larkspur, Desert larkspur	Tuberous perennial
	Delphinium scaposum	Larkspur	Tuberous perennial
	Myosurus cupulatus	Arizona mousetail	Annual

Family Name	Scientific Name	Common Name	Classification
RESEDACEAE Mignonette	*Oligomeris linifolia*	Oligomeris	Annual
RHAMNACEAE Buckthorn	*Ceanothus greggii*	Greggs ceanothus, Buckbrush	Shrub
	Rhamnus ilicifolia	Hollyleaf redberry	Shrub
	Ziziphus obtusifolia	Graythorn	Shrub
ROSACEAE-Rose	*Holodiscus microphyllus*	Small leaf spray	Shrub
	Prunus fasciculate	Desert almond	Shrub
	Purshia stansburiana	Cliffrose	Shrub
	Purshia tridentate	Mohave antelopebush	Shrub
RUBIACEAE Madder, Coffee	*Galium aparine*	Goosegrass	Annual
	Galium stellatum	Star bedstraw, Crevice bedstraw	Shrub
RUTACEAE Rue, Citrus	*Thamnosma montana*	Tupentine broom, Desert rue	Shrub
SALICACEAE Willow family	*Populus fremontii*	Cottonwood Tree	Tree
	Salix exigua	Coyote willow, Sandbar willow	Shrub/Tree
	Salix gooddingii	Gooddings willow	Tree
SANTALACEAE Sandalwood	*Anemopsis californica*	Yerba mansa	Perennial herb
URACEAE Lizardtail			
SAXIFRAGACEAE Saxifrage			
SCROPHULARIACEAE Snapdragon, Figwort	*Antirrhinum filipes*	Twining snapdragon	Annual
	Castilleja angustifolia	Desert paintbrush	Perennial herb
	Castilleja chromora	Paintbrush	Annual
	Castilleja exerta	Purple owl's clover	Annual
	Castilleja minor ssp. spiralis	Paintbrush	Annual
	Kekiella antirrhinoides	Bush beartongue	Shrub
	Maurandya antirrhiniflora	Violet twining snapdragon	Perennial herb
	Mimulus bigelovii	Desert monkeyflower, Bigelow monkeyflower	Annual

Family Name	Scientific Name	Common Name	Classification
	Mimulus cardinalis	Crimson monkeyflower	Perennial
	Mimulus guttatus	Monkeyflower	Perennial
	Mimulus parryi	Parrys monkeyflower	Annual
	Mimulus pilosus	Downy monkeyflower	Annual
	Mimulus rubellus	Reddish monkeyflower	Annual
	Mimulus suksdorfii	Suksdorf's monkeyflower	Annual
	Mohavea breviflora	Lesser Mohavea	Annual
	Mohavea confertiflora	Ghostflower	Annual
	Orthocarpus purpurascens	Common owl clover	
	Penstemon caespitosusr	Painted beardtongue	Perennial herb
	Penstemon palmeri	Palmers penstemon	Perennial herb
	Penstemon pseudospectabilis	Penstemon	Perennial herb
SIMAROUBACEAE Quassia, Simarouba			
SOLANACEAE Nightshade	*Datura wrightii*	Sacred datura, jimsonweed	Annual/Perennial
	Lycium andersonii	Andersons wolfberry	Shrub
	Lycium cooperi	Coopers wolfberry	Shrub
	Lycium pallidum	Pale wolfberry	Shrub
	Lycium parishii	Parishs desert thorn	Shrub
	Lycium torreyi	Torreys desert thorn	Shrub
	Nicotiana glauca	Tree tobacco	Tree
	Nicotiana obtusifolia	Desert tobacco	Perennial herb
	Petunia parviflora	Streamside petunia	Annual
	Physalis crassifolia	Thickleaf groundcherry	Perennial herb
	Physalis hederifolia	Ivyleaf groundcherry	Perennial herb
	Physalis lobata	Lobed groundcherry	Perennial
	Solanum elaeagnifolium	Silver nightshade	Perennial herb
TAMARICACEAE Tamarisk	*Tamarix aphylla*	Athel	Tree
	Tamarix ramosissima	Saltcedar	Shrub/Tree
ULMACEAE Elm			
URTICACEAE Nettle	*Parietaria hespara*	Pellitory	Annual

Family Name	Scientific Name	Common Name	Classification
	Parietaria penslvanica	Hammerwort	Annual
VERBENACEAE Vervain	*Aloysia wrightii*	Oreganillo	Shrub
	Verbena bracteata	Protrate vervain	Annual/Perennial herb
	Verbena gooddingii	Gooddings vervain	Perennial herb
	Lippia lanceolata	Frog Fruit	
	Lippia nodiflora	Garden lippia	
VIOLACEAE Violet	*Ocalis sp*	Wood sorrel	
VISCACEAE Mistletoe	*Phoradendron californica*	Desert mistletoe	Perennial/Parasitic
	Phoradendrom juniperinum	Juniper mistletoe	Perennial/Parasitic
VITACEAE Grape	*Vitis arizonica*	Canyon grape	Perennial vine
ZYGOPHYLLACEAE Caltrop, Tree-of-Life	*Fagonia laevis*	Fagonia	Perennial herb
	Kallstroemia californica	Yellow kallstroemia	Annual
	Larrea tridentate	Creosotebush	Shrub
	Tribulus terrestris	Puncturevine, Goathead	Annual
	Monocots		
ARECACEAE Palm	*Phoenix dactylifera*	Date palm	Tree
	Washingtonia filifera	Desert fan palm, California fan palm	Tree
CYPERACEAE Sedge	*Carex obtusata*	Blunt sedge	Perennial herb
	Carex occidentalis	Western sedge	Perennial
	Cladium californicum	Sawgrass	Perennial herb
	Cyperus esculentas	Yellow nut Sedge	
	Cyperus rotundus	Purple nut sedge	
	Cyperus laevigatus	Umbrella sedge	Perennial herb
	Cyperus odoratus	Fragrant sedge	Annual
	Eleocharis macrostachya	Spikerush	Perennial
	Eleocharis montevidensis	Spikerush	Perennial herb

Family Name	Scientific Name	Common Name	Classification
	Eleocharis parishii	Parishs spikerush	Perennial herb
	Eleocharis rostellata	Torreys spikerush	Perennial herb
	Scirpus acutus	Tule	Perennial
	Scirpus americanus	American bulrush	Perennial herb
	Scirpus californicus	California bulrush	Perennial herb
	Scirpus maritimus	Alkali bulrush	Perennial
	Scirpus pungens	Common threesquare	Perennial
	Scirpus robustus	Robust bulrush	Perennial herb
HYDROCHARITACEAE Waterweed	*Elodea canadensis*	Common waterweed	Perennial/Aquatic
	Najas marina	Spiny naiad	Annual/Aquatic
JUNCACEAE Rush	*Juncus acutus*	Spiny rush	Perennial herb
	Juncus arcticus	Wiregrass	Perennial herb
	Juncus bufonius	Toadrush	Annual
	Juncus cooperi	Coopers rush	Perennial
	Juncus effuses	Soft rush	Perennial herb
	Juncus mexicanus	Mexican rush	Perennial herb
	Juncus nevadensis	Nevada rush	Perennial
	Juncus nodosus	Knotted rush	Perennial herb
	Juncus tenuis	Path rush, Poverty rush	Perennial herb
	Juncus torreyi	Torreys rush	Perennial herb
	Juncus xiphioides	Irisleaf rush	Perennial herb
LILIACEAE Lily	*Allium bisceptrum*	Palmers onion	Perennial herb
	Allium Parishii	Parishii onion	Perennial herb
	Allium macropetalum		Perennial herb
	Androstephium breviflorum	Funnel lily	Perennial herb
	Calochortus flexuosus	Weakstem mariposa	Perennial herb
	Calochortus kennedyi	Desert marisposa	Perennial herb
	Dichelostemma capitatum	Bluedicks	Perennial herb
	Hesperocallis undulate	Ajo lily, Desert lily	Perennial herb
	Nolina bigelovii	Beargrass	Shrub
	Yucca angustissima	Narrowleaf yucca	Shrub
	Yucca brevifolia	Joshua tree	Tree

Family Name	Scientific Name	Common Name	Classification
	Yucca schidigera	Mohave yucca	Shrub/Tree
ORCHIDACEAE Orchid	*Epipactis gigantean*	Stream orchid	Perennial herb
POACEAE Grass	*Achnatherum aridum*	Mormon needlegrass	Perennial
	Achnatherum coronatum	Needlegrass	Perennial
	Achnatherum hymenoides	Ricegrass	Perennial
	Achnatherum speciosum	Desert needlegrass	Perennial
	Agropyron trachycaulum	Slender wheatgrass	Perennial
	Andropogon gerardii	Big bluestem	Perennial
	Aristida adscensionis	Sixweeks threeawn	Annual
	Aristida arizonica	Arizona threeawn	Perennial herb
	Aristida purpurea	Purple threeawn	Perennial herb
	Bothriochloa barbinodis	Cane bluestem	Perennial
	Bouteloua aristidoides	Needle grama	Annual
	Bouteloua barbata	Sixweeks grama	Annual
	Bouteloua eriopoda	Black grama	Perennial
	Bouteloua trifida	Red grama	Perennial
	Bromus arizonicus	Bromegrass	Annual
	Bromus carinatus	Mountain brome	Perennial herb
	Bromus catharticus	Rescuegrass	Perennial herb
	Bromus inermis	Smooth brome	Perennial herb
	Bromus madritensis	Red brome	Annual
	Bromus tectorum	Cheatgrass	Annual
	Bromus trinii	Chilean chess	Annual
	Chloris virgata	Fingergrass	Annual
	Crypsis schoenoides	Swampgrass	Annual
	Cynodon dactylon	Bermudagrass	Perennial
	Desmazeria rigida	Desmazeria	Annual
	Digitaria sanguinalis	Crabgrass	Annual
	Distichlis spicata	Saltgrass	Perennial herb
	Echniochloa crus-galli	Barnyard grass	Annual
	Elymus multisetus	Big squirreltail	Perennial
	Elymus smithii	Western wheatgrass	Perennial

Family Name	Scientific Name	Common Name	Classification
	Eragrostis lutescens	Yellow lovegrass	Annual
	Eragrostis pectinacea	Tufted lovegrass	Annual
	Erioneuron pulchellum	Fluffgrass	Perennial
	Hordeum jubatum	Foxtail barley	Perennial herb
	Hordeum marinum	Mediterranean barley	Annual
	Leptochloa fascicularis	Bearded sprangletop	Annual
	Leptochloa uninervia	Mexican sprangletop	Annual
	Lolium multiflorum	Italian ryegrass	Annual
	Lolium perenne	Perennial ryegrass	Perennial herb
	Muhlenbergia asperifolia	Alkali muhly	Annual/Perennial
	Muhlenbergia microsperma	Littleseed muhly	Annual/Perennial
	Muhlenbergia porteri	Bush muhly	Perennial
	Muhlenbergia richardsonis	Mat muhly	Perennial
	Panicum capillare	Witchgrass	Annual
	Phragmites australis	Common reed	Perennial
	Pleuraphis rigida	Big galleta grass	Perennial
	Poa bigelovii	Bluegrass	Annual
	Poa fendleriana	Mutton grass	Perennial
	Setaria glauca	Yellow bristlegrass	Annual
	Sporobolus airoides	Alkali sacaton	Perennial
	Sporobolus cryptandrus	Sand dropseed	Perennial
	Sporobolus flexuosus	Mesa dropseed	Perennial
	Tridens muticus	Slim tridens	Perennial herb
	Vulpia microstachys	Small fescue	Annual
	Vulpia octoflora	Sixweeks fescue	Annual
POTAMOGETONACEAE Pondweed	*Potamogeton crispus*	Crispateleaf pondweed	Perennial/Aquatic
	Potamogeton latifolius	Nevada pondweed	Perennial/Aquatic
	Potamogeton pectinatus	Fennel leaf pondweed	Perennial/Aquatic
	Ruppia maritime	Ditchgrass	Perennial/Aquatic
TYPHACEAE Cattail	*Typha angustifolia*	Narrowleaf cattail	Perennial
	Typha domingensis	Southern cattail	Perennial

Family Name	Scientific Name	Common Name	Classification
ZANNICHAELLIACEAE Horned pondweed	*Zannichellia palustris*	Horned pondweed	Perennial/Aquatic

Epple 1995; Blair pers comm.

Wildlife Species

Table J-4: Fish Species Found Within LHFO

Lake Havasu	Lower Colorado River	Bill Williams River (*Below Alamo Dam*)	Common Name	Scientific Name	Origin
Yes	Yes	No	Bonytail Chub	*Gila elgans*	Native
Yes	Yes	No	Flannelmouth Sucker	*Catostomus latipinnis*	Native
Yes	Yes	No	Razorback Sucker	*Xyrauchen texanus*	Native
Yes	Yes	Yes	Black Crappie	*Pomoxis nigromacalatus*	Non-Native
Yes	Yes	Yes	Bluegill	*Lepomis macrochirus*	Non-Native
Yes	Yes	No	Brown Bullhead	*Ictalurus nebulosis*	Non-Native
Yes	Yes	Yes	Channel Catfish	*Ictalurus punctatus*	Non-Native
Yes	Yes	Yes	Common Carp	*Cyprinus carpio*	Non-Native
Yes	Yes	No	Flathead Catfish	*Pylodictis olivaris*	Non-Native
Yes	Yes	Yes	Golden Shiner	*Notemigonus crysoleucas*	Non-Native
Yes	Yes	Yes	Goldfish	*Carassius auratus*	Non-Native
Yes	Yes	Yes	Green Sunfish	*Lepomis cyanellus*	Non-Native
Yes	Yes	Yes	Largemouth Bass	*Micropterus salmoides*	Non-Native
Yes	Yes	Yes	Mosquitofish	*Gambusia affinis*	Non-Native
Yes	Yes	No	Rainbow Trout	*Oncorhynchus mykiss*	Non-Native
No	No	Yes	Red Shiner	*Cyprinella lutrensis*	Non-Native
Yes	Yes	Yes	Redear Sunfish	*Lepomis microlophus*	Non-Native
Yes	Yes	No	Redside Shiner	*Richardsonius balteatus*	Non-Native
Yes	Yes	No	Smallmouth Bass	*Micropterus dolomieu*	Non-Native
Yes	Yes	No	Striped Bass	*Morone saxatilis*	Non-Native
Yes	Yes	Yes	Threadfin Shad	*Dorosoma petenense*	Non-Native
Yes	Yes	Yes	Tilapia	*Tilapia spp.*	Non-Native
Yes	Yes	No	Warmouth	*Lepomis gulosis*	Non-Native
Yes	Yes	No	Yellow Bullhead	*Ictalurus natalis*	Non-Native

Minckly pers comm.; Jacobson pers comm.

Table J-5: Amphibians and Reptiles Potentially Found Within LHFO

Order	Family Name	Common Name	Scientific Name
Testudines	Testudinidae	Sonoran Desert Tortoise	*Gopherus agassizii* (Sonoran population)
	Kinosternidae	Sonoran Mud Turtle	*Kinosternon sonoriense*
	Emydidae	Red-eared Slider	*Pseudemys scripta*
	Trionychidae	Spiny Softshell	*Trionyx spiniferus*
Squamata	Teiidae	Gila Spotted Whiptail	*Aspidoscelis flagellicaudus*
		Pai Striped Whiptail	*Aspidoscelis pai*
		Tiger Striped Whiptail	*Aspidoscelis tigris*
		Plateau Striped Whiptail	*Aspidoscelis velox*
		Zebra-tailed Lizard	*Callisaurus draconoides*
		Western Banded Gecko	*Coleonyx variegates*
		Greater Earless Lizard	*Cophosaurus texanus*
	Crotaphytidae	Great Basin Collared Lizard	*Crotaphytus bicinctores*
	Crotaphytidae	Western Collared Lizard	*Crotaphytus collaris*
	Iguanidae	Desert Iguana	*Dipsosaurus dorsalis*
	Scincidae	Arizona Skink	*Eumeces gilberti arizonensis*
		Great Plains Skink	*Eumeces obsoletus*
		Leopard Lizard	*Gambelia wislizenii*
	Helodermatidae	Banded Gila Monster	*Heloderma suspectum cinctum*
		Common Lesser Earless Lizard	*Holbrookia maculate*
		Greater Short-horned Lizard	*Phrynosoma hernandesi*
		Desert Horned Lizard	*Phrynosoma platyrhinos*
		Regal Horned Lizard	*Phrynosoma solare*
	Iguanidae	Chuckwalla	*Sauromalus ater*
		Clark's Spiny Lizard	*Sceloporous clarkia*
		Desert Spiny Lizard	*Sceloporous magister*
		Plateau Lizard	*Sceloporous tristichus*
		Somoran Desert Fringe-toed Lizard	*Uma notata*
		Mohave Fringe-toed Lizard	*Uma scoparia*
		Long-tailed Brush Lizard	*Urosaurus graciosus*
		Ornate Tree Lizard	*Urosaurus ornatus*
		Side-blotched Lizard	*Uta stansburiana*
		Arizona Night Lizard	*Xantusia arizonae*
		Desert Night Lizard	*Xantusia vigilis*
		Glossy Snake	*Ariona elegans*

Order	Family Name	Common Name	Scientific Name
	Boidae	Desert Rosy Boa	*Charina trivirgata gracia*
		Western Shovelnosed Snake	*Chionactis occipitalis*
		Western Diamondback	*Crotalus atrox*
		Speckled Rattlesnake	*Crotalus mitchellii*
		Black-tailed Rattlesnake	*Crotalus molossus*
		Sidewinder Rattlesnake	*Crotalus cerastes*
		Mojave Rattlesnake	*Crotalus scutulatus*
		Ring-necked Snake	*Diadophus punctatus*
		Night Snake	*Hypsiglena torquata*
		California Kingsnake	*Lampropeltis getulus*
		Arizona Mountain Kingsnake	*Lampropeltis pyromelana pyromelana*
		Western Blind Snake	*Leptotyphiops humilis*
		Coachwhip	*Masticophis flagellum*
		Striped Whipsnake	*Masticophis taeniatus*
		Spotted Leaf-nosed Snake	*Phyllorynchus decurtatus*
		Western Coral Snake	*Micruroides euryxanthus*
		Gopher Snake	*Pituophis melanoleucus*
		Long-nosed Snake	*Rhinocheilus lecontei*
		Western Patch-nosed Snake	*Salvadora hexalepis*
		Western Ground Snake	*Sonora semiannulata*
		Smith's Black-headed Snake	*Tantilla hobartsmithi*
		Checkered Garter Snake	*Thamnophis marcianus*
		Western Lyre Snake	*Trimorphodon biscutatus*
Anura	Bufonidae	Sonoran Desert Toad	*Bufo alvarius*
		Great Plains Toad	*Bufo cognatus*
		Arizona Toad	*Bufo microscaphus*
		Red-spotted Toad	*Bufo punctatus*
		Woodhouse's Toad	*Bufo woodhousei*
		Couch's Spadefoot Toad	*Scaphiopus couchi*
		Colorado River Toad	*Bufo alvarius*
	Hylidae	Canyon Treefrog	*Hyla arenicolor*
		Pacific Treefrog	*Hyla regilla*
		Arizona Treefrog	*Hyla wrightorum*
	Ranidae	Lowland Leopard Frog	*Rana yavapaiensis*
		Bullfrog	*Rana catesbeiana*

Order	Family Name	Common Name	Scientific Name
Caudata	Ambystomatidae	Tiger Salamander	*Ambystoma tigrinum*

Table J-6: Mammals Found Within LHFO

Order	Family Name	Common Name	Scientific Name	Residence
Insectivora	Soricidae	Desert Shrew	*Notiosorex crawfordi*	permanent
Chiroptera	Phyllostomatidae	California Leaf-nosed Bat	*Macrotus californicus*	permanent
	Vespertilionidae	Pallid Bat	*Antrozous pallidus*	permanent
		Townsend's Big-eared Bat	*Corynorhinus townsendii*	permanent
		Big Brown Bat	*Eptesicus*	permanent
		Hoary Bat	*Eptesicus fuscus*	migratory/winter
		Western Yellow Bat	*Lasiurus cinereus*	permanent
		Western Red Bat	*Lasiurus blossevellii*	migratory/winter
		California Myotis	*Myotis californicus*	permanent
		Occult Little Brown Bat	*Myotis occultus (=lucifigus)*	permanent
		Small-footed Myotis	*Myotis ciliolabrum (=leibii=subulatus)*	permanent migratory/winter
		Fringed Myotis	*Myotis thysanoides*	permanent
		Cave Myotis	*Myotis velifer*	permanent
		Yuma Myotis	*Myotis yumanesis*	permanent
		Western Pipistrelle	*Pipistrellus hesperus*	permanent
		Spotted Bat	*Euderma maculatum*	
		Allen's Big-eared Bat	*Idionycteris (Plecotis) phylotis*	permanent migratory
	Molossidae	Western Matiff Bat	*Eumops perotis*	permanent
		Pocketed Free-tailed Bat	*Nyctinmops fermorosaccus*	permanent
		Mexican Free-tail Bat	*Tadarida brasilliensis*	Permanent/ migratory
		Big Free-tail Bat	*Nyctinomops macrotis*	migratory
Lagomorpha	Leporidae	Desert Cottontail	*Sylvilagus auduboni*	permanent
		Eastern Cottontail	*Sylvilagus floridanus*	permanent
		Black-tailed Jackrabbit	*Lepus californicus*	permanent
Rodentia	Sciuridae	Harris's Antelope Ground Squirrel	*Ammospermophilus harrisii*	permanent
		White-tailed Antelope	*Ammospermophilus leucurus*	permanent

Order	Family Name	Common Name	Scientific Name	Residence
		Ground Squirrel		
		Round-tailed Ground Squirrel	*Spermophilus tereticaudus*	permanent
		Rock Squirrel	*Spermophilus varigatus*	permanent
		Cliff Chipmunk	*Eutamias dorsalis*	permanent
		Tassel-eared Squirrel	*Sciurus aberti*	permanent
Rodentia	Castoridae	Beaver	*Castor Canadensis*	permanent
	Cricetidae	Cactus Mouse	*Permyscus eremicus*	permanent
		Canyon Mouse	*Peromyscus crinitus*	permanent
		Deer Mouse	*Peromyscus maniculatus*	permanent
		White-footed Mouse	*Permoyscus leucopus*	permanent
		Brush Mouse	*Permoyscus boylii*	permanent
		Pinyon Mouse	*Peromyscus truei*	permanent
		White-throated Wood Rat	*Neotoma albigula*	permanent
		Desert Wood Rat	*Neotoma lepida*	permanent
		Stephen's Wood Rat	*Neotoma stephensi*	permanent
		Mexican Wood Rat (3 isolated populations)	*Neotoma mexicans*	permanent
		Southern Grasshopper Mouse	*Onychomys torridus*	permanent
		Muskrat	*Ondatra zibethicus*	permanent
		Arizona Cotton Rat	*Sigmodon arizonae*	permanent
		Hispid Cotton Rat	*Sigmodon hispidus*	permanent
		Western Harvest Mouse	*Reithrodontomys megalotis*	permanent
	Muridae	House Mouse	*Mus musculus*	permanent
	Heteromyidae	Arizona Pocket Mouse	*Perognathus amplus*	permanent
		Longtail Pocket Mouse	*Perognathus formosus*	permanent
		Desert Pocket Mouse	*Chaetodipus penicillatus*	permanent
		Rock Pocket Mouse	*Chaetodipus intermedius*	permanent
		Bailey's Pocket Mouse	*Perognathus baileyi*	permanent
		Little Pocket Mouse	*Perognathus longimembris*	permanent
		Hispid Pocket Mouse	*Perognathus hispidus*	permanent
		Spiny Pocket Mouse	*Chaetodipus californicus*	permanent
		Merriam's Kangaroo Rat	*Dipodomys merriami*	permanent
		Desert Kangaroo Rat	*Dipodomys deserti*	permanent
		Ord's Kangaroo Rat	*Dipodomys ordii*	permanent

Order	Family Name	Common Name	Scientific Name	Residence
		Chisel-toothed Kangaroo Rat	*Dipodomys microps*	permanent
	Geomyidae	Botta's Pocket Gopher	*Thomomys bottae*	permanent
	Erethizontidae	Porcupine	*Erethizon dorsatum*	permanent
Carnivore	Canidae	Coyote	*Canis latrans*	permanent
		Gray Fox	*Urocyon cinereoargenteus*	permanent
		Kit Fox	*Vulpes macrotis*	permanent
	Procyonidae	Raccoon	*Procyon lotor*	permanent
		Ringtail	*Bassariscus astutus*	permanent
	Mustelidae	Western Spotted Skunk	*Spilogale gracilis*	permanent
		Striped Skunk	*Mephitis mephitis*	permanent
		Hognosed Skunk	*Conepatus leuconotus*	permanent
		Badger	*Taxidea taxus*	permanent
		River Otter	*Lutra canadadensis*	permanent
	Felidae	Mountain Lion	*Felis concolor (browni)*	permanent
		Bobcat	*Felis rufus*	permanent
Artiodactyla	Tayassuidae	Collared Peccary	*Tayassu tajacu*	permanent
	Suidae	Domestic Pig	*Sus scrofa*	permanent
	Cervidae	Mule Deer	*Odocoileus hemionus*	permanent
		Elk	*Cervis elaphus*	permanent
	Antilocapridae	Pronghorn	*Antilocapra Americana*	extirpated
	Bovidae	Bighorn Sheep	*Ovis Canadensis*	permanent
Perysiodactyla	Equidae	Burro	*Equuas asinus*	permanent
		Horse	*Equuas caballus*	permanent

Adams 2003; Burt and Grossenheider 1980; National Audubon Society 1979; Blair pers comm..

Table J-7: Birds Within LHFO Boundary

Family	Species	Abundance	Residency	Nesting Species	MTBA
Loons	Pacific Loon	Rare	Winter		yes
	Common Loon	Rare	Winter		yes
	Red-throated Loon	Accidental/Vagrant	Winter		yes
Grebes	Pied-Billed Grebe	Common/Abundant	Year-round	yes	yes
	Horned Grebe	Rare	Winter		yes
	Eared Grebe	Common/Abundant	Year-round		yes
	Red-necked Grebe	Accidental/Vagrant	Year-round		yes
	Western Grebe	Common/Abundant	Year-round	yes	yes
	Clark's Grebe	Common/Abundant	Year-round	yes	yes
	Least Grebe	Accidental/Vagrant	Winter	yes	yes
Shearwaters/Petrels	Black-vented Shearwater	Accidental/Vagrant	Transient/Migrant		yes
	Black Strom Petrel	Accidental/Vagrant	Transient/Migrant		yes
	Least Strom Petrel	Accidental/Vagrant	Transient/Migrant		yes
Boobies	Blue-footed Booby	Accidental/Vagrant	Transient/Migrant		yes
	Brown Booby	Accidental/Vagrant	Transient/Migrant		yes
Pelicans	American White Pelican	Uncommon	Year-round		yes
	Brown Pelican	Accidental/Vagrant	Transient/Migrant		yes
Cormorants	Double-crested Cormorant	Common/Abundant	Year-round	yes	yes
	Olivaceous Cormorant	Accidental/Vagrant	Transient/Migrant		yes
Frigatebirds	Magnificent Frigatebird	Accidental/Vagrant	Transient/Migrant		yes
Tropicbirds	Red-billed Tropicbird	Accidental/Vagrant	Transient/Migrant		yes
Herons/Egrets /Bitterns	American Bittern	Rare	Winter	yes	yes
	Least Bittern	Uncommon	Year-round	yes	yes
	Great Egret	Common/Abundant	Year-round	yes	yes
	Snowy Egret	Common/Abundant	Year-round	yes	yes
	Cattle Egret	Accidental/Vagrant	Year-round	yes	yes
	Reddish Egret	Accidental/Vagrant	Winter		yes
	Great Blue Heron	Common/Abundant	Year-round	yes	yes
	Green Heron	Uncommon	Year-round	yes	yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Black-crowned Night Heron	Common/Abundant	Year-round	yes	yes
	Tri-colored Heron	Accidental/Vagrant	Transient/Migrant		yes
	Little Blue Heron	Accidental/Vagrant	Transient/Migrant		yes
Ibises/Spoonbills	White-faced Ibis	Uncommon	Year-round		yes
	White Ibis	Accidental/Vagrant	Spring		yes
	Roseate Spoonbill	Accidental/Vagrant	Winter		yes
Storks	Wood Stork	Rare	Summer		yes
Swans/Geese /Ducks	Brant	Accidental/Vagrant	Winter		yes
	Black Bellied Whistling Duck	Accidental/Vagrant	Winter		yes
	Fulvous Whistling Duck	Rare	Summer		yes
	Tundra Swan	Rare	Winter		yes
	White-fronted Goose	Rare	Winter		yes
	Snow Goose	Uncommon	Winter		yes
	Ross' Goose	Accidental/Vagrant	Winter		yes
	Canada Goose	Common/Abundant	Winter		yes
	Wood Duck	Rare	Winter		yes
	Green-wing Teal	Common/Abundant	Winter		yes
	Blue-wing Teal	Uncommon	Transient/Migrant		yes
	Cinnamon Teal	Common/Abundant	Year-round	yes	yes
	Mallard	Common/Abundant	Winter		yes
	Northern Pintail	Common/Abundant	Winter		yes
	Northern Shoveler	Common/Abundant	Winter		yes
	Gadwall	Common/Abundant	Winter	yes	yes
	American Wigeon	Common/Abundant	Winter		yes
	Canvasback	Rare	Winter		yes
	Redhead	Common/Abundant	Winter	yes	yes
	Ring-necked Duck	Common/Abundant	Winter		yes
	Greater Scaup	Rare	Winter		yes
	Lesser Scaup	Common/Abundant	Winter		yes
	Common Goldeneye	Common/Abundant	Winter		yes
	Barrow's Goldeneye	Accidental/Vagrant	Winter		yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Hooded Merganser	Rare	Winter		yes
	Common Merganser	Common/Abundant	Winter		yes
	Red-breasted Merganser	Rare	Winter		yes
	Ruddy Duck	Common/Abundant	Winter	yes	yes
	Black Scoter	Accidental/Vagrant	Year-round		yes
	Surf Scoter	Accidental/Vagrant	Winter		yes
	Long-tailed Duck	Accidental/Vagrant	Winter		yes
	Bufflehead	Common/Abundant	Winter		yes
Vultures	California Condor	Accidental/Vagrant	Transient/Migrant		yes
	Turkey Vulture	Common/Abundant	Year-round	yes	yes
	Black Vulture	Accidental/Vagrant	Transient/Migrant		yes
Hawks/Eagles /Kites	Osprey	Common/Abundant	Year-round	yes	yes
	White-tailed Kite	Accidental/Vagrant	Winter		yes
	Bald Eagle	Uncommon	Winter		yes
	Golden Eagle	Uncommon	Year-round		yes
	Northern Harrier	Uncommon	Winter	yes	yes
	Sharp-shinned Hawk	Uncommon	Winter		yes
	Cooper's Hawk	Uncommon	Year-round	yes	yes
	Common Black Hawk	Accidental/Vagrant	Transient/Migrant		yes
	Swainson's Hawk	Uncommon	Transient/Migrant		yes
	Zone-tailed Hawk	Rare	Summer		yes
	Red-tailed Hawk	Common/Abundant	Year-round	yes	yes
	Ferruginous Hawk	Accidental/Vagrant	Transient/Migrant		yes
	Rough-legged Hawk	Rare	Winter		yes
	Norther Goshawk	Accidental/Vagrant	Winter		yes
	Harris' Hawk	Accidental/Vagrant	Year-round	yes	yes
	Red Shouldered Hawk	Accidental/Vagrant	Year-round	yes	yes
Falcons/Caracaras	Crested Caracara	Accidental/Vagrant	Transient/Migrant		yes
	American Kestrel	Common/Abundant	Year-round	yes	yes
	Merlin	Uncommon	Winter		yes
	Peregrine Falcon	Rare	Year-round	yes	yes
	Aplomado Falcon	Accidental/Vagrant	Transient/Migrant		yes
	Prairie Falcon	Rare	Year-round	yes	yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
Pheasants/Quail	Gambel's Quail	Common/Abundant	Year-round	yes	yes
Rails/Gallinules /Coots	Black Rail	Uncommon	Year-round	yes	yes
	Yuma Clapper Rail	Uncommon	Year-round	yes	yes
	Virginia Rail	Uncommon	Year-round	yes	yes
	Sora	Uncommon	Winter	yes	yes
	Common Moorhen	Common/Abundant	Year-round	yes	yes
	American Coot	Common/Abundant	Year-round	yes	yes
Oystercatchers	American Oystercatcher	Accidental/Vagrant	Transient/Migrant		yes
Cranes	Sandhill Crane	Uncommon	Winter		yes
Plovers	Black-bellied Plover	Uncommon	Transient/Migrant		yes
	Snowy Plover	Rare	Transient/Migrant		yes
	Semipalmated Plover	Uncommon	Transient/Migrant		yes
	Killdeer	Common/Abundant	Year-round	yes	yes
	Mountain Plover	Accidental/Vagrant	Transient/Migrant		yes
	Wilson's Plover	Accidental/Vagrant	Transient/Migrant		yes
Avocets/Stilts	American Avocet	Uncommon	Transient/Migrant		yes
	Black-necked Stilt	Uncommon	Year-round	yes	yes
Sandpipers/Allies	Greater Yellowlegs	Uncommon	Year-round		yes
	Lesser Yellowlegs	Uncommon	Transient/Migrant		yes
	Solitary Sandpiper	Uncommon	Winter		yes
	Upland Sandpiper	Accidental/Vagrant	Transient/Migrant		yes
	Willet	Uncommon	Transient/Migrant		yes
	Spotted Sandpiper	Uncommon	Winter		yes
	Whimbrel	Accidental/Vagrant	Spring		yes
	Long-bill Curlew	Uncommon	Winter		yes
	Marbled Godwit	Uncommon	Transient/Migrant		yes
	Red Knot	Rare	Transient/Migrant		yes
	Sanderling	Rare	Transient/Migrant		yes
	Western Sandpiper	Uncommon	Year-round		yes
	Least Sandpiper	Common/Abundant	Year-round		yes
	Baird's Sandpiper	Uncommon	Summer		yes
	Pectoral Sandpiper	Uncommon	Summer		yes
	Dunlin	Rare	Winter		yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Short-billed Dowitcher	Uncommon	Transient/Migrant		yes
	Wandering Tattler	Accidental/Vagrant	Winter		yes
	Wilson's Snipe	Rare	Spring		yes
	Long-bill Dowitcher	Common/Abundant	Winter		yes
	Wilson’s Phalarope	Uncommon	Transient/Migrant		yes
	Red Phalarope	Rare	Transient/Migrant		yes
	Red-necked Phalarope	Uncommon	Transient/Migrant		yes
Gulls/Terns /Allies	Franklin’s Gull	Rare	Transient/Migrant		yes
	Bonaparte’s Gull	Rare	Winter		yes
	Ring-billed Gull	Common/Abundant	Winter		yes
	California Gull	Uncommon	Winter		yes
	Heerman’s Gull	Accidental/Vagrant	Transient/Migrant		yes
	Herring Gull	Rare	Transient/Migrant		yes
	Glaucous-winged Gull	Accidental/Vagrant	Transient/Migrant		yes
	Sabine’s Gull	Rare	Transient/Migrant		yes
	Caspian Tern	Uncommon	Transient/Migrant		yes
	Common Tern	Uncommon	Transient/Migrant		yes
	Forster’s Tern	Uncommon	Transient/Migrant		yes
	Least Tern	Rare	Transient/Migrant		yes
	Black Tern	Uncommon	Transient/Migrant		yes
	Royal Tern	Accidental/Vagrant	Year-round		yes
	Elegant Tern	Accidental/Vagrant	Year-round		yes
	Gull-billed Tern	Accidental/Vagrant	Spring		yes
	Parasitic Jaeger	Accidental/Vagrant	Winter		yes
	Black Skimmer	Accidental/Vagrant	Transient/Migrant		yes
Pigeons/Doves	Rock Dove	Common/Abundant	Year-round	yes	
	White-winged Dove	Common/Abundant	Summer	yes	yes
	Mourning Dove	Common/Abundant	Year-round	yes	yes
	Inca Dove	Uncommon	Year-round	yes	yes
	Common Ground Dove	Rare	Year-round	yes	yes
	Ruddy Ground Dove	Accidental/Vagrant	Transient/Migrant		yes
	Band-tailed Pigeon	Accidental/Vagrant	Summer		
	Eurasian Collared	Accidental/Vagrant	Year-round	yes	

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Dove				
Cuckoos/Roadrunners	Yellow-billed Cuckoo	Rare	Spring	yes	yes
	Greater Roadrunner	Common/Abundant	Year-round	yes	yes
Owls	Barn Owl	Uncommon	Year-round	yes	yes
	Western Screech Owl	Uncommon	Year-round	yes	yes
	Great Horned Owl	Uncommon	Year-round	yes	yes
	Elf Owl	Uncommon	Spring		yes
	Flammulated Owl	Accidental/Vagrant	Spring		yes
	Burrowing Owl	Uncommon	Year-round	yes	yes
	Long-eared Owl	Rare	Winter		yes
	Short-eared Owl	Accidental/Vagrant	Winter		yes
	Northern Saw-Whet Owl	Accidental/Vagrant	Winter		yes
Nightjars	Lesser Nighthawk	Common/Abundant	Year-round	yes	yes
	Common Poorwill	Uncommon	Year-round	yes	yes
Swifts	White-throated Swift	Common/Abundant	Year-round	yes	yes
	Vaux's Swift	Uncommon	Transient/Migrant		yes
Hummingbirds	Black-chinned Hummingbird	Common/Abundant	Year-round	yes	yes
	Anna's Hummingbird	Common/Abundant	Year-round	yes	yes
	Broad-tailed Hummingbird	Accidental/Vagrant	Transient/Migrant		yes
	Calliope Hummingbird	Accidental/Vagrant	Spring-fall Transient		yes
	Costa's Hummingbird	Common/Abundant	Year-round	yes	yes
	Rufous Hummingbird	Uncommon	Transient/Migrant		yes
	Allen's Hummingbird	Rare	Transient/Migrant		yes
	Broad-billed Hummingbird	Accidental/Vagrant	Transient/Migrant		yes
Kingfishers	Belted Kingfisher	Uncommon	Winter		yes
Woodpeckers	Lewis' Woodpecker	Accidental/Vagrant	Winter		yes
	Gila Woodpecker	Common/Abundant	Year-round	yes	yes
	Williamson's Sapsucker	Accidental/Vagrant	Transient/Migrant		yes
	Red-naped Sapsucker	Uncommon	Winter		yes
	Yellow-bellied Sapsucker	Rare	Winter		yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Ladder-backed Woodpecker	Common/Abundant	Year-round	yes	yes
	Gilded Flicker	Uncommon	Year-round	yes	yes
	Northern Flicker	Common/Abundant	Winter		yes
	Red-headed Woodpecker	Accidental/Vagrant	Winter		yes
	Acorn Woodpecker	Accidental/Vagrant	Transient/Migrant		yes
Tyrant flycatchers	Western Wood-Pewee	Common/Abundant	Summer-winter		yes
	Greater Pewee	Accidental/Vagrant	Transient/Migrant		yes
	Olive-sided Flycatcher	Uncommon	Transient/Migrant		yes
	Willow Flycatcher	Uncommon	Spring	yes	yes
	Hammond's Flycatcher	Uncommon	Transient/Migrant		yes
	Dusky Flycatcher	Uncommon	Migrant		yes
	Gray Flycatcher	Uncommon	Transient/Migrant		yes
	Pacific-slope Flycatcher	Uncommon	Transient/Migrant		yes
	Cordilleran Flycatcher	Accidental/Vagrant	Transient/Migrant		yes
	Black Phoebe	Common/Abundant	Year-round	yes	yes
	Say's Phoebe	Common/Abundant	Year-round	yes	yes
	Eastern Phoebe	Accidental/Vagrant	Spring		yes
	Vermillion Flycatcher	Uncommon	Year-round	yes	yes
	Ash-throated Flycatcher	Common/Abundant	Spring	yes	yes
	Brown-crested Flycatcher	Rare	Summer	yes	yes
	Eastern Kingbird	Accidental/Vagrant	Transient/Migrant		yes
	Western Kingbird	Common/Abundant	Spring	yes	yes
	Cassin's Kingbird	Accidental/Vagrant	Transient/Migrant		yes
	Thick-billed Kingbird	Accidental/Vagrant	Transient/Migrant		yes
	Tropical Kingbird	Accidental/Vagrant	Spring		yes
Larks	Horned Lark	Common/Abundant	Year-round	yes	yes
Swallows	Purple Martin	Rare	Transient/Migrant		yes
	Tree Swallow	Common/Abundant	Winter		yes
	Violet-Green Swallow	Uncommon	Transient/Migrant		yes
	No. Rough-winged Swallow	Common/Abundant	Year-round	yes	yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Bank Swallow	Uncommon	Transient/Migrant		yes
	Cliff Swallow	Common/Abundant	Summer	yes	yes
	Barn Swallow	Common/Abundant	Transient/Migrant		yes
Jays/Crows /Ravens	Western Scrub Jay	Uncommon	Year-round		yes
	Pinyon Jay	Accidental/Vagrant	Transient/Migrant		yes
	Stellar's Jay	Rare	Winter		yes
	Clark's Nutcracker	Accidental/Vagrant	Winter		yes
	American Crow	Uncommon	Winter		yes
	Common Raven	Common/Abundant	Year-round	yes	yes
Chickadees/Titmice /Bushtits/Verdins	Mountain Chickadee	Accidental/Vagrant	Transient/Migrant		yes
	Bridled Titmouse	Accidental/Vagrant	Transient/Migrant		yes
	Verdin	Common/Abundant	Year-round	yes	yes
	Bushtit	Rare	Winter		yes
Nuthatches/Creepers	Red-breasted Nuthatch	Rare	Transient/Migrant		yes
	White-breasted Nuthatch	Accidental/Vagrant	Winter		yes
	Brown Creeper	Rare	Winter		yes
Wrens	Cactus Wren	Common/Abundant	Year-round	yes	yes
	Rock Wren	Common/Abundant	Year-round	yes	yes
	Canyon Wren	Common/Abundant	Year-round	yes	yes
	Bewick's Wren	Uncommon	Year-round		yes
	House Wren	Common/Abundant	Spring		yes
	Winter Wren	Rare	Winter		yes
	Marsh Wren	Common/Abundant	Year-round	yes	yes
Kinglets/Gnatcatchers	Golden-crowned Kinglet	Rare	Winter		yes
	Ruby-crowned Kinglet	Common/Abundant	Winter		yes
	Blue-gray Gnatcatcher	Uncommon	Spring	yes	yes
	Black-tailed Gnatcatcher	Common/Abundant	Year-round	yes	yes
Thrushes/Allies	Western Bluebird	Uncommon	Winter		yes
	Mountain Bluebird	Uncommon	Winter		yes
	Townsend's Solitaire	Uncommon	Spring		yes
	Swainson's Thrush	Uncommon	Spring		yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Hermit Thrush	Uncommon	Spring		yes
	American Robin	Uncommon	Winter		yes
	Varied Thrush	Accidental/Vagrant	Winter		yes
Mockingbirds/Thrashers /Allies	Northern Mockingbird	Common/Abundant	Year-round	yes	yes
	Sage Thrasher	Uncommon	Spring		yes
	Bendire's Thrasher	Rare	Winter	yes	yes
	Curve-billed Thrasher	Rare	Year-round	yes	yes
	Crissal Thrasher	Common/Abundant	Year-round	yes	yes
	Le Conte's Thrasher	Uncommon	Spring	yes	yes
	Gray Catbird	Accidental/Vagrant	Winter		yes
	Brown Thrasher	Accidental/Vagrant	Winter		yes
Pipits	American Pipit	Common/Abundant	Winter		yes
	Sprague's Pipit	Accidental/Vagrant	Winter		yes
Waxwings	Cedar Waxwing	Uncommon	Winter		yes
Silky flycatchers	Phainopepla	Common/Abundant	Year-round	yes	yes
Shrikes	Loggerhead Shrike	Common/Abundant	Year-round	yes	yes
Starlings	European Starling	Common/Abundant	Year-round	yes	
Vireos	Yellow-throated Vireo	Accidental/Vagrant	Transient/Migrant		yes
	Bell's Vireo	Uncommon	Year-round	yes	yes
	Gray Vireo	Rare	Transient/Migrant		yes
	Cassin's Vireo	Common	Winter		yes
	Blue-headed Vireo	Accidental/Vagrant	Transient/Migrant		yes
	Plumbeous Vireo	Uncommon	Migrant		yes
	Warbling Vireo	Common/Abundant	Transient/Migrant		yes
	Hutton's Vireo	Rare	Winter		yes
	Philadelphia Vireo	Accidental/Vagrant	Winter		yes
	Red-eyed Vireo	Accidental/Vagrant	Spring		yes
Wood Warblers	Orange-crowned Warbler	Common/Abundant	Winter		yes
	Nashville Warbler	Uncommon	Spring		yes
	Virginia's Warbler	Rare	Transient/Migrant		yes
	Lucy's Warbler	Uncommon	Spring	yes	yes
	Yellow Warbler	Uncommon	Spring	yes	yes
	Yellow-rumped	Common/Abundant	Fall-Spring		yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Warbler				
	Black-throated Gray Warbler	Uncommon	Winter		yes
	Black-throated Blue Warbler	Accidental/Vagrant	Winter		yes
	Townsend's Warbler	Uncommon	Spring		yes
	Hermit Warbler	Uncommon	Spring		yes
	Black-and-White Warbler	Rare	Winter		yes
	Palm Warbler	Accidental/Vagrant	Winter		yes
	Blackpoll Warbler	Accidental/Vagrant	Summer		yes
	Prothonotary Warbler	Accidental/Vagrant	Winter		yes
	Wilson's Warbler	Common/Abundant	Transient/Migrant		yes
	MacGillivray's Warbler	Common/Abundant	Spring		yes
	American Redstart	Rare	Winter		yes
	Painted Redstart	Accidental/Vagrant	Winter		yes
	Common Yellowthroat	Common/Abundant	Year-round	yes	yes
	Northern Waterthrush	Accidental/Vagrant	Summer		yes
	Louisiana Waterthrush	Accidental/Vagrant	Transient/Migrant		yes
	Yellow-breasted Chat	Common/Abundant	Spring	yes	yes
	Northern Parula	Accidental/Vagrant	Winter		yes
	Ovenbird	Accidental/Vagrant	Transient/Migrant		yes
	Golden-winged Warbler	Accidental/Vagrant	Transient/Migrant		yes
	Blue-winged Warbler	Accidental/Vagrant	Transient/Migrant		yes
	Worm-eating Warbler	Accidental/Vagrant	Transient/Migrant		yes
	Hooded Warbler	Accidental/Vagrant	Transient/Migrant		yes
Tanagers	Summer Tanager	Uncommon	Summer	yes	yes
	Western Tanager	Common/Abundant	Transient/Migrant		yes
	Hepatic Tanager	Uncommon	Summer		yes
Cardinals/Grosbeaks /Allies	Northern Cardinal	Uncommon	Year-round		yes
	Pyrrhuloxia	Accidental/Vagrant	Transient/Migrant		yes
	Rose-breasted Grosbeak	Common	Winter		yes
	Black-headed	Common/Abundant	Spring	yes	yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Grosbeak				
	Blue Grosbeak	Common/Abundant	Spring	yes	yes
	Lazuli Bunting	Rare	Summer		yes
	Indigo Bunting	Accidental/Vagrant	Transient/Migrant		yes
	Varied Bunting	Accidental/Vagrant	Transient/Migrant		yes
Sparrows/Towhee /Allies	Rufous-crowned Sparrow	Rare	Year-round		yes
	White-throated Sparrown	Rare	Winter		yes
	Green-tailed Towhee	Uncommon	Winter		yes
	Spotted Towhee	Uncommon	Winter		yes
	Canyon Towhee	Common/Abundant	Year-round	yes	yes
	Abert's Towhee	Common/Abundant	Year-round	yes	yes
	Chipping Sparrow	Uncommon	Year-round		yes
	Brewer's Sparrow	Uncommon	Winter		yes
	Black-chinned Sparrow	Accidental/Vagrant	Winter		yes
	Vesper Sparrow	Uncommon	Winter		yes
	Cassin's Sparrow	Uncommon	Winter		yes
	Lark Sparrow	Uncommon	Year-round		yes
	Black-throated Sparrow	Common/Abundant	Year-round	yes	yes
	Sage Sparrow	Uncommon	Winter		yes
	Lark Bunting	Rare	Transient/Migrant		yes
	Savannah Sparrow	Uncommon	Winter		yes
	Grasshopper Sparrow	Accidental/Vagrant	Winter		yes
	Fox Sparrow	Rare	Winter		yes
	Song Sparrow	Common/Abundant	Year-round	yes	yes
	Lincoln's Sparrow	Uncommon	Winter		yes
	Swamp Sparrow	Uncommon	Spring		yes
	Golden-crowned Sparrow	Rare	Winter		yes
	White-crowned Sparrow	Common/Abundant	Winter		yes
	Dark-eyed Junco	Uncommon	Winter		yes
	Lapland Longspur	Rare	Winter		yes

Family	Species	Abundance	Residency	Nesting Species	MTBA
	Chestnut-collared Longspur	Rare	Winter		yes
	McCown's Longspur	Accidental/Vagrant	Transient/Migrant		yes
Blackbirds/Orioles	Red-winged Blackbird	Common/Abundant	Year-round	yes	yes
	Western Meadowlark	Uncommon	Year-round	yes	yes
	Yellow-headed Blackbird	Uncommon	Summer	yes	yes
	Bobolink	Accidental/Vagrant	Transient/Migrant		yes
	Brewer's Blackbird	Common/Abundant	Winter		yes
	Rusty Blackbird	Rare	Winter		yes
	Great-tailed Grackle	Common/Abundant	Year-round	yes	yes
	Brown-headed Cowbird	Common/Abundant	Year-round	yes	yes
	Bronzed Cowbird	Accidental/Vagrant	Summer		yes
	Dickcissel	Accidental/Vagrant	Transient/Migrant		yes
	Hooded Oriole	Uncommon	Spring	yes	yes
	Bullock's Oriole	Uncommon	Summer	yes	yes
	Scott's Oriole	Accidental/Vagrant	Summer	yes	yes
Finches/Allies	Red Crossbill	Accidental/Vagrant	Transient/Migrant		yes
	House Finch	Common/Abundant	Year-round	yes	yes
	Purple Finch	Rare	Winter		yes
	Cassin's Finch	Rare	Winter		yes
	Evening Grosbeak	Rare	Transient/Migrant		yes
	Lazuli Bunting	Accidental/Vagrant	Transient/Migrant		yes
	Painted Bunting	Accidental/Vagrant	Transient/Migrant		yes
	Pine Siskin	Rare	Winter		yes
	Lesser Goldfinch	Uncommon	Year-round	yes	yes
	Lawrence's Goldfinch	Rare	Transient/Migrant		yes
	American Goldfinch	Uncommon	Winter		yes
Old World Sparrows	House Sparrow	Uncommon	Year-round	yes	yes

Peterson 1990; Sibley 2003; Rosenberg et. al 1991; Blair pers comm.

Invasive Species

Table J-8: List of Federal Regulated and Restricted Invasive Species

Common Name	Scientific Name	Within LHFO Boundary
	Terrestrial Plants	
Autumn olive	Elaeagnus umbellata	
Chinese tallow	*Sapium sebiferum*	
Downy brome	*Bromus tectorum*	yes
Garlic mustard	*Alliaria petiolata*	
Japanese honeysuckle	*Lonicera japonica*	
Japanese knotweed	*Polygonum cupidatum*	
Kudzu	*Pueraria montana* var. *lobata*	
Leafy spurge	*Euphorbia esula*	
Mile-a-minute weed	*Polygonum perfoliatum*	
Multiflora rose	*Rosa multiflora*	
Musk thistle	*Carduus nutans*	yes
Russian knapweed	*Acroptilon repens*	yes
Russian olive	*Elaeagnus angustifolia*	
Saltcedar	*Tamarix* spp.	yes
Scotch broom	*Cytisus scoparius*	
Scotch thistle	*Onopordum acanthium*	yes
Spotted knapweed	*Centaurea maculosa*	yes
Tree-of-heaven	*Ailanthus altissima*	
Yellow star thistle	*Centaurea solstitialis*	yes
	Terrestrial Animals	
Africanized honeybee	*Apis mellifera scutellata*	yes
Asian long-horned beetle	*Anoplophora glabrispennis*	
Asian tiger mosquito	*Aedes albopictus*	
Brown tree snake	*Boiga irregularis*	
Cane toad	*Bufo marinus*	
Cactus moth	*Cactoblastis cactorum*	
Emerald ash borer	*Agrilus planipennis*	
European gypsy moth	*Lymantria dispar*	
European starling	*Sturnus vulgaris*	yes
Formosan subterranean termite	*Coptotermes formosaurus*	

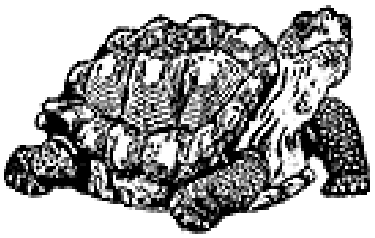
Common Name	Scientific Name	Within LHFO Boundary
Glassy-winged sharpshooter	*Homalodisca coagulate*	
Hemlock woolly adelgid	*Adelges tsugae*	
Pink hibiscus mealybug	*Maconellicoccus hirsutus*	
Red imported fire ant	*Solenopsis invicta*	
Russian wheat aphid	*Diuraphis noxia*	
Wild Boar	*Sus scrofa*	yes
Aquatic and Wetland Plants		
Brazilian waterweed	*Egeria densa*	
Caulerpa, Mediterranean clone	*Caulerpa taxifolia*	
Common reed	*Phragmites australis*	yes
Eurasian water-milfoil	*Myriophyllum spicatum*	yes
Giant hogweed	*Heracleum mantegazzianum*	
Giant-reed	*Arundo donax*	yes
Giant salvinia	*Salvinia molesta*	yes
Hydrilla	*Hydrilla verticillata*	
Melaleuca	*Melaleuca quinqenervia*	
Purple loosestrife	*Lythrum salicaria*	
Water chestnut	*Trapa natans*	
Water hyacinth	*Eichhornia crassipes*	
Aquatic and Wetland Animals		
Alewife	*Alosa pseudoharengus*	
Asian swamp eel	*Monopterus albus*	
Bullfrog	*Rana catesbeiana*	yes
Eurasian ruffe	*Gymnocephalus cernuus*	
European green crab	*Carcinus maenas*	
Flathead catfish	*Pylodictus olivaris*	yes
Northern Snakehead	*Channa argus*	
Nutria	*Myocastor coypus*	
Round goby	*Negobius melanostomus*	
Sea lamprey	*Petromyzon marinus*	
Veined rapa whelk	*Rapana venosa*	
Zebra mussel	*Dreissena polymorpha*	Yes

Common Name	Scientific Name	Within LHFO Boundary
	Microbes	
Exotic Newcastle Disease	*Paramyxovirus*	
Fowlpox	*Avipoxvirus*	
Plum Pox	*Potyviruses: Potyviridae*	
Soybean Rust	*Phakopsora pachyrhizi/Phakopsora meibomiae*	
Sudden Oak Death	*Phytophthora ramorum*	
West Nile Virus	*Flavivirus*	
Whirling Disease	*Myxobolus cerebralis*	

Table J-9: Arizona Regulated and Restricted Weeds

Common name	Scientific name	State Designation	Within LHFO Boundary
Southern sandbur	*Cenchrus echinatus*	Regulated	
Field sandbur	*Cendhrus incertus*	Regulated	
Field bindweed	*Convolvulus arvensis*	Restricted	
Burclover	*Medicago polymorpha*	Restricted	
Common purslane	*Portulaea oleracea*	Restricted	
Puncturevine	*Tribulus terrestris*	Restricted	yes
Russian knapweed	*Acroptilon repens*	Restricted	yes
Jointed goatgrass	*Aegilops cylindrica*	Restricted	
Camelthorn	*Alhagi maurorum*	Restricted	yes
Globed-podded hoary cress (Whitetop)	*Cardaria draba*	Restricted	
Diffuse knapweed	*Centaurea diffusa*	Restricted	yes
Spotted knapweed	*Centaurea maculosa*	Restricted	
Yellow starthistle	*Centaurea solstitialis*	Restricted	yes
Dodder	*Cuscuta* spp.	Restricted	yes
Floating water hyacinth	*Eichhornia crassipes*	Restricted	
Quackgrass	*Elymus repens*	Restricted	
Halogeton	*Halogeton glomeratus*	Restricted	yes
Texas blueweed	*Helianthus cilaris*	Restricted	
Three-lobed morning glory	*Ipomoea triloba*	Restricted	
Dalmation toadflax	*Linaria dalmatica*	Restricted	
Scotch thistle	*Onopordum acanthium*	Restricted	yes

Desert Tortoise Habitat



The goals and criteria for the *Three Categories of Desert Tortoise Habitat Areas* are listed in the following table. The criteria are ranked by importance to the categorization process, with Criterion I being the most important.

Items	Category I Habitat Areas	Category II Habitat Areas	Category III Habitat Areas
Category Goals	Maintain stable, viable populations and protect existing tortoise habitat values; increase populations, where possible.	Maintain stable, viable populations and halt further declines in tortoise habitat values.	Limit tortoise habitat and population declines to the extent possible by mitigating impacts
Criterion 1	Habitat Area essential to the maintenance of large viable populations.	Habitat Area may be essential to maintenance of viable populations.	Habitat Area not essential to maintenance of viable populations
Criterion 2	Conflicts resolvable.	Most conflicts resolvable.	Most conflicts not resolvable.
Criterion 3	Medium to high density or low density contiguous with medium or high density.	Medium to high density or low density contiguous with medium or high density.	Low to medium density not contiguous with medium or high density.
Criterion 4	Increasing, stable, or decreasing population.	Stable or decreasing population.	Stable or decreasing population.

Appendix K

Special Area Designations

Areas of Critical Environmental Concern

The objective of an Area of Critical Environmental Concern (ACEC) designation is to identify areas to protect and to prevent irreparable damage to important historic, cultural, and scenic values; fish or wildlife resources; other natural systems or processes; or to protect human life and safety from natural hazards. The ACEC designation indicates to the public that there are significant resources requiring special consideration within or on these public lands.

Section 202 (c)(9) of the Federal Land Policy and Management Act (FLPMA) mandates that the BLM give priority to the designation and protection of an ACEC in the development and revision of land use plans.

The criteria for designating an ACEC according to the manual are Relevance and Importance.

An area meets the relevance criterion if it contains one or more of the following:

- Significant historic, cultural, or scenic value (e.g., a cultural resource important to Native Americans).
- Fish and wildlife resource (e.g., habitat for T&E species).
- Natural process or system (e.g., riparian ecosystem).
- Natural hazards (e.g., dangerous cliffs).

An area's above values must meet one or more of the following in order to meet the Importance criterion:

- The value is more than locally significant, or has a quality that gives it special worth, consequence, meaning distinctiveness or cause for concern.
- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.
- Has qualities that warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
- Poses a significant threat to human life and safety or to property.

Above is a synopsis of text that can be found in BLM's *Manual 1613 – Areas of Critical Environmental Concerns.*

Back Country Byways

BLM's 8375 – *Byways Handbook* lists four components to BLM's byway program:

- BLM Scenic Byways – scenic corridors along major secondary and primary highways.
- BLM Back Country Byways – corridors along backcountry routes that have high scenic, historic, archaeological, or other public interest values. Segments of Back Country Byways are subdivided into four types:
    - Roads that can accommodate normal touring cars;
    - Roads that require high-clearance-type vehicles;
    - Roads that require 4-wheel-drive vehicles; and
    - Trails managed to accommodate vehicles such as all terrain vehicles (ATVs), motorcycles, or mountain bikes.
- All-American Roads – roads that travel through corridors offering such a stunning variety of interesting destinations that travelers from around the nation and world will seek them out.
- National Scenic Byways – described as roads that state and local officials consider so outstanding that they merit recognition at the national level.

The *Byways Handbook* also defines a Back Country Byway as a component of the national scenic byway system that focuses primarily on corridors along backcountry roads that have high scenic, historic, archaeological, or other public interest values. The road may vary from a single-track bike trail to a low-speed, paved road that traverses backcountry areas. Segments of the backcountry byways are subdivided into four types based on the characteristics of the roads:

Type I – Roads that are paved or have an all-weather surface and have grades that are negotiable by a normal touring car. These roads are usually narrow, slow speed, secondary roads.

Type II – Roads that require high-clearance type vehicles. These roads are usually not paved but may have some type of surfacing. Grades, curves, and road surfaces are such that they can be negotiated with a two-wheel drive, high-clearance vehicle without undue difficulty.

Type III – Roads that require 4-wheel drive vehicles or other specialized vehicles such as dirt bikes, or ATVs. These roads are usually not surfaced, but they are maintained for safety and resource protection purposes. They have grades, tread surfaces, and other characteristics that require specialized vehicles to negotiate.

Type IV – Trails that are managed to accommodate dirt bike, mountain bike, snowmobile, or ATV use. They are usually single-track trails.

Wild and Scenic Rivers

This Appendix includes all management actions listed in the final *Arizona Statewide Wild and Scenic Rivers Legislative Environmental Impact Statement* and *Study Report/Record of Decision* (Bureau of Land Management 1994). These actions were current and ongoing management actions from the KRMP, the YRMP, and the Bill Williams Riparian Management Area Plan. Congressional designation of the river segments would require writing a management plan within 3 years of official designation and the management actions listed below could be updated at that time.

1. The riparian zone would be recommended for withdrawal from mineral entry on 486 acres of the Three Rivers Riparian ACEC[1] in Segment 2.
2. Mineral leasing with no surface occupancy would be allowed in the riparian zone on 486 acres of the Three Rivers Riparian ACEC in Segment 2.
3. BLM approval for plans of operations would be required for all mineral exploration and development activities above the level of casual use outside the riparian zone on 486 acres of the Three Rivers Riparian ACEC in Segment 2.
4. Mineral material disposal would be prohibited in the riparian zone on 486 acres of the Three Rivers Riparian Area of ACEC in Segment 2.
5. New mining claims and mineral leases would not be allowed in the riparian zone in Segment 2.
6. New major right-of-way would be confined to existing corridors on 486 acres in Segment 2.
7. BLM would acquire 524 acres of private land and 703 acres of state land on a willing-seller/willing-buyer or exchange basis in the Bill Williams River recommended study area.

[1] *The Three River ACEC would not overlay the Bill William Wild & Scenic River Nomination in Alternative 3, the management action could continue within the Wild and Scenic River's segments.*

8. Road development would be prohibited on 486 acres within 0.5 mile of bald eagle nests.
9. Motorized travel is prohibited in the wilderness portions of Segment 1 and Segment 3.
10. OHV use in riparian zones would be limited to designated roads and trails on 486 acres of Segment 2 (Scenic).
11. Campground development would be restricted to areas outside the riparian zone and the 100-year floodplain on 486 acres in Segment 2.
12. The area within 0.5 mile of a falcon nest would be closed to any surface disturbance or intensive recreational activities (e.g., group camping) during the breeding season from March 1 to June 15 on 486 acres in Segment 2.
13. The portions of the study area in wilderness areas (4,164 acres) would be managed as a VRM Class I area. Management activities would be limited to those that preserve the characteristic landscape.
14. The non-wilderness portions of the study area (486 acres) would be managed as a VRM Class II area. Management activities would be limited to those that would repeat the basic line form, color, and texture found in the predominant natural features of the characteristic landscape.
15. Helicopter flights above the 486 acres in Segment 2 would be prohibited within 0.5 mile of active bald eagle nests during the breeding season.
16. Except for salvage operations, the removal of native plants would be prohibited on 486 acres in Segment 2.
17. A systematic program would be developed for removal of saltcedar on as much as 500 acres in Segment 2.
18. As many as 200 cottonwood and willow poles would be planted on as much as 100 acres in Segment 3.
19. A cultural resource specialist would review proposals for activities that could result in increased use or surface disturbance.
20. If sites were evaluated as eligible for listing in the NRHP, they would be avoided by the proposed activity.
21. If avoidance were not possible, impacts would be mitigated through a data recovery program developed in consultation with the State Historic Preservation Officer.
22. Protection measures (e.g., fencing or periodic patrolling) would be developed for selected cultural resources that have either great significance or a history of vandalism.
23. As many as five new upland water sources for use by livestock would be developed to improve riparian areas.
24. In accordance with the Bill Williams Riparian Management Area Plan, as much as 5 miles of fences, including enclosures, would be constructed to improve riparian areas.

25. Livestock would be removed when utilization exceeds 70% of cottonwood and willow seedlings and/or utilization of key herbaceous species exceeds 50%.
26. The wild burro population would be monitored and excess numbers would be removed.

Appendix L

Little Harquahala Herd Area Manageability Analysis

Based on the last census, no wild burros remain in the Little Harquahala Herd Area. Management of the area would never be possible due to the amount of private lands within and adjacent to the HA. The Little Harquahala Herd Area is located directly south of Wenden, Arizona on the south side of U.S. Highway 60. It is 65,893 acres in size and is composed of 51,961 acres of public land (79%), 11,767 acres of private land (18%) and 2,165 acres of Arizona state lands (3%).

The area was first identified as a herd area in the *Draft Lower Gila North Grazing Environmental Impact Statement* (1982), based on inventories conducted in 1976 and 1980 utilizing the Lincoln Index Inventory Method. The area was designated as a Herd Area in the Final Lower Gila North Grazing Environmental Impact Statement in September 1982.

The Arizona Game and Fish Department and the Bureau of Land Management jointly conducted inventories in 1999 using the Simultaneous Double Count method. Analysis of that data indicates that no burros remain in the area. Burros within this herd area are dependent on forage and water produced on the privately owned agricultural fields located in the middle of the herd area.

No natural permanent water sources are present on public land within the Herd Area. Other waters on public land in the area are those developed for livestock (one well, troughs, and earthen tanks). These waters are operational only during periods of active livestock use and therefore are not a dependable source of water throughout the year. Earthen tanks are generally accessible but contain water only during periods of plentiful precipitation.

Even without the limiting factors of private farmlands and lack of water, forage in the area would not support a herd larger than 50 burros. Although existing research regarding minimum population size varies, it is generally accepted that a population of fewer than 50 animals is not sufficient to maintain a genetically viable and healthy population over the long term.

Considering all factors, including limited water sources, sparse forageable vegetation resulting in the necessity of the animals to forage on privately owned farm lands, and the small number of animals, it is recommended that the Little Harquahala Herd Area not be designated as a Herd Management Area.

Appendix M

Vegetation Treatments (Including Fire)

Treatment Methods

Several treatment methods and Standard Operating Procedures would be used in a vegetation treatment program. BLM policies and guidance for public land treatments would be followed in implementing all treatment methods. Many guidelines are provided in manual Section 1740, BLM Arizona's Standards for Rangeland Health, Programmatic documents such as BLM's *Final Environmental Impact Statement, Vegetation Treatment on BLM Lands in Thirteen Western States (May 1991),* and other general and specific program policy, procedures, and standards pertinent to implementation of renewable resource improvements.

In Arizona, BLM manages designated Wilderness Areas, Wilderness Study Areas, and areas managed for wilderness characteristics that are identified in an approved land use plan. Guidelines and operating procedures for fire management activities in Wilderness Areas are provided in BLM Manual 8560, *Management of Designated Wilderness Areas*, and in Wilderness Management Plans where completed for specific Wilderness Areas (Table 3.9).

Fire management guidance for Wilderness Study Areas is provided in BLM Manual 8550, *Interim Management Policy and Guidelines for Lands Under Wilderness Review*. Approved land use plans specify fire management procedures for areas identified in the land use plan to be managed for wilderness characteristics.

The following manual, chemical, mechanical, biological and fire treatment methods would be used for all alternatives.

Manual

Hand-operated power tools and hand tools are used in manual vegetation treatment to cut, clear, or prune herbaceous and woody species. In manual treatments, workers would cut plants above ground level; pull, grub, or dig out plant root systems to prevent subsequent sprouting and regrowth; scalp at ground level or remove competing plants around desired vegetation; or place mulch around desired vegetation to limit the growth of competing vegetation. Hand tools such as the handsaw, axe, shovel, rake, machete, grubbing hoe, mattock

(combination of axe and grubbing hoe), brush hook, and hand clippers are used in manual treatments. Axes, shovels, grubbing hoes, and mattocks can dig up and cut below the surface to remove the main root of plants such as prickly pear and mesquite that have roots that can quickly resprout in response to surface cutting or clearing. Workers also may use power tools such as chain saws and power brush saws.

Mechanical

Mechanical methods of vegetation treatment employ several different types of equipment to suppress, inhibit, or control herbaceous and woody vegetation (Vallentine 1980). The goal of mechanical treatments is to kill or reduce the cover of undesirable vegetation and thus encourage the growth of desirable plants. BLM uses wheel tractors, crawler-type tractors, mowers, or specially designed vehicles with attached implements for mechanical vegetation treatments. The use of mechanical equipment to reduce fuel hazards will be conducted in accordance with BLM established procedures. Reseeding after a mechanical treatment has been applied is important to help insure that desirable plants will become established on the site and not weedy species. The mechanical treatment and reseeding should occur at a time to best control the undesirable vegetation and encourage the establishment of desirable vegetation. The best mechanical method for treating undesired plants in a particular location depends on the following factors:

1. Characteristics of the undesired species present such as plant density stem size, woodiness, brittleness, and resprouting ability;
2. Need for seedbed preparation, revegetation, and improvement of water infiltration rates;
3. Topography and terrain;
4. Soil characteristics such as type, depth, amount and size of rocks, erosion potential, and susceptibility to compaction;
5. Climatic and seasonal conditions; and
6. Potential cost of improvement as compared to expected results.

Bulldozing consists of a wheeled or crawler tractor with a heavy, hydraulically controlled blade. Vegetation is pushed over, uprooted, and then left in windrows or piles. Bulldozing is best adapted to removing scattered stands of large brush or trees.

Several different kinds of blades are available, depending of the type of vegetation and goals of the project. The disadvantage of bulldozing is soil disturbance and damage to non-target plant species.

Disk plowing in its various forms can be used for removing shallow-rooted herbaceous and woody plants. Disk plows should be used only where all of the vegetation is intended to be killed. Several different kinds of root plows are specific for certain types of vegetation. In addition to killing vegetation, disk

plowing is effective in loosening the soil surface to prepare it for seeding and to improve the rate of water infiltration. The disadvantage of disk plowing is that it may be expensive and usually kills all plant species. Also, plowing is usually not practicable on steep slopes (greater than a 35% to 45% slope) or rocky soil. Plant species that sprout from roots may survive.

Chaining and cabling is accomplished by dragging heavy anchor chains or steel cables hooked behind to tractors in a U-shape, half circle, or J-shaped manner. This method effective on rocky soils and steep slopes and is best used to control non-sprouting woody vegetation such as small trees and shrubs. However, desirable shrubs may be damaged in the process. Herbaceous vegetation is normally not injured by this control method. This control method is cost effective as large areas can be readily treated. The chains or cables also scarify the soil surface in anticipation of seeding desirable species. The disadvantage is that weedy herbaceous vegetation can survive this treatment.

Various tractor attachments are used for mowing, beating, crushing, chopping, or shredding vegetation, depending on the nature of the plant stand and goals of the project. The advantage in using this type of equipment is that selective plants may be targeted to achieve specific goals. For example, mowing is effective in reducing plant height to a desirable condition, and it usually does not kill vegetation. Mowing is more effective on herbaceous than woody vegetation. On the other hand, a rolling cutter can kill woody non-sprouting vegetation by breaking stems at ground level but leave herbaceous vegetation intact. Mowing, beating, crushing, chopping, or shredding usually does not disturb soil. Rocky soil and steep slopes may limit this use of this equipment.

Debris management after a mechanical control treatment application is critical in fuels reduction projects. Vegetation material that is left onsite will dry and may become more hazardous than before the treatment. Herbaceous material is usually not a problem because it will decompose relatively fast depending on soil moisture, ambient humidity, and temperature. Woody vegetation should be piled and burned under acceptable fire management practices.

Biological

Biological methods of vegetation treatment could employ grazing by cattle, sheep, or goats, but would not include the use of invertebrates or microorganisms. BLM would use cattle, sheep, or goats only when grazing would have no effect on listed, proposed, or candidate species. The use of grazing as a biological control agent will be conducted in accordance with BLM procedures in the *Use of Biological Control Agents of Pests on Public Lands* (BLM 1990). Grazing by cattle, sheep, or goats would be used as biological control methods under all alternatives, although at the present these methods can control only a few plant species.

Gradually, biological methods using cattle, sheep, or goats would avoid erosion hazard areas, areas of compactable soils, riparian areas susceptible to bank damage, and steep erodible slopes.

Biological control using cattle, sheep, or goats would be applied to treatment areas for short periods. When considering the use of grazing animals as an effective biological control measure, several factors will be taken into consideration including the following:

1. Target plant species present;
2. Size of the infestation of target plant species;
3. Other plant species present;
4. Stage of growth of both target and other plant species;
5. Palatability of all plant species present;
6. Selectivity of all plant species present by the grazing animal species that is being considered for use as a biological control agent;
7. The availability of that grazing animal within the treatment site area; and
8. Type of management program that is logical and realistic for the specific treatment site.

These factors will be some of the options taken when developing the individual treatment for a specific site.

Although discussed as biological agents, cattle, sheep, and goats are not truly biological agents but are domestic animals used to control only the top growth of certain noxious weeds. The following are some advantages of using domestic animals, mainly sheep or goats, for noxious weed control:

1. They use weeds as a food source;
2. Following a brief adjustment period, they sometimes consume as much as 50 percent of their daily diet of this species;
3. Average daily gains of offspring grazing certain weed-infested pastures can sometimes be significantly higher than average daily gains of offspring grazing grass pastures; and
4. Sheep or goats can be used in combination with herbicides.

Some of the disadvantages of using domestic animals are as follows:

1. They also use nontarget plants as food sources;
2. The use of domestic animals, like sheep or goats, requires a herder or temporary fencing;
3. The animals may be killed by predators such as coyotes;
4. Heavy grazing of some weed species, such as leafy spurge, tends to loosen the stools of the grazing animals;
5. Most weed species are less palatable than desirable vegetation and would cause overgrazing;

6. They may accelerate movement of nonnative plants through seed ingestion and excretion; and
7. Domestic livestock may transmit parasites and/or pathogens to resident native wildlife species.

Prescribed Burning

Prescribed burning is the planned application of fire to wildland fuels in their natural or modified state, under specific conditions of fuels, weather, and other variables to allow the fire to remain in a predetermined area and to achieve site-specific fire and resource management objectives.

Management objectives of prescribed burning include the control of certain species; enhancement of growth, reproduction, or vigor of certain species; management of fuel loads; and maintenance of vegetation community types that best meet multiple-use management objectives. Treatments would be implemented in accordance with BLM procedures in *Fire Planning* (BLM 1987c), *Prescribed Fire Management* (BLM 1988b), and *Fire Training and Qualifications* (BLM 1987d).

Prior to conducting a prescribed burn, a written plan must be prepared that takes into consideration existing conditions (e.g., amount of fuel, fuel moisture, temperatures, terrain, weather forecasts, and other factors) and identifies people responsible for overseeing the fire.

Natural fire that is allowed to burn also needs to be carefully monitored to ensure that it will not threaten communities, other values to be protected, and ecosystems. This monitoring may require special expertise such as the fire use management teams that have been developed to support the overall fire management program. Planning and implementation for a specific prescribed fire project entails the following four phases:

- Phase 1: Information/Assessment Phase includes identifying the area to be treated, inventory and assessment of site-specific conditions (e.g., live and dead vegetation densities, dead down woody fuels loadings, and soil types), analysis of historic and current fire management, and identification of resource objectives from RMP and NEPA analysis and compliance.
- Phase 2: The Prescribed Fire Plan Development Phase includes developing the site-specific prescribed fire plan to BLM Standards, reviewing of the plan, and obtaining plan approval from local BLM field office administrators.
- Phase 3: Implementation includes igniting the fire according to the plan's prescribed parameters and preparing the prescribed fire boundary area to ensure that the fire remains within the prescribed boundaries. Site preparation may be in the form of fire line construction and improving roads and wildlife and stock trails by limbing trees and clearing debris.

- Phase 4: Monitoring and Evaluation includes assessment and long-term monitoring of the fire treatment to ensure the prescribed fire has met the objectives of the approved prescribed fire plan. BLM fire monitoring policy is described in the BLM prescribed Fire Management Handbook, October 2003, Chapter 2 and Appendix 7. This policy applies to prescribed fire and wildland fire use.

Appropriate Management Response

The appropriate management response concept represents a range of available management responses to wildland fires. Responses range from full fire suppression to managing fires for resource benefits (fire use). Management responses applied to a fire will be identified in the FMP and will be based on objectives derived from the land use allocations, relative risk to resources, the public and fire fighters, potential complexity, and the ability to defend management boundaries. Any wildland fire can be aggressively suppressed, and any fire that occurs in an area designated for fire use can be managed for resource benefits if it meets the prescribed criteria from an approved fire management plan.

Chemical

BLM will use EPA-approved herbicides in accordance with EPA's Endangered Species Pesticide Program covered in BLM's Vegetation Treatment on BLM Lands in Thirteen Western States FEIS (May 1991) and further limited to those approved for use by the Arizona Record of Decision (Page 3, ROD, July 1991). These herbicides are Atrazine; Bromacil; Bromacil + Diuron; Chlorsulfuron; Clopyralid; 2,4-D, Dicamba; Dicamba + 2,4-D; Diuron; Glyphosate; Glyphosate + 2,4-D; Hexazinone; Imazapyr; Mefluidide; Metsulfuron Methyl; Picloram; Picloram + 2,4-D; Simazine; Sulfometuron Methyl; Tebuthiuron; and Triclopyr. Treatments will follow Standard Operating Procedures) on pages 1-19 through 1-32 and project design features on pages 1-33 through 1-37 of the FEIS.

Additionally, the project design features buffer strips as described on page 10 of the ROD. Buffer strips would be used adjacent to dwellings, domestic water sources, agriculture land, streams, lakes, and ponds. A minimum buffer strip 100 feet wide will be provided for aerial application, 25 feet wide for vehicle application, and 10 feet wide for hand application. Any deviations must be in accordance with the label for the herbicide. Herbicides will be wiped on individual plants within 10 feet of water where application is critical. These buffer strips would also be used to protect listed, proposed, and candidate species. BLM will work closely with the FWS to ensure that herbicide applications will not affect listed or proposed threatened or endangered species on a project-level basis. If adverse effects are anticipated during informal consultation, then BLM will formally consult on these projects. If FWS develops herbicide guidance for particular species that improves protection beyond the current BLM design features, BLM will consider and incorporate that guidance as it consults with the FWS on a project-level basis. The chemicals can be

applied by many different methods, and the selected technique depends on a number of variables:

1. Treatment objective (removal or reduction);
2. Accessibility, topography, and size of the treatment area;
3. Characteristics of the target species and the desired vegetation;
4. Location of sensitive areas in the immediate vicinity (potential environmental impacts);
5. Anticipated costs and equipment limitations; and
6. Meteorological and vegetative conditions of the treatment area at the time of treatment.

Herbicide applications are scheduled and designed to minimize potential impacts on non-target plants and animals while remaining consistent with the objective of the vegetation treatment program. The rates of application depend on the target species, presence and condition of non-target vegetation, soil type, depth to the water table, presence of other water sources, and the requirements of the label.

In many circumstances, the herbicide chosen, time of treatment, and rate of application of the herbicide is different than the most ideal herbicide application for maximum control of the target plant species in order to minimize damage to the non-target plant species and to ensure minimum risk to human health and safety.

The chemicals would be applied aerially with helicopters or fixed-wing aircraft or on the ground using vehicles or manual application devices. Helicopters are more expensive to use than fixed-wing aircraft, but they are more maneuverable and effective in areas with irregular terrain and in treating specific target vegetation in areas with many vegetation types. Manual applications are used only for treating small areas or those inaccessible by vehicle.

The typical and maximum application rates of each chemical would vary, depending on the program area being treated.

Fire Suppression Actions

The following constraints to fire suppression actions are common to all alternatives:

- Suppression tactics will be utilized that limit damage or disturbance to the habitat and landscape. No heavy equipment (such as dozers) will be used, unless approved by the Field Office Manager.
- Use of fire retardants or chemicals adjacent to waterways will be accomplished in accordance to the Environmental Guidelines For Delivery of Retardant or Foam Near Waterways (Interagency Standards for Fire and Aviation Operations pages 8–13).

- All known cultural resources will be protected from disturbance.
- In Wilderness Areas, Wilderness Study Areas, and areas being managed for wilderness characteristics according to LUPs, when suppression actions are required, minimum impact suppression tactics (Interagency Standards for Fire and Aviation Operations, 2003) would be utilized and coordinated with Wilderness Area management objectives and guidelines.
- The general and species-specific Conservation Measures from the Proposed Arizona Statewide Land Use Plan Amendment for Fire, Fuels and Air Quality, March 2004 are listed in this appendix and will be implemented to the extent possible to minimize adverse effects to federally listed, proposed, or candidate species occurring within the action area.
- For fire suppression activities, a protocol for consultation has been developed as a part of the Biological Opinion (BO). This programmatic consultation contains conservation measures and prescriptions for use in fire suppression activities. Emergency consultation should be needed in the future only if suppression actions fall outside of these prescriptions/measures. The BO will outline coordination needs for emergency response actions that may affect a listed/proposed species and/or critical habitat.

The following protocol will apply:

BLM will contact the appropriate USFWS biologist as soon as practical once a wildfire starts and a determination is made that a federally protected species and/or its habitat could be affected by the fire and/or fire suppression activities. USFWS will work with BLM during the emergency response to apply the appropriate Conservation Measures. If Conservation Measures cannot be applied during the suppression activities, BLM will need to consult after the fact on any suppression actions that may have affected the federally protected species or its habitat. If Conservation Measures are adhered to, then BLM will report on the actions taken and effects to the species and its habitat following the fire, but no further consultation on that incident will be required.

Proposed Conservation Measures for Arizona BLM Statewide LUP Amendment and EA for Fire, Fuels, and Air Quality Management

1 Conservation Measures for Fire Management Activities

1.1 Wildland Fire Suppression (FS)

The following Conservation Measures will be implemented during fire suppression operations unless firefighter or public safety, or the protection of property, improvements, or natural resources, render them infeasible during a particular operation. Each Conservation Measure has been given an alphanumerical designation for organizational purposes (e.g., FS-1). Necessary modifications of the Conservation Measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS.

FS-1 Protect known locations of habitat occupied by Federally listed species. Minimum Impact Suppression Tactics (M.I.S.T.) will be followed in all areas with known Federally protected species or habitat [Appendix U, *Interagency Standards for Fire and Aviation Operations 2003*, or updates].

FS-2 Resource Advisors will be designated to coordinate natural resource concerns, including Federally protected species. They will also serve as a field contact representative (FCR) responsible for coordination with the USFWS. Duties will include identifying protective measures endorsed by the Field Office Manager, and delivering these measures to the Incident Commander; surveying prospective campsites, aircraft landing and fueling sites; and performing other duties necessary to ensure adverse effects to Federally protected species and their habitats are minimized. On-the-ground monitors will be designated and used when fire suppression activities occur within identified occupied or suitable habitat for Federally protected species.

FS-3 All personnel on the fire (firefighters and support personnel) will be briefed and educated by Resource Advisors or designated supervisors about listed species and the importance of minimizing impacts to individuals and their habitats. All personnel will be informed of the conservation measures designed to minimize or eliminate take of the species present. This information is best identified in the incident objectives.

FS-4 Permanent road construction will not be permitted during fire suppression activities in habitat occupied by Federally protected species.

Construction of temporary roads is approved only if necessary for safety or the protection of property or resources, including Federally protected species habitat. Temporary road construction should be coordinated with the USFWS, through the Resource Advisor.

FS-5 Crew camps, equipment staging areas, and aircraft landing and fueling areas should be located outside of listed species habitats, and preferably in locations that are disturbed. If camps must be located in listed species habitat, the Resource Advisor will be consulted to ensure habitat damage and other effects to listed species are minimized and documented. The Resource Advisor should also consider the potential for indirect effects to listed species or their habitat from the siting of camps and staging areas (*e.g.*, if an area is within the water flow pattern, there may be indirect effects to aquatic habitat or species located off-site).

FS-6 All fire management protocols to protect Federally protected species will be coordinated with local fire suppression agencies that conduct fire suppression on BLM-administered lands to ensure that the agency knows how to minimize impacts to Federally protected species in the area.

FS-7 The effectiveness of fire suppression activities and Conservation Measures for Federally protected species should be evaluated after a fire, when practical, and the results shared with the USFWS and AGFD. Revise future fire suppression plans and tactical applications as needed and as practical.

1.2 Fuels Treatments (prescribed burning and other fuels management) (FT)

The following Conservation Measures **are mandatory** when implementing wildland fire use, prescribed fires, and the proposed vegetation treatments (mechanical, chemical, biological):

FT-1 Biologists will be involved in the development of prescribed burn plans and vegetation treatment plans to minimize effects to Federally protected species and their habitats within, adjacent to, and downstream from proposed project sites. Biologists will consider the protection of seasonal and spatial needs of Federally protected species (e.g., avoiding or protecting important use areas or structures and maintaining adequate patches of key habitat components) during project planning and implementation.

FT-2 M.I.S.T. will be followed in all areas with known Federally protected species or habitats.

FT-3 Pre-project surveys and clearances (biological evaluations/assessments) for Federally protected species will be required for each project site before implementation. All applicable Conservation Measures will be applied to areas with unsurveyed suitable habitat for Federally protected

species, until a survey has been conducted by qualified personnel to clear the area for the treatment activity.

FT-4 Use of motorized vehicles during prescribed burns or other fuels treatment activities in suitable or occupied habitat will be restricted, to the extent feasible, to existing roads, trails, washes, and temporary fuelbreaks or site-access routes. If off-road travel is deemed necessary, any cross-country travel paths will be surveyed prior to use and will be closed and rehabilitated after the prescribed burn or fuels treatment project is completed.

FT-5 As part of the mandatory fire briefing held prior to prescribed burning, all personnel (firefighters and support personnel) will be briefed and educated by Resource Advisors or designated supervisors about listed species and the importance of minimizing impacts to individuals and their habitats. All personnel will be informed of the Conservation Measures designed to minimize or eliminate take of the species present.

1.3 Rehabilitation and Restoration (RR)

RR-1 When rehabilitating important areas for Federally listed species that have been damaged by fire or other fuels treatments, the biologist will give careful consideration to minimizing short-term and long-term impacts. Someone who is familiar with fire impacts and the needs of the affected species will contribute to rehabilitation plan development. Appropriate timing of rehabilitation and spatial needs of Federally listed species will be addressed in rehabilitation plans.

RR-2 Seed from regionally native or sterile non-native species of grasses and herbaceous vegetation will be used in areas where reseeding is necessary following ground disturbance to stabilize soils and prevent erosion by both wind and water.

RR-3 Sediment traps or other erosion control methods will be used to reduce or eliminate influx of ash and sediment into aquatic systems.

RR-4 Use of motorized vehicles during rehabilitation or restoration activities in suitable or occupied habitat will be restricted, to the extent feasible, to existing roads, trails, or washes, and to temporary access roads or fuelbreaks created to enable the fire suppression, prescribed burn, or fuels treatment activities to occur. If off-road travel is deemed necessary, any cross-country travel paths will be surveyed prior to use and will be closed and rehabilitated after rehabilitation or restoration activities are completed.

RR-5 All temporary roads, vehicle tracks, skid trails, and off-road vehicle (ORV) trails resulting from fire suppression and the proposed fire management activities will be rehabilitated (water bars, etc.), and will be closed or made impassible for future use.

RR-6 Burned area emergency rehabilitation (BAER) activities and long-term restoration activities should be monitored, and the results provided to the USFWS and AGFD. Section 7 consultation for BAER activities will be conducted independently, if necessary.

RR-7 (Recommended) Develop public education plans that discourage or restrict fires and fire-prone recreation uses during high fire-risk periods. Develop brochures, signs, and other interpretive materials to educate recreationists about the ecological role of fires, and the potential dangers of accidental fires.

2 Conservation Measures For Fire Management Activities In Riparian and Aquatic Habitats (RA)

2.1 Wildland Fire Suppression and Rehabilitation

The following Conservation Measures will be implemented during fire suppression operations in riparian, wetland, or aquatic habitats, unless firefighter or public safety, or the protection of property, improvements, or natural resources, render them infeasible during a particular operation. Necessary modifications of the Conservation Measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS. The BLM's 1987 policy statement on riparian area management defines a riparian area as "an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil."

RA-1 During wildfire suppression, apply M.I.S.T. within riparian areas. Fire suppression actions in riparian areas should be prioritized to minimize damage to stands of native vegetation from wildfire or suppression operations. To the extent possible, retain large, downed woody materials and snags that are not a hazard to firefighters.

RA-2 Fire suppression and rehabilitation in riparian corridors will be coordinated with the Resource Advisor or qualified biologist approved by BLM.

RA-3 Site-specific implementation plans that include project areas with Federally protected aquatic or riparian-obligate species will specify fire management objectives and wildland fire suppression guidance, taking into account the special concerns related to these species.

RA-4 In riparian areas, use natural barriers or openings in riparian vegetation where possible as the easiest, safest method to manage a riparian

wildfire. Where possible and practical, use wet firebreaks in sandy overflow channels rather than constructing firelines by hand or with heavy equipment.

RA-5 Construction or development of a crossing for motorized vehicles across a perennial stream will not be permitted, unless an established road already exists or where dry, intermittent sections occur.

RA-6 Avoid the use of fire retardants or chemical foams in riparian habitats or within 300 feet of aquatic habitats, particularly sites occupied by Federally protected species. Apply operational guidelines as stated in the Interagency Standards for Fire and Fire Aviation Operations 2003 (or updates), "Environmental Guidelines for Delivery of Retardant or Foam Near Waterways," Chapter 8 (pp. 8-13 through 8-15).

RA-7 Priority for placement of fire camps, fire staging areas, and aircraft landing or refueling sites will be outside riparian areas or river/stream corridors.

RA-8 When using water from sources supporting Federally protected species, care must be taken to ensure adverse impacts to these species are minimized or prevented. Unused water from fire abatement activities will not be dumped in sites occupied by Federally protected aquatic species to avoid introducing non-native species, diseases, or parasites.

RA-9 If water is drafted from a stock tank or other body of water for fire suppression, it will not be refilled with water from another tank, lakes, or other water sources that may support non-native fishes, bullfrogs, crayfish, or salamanders.

RA-10 Use of containment systems for portable pumps to avoid fuel spills in riparian or aquatic systems will be required.

RA-11 (Recommended) Develop and implement restoration plans for affected riparian or aquatic areas, including long-term monitoring, to document changes in conditions in the riparian zone and watershed that maintain flood regimes and reduce fire susceptibility. Monitor stream water quality and riparian ecosystem health to determine effects of wildfire and fire management activities. Coordinate efforts and results with the USFWS and AGFD.

2.2 Fuels Treatments (prescribed fire; mechanical, chemical, and biological treatments)

The following Conservation Measures **are mandatory** when implementing wildland fires use, prescribed fires, and the proposed vegetation treatments (mechanical, chemical, biological) within riparian, wetland, or aquatic habitats.

RA-12 All Conservation Measures for wildland fire suppression (RA-1 to RA-11, Section 2.1) also apply to fuels treatment activities (prescribed fire; mechanical, chemical, and biological treatments) in riparian, wetland, and aquatic habitats.

RA-13 Fire management treatments within or adjacent to riparian and aquatic habitats will be designed to provide long-term benefits to aquatic and riparian resources by reducing threats associated with dewatering and surface disturbance, or by improving the condition of the watershed and enhancing watershed function.

RA-14 For priority fire/fuels management areas (e.g., WUIs) with Federally protected species or designated critical habitat downstream, BLM biologists and other resource specialists, as appropriate, in coordination with USFWS and AGFD, will determine:

A) The number of acres and the number of projects or phases of projects to occur within one watershed per year.

B) An appropriately-sized buffer adjacent to perennial streams in order to minimize soil and ash from entering the stream.

C) Where livestock grazing occurs in areas that have been burned, specialists will determine when grazing can be resumed. Such deferments from grazing will only occur when necessary to protect streams from increased ash or sediment flow into streams.[1]

If agreement cannot be reached or treatment will not meet fuel reduction objectives, BLM will re-initiate consultation.

[1] The Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook, Exhibit 4-2 ,BLM supplemental guidance, page 5 of 9 (http://fire.r9.fws.gov/ifcc/ESR/handbook/4PolicyGuidance.htm) establishes the following policy for livestock exclusion following burns:

> Exclusion of livestock is critical for the recovery of burned vegetation or establishment and maintenance of new seedings and use of these areas should not be permitted until the vegetation recovers or is established. Both re-vegetated and, burned but not re-vegetated areas, will be closed to livestock grazing for at least two growing seasons following the season in which the wildfire occurred to promote recovery of burned perennial plants and/or facilitate the establishment of seeded species. Livestock permittees must be informed of the closure early during the plan preparation process, and livestock closures will be made a condition or term on the grazing license or permit through the issuance of grazing decision (see 43 CFR 4160). Livestock closures for less than two growing seasons may be justified on a case-by-case basis based on sound resource data and experience. Livestock management following seedling establishment and/ or burned area recovery should maintain both non-native and/or native species to meet land use (including Standards for Rangeland Health and Guidelines for Grazing Management) or activity plan objectives.

Our authority to make these types of changes is in the regulations at 43 CFR 4110.3-3(b).

3 Species Specific Conservation Measures

In addition to the general Conservation Measures listed in **Sections 1.0** and **2.0**, the following species-specific Conservation Measures will be applied during wildfire suppression to the extent possible, and will be required during fuels treatment activities (wildland fire use, prescribed fire, vegetation treatments). Necessary modifications of the Conservation Measures or impacts to Federally protected species and habitat during fire suppression operations will be documented by the Resource Advisor, and coordinated with the USFWS.

3.1 Amphibians [Chiricahua leopard frog (FT); Relict leopard frog (FC)]

AM-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0).

AM-2 For fire management sites with habitat for the Chiricahua leopard frog, unsurveyed sites will be considered occupied unless surveyed prior to project implementation.

AM-3 Install sediment traps, as determined by a Resource Advisor or qualified biologist approved by BLM, upstream of tanks and ponds occupied by Chiricahua leopard frogs in order to minimize the amount of ash and sediment entering the water. Consultation with a qualified biologist during the planning phase will aid in determining sediment trap installation requirements (see Conservation Measures FT-1 and FT-3).

AM-4 All personnel performing fire management activities at any creek crossing will be informed of the potential presence of Chiricahua leopard frogs, their status, and the need to perform their duties to avoid impacts to the frog and its habitat.

AM-5 Except as needed in emergency situations to abate immediate fire threat or loss of life or property, no water will be drafted for fire suppression from bodies of water known to be occupied by the Chiricahua leopard frog.

3.2 Birds

3.2.1 Cactus ferruginous pygmy-owl (FE, Proposed CH)

FP-1 Treatment of riparian habitat, Sonoran desert/desertscrub, or mesquite-invaded grasslands under 4,000 feet in elevation that may support nesting cactus ferruginous pygmy owls will only occur during the non-nesting season of August 1 to January 31, unless pre-project surveys indicate the area does not support pygmy-owls or mitigation plans approved by the USFWS have alleviated negative consequences.

FP-2 Develop mitigation plans in coordination with the USFWS for fuels treatment projects (prescribed fire; vegetation treatments) that may adversely affect cactus ferruginous pygmy-owls or their habitat. Mitigation plans for prescribed fire shall limit to the extent practicable the possibility that fire would spread to riparian habitats. Mitigation plans will be approved by the USFWS.

FP-3 (Recommended) To the extent possible, maintain habitat features necessary to support breeding populations of the pygmy-owl within their historic range and review ongoing fire management activities for effects on essential habitat features needed by cactus ferruginous pygmy-owls. Modify activities, where necessary, to sustain the overall suitability of the habitat for the owls. Priority will be given to activities in or near occupied or recently (w/in the last 10 years) occupied habitat.

3.2.2 California brown pelican (FE)

BP-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0).

3.2.3 California Condor (FE; 10(j) species)

The following Conservation Measures apply to BLM-administered lands within the designated 10(j) area for California condors:

CC-1 All helicopter dip tanks will be covered when not in use.

CC-2 Any presence of condors in the project area will be recorded and reported immediately to the Resource Advisor.

CC-3 If condors arrive at any area of human activity associated with fire suppression or fuels treatment projects (wildland fire use, prescribed fire, vegetation treatments), the birds will be avoided. The assigned Resource Advisor or a qualified wildlife biologist approved by BLM will be notified, and only permitted personnel will haze the birds from the area.

CC-4 All camp areas will be kept free from trash.

CC-5 Aircraft use along the Vermilion Cliffs or sites where condors are attempting to breed or roost will be minimized

CC-6 The Resource Advisor will contact the Peregrine Fund daily (at 520-606-5155 or 520-380-4667) to check on locations of condors during fire suppression or fuels treatment activities involving aviation. This information will be communicated to the Incident Commander and aviation personnel.

CC-7 If any fire retardant chemicals must be used in areas where condors are in the vicinity (see CC-6), the application area will be surveyed and any

contaminated carcasses will be removed as soon as practical to prevent them from becoming condor food sources.

CC-8 Aircraft will remain 400 meters from condors in the air or on the ground unless safety concerns override this restriction. If airborne condors approach aircraft, aircraft will give up airspace to the extent possible, as long as this action does not jeopardize safety.

CC-9 Smoke from wildland fire use and prescribed fire projects will be managed to minimize negative effects to condor breeding. A potential wildland fire use event will not be initiated, or an existing event will be modified or terminated, to prevent or stop significant amounts of smoke, or smoke that will remain in place for an extended period of time, or chronic smoke events, from occurring in area(s) where condors are attempting to breed.

CC-10 BLM will adhere to the air quality standards set by the Arizona Department of Environmental Quality.

3.2.4 Northern aplomado falcon (FE)

AF-1 If aplomado falcons are reestablished or are discovered on public lands, and they nest in a fuels management project area, BLM will implement temporary closures to human access and project implementation (wildland fire use, prescribed burning, vegetation treatments) within ½ mile of nest sites during the breeding season. Wildland fire use and prescribed burning will be conducted in a manner to ensure nest sites are more than ½ mile from downwind smoke effects.

3.2.5 Southwestern willow flycatcher (FE)

WF-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0).

WF-2 Except where fires are active in occupied habitat, minimize unnecessary low-level helicopter flights during the breeding season (April 1 – September 30). Approach bucket dip sites at a 90-degree direction to rivers to minimize flight time over the river corridor and occupied riparian habitats. Locate landing sites for helicopters at least ¼ mile from occupied sites to avoid impacts to willow flycatchers and their habitat.

WF-3 Minimize use of chainsaws or bulldozers to construct firelines through occupied or suitable habitat except where necessary to reduce the overall acreage of occupied habitat or other important habitat areas that would otherwise be burned.

WF-4 Implement activities to reduce hazardous fuels or improve riparian habitats (prescribed burning or vegetation treatments) within occupied or

unsurveyed suitable habitat for southwestern willow flycatchers only during the non-breeding season (October 1 to March 31).

WF-5 Avoid developing access roads that would result in fragmentation or a reduction in habitat quality. Close and rehabilitate all roads that were necessary for project implementation (see RR-5).

WF-6 Prescribed burning will only be allowed within ½ mile of occupied or unsurveyed suitable habitat when weather conditions allow smoke to disperse away from the habitat when birds may be present (breeding season of April 1 – September 30).

WF-7 Vegetation treatment projects adjacent to occupied or unsurveyed suitable habitat will only be conducted when willow flycatchers are not present (October 1 – March 31).

3.2.6 Yuma clapper rail (FE)

CR-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0).

CR-2 Any prescribed fire or vegetation treatment project in occupied or suitable marsh habitat would only occur between September 1 and March 15 to avoid the Yuma clapper rail breeding and molting seasons.

CR-3 Mechanical removal of overstory habitat (Tamarisk) could occur as early as August 15, after the breeding season for Yuma clapper rails.

CR-4 Herbicide application would not occur in Yuma clapper rail habitat and drift-inhibiting agents would be used to assure that the herbicide does not enter adjacent marsh areas.

3.2.7 Bald eagle (FT)

BE-1 No human activity within ½ mile of known bald eagle nest sites between December 1 and June 30.

BE-2 No tree cutting within ¼ mile of known nest trees.

BE-3 No human activity within ¼ mile of known bald eagle winter roost areas between October 15 and April 15.

BE-4 No tree cutting within the area immediately around winter roost sites as determined by BLM biologists.

BE-5 No helicopter or aircraft activity or aerial retardant application within ½ mile of bald eagle nest sites between December 1 and June 30 or winter roost sites between October 15 and April 15.

BE-6 Conduct prescribed burn activities outside of nesting season in a manner to ensure nest and winter roost sites are more than ½ mile from downwind smoke effects.

BE-7 Provide reasonable protective measures so fire prescription or fuels treatment will not consume dominant, large trees as identified by the Resource Advisor or qualified biologist approved by BLM within ½ mile of known nests and roosts of bald eagles Pre-treatment efforts should provide reasonable protection of identified nesting and roosting trees (see Conservation Measure FT-4).

3.2.8 Mexican spotted owl (FT, CH)

SO-1 BLM wildlife biologists will be involved early in the decision-making process for fuels management treatments (appropriately managed wildfires, prescribed fires, vegetation treatments) that are planned within suitable habitat or designated critical habitat for Mexican spotted owls (MSO).

SO-2 Suitable habitat and designated critical habitat for MSO will be surveyed prior to implementing prescribed fire or vegetation treatment activities on BLM-administered lands to determine MSO presence and breeding status. These fire management activities will only be implemented within suitable or critical habitat if birds are not present. If a spotted owl is discovered during these surveys, BLM will notify the USFWS to reinitiate consultation and will determine any additional Conservation Measures necessary to minimize or eliminate impacts to the owl.

SO-3 If a MSO is discovered during fire suppression or fuels treatment activities (wildland fire use, prescribed fire, vegetation treatments), the Resource Advisor or a qualified wildlife biologist will document the find and assess potential harm to the owl and advise the Incident Commander or project crew boss of methods to prevent harm. The information will include for each owl the location, date, and time of observation and the general condition of the owl. The Resource Advisor or biologist will contact the appropriate USFWS office, and BLM will reinitiate consultation for the fire suppression or project activities.

SO-4 Within MSO critical habitat designated on BLM-administered lands:

A) To minimize negative effects on the primary constituent elements of critical habitat, appropriately managed wildlfires, and prescribed fires will be managed primarily as low-intensity fires, with only scattered high-intensity patches. The BLM's objective will be to limit mortality of trees greater than 18 inches dbh to less than 5 percent, occasionally up to 10 percent, within critical habitat.

B) If fireline construction is necessary during fire suppression, appropriately managed wildfires, or prescribed fires, BLM will minimize the cutting of trees and snags larger than 18 inches dbh, and no trees or snags larger than 24 inches dbh will be cut unless absolutely necessary for safety reasons.

C) For mechanical vegetation treatments within critical habitat, BLM will minimize the cutting of trees and snags larger than 18 inches dbh, and no trees or snags larger than 24 inches dbh will be cut unless absolutely necessary for safety reasons.

D) Critical habitat disturbed during fire suppression or fuels treatment activities, such as fire lines, crew camps, and staging areas, will be rehabilitated to prevent their use by vehicles or hikers. Fire line rehabilitation will include pulling soil, duff, litter, woody debris, and rocks back onto the line to bring it up to grade and to make it blend in with the surrounding area. Such rehabilitation will be inspected one year after the event to ensure effectiveness.

SO-5 The following measures will be followed in suitable habitat (occupied or unoccupied) whenever consistent with objectives to reduce hazardous fuels:

Emphasize a mix of size and age classes of trees. The mix should include large mature trees, vertical diversity, and other structural and floristic characteristics that typify natural forest conditions.

SO-6 The effects of fire suppression and fuels treatment activities on MSO and their habitat, and the effectiveness of these Conservation Measures, will be assessed after each fire event or fuels treatment project by the Resource Advisor or local biologist to allow evaluation of these guidelines and to allow the USFWS to track the species environmental baseline. Prescriptions for appropriately managed wildfires, prescribed fires, and vegetation treatments will be adjusted, if necessary.

3.2.9 Yellow-billed cuckoo (FC)

YC-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0).

3.3 Fish

The following Conservation Measure will be implemented for all Federally protected fish species that may be affected by the Proposed Action during fire suppression to the extent possible, and are mandatory for wildland fire use, prescribed fire, and vegetation treatment activities:

FI-1 BLM will cooperate with other agencies to develop emergency protocols to decrease the impacts of fire suppression and fuels treatment activities on Federally listed fish species. Emergency protocols will include appropriate agency contacts, a list of facilities that can hold fish, sources of equipment needed (e.g., sampling gear, trucks) and how to address human health and safety issues.

In addition to implementing FI-1, the following species-specific Conservation Measures will also apply:

3.3.1 Bonytail chub (FE, CH)

BC-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) to eliminate adverse effects from fire management activities to available spawning habitat along shorelines (i.e., occupied reaches and critical habitat).

3.3.2 Desert pupfish (FE, CH)

DP-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) for occupied reaches and critical habitat.

DP-2 Conduct prescribed burns such that no more than one-half of the watershed of each desert pupfish site is burned in a two-year period (excluding buffers to the streams and/or spring habitats) and repeat treatments at greater than two-year intervals.

DP-3 Monitor, where practical, for fish kill immediately following the first runoff event after prescribed fires in watersheds containing desert pupfish.

DP-4 When considering which creek crossings to use for fire management activities, avoid crossings that are known to be occupied by desert pupfish.

3.3.3 Gila topminnow (FE)

GT-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0).

GT-2 Conduct prescribed burns such that no more than one-half of the watershed of each gila topminnow natural or reintroduction site is burned in a two-year period (excluding buffers to the streams and/or spring habitats) and repeat treatments at greater than two-year intervals.

GT-3 Monitor for fish kill, where practical, immediately following the first runoff event after prescribed fires in the watersheds containing gila topminnows.

GT-4 When considering which creek crossings to use for fire management activities, avoid crossings that are known to be occupied by Gila topminnow, when possible.

GT-5 Develop mitigation plans in coordination with the USFWS for each fuels management project (prescribed fire; vegetation treatments) that may adversely affect the gila topminnow. Mitigation plans for prescribed fire will limit to the extent practicable the possibility that fire would spread to riparian habitats. Mitigation plans will be approved by the USFWS.

GT-6 (Recommended) Cooperate with the USFWS and AGFD to identify site-specific measures, such as prescribed fires in grassland vegetation types to improve watershed conditions (e.g., in the Cienega Creek watershed), to protect populations of gila topminnow from other resource program impacts.

3.3.4 Razorback sucker (FE, CH)

RS-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) to minimize adverse effects from fire management activities to available spawning habitat along shorelines (i.e., occupied sites and critical habitat).

RS-2 Project boundaries for fire management activities will avoid or protect sensitive habitats of the razorback sucker.

3.3.5 Virgin River chub (FE, CH)

VC-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) for the stretch of the Virgin River within Arizona.

3.3.6 Woundfin (FE, CH; Future 10(j) populations)

WM-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) for the stretch of the Virgin River within Arizona.

3.3.7 Little Colorado spinedace (FT, CH)

LS-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) to minimize adverse effects from fire management activities on BLM-lands to occupied reaches and critical habitat on adjacent lands.

3.3.8 Loach minnow (FT, CH); Spikedace (FT, CH)

LM-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) for occupied reaches and critical habitat.

LM-2 All reasonable efforts shall be made to minimize disturbance within the wetted areas of Aravaipa Creek or tributary channels.

LM-3 No heavy equipment will be used off-road during wildfire suppression and fuels treatment projects within the wetted areas of Aravaipa Creek.

LM-4 All reasonable efforts will be made to ensure that no pollutants, retardants, or chemicals associated with wildfire suppression and fuels treatment projects or activities enter surface waters of reaches occupied by these two fish species.

LM-5 Develop mitigation plans in coordination with the USFWS for each fuels management project (prescribed fire; vegetation treatments) that may adversely affect the loach minnow and spikedace. Mitigation plans for prescribed fire will limit to the extent practicable the possibility that fire would spread to riparian habitats. Mitigation plans will be approved by the USFWS.

LM-6 (Recommended) Cooperate with the USFWS and AGFD to identify site-specific measures, such as prescribed fires in grassland vegetation types to improve watershed conditions (e.g., in the Aravaipa Creek watershed), to protect populations of loach minnow and spikedace from other resource program impacts.

3.3.9 Gila chub (PE, Proposed CH)

GC-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) for occupied reaches and proposed critical habitat.

GC-2 When considering which creek crossings to use for fire management activities, avoid crossings that are known to be occupied by Gila chub, when possible.

GC-3 (Recommended) Cooperate with the USFWS and AGFD to identify site-specific measures, such as prescribed fires in grassland vegetation types to improve watershed conditions (e.g., in the Cienega Creek watershed), to protect populations of gila chub from other resource program impacts.

3.4 Flowering Plants

The following Conservation Measures for known locations and unsurveyed habitat of all Federally protected plant species within the planning area will be

implemented during fire suppression to the extent possible, and are mandatory for wildland fire use, prescribed fire and vegetation treatment activities:

PL-1 Known locations and potential habitat for plant populations will be mapped to facilitate planning for wildland fire use, prescribed fires, and vegetation treatments, and to ensure protection of these populations during fire suppression.

PL-2 BLM will coordinate with FWS to delineate buffer areas around plant populations prior to prescribed fire and vegetation treatment activities. BLM will coordinate with USFWS during any emergency response and wildland fire use activities to ensure protection of plant populations from fire and fire suppression activities.

PL-3 During fire suppression, wildland fire use, and prescribed fire in habitat occupied by Federally protected plant species, no staging of equipment or personnel will be permitted within 100 meters of identified individuals or populations, nor will off-road vehicles be allowed within the 100-meter buffer area, unless necessary for firefighter or public safety or the protection of property, improvements, or other resources (see FS-7). One of the primary threats to many of these plant species is trampling/crushing from personnel and vehicles.

PL-4 No prescribed burning will be implemented within 100 meters of identified locations or unsurveyed suitable habitat for Federally protected and sensitive plant populations unless specifically designed to maintain or improve the existing population.

There are no additional species-specific conservation measures for the following Federally protected plant species: Arizona Cliffrose (*Purshia subintegra*), Brady pincushion cactus (*Pediocactus bradyi*), Holmgren Milk Vetch (*Astragalus homgreniorum*), Nichol Turk's Head Cactus (*Echinocactus horizonthalonius* var. *nicholii*), Peebles Navajo Cactus (*Pediocactus peeblesianus* var. *peeblesianus*), Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*), Jones Cycladenia (*Cycladenia humilis* var. *jonesii*), Siler Pincushion Cactus (*Pediocactus sileri*), Acuña Cactus (*Echinomastus erectocentrus* var. *acunensis*), Fickeisen Plains Cactus (*Pediocactus peeblesianus* var. *fickeiseniae*).

3.4.1 Huachuca Water Umbel (*Lilaeopsis schaffneriana* var. *recurva*) [FE, CH]

In addition to implementing **PL-1** through **PL-4**, the following species-specific Conservation Measures will also apply:

WU-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0).

WU-2 (Recommended) The BLM should fund additional surveys for the water umbel on BLM lands, and support research on the ecology of the species.

Surveys may support the use of prescribed fire in areas not occupied by the Huachuca Water Umbel.

3.4.2 Kearney's Blue Star (*Amsonia kearneyana*) [FE]

In addition to implementing **PL-1** through **PL-4**, the following species-specific Conservation Measures will also apply:

KB-1 No mechanical or chemical vegetation manipulation will be authorized by BLM, and no planting or seeding of nonnative plants will occur in the Brown Canyon watershed within the Baboquivari allotment.

KB-2 Planning and management for wildfire suppression in the watershed of Brown Canyon will be coordinated with the USFWS.

3.5 Mammals

3.5.1 Black-footed ferret (FE, 10(j) species)

If black-footed ferrets are discovered or re-established on public lands, then the following Conservation Measures will apply:

BF-1 No heavy equipment operation off of existing roads within ¼ mile of prairie dog towns having documented occurrence of black-footed ferrets.

BF-2 No aerial retardant application within 300 feet of prairie dog towns having documented occurrence of black-footed ferrets.

BF-3 No surface disturbance of prairie dog towns having documented occurrence of black-footed ferrets.

BF-4 In Apache and Navajo counties, prairie dog complexes suitable for black-footed ferrets within ¼ mile of proposed project sites will either be surveyed prior to project implementation or will be protected using measures BF-1 through BF-3, as if ferrets were present.

3.5.2 Hualapai Mexican vole (FE)

HV-1 All treatment areas will be surveyed for Hualapai Mexican vole occupancy prior to fuels management treatments (prescribed fire, vegetation treatments) in order to determine project modifications and/or avoidance and protection of occupied areas. Until surveyed, all potential vole habitat is considered occupied. Areas not considered suitable (e.g., areas dominated by thick pine needles and duff) will also be surveyed prior to treatment to protect existing snag habitat for potential future use by Mexican spotted owls.

HV-2 Fuels management treatments (prescribed fire or vegetation treatments), construction of fire breaks, and/or staging areas for fire suppression or

fuels management treatments will not be located within a vole use area. Occupied vole sites within proposed burn areas will be protected by firebreaks, precision ignition of fire around such sites, or total avoidance of the area. Fire plans will incorporate site-specific features (e.g., rock outcroppings, game trails, etc.), fire behavior, and professional judgment to determine the most appropriate method to protect occupied vole habitat. Additionally, monitoring of fuel moisture and use of the appropriate minimum impact suppression tactics will be used to reach the desired objective at each site.

HV-3 To minimize impacts to Hualapai Mexican voles during the breeding season, prescribed burns and vegetation treatments in occupied or potential vole habitat will be implemented only between September 1 and March 15. Treatment in chaparral habitat will occur during the latter part of this time frame, in winter and/or early spring. These prescribed fires will follow the summer monsoon period to encourage additional herbaceous growth. Post-monsoon burns would help avoid the dry conditions that could result in extremely hot fires that reduce the recruitment of grasses and forbs. Areas not considered suitable for Hualapai Mexican voles (e.g., dominated by thick pine needles and duff) may be burned prior to September 1, if surveyed prior to treatment.

HV-4 Provide a 75- to 100-foot, minimum, unburned vegetation buffer between fuels treatment sites and riparian and dry wash areas to decrease erosion into and sedimentation of the occupied or potentially occupied vole habitat. Within ponderosa pine treatment sites, use of dry washes as a fire line may be appropriate and result in less disturbance than construction of a cup trench above the wash. Under such circumstances, BLM will prepare the wash as a fire line by raking duff and removing by hand dead branches and other debris.

HV-5 The terms and conditions from the Pine Lake Wildland/Urban Interface Biological Opinion (BLM Kingman Field Office; Consultation No. 2-21-01-F-241) continue to apply to the Pine Lake project.

3.5.3 Jaguar (FE)

JA-1 Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) to eliminate adverse effects to jaguars that may occur in dense riparian habitats on BLM-administered lands.

JA-2 Maintain dense, low vegetation in major riparian or xero-riparian corridors on BLM-administered lands in identified locations south of Interstate 10 and Highway 86. Locations will be identified in site-specific fire management plans.

3.5.4 Lesser long-nosed bat (FE)

LB-1 Instruct all crew bosses (wildfire suppression, wildland fire use, prescribed fire, and vegetation treatments) in the identification of agave and columnar cacti and the importance of their protection.

LB-2 Prior to implementing any fuels treatment activities (prescribed fire, vegetation treatments), pre-project surveys will be conducted for paniculate agaves and saguaros that may be directly affected by fuels management activities.

LB-3 Protect long-nosed bat forage plants -- saguaros and high concentrations of agaves -- from wildfire and fire suppression activities, and from modification by fuels treatment activities (prescribed fire, vegetation treatments), to the greatest extent possible. "Agave concentrations" are contiguous stands or concentrations of more than 20 plants per acre. Avoid driving over plants, piling slash on top of plants, and burning on or near plants. Staging areas for fire crews or helicopters will be located in disturbed sites, if possible.

LB-4 No seeding/planting of nonnative plants will occur in any wildfire rehabilitation site or fuels treatment site with paniculate agaves or saguaros.

LB-5 A mitigation plan will be developed by the Bureau in coordination with the USFWS for prescribed fires or fuels management projects (mechanical, chemical, biological treatments) within 0.5 mi of bat roosts or in areas that support paniculate agaves or saguaros. The mitigation plan will ensure that effects to bat roosts and forage plants are minimized and will include monitoring of effects to forage plants. The plan will be approved by the USFWS.

LB-6 (Recommended) BLM personnel should examine concentrations of agaves (including shindagger – A. schottii) within each proposed fuels treatment area, and blackline or otherwise protect from treatments any significant concentrations of agaves that appear to be amidst fuel loads that could result in mortality greater than 20 percent (>50% for A. schottii). BLM personnel should use their best judgment, based on biological and fire expertise, to determine which significant agave stands are prone to mortality greater than 20 percent (>50% for A. schottii) (see Conservation Measures FT-1 and FT-3).

LB-7 (Recommended) BLM should continue to support and cooperate in the investigations of agave relationships to livestock grazing, and of the effects of prescribed fire on paniculate agaves.

3.5.5 Mexican gray wolf (FE; 10(j) species)

If Mexican gray wolves are re-established on public lands, then the following Conservation Measures will apply:

GW-1 No human disturbance associated with fire management activities will be within one mile of a den site from April1 to June 30.

GW-2 No human disturbance associated with fire management activities will be within one mile of known rendezvous sites from April 1 to June 30.

3.5.6 Ocelot (FE)

No species-specific Conservation Measures developed.

3.5.7 Sonoran pronghorn (FE)

No species-specific Conservation Measures developed.

3.5.8 Black-tailed prairie dog (FC)

If black-tailed prairie dogs are re-established on public lands, then the following Conservation Measures will apply:

PD-1 No heavy equipment operation off of existing roads within ¼ mile of black-tailed prairie dog colonies

PD-2 No aerial retardant application within ¼ mile of black-tailed prairie dog colonies.

PD-3 No surface disturbance of black-tailed prairie dog colonies.

3.6 Reptiles

3.6.1 Desert tortoise, Mojave population (FT)

DT-1 Take appropriate action to suppress all wildfires in desert tortoise habitat, based on preplanned analysis and consistent with land management objectives, including threats to life and property. Full suppression activities will be initiated within key desert tortoise habitat areas identified in site-specific Fire Management Plans.

DT-2 Suppress all wildfires in desert tortoise habitat with minimum surface disturbance, in accordance with the guidelines in Duck et al. (1995) and the 1995 programmatic biological opinion on fire suppression on the Arizona Strip (2-21-95-F-379).

DT-3 Pre-position suppression forces in critical areas during periods of high fire dangers.

DT-4 As soon as practical, all personnel involved in wildfire suppression (firefighters and support personnel) will be briefed and educated about desert tortoises and the importance of protecting habitat and minimizing take, particularly due to vehicle use. Fire crews will be briefed on the desert tortoise in accordance with Appendix II of Duck et al. (1995).

DT-5 If wildfire or suppression activities cannot avoid disturbing a tortoise, the Resource Advisor or monitor will relocate the tortoise, if safety permits. The tortoise will be moved into the closest suitable habitat within two miles of the collection site that will ensure the animal is reasonably safe from death, injury, or collection associated with the wildfire or suppression activities. The qualified biologist will be allowed some discretion to ensure that survival of each relocated tortoise is likely. If the extent or direction of movement of a fire makes sites within two miles of the collection site unsuitable or hazardous to the tortoise or biologists attempting to access the area, the tortoise may be held until a suitable site can be found or habitat is safe to access and not in immediate danger of burning. The Resource Advisor will contact the USFWS Arizona Ecological Services Field Office (AESFO) as soon as possible concerning disposition of any animals held for future release. Desert tortoises will not be placed on lands outside the administration of the Federal government without the written permission of the landowner. Handling procedures for tortoises, including temporary holding facilities and procedures, will adhere to protocols outlined in Desert Tortoise Council (1994).

DT-6 Upon locating a dead, injured, or sick desert tortoise, initial notification must be made to the appropriate USFWS Law Enforcement Office within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph, and any other pertinent information. The notification will be sent to the Law Enforcement Office with a copy to the AESFO

DT-7 Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. If possible, the remains of intact desert tortoises will be placed with educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above will be obtained and the carcass left in place. Arrangements regarding proper disposition of potential museum specimens will be made with the institution prior to implementing the action. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should any treated desert tortoise survive, the USFWS should be contacted regarding final disposition of the animal.

DT-8 The Resource Advisor or monitor(s) will maintain a record of all desert tortoises encountered during fire suppression activities. This information will include for each desert tortoise: 1) locations and dates of observation; 2) general condition and health, including injuries and state of healing, and whether animals voided their bladders; 3) location moved from and to; and 4) diagnostic markings (i.e., identification numbers of marked lateral scutes). No notching of scutes or replacement of fluids with a syringe is authorized.

DT-9 Prior to moving a vehicle, personnel will inspect under the vehicle for tortoises. If a tortoise is found under the vehicle, the tortoise will be allowed to move away from the vehicle on its own accord, if possible. Otherwise an individual will move the tortoise to a safe locality in accordance with FS-2 and DT-5.

DT-10 Off-road vehicle activity will be restricted to the minimum necessary to suppress wildfires. Vehicles will be parked as close to roads as possible, and vehicles will use wide spots in roads or disturbed areas to turn around. Whenever possible, a biologist or crewperson trained to recognize tortoises and their shelter sites will precede any vehicle traveling off-road to direct the driver around tortoises and tortoise burrows. Whenever possible, local fire-fighting units should provide direction and leadership during off-road travel because of their expertise and knowledge of area sensitivities.

DT-11 Fire-related vehicles will drive slow enough to ensure that tortoises on roads can be identified and avoided.

DT-12 Fire crews or rehabilitation crews will, to the extent possible, obliterate off-road vehicle tracks made during fire suppression in tortoise habitat, especially those of tracked vehicles, to reduce future use.

DT-13 To the maximum extent practical, campsites, aircraft landing/fueling sites, and equipment staging areas will be located outside of desert tortoise habitat or in previously disturbed areas. If such facilities are located in desert tortoise habitat, 100 percent of the site will be surveyed for desert tortoises by a qualified biologist approved by BLM, whenever feasible. Any tortoises found will be moved to a safe location in accordance with FS-2 and DT-5. All personnel located at these facilities will avoid disturbing active tortoise shelter sites.

DT-14 Elevated predation by common ravens or other predators attributable to fire suppression activities will be reduced to the maximum extent possible. Work areas, including campsites, landing/fueling sites, staging areas, etc. will be maintained in a sanitary condition at all times. Waste materials at those sites will be contained in a manner that will avoid attracting predators of desert tortoises. Waste materials will be disposed of at an appropriate waste disposal site. “Waste” means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

DT-15 Backfiring operations are permitted where necessary in desert tortoise habitat. Burning out patches of identified habitat within or adjacent to burned areas is not permitted as a standard fire suppression measure unless necessary for firefighter or public safety or to protect property, improvements, or natural resources.

DT-16 Use of foam or retardant is authorized within desert tortoise habitat.

DT-17 Rehabilitation of vegetation in tortoise habitat will be considered, including seeding, planting of perennial species, etc.

DT-18 Recovery of vegetation will be monitored, including establishing and monitoring paired plots, inside and outside burned areas in tortoise habitat. Recovery plans will be coordinated with the USFWS and AGFD.

DT-19 The effectiveness of wildfire suppression activities and desert tortoise Conservation Measures will be evaluated after a wildfire. Procedures will be revised as needed.

3.6.2 New Mexico ridgenose rattlesnake (FT)

RN-1 To the extent possible, minimize surface disturbing activities from fire suppression and fuels treatment activities within New Mexico ridgenose rattlesnake habitat on BLM-administered lands in the southern Peloncillo Mountains, particularly during active periods for snakes (July through October).

RN-2 Prior to using wildland fire for resource benefit, cool season (November – March) prescribed fire or other fuel treatments should be used to reduce unnatural fuel loads within suitable habitat to avoid catastrophic fires and loss of canopy cover.

RN-3 All fires that occur outside of prescriptions that will result in low intensity, low severity burns will be fully suppressed within or near suitable New Mexico ridge-nose rattlesnake habitat.

3.7 Conservation Agreement and Management Plan Species

3.7.1 Flat-tailed horned lizard

No species-specific Conservation Measures developed.

3.7.2 Paradine (Kaibab) plains cactus

Implement PL-1 and PL-2 to protect known locations during fire suppression to the extent possible and during the fuels treatment activities.

3.7.3 Virgin spinedace

Implement the Conservation Measures for Fire Management Activities in Riparian and Aquatic Habitats (Section 2.0) for the stretch of the Virgin River within Arizona.

3.7.4 Desert tortoise, Sonoran population

Implement the Conservations Measures for Desert Tortoise, Mojave population, as appropriate, for fire suppression and fuels treatment activities (prescribed fire, vegetation treatments), excluding requirements for notification to USFWS.

Reference

Duck, T.A., T.C. Esque, and T.J. Hughes. 1995. Fighting wildfire in desert tortoise habitat: Considerations for land managers. Proc. Desert Tortoise Counc. Symp. 1994:58-67.

Appendix N

Water Resources: Springs

Source Name	Location	Developed	Use	Date Assessed	Riparian Value
Shancy Spring	T11N, R18W, SEC 11	No	Wildlife Burros	1985	Low
Bermuda Spring	T11N, R18W, SEC 10	No	Wildlife	1985	Low
Burnt Spring	T11N, R17W, SEC 10	No	Wildlife Burros	1985	Low
Short Spring	T11N, R17W, SEC 18	No	Wildlife	1985	Med
Jackpot Spring	T11N, R17W, SEC 18	No	Wildlife Burros	1985	Med
Midway Spring	T11N, R17W, SEC 7	No	Wildlife Burros	1985	Med
Summit Spring	T11N, R17W, SEC 7	No	Wildlife	1985	Low
Bill Williams Spring	T11N, R17W, SEC 12	No	Wildlife	2003	Med
Goat Spring	T11N, R18W, SEC 26	Yes	Wildlife	2003	High
Lamb Spring	T11N, R18W, SEC 33	Yes	Wildlife	1985	Med
Tule Spring	T13N, R18W, SEC 5	Yes	Wildlife	1985	Low
Scott's Well	T14N, R18W, SEC 7	Yes	Mining	1985	Low
Arrastra Well	T14N, R19W, SEC 1	Yes	Stockwater Wildlife	1985	Low
Blacksmith Canyon Spring	T15N, R18W, SEC 32	Yes	Wildlife Stockwater	1984	Low
Burro Spring/Well	T14N, R18W, SEC 9	No	Wildlife Stockwater	1985	Med

Source Name	Location	Developed	Use	Date Assessed	Riparian Value
Cottonwood Spring	T14N, R18W, SEC 8	No	Wildlife	2003	High
Jupiter Spring	T14N, R19W, SEC 19	Yes	Wildlife	2003	Low
Mohave Spring	T13N, R17W, SEC 19	No	Wildlife	2003	Med

Complete List of LHFO Springs (Based on GIS data)

Name	Northing	Easting
Arrastra Well		
Arrowweed Spring	3815320	224327
Bermuda Spring		
Bill Williams Spring		
Blacksmith Canyon Spring		
Box Spring	3909468	183002
Bristol Spring	3795663.23	210455.45
Burnt Spring		
Burro Spring/Well		
Chino Spring	3807395	269284.81
Cottonwood Sp	3828884.36	208969.55
Cottonwood Spring	3746002	289144
Cottonwood Spring	3828863.25	208950.79
Cottonwood Spring	3885336	192075
Dripping Spring	3722969	214447
Dripping Spring	3765441	268365
Flag Spring	3886546	192756
Goat Spring	3795198.48	213294.28
Goat Spring	3795210	213314
Gold Spring	3819416	209432
Gold Spring	3819438.6	209442.52
Grapevine Canyon Spring	3887403	191077
Grapevine Springs	3796170.25	281128.9
Havasu Spring	3798951	212368.9
Jackpot Spring	3842985.5	185085.7
Jackpot Spring	3842995.95	185092.37
Jupiter Spring	3826373.5	208521.09
Jupiter Spring	3826382.15	208551.97
Lamb Spring		
Midway Spring		
Mohave Springs	3816040.59	216574.79
Mohave Springs	3816051.5	216582.29
Mohave Springs	3816115.8	216600.56
Onetto Spring	3882965.75	193191.09
Scott’s Well		
Screwbean Spring	3820096.71	205514.97
Screwbean Spring	3820096	205471
Secret Pass Spring	3893886	189483.5
Seep Spring	3745266	288822
Shancy Spring		
Short Spring		
Silver Creek Spring	3886728	187401
Summit Spring		
Tule Spring		
Tunnel Spring	3748199	288674
Unnamed Spring	3742992	284132.4

Name	Northing	Easting
Unnamed Spring	3744423.25	282080.81
Unnamed Spring	3746746.75	288823.4
Unnamed Spring	3759286.5	235010.29
Unnamed Spring	3787254	203428.79
Unnamed Spring	3792948	263528.9
Unnamed Spring	3795676.25	210428
Unnamed Spring	3796021.5	278629.9
Unnamed Spring	3796021.5	278736.59
Unnamed Spring	3796215.5	281043.59
Unnamed Spring	3796227.75	279679.31
Unnamed Spring	3796254	277837.5
Unnamed Spring	3796498	282233.09
Unnamed Spring	3796507.25	280212
Unnamed Spring	3796550.25	280322.31
Unnamed Spring	3796623	280679.9
Unnamed Spring	3796856.5	262295.59
Unnamed Spring	3805727.25	197509.29
Unnamed Spring	3806895.5	198493.4
Unnamed Spring	3816153	216590.4
Unnamed Spring	3831533.5	175085.4
Unnamed Spring	3833590.75	172866.29
Unnamed Spring	3837883.54	183124.72
Unnamed Spring	3837891.5	183096.09
Unnamed Spring	3867881.5	155725.79
Unnamed Spring	3867918.75	155620.4
Unnamed Spring	3868370.5	155648
Unnamed Spring	3872254.25	159827.59
Unnamed Spring	3882820	193906
Unnamed Spring	3882837	193781.9
Unnamed Spring	3885886	191144.4
Unnamed Spring	3886156.5	187946.5
Unnamed Spring	3893268.25	187343.29
Unnamed Spring	3894900	192910.5
Unnamed Spring	3895209.5	191805.79
Unnamed Spring	3896196	190344.4
Unnamed Spring	3896570.25	192171
Unnamed Spring	3897367.5	187294.79
Unnamed Spring	3897744	190891.59
Unnamed Spring	3899936.5	164780.2
Unnamed Spring	3901907	185170.9
Unnamed Spring	3902496.5	192091.9
Unnamed Spring	3903582.5	192172.7
Unnamed Spring	3903852	191589.4
Unnamed Spring	3905456.75	188064
Unnamed Spring	3905561	188436.4
Whiskey Spring	3886483	191000

Appendix O

Environmental Justice

On February 11, 1994, President William Jefferson Clinton signed Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This order 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/policies on minorities and low-income populations and communities. The Secretary of the Interior established Department of the Interior (DOI) policy under this order in an August 17, 1994 memorandum. This memorandum directs all bureau and office heads to consider the impacts of their actions and inactions on minority and low-income populations and communities, to consider the equity of the distribution of benefits and risks of those decisions, and to ensure meaningful participation by minority and low-income populations in the DOI's wide range of activities where health and safety are involved.

For fulfilling Executive Order 12898 in the context of the National Environmental Policy Act (NEPA), the planning team assessed the alternatives presented in this plan during the planning process. The initial environmental justice screening incorporates two questions to determine if there is an issue to be addressed:

1. Does the potentially affected community include minority and/or low-income populations? To help make this determination guidance is provided by the Environmental Protection Agency. The Interagency Working Group on Environmental Justice (WIG) explains that a minority population may be present if the minority population percentage of the affected area is "meaningfully greater" than the minority population percentage in the general population or other "appropriate unit of geographical analysis."[1] Regarding low-income populations, the 2000 Census identifies the poverty status of individuals and families based upon income and poverty thresholds in effect at the time of the census. This information provides guidance for identifying minority and/or low-income populations within the affected area.
2. Are the human health environmental impacts likely to fall disproportionately on minority and/or low-income members of the community and/or tribal resources? The identification of adverse impacts by itself does not indicate that there is a problem. How potential negative impacts are spatially distributed and/or mitigated is important. The purpose of an environmental justice analysis is not to make sure that all negative impacts are distributed equally but to develop alternatives to mitigate or

[1] Environmental Protection Agency, April 1998.

avoid negative effects to both the population at large and any disproportionately high and adverse effects on minority or low-income communities.

Race and Ethnicity

Table O-1 shows the racial and ethnic distribution of the five counties and some towns of the affected area, the States of Arizona and California, and the nation as a whole. The percentages of population for seven racial groups (as determined by the U.S. Census Bureau) are shown. For the 2000 Census, individuals were allowed to identify themselves as "Some other race" (not specified by the U.S. Census Bureau) or as belonging to "Two or more races." The percentages of total racial minority population are presented. The total racial minority percentage figures are the sum of the other six non-white categories: Black or African American, American Indian and Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races.

In addition, the Hispanic or Latino populations, which comprise a minority ethnic group, are displayed. These figures are not included in the totals to avoid duplicate counting because people of Hispanic or Latino ethnicity may be of any of any race.

The United States and Arizona had minority populations of approximately 25% of their populations in 1999. Hispanics are now the largest minority group in the country at 12.5% of the total population. Hispanics in Arizona made up more than 25% of the State's total. In total, La Paz and Maricopa Counties' minority populations (and Hispanic populations) were very close to Arizona's proportions. However, in La Paz County, 1 out every 8 residents (12.5%) was an American Indian. Mohave and Yavapai Counties were much less diverse, as each county was more than 90% white. Individual towns varied from less than 5% to nearly 45% regarding minority and Hispanic proportions.

In California, the minority population was more than 40%, and Hispanics amounted to almost one-third of the population. San Bernardino County was somewhat similar to California but with a larger proportion of Hispanic residents (39%). Needles had a larger white population at nearly 78% of the town's total.

Table O-2 displays the racial and ethnic distribution for the three American Indian Reservations in the planning area. As expected, the minority populations are proportionally larger than the national, State, or local populations. American Indians make up approximately 43%, 25%, and 54% of the populations of the Chemehuevi, Colorado River, and Fort Mojave Reservations, respectively. Hispanics make up between one-fifth and one-third of the reservations' residents. For two of the three reservations, whites are the largest racial group in residence (Chemehuevi Reservation with 46% and Colorado River Reservation with 54%). Whites make up about 39% of the residents of the Fort Mojave Reservation.

The data indicate that some minority populations are present within the affected area and that they are distributed unevenly at the county level. Analysis at the census tract or block level may be necessary to determine if minority or low income populations are disproportionately affected if adverse human health or environmental effects result from any of the action alternatives.

Table O-1. Population, Race, and Ethnicity (total population and percentage of total population)

Area	Total population	White	Black or African American	American Indian & Alaskan Native	Asian	Native Hawaiian & Other Pacific Islander	Some other race	Two or more races	Total racial minority population[2]	Hispanic or Latino[3]
La Paz County	19,715	74.2	0.8	12.5	0.4	0.1	9.4	2.7	25.8	22.4
Bouse	615	95.6	0.3	1.3	0.2	0.3	0.8	1.5	4.4	4.6
Parker	3,140	62.0	1.9	23.1	0.9	0.2	7.5	4.5	38.0	29.8
Salome	1,690	91.1	0.3	2.7	0.3	0.2	3.1	2.2	8.9	18.5
Wenden	556	84.0	0.0	1.3	0.2	0.0	12.6	2.0	16.0	44.2
Maricopa County	3,072,149	77.4	3.7	1.8	2.2	0.1	11.9	2.9	22.6	24.8
Mohave County	155,032	90.1	0.5	2.4	0.8	0.1	4.0	2.1	9.9	11.1
Bullhead City	33,769	85.6	1.0	1.3	1.0	0.1	8.3	2.8	14.4	20.2
Lake Havasu City	41,938	94.3	0.3	0.7	0.6	0.1	2.5	1.5	5.7	7.9
Yavapai County	167,517	91.9	0.4	1.6	0.5	0.1	3.6	1.9	8.1	9.8
Arizona	5,130,632	75.5	3.1	5.0	1.8	0.1	11.6	2.9	24.5	25.3
San Bernardino Co.	1,709,434	58.9	9.1	1.2	4.7	0.3	20.8	5.0	41.1	39.2
Needles	4,830	77.9	1.6	7.0	1.4	0.1	6.4	5.6	22.1	18.4
California	33,871,648	59.5	6.7	1.0	10.9	0.3	16.8	4.7	40.5	32.4
United States	281,421,906	75.1	12.3	0.9	3.6	0.1	5.5	2.4	24.9	12.5

Source: U.S. Census Bureau, Census 2000 (Figures may not add up to 100% due to rounding.)

[2] Includes Black or African American, American Indian and Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races.
[3] People of Hispanic or Latino ethnicity may be of any of any race. These figures are not counted in the totals to avoid duplicate counting.

Table O-2. Population, Race, and Ethnicity – American Indian Reservations (total population and percentage of total population)

Area	Total Population	White	Black or African American	American Indian and Alaskan Native	Asian	Native Hawaiian and Other Pacific Islander	Some other race	Two or more races	Total racial minority population[4]	Hispanic or Latino[5]
Chemehuevi Reservation	345	45.8	0.3	43.2	0.0	0.0	4.6	6.1	54.2	22.3
Colorado River Reservation, (AZ Part)	7,466	46.0	1.1	30.2	0.5	0.1	18.2	4.0	54.0	37.6
Colorado River Reservation, (CA Part)	1,735	87.8	2.0	2.2	0.7	0.0	5.1	2.1	12.2	7.8
Total: Colorado River Reservation	9,201	53.9	1.3	24.9	0.5	0.1	15.7	3.6	46.1	32.0
Fort Mojave Reservation ***, (AZ part)	773	48.5	0.4	46.6	0.1	0.0	1.9	2.5	51.5	26.3
Fort Mojave Reservation ***, (CA part)	251	5.2	0.0	78.1	0.0	0.0	8.4	8.4	94.8	22.3
Fort Mojave Reservation ***, (NV part)	19	73.7	0.0	15.8	5.3	0.0	0.0	5.3	26.3	10.5
Total: Ft. Mojave Reservation	1,043	38.5	0.3	53.6	0.2	0.0	3.5	3.9	61.5	25.0

Source: U.S. Census Bureau, Census 2000 (Figures may not add to 100 % due to rounding.

[4] Includes Black or African American, American Indian and Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races.
[5] People of Hispanic or Latino ethnicity may be of any of any race. These figures are not counted in the totals to avoid duplicate counting.

Low Income

Several socioeconomic characteristics help describe low-income population groups. Tables O-3 through O-6 display the per capita and median family incomes, percentage of all persons and families living below the poverty level, housing, and unemployment data.

Income data is certainly an indicator of low-income populations. Arizona's per capita income ($20,275) was 89% of the national average of nearly $21,600 in 1999. The State median income of about $46,700 was 88% of the national average ($53,000). This means that the average individual and family in Arizona have 11% to 12% less income than the average American citizen or family.

La Paz County's per capita income was only 74% of the State average, and the median income was 62% of the Arizona figure. Mohave County had about four-fifths of the State averages for these two indicators. Yavapai County was close to the State figures but was still below them. Maricopa County is the only area to have both per capita and median family incomes above the Arizona and national levels. In a state with incomes below the national average, three of the four Arizona counties within the planning area are even worse off. Maricopa County, which is heavily influenced by the Phoenix metropolitan area, is relatively prosperous. However, the part of the county within the Field Office planning area is rural and most likely to have income levels closer to those of the selected towns in La Paz County. The town of Needles, California had per capita and median family incomes lower than the San Bernardino County averages. In addition, the averages for San Bernardino County were much lower than the California and national averages, indicating that this town is a low-income area.

La Paz County and the selected towns within it had higher percentages of persons and families living below the poverty line than the averages for the state of Arizona. Arizona's rates of nearly 14% and 10% for all persons and families were both higher than the averages for the United States (12.4% and 9.2%, respectively). Town rates ranged from 15% to 31%. Mohave County was on par with the State for this indicator, but the figures for Bullhead City and Lake Havasu City indicate that there is some variability within the county. Yavapai and Maricopa Counties were actually better off than the state or the nation regarding poverty. Needles, California had 26% of individuals and 21% of families living below the poverty level in 1999. Areas of poverty and low income are present within the affected region.

The three American Indian Reservations (except for the Nevada part of the Mojave Reservation) are areas of low per capita and median incomes. The per capita incomes are between 41% and 65% of the respective State averages. In addition, the median family incomes are between 18% and 65% of the State averages. Along with these low incomes, the reservations had much higher poverty rates than that of Arizona or nation as a whole (except for the Fort Mohave Reservation, Nevada part, which has only a few residents and zero unemployment). Poverty rates ranged from 18.5% to 34.5% for individuals and 14.6% to 28.3% for families.

Table O-3. Income and Poverty Rate (1999 data)

Area	Income (dollars)		Percent below the poverty level (percentages)	
	Per capita	Median family	Individuals	Families
La Paz County	14,916	29,141	19.6	13.6
Bouse	13,623	27,935	21.0	9.9
Parker	15,016	37,663	14.7	10.6
Salome	12,872	24,805	23.3	16.7
Wenden	11,674	25,208	31.2	25.1
Maricopa County	22,251	51,827	11.7	8.0
Mohave County	16,788	36,311	13.9	9.8
Bullhead City	16,250	33,914	15.1	11.3
Lake Havasu City	20,403	41,393	9.5	6.6
Yavapai County	19,727	40,910	11.9	7.9
Arizona	20,275	46,723	13.9	9.9
San Bernardino Co.	16,856	46,574	15.8	12.6
Needles	15,156	33,264	26.1	21.2
California	22,711	53,025	14.2	10.6
United States	21,587	50,046	12.4	9.2

Source: U.S. Census Bureau, Census 2000

Table O-4. Income and Poverty Rate for American Indian Reservations, 1999

Area	Income (dollars)		Percent below the poverty level (percentages)	
	Per capita	Median family	All persons	Families
Chemehuevi Reservation	13,130	25,000	30.7	22.2
Colorado River Reservation (AZ Part)	12,317	30,605	22.2	17.6
Colorado River Reservation (CA Part)	13,936	26,953	20.3	15.0
Fort Mojave Reservation (AZ part)	13,221	30,104	18.5	14.6
Fort Mojave Reservation (CA part)	9,283	24,688	34.5	28.3
Fort Mojave Reservation (NV part)	52,844	26,875	0	0

Source: U.S. Census Bureau, Census 2000

Labor force and unemployment data are displayed in Table O-5. Counties or towns with higher rates of unemployment than their respective states (e.g., La Paz County and Salome) are more likely to have low-income populations within their boundaries than areas with lower unemployment rates. The three American Indian Reservations (except for parts of the Fort Mojave Reservation) have higher than average unemployment rates. High unemployment is correlated with low-income populations.

Table O-5. Labor Force and Unemployment, 2000[6]

Area	Population 16 years old and over	Civilian labor force	Number unemployed	Unemployment rate (%)[7]
La Paz County	16,134	7,139	572	8.0
Bouse	754	179	11	6.1
Parker	2,244	1,568	134	8.5
Salome	969	314	48	15.3
Wenden	685	299	27	9.0
Maricopa County	2,327,675	1,498,223	70,931	4.7
Mohave County	123,257	65,048	4,531	7.0
Bullhead City	27,092	15,313	992	6.5
Lake Havasu City	34,720	17,496	960	5.5
Yavapai County	136,294	71,714	3,616	5.0
Arizona	3,907,229	2,366,372	133,368	5.6
San Bernardino County	1,214,368	721,185	59,913	8.3
Needles	3,687	1,837	109	5.9
California	25,596,144	15,829,202	1,110,274	7.0
United States	217,168,077	137,668,798	7,947,286	5.8

Source: Source: U.S. Census Bureau, Census 2000

[6] The basic concepts of employment and unemployment are: People with jobs are employed. People who are jobless, looking for work, and available for work are unemployed. People who are neither employed nor unemployed are not in the labor force. Source: Bureau of Labor Statistics

[7] Percent of civilian labor force.

Table O-6. Labor Force and Unemployment on American Indian Reservations 2000

Area	Population 16 years old and over	Civilian labor force	Number unemployed	Unemployment rate (percentage)8
Chemehuevi Reservation	240	141	12	8.5
Colorado River Reservation (AZ part)	5,382	3,249	317	9.8
Colorado River Reservation (CA part)	1,470	527	46	8.7
Colorado River Reservation (Total)	6,852	3,776	363	9.6
Fort Mojave Reservation (AZ part)	507	275	25	9.1
Fort Mojave Reservation (CA part)	181	113	3	2.7
Fort Mojave Reservation (NV part)	16	3	0	0.0
Fort Mojave Reservation (Total)	197	116	3	2.6

Source: Source: U.S. Census Bureau, Census 2000

Substandard housing and unemployment rates are other indicators that can help identify low-income populations. Less than 6% of housing units in the United States are substandard as a result of crowding and less than 1% is substandard due to the lack of complete plumbing facilities (Table O-7). The housing situation in Arizona is somewhat worse than the national averages because 8.6% of housing units are substandard due to crowding and 1.1% fails to have complete plumbing facilities.

Substandard housing is a mixed bag relative to the five-county affected area. For example, Yavapai County compares favorably with the national averages. La Paz, Maricopa, and Mohave Counties are all higher than the national average for substandard housing as a result of crowding, but they are lower than the Arizona average. Substandard housing due to a lack of complete plumbing facilities (at 1.7%) is higher in La Paz County than any of the other Arizona counties. Needles, California is lower in the area of crowding than San Bernardino County or the State of California, but it has a higher percentage of residences lacking complete plumbing facilities. The range of data indicates that there are undoubtedly some areas of low-income persons within the planning area.

[8] Percent of civilian labor force.

Table O-7. Housing 2000

Area	Housing units			
	Total	Total occupied	Percent sub-standard (occupants)[9]	Percent sub-standard (plumbing)[10]
La Paz County	15,133	8,362	6.5	1.7
Bouse	768	433	1.6	2.3
Parker	1,157	1,064	6.3	0.4
Salome	769	497	5.4	0.4
Wenden	554	361	7.5	2.8
Maricopa County	1,250,231	1,132,886	8.5	0.4
Mohave County	80,062	62,809	6.2	0.8
Bullhead City	18,430	13,912	8.8	0.3
Lake Havasu City	22,991	17,889	3.6	0.3
Yavapai County	81,730	70,171	4.2	0.6
Arizona	2,189,189	1,901,327	8.6	1.1
San Bernardino County	601,369	528,594	14.7	0.6
Needles	2,556	1,951	8.5	1.0
California	12,214,549	11,502,870	15.2	0.7
United States	115,904,641	105,480,101	5.7	0.6

Source: Source: U.S. Census Bureau, Census 2000

Table O-8 details the incidence of substandard housing on the three reservations. The high incidence of substandard housing due to crowding on the Arizona portions of the Colorado River and Fort Mojave Reservations is another indication that persons with limited financial resources reside on these reservations.

[9] 1.01 or more occupants per room.
[10] Lacking complete plumbing facilities.

Table O-8. Housing on American Indian Reservations 2000

Area	Housing units			
	Total	Total occupied	Percent sub-standard (occupants)[11]	Percent sub-standard (plumbing)[12]
Chemehuevi Reservation	703	155	2.6	0.0
Colorado River Reservation (AZ Part)	2,956	2,425	9.5	1.4
Colorado River Reservation (CA Part)	2,941	848	2.6	2.9
Fort Mojave Reservation (AZ part)	275	235	9.4	3.0
Fort Mojave Reservation (CA part)	85	81	3.7	0.0
Fort Mojave Reservation (NV part)	32	10	0.0	0.0

Source: Source: U.S. Census Bureau, Census 2000

Glossary

Definitions

These four key terms and definitions (and others), were authored by the Interagency Working Group (created as a requirement of the EO, Section 1-102), are found in the EPA's EJ document *Final Guidance for Incorporating Environmental Justice in EPA's NEPA Compliance Analyses.*

Environmental Justice – The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, local, and tribal programs and policies.

The goal of this "fair treatment" is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

Minority – Individual(s) classified by OMB's Directive No. 15 as Black/African American, Hispanic, Asian and Pacific Islander, American Indian, Eskimo, Aleut, and other non-white persons.

[11] 1.01 or more occupants per room.
[12] Lacking complete plumbing facilities.

Minority Population – Minority populations are identified as either: (1) the minority population of the affected area exceeds 50 %, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Low-Income Population – Persons living below the poverty level based on total income, of $18,244 for a family household of four people (two adults and two children) based on the 2002 official measure of poverty.[13]

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[13] Proctor, Bernadette D. and Joseph Dalaker, U.S. Census Bureau, September 2003.

Appendix P

Socioeconomic Conditions

Introduction

The Lake Havasu Field Office (LHFO) of the Bureau of Land Management (BLM) manages about 1.36 million acres of public national resource lands primarily located in Mohave and La Paz Counties in Arizona. Additional small portions of the planning area are in the adjoining counties of Maricopa and Yavapai in Arizona and San Bernardino County in California. This public land is in west-central Arizona along the Colorado River and Lake Havasu on the Arizona-California border. This semi-arid country lies within the Mohave and Sonoran Deserts. The five counties containing portions of the land managed by the LHFO constitute the affected region for socioeconomic analysis. While these counties cover a large area in Arizona and California, most impacts will occur within the planning area and nearby environs.

The total area of the planning region encompasses nearly 2.1 million acres. Four other Federal agencies manage an additional 60,000 acres of Federal lands, and American Indian Tribal lands account for approximately 176,000 acres. Arizona state lands cover approximately 250,000 acres, and the remaining private lands equal approximately this same amount.

Population

In 2000, Arizona's population of 5.1 million ranked the state the 20th largest in the nation.[1] It accounted for about 1.8% of the people in the United States. California had the largest population, 33.9 million, which was 12.0% of the nation—about 1 in 8 people living in the United States resided in California.

The five-county region itself contains over 5.1 million people (Table P-1). However, most of this population is concentrated in Maricopa and San Bernardino Counties (3.1 million and 1.7 million, respectively). Phoenix, in Maricopa County, is the capital of Arizona and has a population of over 1.3 million. More than 3.2 million live in the Phoenix-Mesa metropolitan area, which is outside of the Field Office's management area. San Bernardino County is the largest county in area in the United States. Most of its population, about

[1] Bureau of Economic Analysis, U.S. Department of Commerce, 2000, Bearfacts 1990–2000, Arizona.

1.2 million of the total, is concentrated in the Ontario-San Bernardino city area in the extreme southwestern corner of the county. Again, these people reside far outside the management area.

Most of the area of concern is within La Paz and Mohave Counties, where the populations are about 19,700 and 155,000, respectively. These counties are much more rural in nature and are characterized by large open spaces with widely spaced small population nodes located along major transportation routes. About one-half of Mohave's people are concentrated in Bullhead City and Lake Havasu City.

Arizona has experienced a 40% increase in population (an annual growth rate of 3.4%) adding more than 1.46 million people during the 1990s. The four Arizona counties have grown at even faster rates. Mohave County led the way with a growth rate of 5.2%, adding over 61,500 to its population. Lake Havasu City had an annual rate of growth of 5.6%, and increasing by more than 17,500 persons.

The United States and California had nearly the same annual growth rates (1.2% and 1.3%, respectively) and increased their populations by about the same proportions (13% to 14%) over the decade. San Bernardino County outpaced these rates and added more than 290,000 people to its population. However, the town of Needles, just inside California on the border with Arizona, actually experienced a loss in population (361 persons or 7% of the 1990 total) during the 1990s. This decrease was unusual, because the other areas listed in Table P-1 all gained population during this time.

Table P-1. Affected Area Population for Counties and Other Selected Areas

Area	1990 Census	2000 Census	% Change 1990 to 2000	Annual % rate of growth
La Paz County, AZ	13,844	19,715	42.4	3.6
Bouse	NA	615	NA	NA
Parker	2,897	3,140	8.4	0.8
Salome	NA	1,690	NA	NA
Wenden	NA	556	NA	NA
Maricopa County, AZ	2,122,101	3,072,149	44.8	3.8
Mohave County, AZ	93,497	155,032	65.8	5.2
Bullhead City	21,951	33,769	53.8	4.4
Lake Havasu City	24,363	41,938	72.1	5.6
Yavapai County, AZ	107,714	167,517	55.5	4.5
Arizona	3,665,228	5,130,632	40.0	3.4
San Bernardino County, CA	1,418,380	1,709,434	20.5	1.9
Needles	5,191	4,830	-7.0	-0.7
California	29,760,021	33,871,648	13.8	1.3
United States	248,709,873	281,421,906	13.2	1.2

na = not available

Source: U.S. Census 2000a and 1990a

Three American Indian Reservations lie within the planning area (Table P-2).[2] Two of the three Reservations gained population during this same period. The largest, the Colorado River Reservation, had a 17% increase, adding more than 1,300 persons. The Fort Mojave Reservation increased by more than one-third or 285 people. The smallest reservation, the Chemehuevi, went against the general growth trend and decreased by 13 persons.

[2] Two of the three reservations are located in more than one State. In 2000, collected data for American Indian Reservations was presented for each segment of a reservation by State.

Table P-2. Population of Selected American Indian Reservations

Area	1990	2000	Change 1990 to 2000	Annual % rate of growth
Chemehuevi Reservation, CA	358	345	-3.6	-0.4
Colorado River Reservation (AZ Part)	NA	7,466	NA	NA
Colorado River Reservation (CA Part)	NA	1,735	NA	NA
Total Colorado River Reservation	7,865	9,201	17.0	1.6
Fort Mojave Reservation (AZ part)	NA	773	NA	NA
Fort Mojave Reservation (CA part)	NA	251	NA	NA
Fort Mojave Reservation (NV part)	NA	19	NA	NA
Total Fort Mojave Reservation	758	1,043	37.6	3.2

na = not available

Source: U.S. Census 2000a & 1990a

Income

The per capita personal income (PCPI[3]) for Arizona ($20,275) was approximately 94% of the national average of $21,588 (Table P-3). La Paz County had the lowest PCPI of the four Arizona counties ($14,917), which was less than 74% of the state average. Maricopa County's PCPI of $22,251 was the highest of the four Arizona counties. It was nearly 110% of the State average and 103% of the national average. The large urban population (Phoenix metropolitan area) and diversity of the economy partially explain the high PCPI. Wenden had the lowest PCPI of all the governmental units displayed in Table P-3 ($11,674, only 58% of the Arizona average). The more rural counties and small towns tend to have lower PCPIs, due in part to the small populations, which support smaller local economies that do not have the diversity or the capability to provide higher-paying job opportunities.

Lake Havasu City is the local exception, with a PCPI just over the Arizona average. Yavapai County (at about 97%) came very close to the State average for 2000. This county had the largest percentage gain and one of the higher rates of increase during the 1990s.

Across the state border in California, the 2000 PCPI of San Bernardino County came in at less than 75% of the California State average of $22,711. The town of Needles was even worse off at only two-thirds of the State average.

[3] Per Capita Personal Income is the total personal income divided by the total population of an area. Personal income includes income from all sources: wages, investments, social security, etc.

Table P-4 displays the PCPI for the three reservations. With one exception, their residents had PCPIs that were much lower than the respective State averages. The California part of the Fort Mojave Reservation had the lowest PCPI of any area, less than $9,300 compared to a national average of nearly $21,600. These low PCPI figures indicate that, for the most part, these American Indian Reservations have depressed economies. However, the Nevada part of the Fort Mojave Reservation has an extraordinary PCPI of more than $52,800. This level is up from a 1990 figure of less than $5,600. The vast difference is due to the development of a gaming casino by the Mojave Tribe at the Aha Macav community in Nevada, which provides substantial income for a relatively few individuals.

Table P-3. Per Capita Personal Income[4]

Area	1990	2000	% Change 1990 to 2000	% of State Average 2000	Average Annual % Rate of Growth
La Paz County, AZ	$9,240	$14,917	61.4	73.6	4.9
Bouse	NA	13,623	NA	67.2	NA
Parker	12,139	15,016	23.7	74.1	2.1
Salome	NA	12,872	NA	63.5	NA
Wenden	NA	11,674	NA	57.6	NA
Maricopa County, AZ	14,970	22,251	48.6	109.7	4.0
Mohave County, AZ	11,933	16,788	40.7	82.8	3.5
Bullhead City	12,486	16,250	30.1	80.1	2.7
Lake Havasu City	14,418	20,403	41.5	100.6	3.5
Yavapai County, AZ	12,657	19,727	55.9	97.3	4.5
Arizona	13,461	20,275	50.6	100.0	4.2
San Bernardino County, CA	13,358	16,856	26.2	74.2	2.4
Needles	11,867	15,156	27.7	66.7	2.5
California	16,409	22,711	38.4	100.0	3.3
United States	$14,420	$21,587	49.7	see below[5]	4.1

na = not available

Source: US Census Bureau 2000c and 1990b

[4] Dollar figures are presented as 1990 dollars and 2000 dollars. The U.S. Census Bureau does not adjust these figures for inflation.

[5] Arizona's PCPI was 93.9% of the national average in 2000. California's 2000 PCPI was 105.2% of the national average.

Table 4. Per Capita Personal Income for American Indian Reservations[6]

Area	1990	2000	% Change 1990 to 2000	% of State Average 2000	Annual % Rate of Growth
Chemehuevi Reservation, CA	$9,506	$13,130	38.1	57.8	3.3
Colorado River Reservation, (AZ Part)	9,377	12,317	31.4	46.2	2.8
Colorado River Reservation, (CA Part)	9,377	13,936	48.6	61.4	4.0
Fort Mojave Reservation (AZ part)	5,590	13,221	136.5	65.2	9.0
Fort Mojave Reservation (CA part)	5,590	9,283	66.1	40.9	5.2
Fort Mojave Reservation (NV part)	$5,590	$52,844	845.3	240.3	25.2

Source: U.S. Census Bureau, Census 1990b and Census 2000c

Table P-5. Total Personal Income[7] (thousands of dollars)

Area	1990	2000	% Change 1990 to 2000	% of State Total 2000	Annual % Rate of Growth
La Paz County, AZ	$221,426	$347,437	56.9	0.3	4.6
Maricopa County, AZ	40,939,514	89,127,883	117.7	68.0	8.1
Mohave County, AZ	1,438,667	2,920,290	103.0	2.2	7.3
Yavapai County, AZ	1,663,557	3,549,755	113.4	2.7	7.9
Arizona	63,319,165	131,046,423	107.0	100.0	7.5
San Bernardino County, CA	24,857,912	37,523,204	51.0	3.4	4.2
California	655,567,167	1,100,679,390	67.9	100.0	5.3
Five-County Region	$9,121,076	$133,468,569	93.1	10.8	6.8

Source: Bureau of Economic Analysis 2001a Bearfacts

[6] Dollar figures are presented as 1990 dollars and 2000 dollars.
[7] Dollar figures are presented as 1990 dollars and 2000 dollars. The Bureau of Economic Analysis does not adjust these figures for inflation.

Total Personal Income (TPI) in the five-county region amounted to more than $133 billion in 2000 (Table P-5).[8] Maricopa County accounted for $89 billion in TPI, 68% of the Arizona total. The three other Arizona counties with much lower populations and smaller local economies accounted for about 5% of the State's total income. La Paz County, with fewer than 20,000 residents, generated less than $0.35 billion. San Bernardino County produced more than 3% ($37.5 billion) of California's TPI of $1,100 billion.

Earnings by Industry

Earnings in the region exceeded $97.6 billion in 2001 (Table P-6)[9]. Diversification across the major industrial sectors characterizes the region's earnings. The chief components of the regional earnings situation were Manufacturing, Local Government, Retail Trade, Professional and Technical Services, Finance and Insurance, and Construction. Each of these sectors accounted for between 7 and 9% of the region's total earnings, and the six sectors combined accounted for nearly 48% of all earnings. Farming, Forestry and Fishing, and Mining provided less than 1% of the region's total earnings. Maricopa County greatly influenced this diversification of the economy, where earnings topped $70.6 billion. San Bernardino County produced a total $23.7 billion in earnings. Local Government, Manufacturing, Health Care and Social Assistance, Retail Trade, and Construction made up 53.6% of the earnings for San Bernardino County. Together, these two counties provided 96.6% of all earnings in the region.

The figures discussed above are somewhat misleading because the Lake Havasu Planning Area is located mostly in La Paz and Mohave Counties, and the economic centers of Maricopa County and San Bernardino Counties are more than 150 miles from the main centers of economic activity (Bullhead City, Lake Havasu City, and Parker) within the planning area. Earnings for La Paz and Mohave Counties were only about $176,500 and $1,425,000, respectively. These two counties account for only 1.6% of the total earnings for the five-county region.

The economy of Mohave County is highly dependent on three sectors, Construction (14.4%), Retail Trade (13.7%), and Health Care and Social Assistance (12.7%). The next most important sector for earnings is Manufacturing, providing 7% of earnings. Farming accounted for less than one-tenth of 1%. The contributions of Forestry and Mining are indeterminate, because a single firm dominates each sector and the Bureau of Economic Analysis does not display such data to avoid disclosure of confidential information, but the estimates for these items are included in the totals.

Yavapai County depends on the same top three sectors as Mojave County for more than one-third of its $1.7 billion of earnings. Farming was an $8.2 million

[8] TPI includes all income including income from wages and salaries, investments, retirement pensions, government transfer payments (such as social security and unemployment insurance), etc.
[9] Earnings are composed of wages, salaries, other labor income, and proprietor's income.

industry for earnings, and Forestry provided only $1.2 million. Mining was worth $45 million, or 2.7% of the total.

The earnings picture for La Paz County was dominated by Local Government (31%), Retail Trade (13.5%), and Farming (8.8%). Total earnings in the county ($176.5 million) were less than 0.2% of the total for the region. Only one business firm represented seven of 24 industry categories. This smallest of the county economies may be the most susceptible to economic impacts because of its small size and because it has only one firm in so many industry sectors.

Employment by Industry

As discussed earlier, two of the five counties in the affected area dominated the employment situation for the region. There were nearly 2,800,000 full- and part-time positions in the region in 2001 (Table P-7). More than 95% of this total (approximately 2,664,000 jobs) was found in Maricopa and San Bernardino Counties. The top sectors providing job opportunities were Retail Trade, Finance and Insurance, Administrative and Waste Services, Local Government, and Construction. These sectors accounted for nearly 40% of the total for the region.

Yavipai County had nearly 72,000 full- and part-time positions. Four of the 24 listed sectors—Retail Trade, Construction, Health Care and Social Assistance, and Accommodations and Food Services—provided almost 43% of the positions. Farming, Forestry, and Mining provided 1,911 jobs, or 3% of the total for the county.

The same four industry sectors provided more than 48% of all positions in Mohave County. Farming had only 324 employees. Again, the contributions of Forestry and Mining are not reported and are indeterminate because a single firm dominates each sector.

The major players in the employment picture for La Paz County are the same as for earnings: Local Government (26.8%), Retail Trade (18.4%), and Farming (5%). The small size of the local economy produced a little more than 7,100 jobs. Mirroring earnings, there was only one business firm in seven of the 24 industry categories.

Unemployment[10]

Generally, the unemployment rates shown have followed the trend of the overall rate for the United States (Table P-8). The Arizona unemployment rate has been very close to the national rate for the period of 1990 to 2002. During this time, Maricopa and Yavapai Counties have been consistently below the average for the state of Arizona. For most of this time, Mohave County experienced higher

[10] The basic concepts of employment and unemployment are: People with jobs are employed, people who are jobless, looking for work and available for work are unemployed, and people who are neither employed nor unemployed are not in the labor force. Source: Bureau of Labor Statistics

unemployment levels than the state as a whole. In 2001 and 2002, the county's unemployment situation improved so the unemployment rate fell below the state average. Until 2002, La Paz County's unemployment situation has consistently been worse than the average for the State. The unemployment rate was as high as 15.6% in 1993; only in 2002 did it fall below the Arizona average. La Paz County is the least populated county, has the smallest economy, and as such is more vulnerable to economic shocks (such as the closing of a large business) that can affect employment and other economic indicators.

Table P-6. Earnings by Industry for 2001 (in thousands of 2001 dollars)

Industry	La Paz County (in $)	% of Total	Maricopa County (in $)	% of Total	Mohave County (in $)	% of Total	Yavapai County (in $)	% of Total	San Bernardino County, CA (in $)	% of Total	Five-County Area (in $)	% of Total
Farming	15,520	8.8	249,355	0.4	468	0.0	8,236	0.5	170,226	0.7	443,805	0.5
Forestry, fishing, and related activities	(D)	NA	56,962	0.1	(D)	NA	1,231	0.1	34,596	0.1	92,789	0.1
Mining	(D)	NA	194,349	0.3	(D)	NA	45,038	2.7	43,318	0.2	282,705	0.3
Utilities	260	0.1	620,542	0.9	15,255	1.1	5,715	0.3	227,004	1.0	811,998	0.8
Construction	4,808	2.7	6,435,447	9.1	205,544	14.4	199,910	11.9	1,927,599	8.1	6,880,305	7.0
Manufacturing	8,845	5.0	8,502,964	12.0	100,224	7.0	105,053	6.2	2,685,462	11.3	8,760,404	9.0
Wholesale trade	3,575	2.0	4,630,321	6.6	33,623	2.4	85,716	5.1	1,199,258	5.1	4,980,239	5.1
Retail trade	23,898	13.5	5,684,046	8.0	195,851	13.7	177,229	10.5	2,131,853	9.0	8,008,623	8.2
Transportation and warehousing	3,942	2.2	2,307,138	3.3	38,612	2.7	32,713	1.9	1,363,084	5.7	5,067,867	5.2
Information	2,464	1.4	2,253,481	3.2	39,028	2.7	24,171	1.4	414,974	1.8	3,518,402	3.6
Finance and insurance	1,454	0.8	5,700,922	8.1	38,192	2.7	50,953	3.0	705,089	3.0	6,990,779	7.2
Real estate and rental and leasing	3,124	1.8	2,030,373	2.9	25,363	1.8	40,636	2.4	613,964	2.6	4,231,349	4.3
Professional and technical services	2,848	1.6	5,922,363	8.4	78,682	5.5	67,558	4.0	940,849	4.0	7,434,535	7.6
Management of companies and enterprises	0	0.0	1,146,006	1.6	5,162	0.4	1,314	0.1	339,371	1.4	1,567,456	1.6
Administrative and waste services	3,120	1.8	4,647,630	6.6	47,973	3.4	52,331	3.1	1,023,010	4.3	5,456,143	5.6
Educational services	(D)	NA	629,860	0.9	6,181	0.4	42,033	2.5	224,228	0.9	1,292,038	1.3
Health care and social assistance	(D)	NA	5,623,944	8.0	180,561	12.7	192,637	11.4	2,328,302	9.8	6,336,513	6.5
Arts, entertainment, and recreation	(D)	NA	996,579	1.4	11,747	0.8	18,028	1.1	131,490	0.6	2,049,364	2.1
Accommodations and food services	(D)	NA	2,740,546	3.9	78,764	5.5	109,839	6.5	748,293	3.2	3,952,159	4.0
Other services, except public administration	(D)	NA	1,768,803	2.5	62,090	4.4	62,824	3.7	840,438	3.5	2,117,945	2.2
Federal Government, civilian	8,849	5.0	1,290,391	1.8	31,471	2.2	74,495	4.4	656,498	2.8	3,764,127	3.9
Federal Government, military	648	0.4	443,346	0.6	5,431	0.4	6,407	0.4	791,865	3.3	613,362	0.6

Industry	La Paz County (in $)	% of Total	Maricopa County (in $)	% of Total	Mohave County (in $)	% of Total	Yavapai County (in $)	% of Total	San Bernardino County, CA (in $)	% of Total	Five-County Area (in $)	% of Total
State Government	2,356	1.3	1,745,185	2.5	(D)	NA	(D)	NA	515,382	2.2	2,262,923	2.3
Local Government	54,674	31.0	5,020,636	7.1	(D)	NA	(D)	NA	3,650,715	15.4	8,726,025	8.9
Total	176,506	100.0	70,641,189	100.0	1,424,711	100.0	1,684,772	100.0	23,706,868	100.0	97,634,046	100.0

(D) = Estimates not shown to avoid disclosure of confidential information. Estimated values are not included in the row totals but are included in column totals.
na = not available

Source: Bureau of Economic Analysis 2001b.

Table P-7. Employment by Industry for 2001 (number of full- and part-time jobs)

Industry	La Paz County	% of Total	Maricopa County	% of Total	Mohave County	% of Total	Yavapai County	% of Total	San Bernardino County, CA	% of Total	Five-County Area	% of Total
Farming	354	5.0	7,573	0.4	324	0.6	739	1.0	5,257	0.7	14,247	0.5
Forestry, fishing, and related activities	(D)	NA	3,197	0.2	(D)	NA	180	0.3	1,519	0.2	4,896	0.2
Mining	(D)	NA	2,984	0.2	(D)	NA	1,228	1.7	990	0.1	5,202	0.2
Utilities	15	0.2	7,723	0.4	300	0.5	149	0.2	3,682	0.5	13,444	0.5
Construction	201	2.8	152,110	7.9	6,767	12.0	7,589	10.6	49,057	6.6	168,186	6.0
Manufacturing	292	4.1	157,470	8.2	3,350	5.9	3,309	4.6	72,272	9.8	165,411	5.9
Wholesale trade	103	1.4	86,300	4.5	1,122	2.0	2,364	3.3	28,951	3.9	93,571	3.3
Retail trade	1,314	18.4	218,347	11.3	9,524	16.9	9,142	12.8	91,382	12.3	287,384	10.3
Transportation and warehousing	144	2.0	60,321	3.1	1,342	2.4	1,412	2.0	38,149	5.2	135,491	4.8
Information	61	0.9	46,885	2.4	938	1.7	876	1.2	10,310	1.4	77,711	2.8
Finance and insurance	68	1.0	130,221	6.8	1,566	2.8	2,175	3.0	24,004	3.2	225,412	8.1
Real estate and rental and leasing	315	4.4	93,041	4.8	2,917	5.2	4,084	5.7	27,492	3.7	138,506	4.9
Professional and technical services	168	2.4	124,523	6.5	1,892	3.4	3,063	4.3	28,429	3.8	139,956	5.0
Management of companies and enterprises	0	0.0	18,253	0.9	173	0.3	65	0.1	7,222	1.0	42,495	1.5
Administrative and waste services	98	1.4	186,382	9.7	2,588	4.6	3,586	5.0	53,828	7.3	220,146	7.9
Educational services	(D)	NA	20,860	1.1	301	0.5	1,649	2.3	9,684	1.3	51,239	1.8
Health care and social assistance	(D)	NA	145,760	7.6	5,693	10.1	6,914	9.6	66,042	8.9	165,589	5.9
Arts, entertainment, and recreation	(D)	NA	35,845	1.9	929	1.6	1,651	2.3	11,280	1.5	92,253	3.3
Accommodations and food services	(D)	NA	139,419	7.2	5,274	9.3	6,876	9.6	46,667	6.3	161,253	5.8
Other services, except public administration	(D)	NA	85,812	4.5	3,632	6.4	4,017	5.6	41,578	5.6	159,503	5.7
Federal Government, civilian	143	2.0	19,063	1.0	502	0.9	1,168	1.6	10,317	1.4	35,286	1.3
Federal Government, military	44	0.6	13,325	0.7	364	0.6	400	0.6	19,196	2.6	60,938	2.2
State Government	63	0.9	44,039	2.3	(D)	NA	(D)	NA	11,332	1.5	55,434	2.0

Industry	La Paz County	% of Total	Maricopa County	% of Total	Mohave County	% of Total	Yavapai County	% of Total	San Bernardino County, CA	% of Total	Five-County Area	% of Total
Local Government	1,909	26.8	124,617	6.5	(D)	NA	(D)	NA	81,965	11.1	208,491	7.4
Total	7,124	100.0	1,924,070	100.0	56,449	100.0	71,659	100.0	740,605	100.0	2,799,907	100.0

(D) = Estimates not shown to avoid disclosure of confidential information. Estimated values are not included in the row totals but are included in column totals.
na = not available Source: Bureau of Economic Analysis 2001b.

California's unemployment rate was higher than the national average for the period shown. San Bernardino County's rates closely followed the state averages and ranged from a low of 4.7% in 2000 to a high of 9.8% in 1993. Since 2000, there has been an upward trend in unemployment for all areas displayed, except for La Paz County. This trend is consistent with the overall job losses experienced throughout the country after the collapse of the technology bubble and the subsequent recession.

It is also important to note that while unemployment rates may be high or low, they do represent the numbers of people who are out of work and actively seeking jobs (Table P-9). Even though La Paz County had the highest rates of unemployment, these rates represented hundreds of folks out of work, while the other counties with lower rates had thousands and tens of thousands of unemployed workers seeking suitable positions.

Table P-8. Unemployment Rate (percent of total)

Year	La Paz County	Maricopa County	Mohave County	Yavapai County	Arizona	San Bernardino County	California	United States
2002	5.5	5.6	5.5	3.7	6.2	5.7	6.7	5.8
2001	6.4	3.9	4.5	3.0	4.7	4.8	5.4	4.7
2000	7.5	2.7	4.2	2.8	4.0	4.7	4.9	4.0
1999	8.1	3.0	4.6	3.4	4.4	4.8	5.2	4.2
1998	8.3	2.7	4.3	3.3	4.1	5.6	5.9	4.5
1997	9.5	3.0	5.3	4.0	4.6	6.3	6.3	4.9
1996	11.4	3.6	7.2	4.8	5.5	7.3	7.2	5.4
1995	10.4	3.4	6.7	4.8	5.1	7.9	7.8	5.6
1994	13.9	4.7	8.7	5.4	6.4	8.6	8.6	6.1
1993	15.6	5.0	9.4	5.4	6.3	9.8	9.4	6.9
1992	14.0	6.5	9.5	7.2	7.6	9.6	9.3	7.5
1991	8.7	5.0	6.5	5.2	5.8	8.2	7.7	6.8
1990	7.0	4.5	5.0	4.7	5.5	5.6	5.8	5.6

Source: Bureau of Labor Statistics

Table P-10 displays the employment/unemployment situation for the three American Indian Reservations for 2000. The range of unemployment rates was between 7.2% and 9.6%. Only La Paz County had a rate within this range in 2000. Rates were 3 to 6 percentage points lower in the other geographic areas.

Table P-9. Number of Persons Unemployed

Year	La Paz County	Maricopa County	Mohave County	Yavapai County	Arizona	San Bernardino County	California	United States
2002	390	96,319	4,084	2,947	164,757	48,460	1,160,895	8,378,000
2001	430	65,063	3,225	2,213	121,418	39,271	922,492	6,801,000
2000	544	42,568	2,883	2,027	98,449	37,404	835,541	5,692,000
1999	587	47,186	3,066	2,417	109,930	35,955	853,319	5,880,000
1998	586	40,391	2,675	2,299	98,233	40,491	957,178	6,210,000
1997	683	42,773	3,263	2,665	106,230	44,694	994,398	6,739,000
1996	801	52,342	4,593	3,158	126,839	49,470	1,109,742	7,236,000
1995	698	47,667	4,185	3,178	115,316	53,338	1,195,502	7,404,000
1994	853	60,174	5,008	3,336	133,936	57,777	1,314,534	7,996,000
1993	822	58,134	4,860	2,967	120,365	66,195	1,428,893	8,940,000
1992	764	74,507	4,616	3,702	142,685	64,107	1,424,095	9,613,000
1991	459	55,958	2,992	2,440	104,482	52,560	1,168,524	8,628,000
1990	388	50,426	2,274	2,133	99,036	35,692	872,849	7,047,000

Source: Bureau of Labor Statistics

Table P-10. Employment and Unemployment on the Reservations for 2000

American Indian Reservation	Civilian Labor Force	# of People Unemployed	Unemployment Rate (%)
Chemehuevi Reservation, CA	141	12	8.5
Colorado River Reservation (AZ part)	3,249	317	9.8
Colorado River Reservation (CA part)	527	46	8.7
Colorado River Reservation (all parts)	3,776	363	9.6
Fort Mojave Reservation (AZ part)	275	25	9.1
Fort Mojave Reservation (CA part)	113	3	2.7
Fort Mojave Reservation (NV part)	3	--	0.0
Fort Mojave Reservation (all parts)	391	28	7.2

Source: U.S. Census Bureau, Census 2000

Poverty

For the most part, poverty rates for the counties and states followed the general trends of the national rate. During the time displayed, the poverty rates for Arizona and California have been higher than the national averages, except for California in 1989 (Table P-11). Maricopa County was better off because its poverty rates were much lower than Arizona's and lower than the nation's for the years shown, except for 1993. Even so, these rates represented between 257,000 and 380,000 people living below the poverty level (Table P-11). Yavapai County's poverty rates were lower than the Arizona average for all years. These rates meant that between 14,000 people in 1989 and 20,500 people in 1997 had been living with fiscal resources that were below the poverty level.

Mohave County started the decade with lower than State averages for its poverty rates. Since 1995, this county's rates were higher than the State averages. The number of persons living in poverty rose from a low of 13,000 in 1989 to nearly 24,300 in 2000.

La Paz County has had the fewest number of people in poverty, less than 4,000 for each year, simply because it had a much smaller population. Proportionally, the county's residents had the highest poverty rates for each year (rates ranged from 17% to 28%). Between 1 in 5 and 1 in 4 persons suffered in poverty for more than a decade, while the national average was about 1 in 8.

Table P-11. Estimated Percent of People Living in Poverty

Year	La Paz County	Maricopa County	Mohave County	Yavapai County	Arizona	San Bernardino County	California	United States
2000	20.7	10.2	15.4	12.0	12.5	15.0	12.7	11.3
1999	17.3	10.7	15.1	11.6	12.8	16.0	13.7	11.9
1998	24.1	12.0	18.0	13.3	14.9	17.0	14.9	12.7
1997	24.3	12.7	17.6	13.8	15.5	17.9	16.0	13.3
1995	24.4	13.8	16.4	13.6	16.3	16.5	16.5	13.8
1993	26.4	16.0	17.7	15.0	18.5	17.5	17.4	15.1
1989	28.2	12.3	14.2	13.6	15.7	12.7	12.5	13.1

Source: U.S. Census Bureau

Table P-12 reveals the poverty situation, for the year 2000, on the three reservations. Overall, more than 20% of the Indian people on the reservations were living below the poverty level. For the Chemehuevi Reservation, the figure was more than 30%.

Table P-12. Estimated Number of People Living in Poverty

Year	La Paz County	Maricopa County	Mohave County	Yavapai County	Arizona	San Bernardino County	California	United States
2000	3,995	322,120	24,294	20,372	646,762	257,613	4,304,909	31,581,086
1999	3,353	323,288	23,194	19,040	643,045	266,866	4,562,089	32,791,272
1998	3,578	344,304	24,222	20,325	710,652	281,987	4,917,053	34,475,762
1997	3,633	355,924	23,184	20,549	720,713	291,442	5,195,477	35,573,858
1995	3,623	362,298	20,845	19,115	722,660	261,189	5,215,575	36,424,609
1993	3,774	379,587	20,791	19,145	757,556	272,047	5,428,276	39,264,811
1989	3,875	257,359	13,049	14,308	564,362	174,727	3,627,585	31,742,864

Source: U.S. Census Bureau

Table P-13. Poverty on Indian Reservations for 2000

American Indian Reservation	Population	Number Below Poverty Level	Percent Below Poverty Level
Chemehuevi Reservation, CA	345	100	30.7
Colorado River Reservation (AZ Part)	7,466	1,590	22.2
Colorado River Reservation (CA Part)	1,735	349	20.3
Colorado River Reservation (all parts)	9,201	1,939	21.1
Fort Mojave Reservation (AZ part)	773	133	18.5
Fort Mojave Reservation (CA part)	251	95	34.5
Fort Mojave Reservation (NV part)	19	0	0.0
Fort Mojave Reservation (all parts)	1,043	228	21.9

Source: U.S. Census Bureau, Census 2000

Economic Impact of Public Lands

More than 88% of the land within the planning area is in public ownership (Federal 67.6%, State 11.9%). Only 12% is in private ownership. Local governments and Tribal reservations account for the rest. Grazing, mining, and recreation in the planning area are dependent to some extent upon public lands (and waters) and access to these resources. See table in RMP/EIS chapter 1, “Land Status/Ownership” for a breakdown of acreage and percentage.

Payments in Lieu of Taxes

The Federal government makes Payments in Lieu of Taxes (PILT) to local governments (usually counties) to assist in the financing of local public services. Many counties, especially in the West, have large areas of Federal ownership, which are not subject to local property taxes. Financing essential services (e.g., fire and police protection, schools, roads, and search and rescue) is difficult because of the reduced tax base due to this Federal ownership. To make up for the reduced tax base, Congress appropriates PILT each year. These payments are made for tax-exempt land administered by the Bureau of Land Management (BLM), National Park Service, U.S. Fish and Wildlife Service, and U.S. Forest Service for Federal water projects and some military installations. The payment amounts are determined based on the amount of Federal land in each county and additional criteria. About $218 million was distributed to 49 States plus the District of Columbia, Guam, Puerto Rico, and the Virgin Islands in fiscal year 2003.

Table P-14 shows the payments made to the five counties from 1999 to 2003. These funds are for all Federal land in each of the counties. In 2003, the BLM administered about 68% of the total Federal land in the four Arizona counties, but not all of this BLM land was in the Lake Havasu Field Office planning area. In addition, the Lake Havasu Field Office manages a relatively small amount of Federal land in San Bernardino County, California. Therefore, the amount of the PILT due to the land area administered by the Lake Havasu Field Office is actually less than that shown here.

Table P-14. Payments in Lieu of Taxes (for fiscal years) (in dollars)[11]

County/State	2003	2002	2001	2000	1999
La Paz County, AZ	1,008,984	879,228	837,591	473,763	448,830
Maricopa County, AZ	1,725,495	1,539,003	1,465,414	1,019,264	969,069
Mohave County, AZ	1,818,201	1,584,701	1,509,613	1,052,149	996,910
Yavapai County, AZ	1,359,624	1,473,737	1,417,178	973,796	879,521
San Bernardino County, CA	1,690,621	1,530,275	1,433,507	990,375	947,089

Source: Bureau of Land Management

Disposal and Acquisition of Public Lands

The BLM Lake Havasu Field Office encompasses nearly 1.36 million acres of public lands within the 2.1million-acre planning area. Over the years, relatively small portions of the BLM managed lands have gone over to State, local government, other Federal agency, and private ownership/control. Other Federal agencies also manage lands and waters within the planning area (nearly 60,000 acres). Three American Indian Reservations amounting to over 179,000 acres (8.5%) are included in the planning area. State land amounts to nearly 250,000 acres (11.9%). Privately owned lands account for nearly 251,000 acres or about 12% of the planning area.

In the process of converting some of the public estate to other public and private ownership entities, a fractured or "checkerboard" land-ownership pattern has resulted. Often, inholdings of State or private land are surrounded by BLM land, and vice-versa. In some instances, surface and subsurface rights are held by separate entities. Sometimes these situations make efficient resource management difficult if not impossible. To facilitate resource management, the BLM will consider land exchanges with private landowners and the State of Arizona (State). However, the BLM will not exchange land with the State until the State's Constitution is amended so that the State can legally exchange its land for other Federal land.

Table 2-9 Land Disposals (Land Use Allocations) lists approximately 51,949 acres of Federal land available for disposal and approximately 65,608 acres of non-Federal lands identified for acquisition. To facilitate the disposal and acquisition of lands, this RMP provides a framework and guidance that ensures that the process and results are in the best interests of the general public.

[11] Dollar figures are not adjusted for inflation. The figure for 2003 is in 2003 dollars, the figure for 2002 is in 2002 dollars, and so on.

Table P-15. Acquisition and Disposal of Public Lands[12]

Item	Acquisition acres	Disposal acres	Current Ownership	Purpose
148	2,746		NA	Protect important cultural resources
151		15,751	Federal	Available for disposal
154	14,750		NA	Benefit Federal programs, open for mineral entry and development
155	13,632		Private	Benefit Federal programs
156		11,974	Federal	Community development, mine expansion, industrial development, etc.
164	2,360		State	Acquire lands high in resource value
	8,040		Private	
170	1,720 to 5,440		Private	Expand the Bill Williams Riparian Management Area
171	3,120		Private	Close to mineral entry
173	8,280		State and private	Acquire additional lands within priority wildlife areas
174	7,240		Private	Desert tortoise habitat
175		4,944	State, private, and Federal	Consolidate mineral rights and surface rights
Not listed in Scoping Report The LGNMFP recommends approximately (LR-D21)		19,280		For disposal
Total	65,608	51,949		

na = not available
Source: Bureau of Land Management

[12] Lake Havasu Field Office, Resource Management Plan, Scoping Report, August 2002. Appendix A – Existing Land Use Planning Decisions.

Livestock Grazing

In four of the five counties in the affected area, farming (including ranching) accounted for less than 1% of total industry earnings and 1 or less percent of total jobs. In Maricopa County, earnings for agriculture amounted to about $250 million and provided nearly 7,600 jobs in 2001. These numbers appear large until they are compared to the county's total earnings of $70.6 billion and 1.9 million jobs. La Paz, the most sparsely settled county in the affected area, is the only county where agriculture was somewhat important on a countywide basis. Farming provided more than $15.5 million in earnings (almost 9% of the total) and employed more than 350 persons (5% of all employees).

In 1997, 3,860 farms covering more than 3.68 million acres were in operation in the affected area (Table P-16). The four counties in Arizona had 2,405 farms on more than 2.75 million acres. However, both the number of farms and the land in use declined during the period of 1987 to 1997. The number of farms decreased by more than 1,200 (24%) and the acreage decreased by more than 3.89 million acres (51%). Maricopa County had the largest number of farms go out of production (691 or 67%). Yavapai County had the greatest reduction in acreage at 1.59 million acres or 30%.

Table P-16. Farm Numbers and Land in Farms

County	Number of farms in operation 1987	Land in farms 1987 acres	Number of farms in operation 1997	Land in farms 1997 acres	Change in number of farms 1987–1997	Change in land in farms 1987–1997 (acres)
La Paz, AZ	109	226,954	97	278,854	(12)	51,900
Maricopa, AZ	2,334	1,391,456	1,643	708,656	(691)	(682,800)
Mohave, AZ	236	1,906,756	212	997,171	(24)	(909,585)
Yavapai, AZ	484	2,358,559	453	771,632	(31)	(1,586,927)
San Bernardino, CA	1,938	1,682,364	1,455	924,015	(483)	(758,349)
Total	5,101	7,566,089	3,860	3,680,328	(1,241)	(3,885,761)

Note: Parenthesis (xxx) indicates negative numbers.
Source: USDA National Agricultural Statistics Service

The Field Office currently provides 17 grazing allotments used by various ranch enterprises. La Paz and Mohave Counties contain most of the planning area and had 309 farms in production in 1997. Not all of the 17 grazing allotments are used each year due to the lack of sufficient rainfall necessary to produce usable forage. Table P-17 shows the receipts received by the Federal Government from grazing fees. A percentage of these receipts is returned to the counties for rangeland improvements.

Given the uncertainty that surrounds farm and ranch operations in the arid West, these grazing rights can be an important part of those firms' operations and could be the difference between a profitable ranch and an unprofitable one.

Table P-17. Grazing Fees Received[13]

Year	Number of grazing allotments used out of 17 available	Fees Received
2003	9	$7,716.60
2002	7	7,846.41
2001	6	6,463.80
2000	8	6,667.65
1999	7	5,336.55
1998	7	7,173.90
1997	7	6,760.80
1996	10	9,981.90
1995	8	8,772.89
1994	7	7,605.18
1993	7	8,353.26
1992	6	9,406.08
1991	6	6,246.87
1990	6	$9,703.41

Source: Bureau of Land Management

Table P-18 shows the income and expenses for farming and ranching in the five-county affected area for 2000. Livestock and related products production accounted for only 1% of total gross income from farming in La Paz County. For Mohave County, this category provided 38% of gross income. At the other end of the income range, in Yavapai County, 92% of gross income came from livestock. Maricopa County had the largest gross income, about $759 million, and the largest net income (profit) at more than $68 million. In addition to income from livestock and crops, other sources (e.g., government payments) and rents provided between 3% and 39% of gross income. In Mohave County, government payments accounted for 7% of gross income and rents provided 32%. Agriculture is an inherently risky enterprise. In 2000, farming and ranching activities resulted in a net loss of $4.3 million in Mohave County. San Bernardino County had the second-largest gross income ($628 million) and the second-largest net income ($39 million).

[13] Dollar figures are not adjusted for inflation. The figure for 2003 is in 2003 dollars, the figure for 2002 is in 2002 dollars, and so on.

Table P-18. Gross Income, Expenses, and Net Income From Farming and Ranching – 2000 (in thousands of 2000 dollars)

	La Paz County, AZ		Maricopa County, AZ		Mohave County, AZ		Yavapai County, AZ		San Bernardino County, CA	
	2000 (thousand $)	% of gross income	2000 (thousands $)	% of gross income	2000 (thousands $)	% of gross income	2000 (thousands $)	% of gross income	2000 (thousands $)	% of gross income
Gross Income (cash + other)	112,515		759,184		18,458		52,824		628,047	
Cash receipts	97,469	87	667,318	88	11,297	61	50,236	95	610,888	97
Livestock and products	655	1	380,836	50	7,103	38	48,484	92	530,579	84
Crops	96,814	86	286,482	38	4,194	23	1,752	3	80,309	13
Other income	15,046	13	91,866	12	7,161	39	2,588	5	17,159	3
Government payments	5,789	5	41,159	5	1,279	7	329	1	4,899	1
Imputed rent & rent received	9,257	8	50,707	7	5,882	32	2,259	4	12,260	2
Production Expenses	96,520		692,057		22,899		43,701		591,278	
Realized net income (Income – Expenses)	15,995		67,127		(4,441)		9,123		36,769	
Value of inventory change	564	1	1,010	0	184	1	603	1	2,385	0
Total net income (including corporate farms)	16,559		68,137		(4,257)		9,726		39,154	

Source: Economic Profile System, April 2004. Population, Employment, Earnings, and Personal Income Trends

Table P-19 shows the combined figures for La Paz and Mohave Counties. These 2 counties represent most of the Planning Area. Total net income is $12.3 million, but farming/ranching enterprises in Mohave County lost more than $4.2 million in 2000.

Table P-19. Gross Income, Expenses, and Net Income From Farming and Ranching – 2000 (in thousands of 2000 dollars)

Item	La Paz and Mohave Counties, AZ	
	2000 $	% of Gross income
Gross Income (cash + other)	130,973	100.0
Cash receipts	108,766	83.0
Livestock and products	7,758	5.9
Crops	101,008	77.1
Other income	22,207	17.0
Government payments	7,068	5.4
Imputed rent & rent received	15,139	11.6
Production Expenses	119,419	91.2
Realized net income (Income - Expenses)	11,554	8.8
Value of inventory change	748	0.6
Total net income (including corporate farms)	12,302	9.4

Source: Economic Profile System, April 2004. Population, Employment, Earnings, and Personal Income Trends.

Minerals

Mining activities within the affected area are a very small part of the overall economy in each of the counties (Table P-20). Yavapai County is the only county where employment and income from mining is greater than 1% (but less than 2%) of the total in 2000. Obviously, for those employed or otherwise associated with mining, this industry is an important source of employment (5,129 jobs) and income (about $195 million). Since 1970, employment in the mining industry increased by approximately 92% (2,451 jobs) and income grew by 74% ($83 million), as shown in Table P-21.

Table P-20. Mining – Employment and Income (in 2000 dollars)

County	Employment		Income	
	# of jobs	% of total jobs	(Millions of dollars)	% of total income
La Paz, AZ	5	0.1	*	0.0
Maricopa, AZ	2,899	0.2	102	0.1
Mohave, AZ	149	0.3	5	0.2
Yavapai, AZ	1,236	1.7	46	1.3
San Bernardino, CA	840	0.1	42	0.1

* Less than $0.5 million

Source: Economic Profile System, April 2004. Population, Employment, Earnings, and Personal Income Trends.

Table P-21. Mining – Employment and Income (in 1970 dollars)

County	Employment		Income	
	# of jobs	% of total jobs	(Millions of dollars)	% of total income
La Paz, AZ *	1	0.0	**	0.0
Maricopa, AZ	464	0.1	21	0.1
Mohave, AZ	525	5.6	21	4.8
Yavapai, AZ	838	6.7	32	5.2
San Bernardino, CA	850	0.3	38	0.3

*1984 data ** Less than $0.5 million

Source: Economic Profile System, April 2004. Population, Employment, Earnings, and Personal Income Trends.

Recreation and Tourism

Recreation is becoming more and more important in the West. Many communities are moving away from a local economy that was once based and highly reliant upon extractive, resource dependent industries that were subject to “boom” and “bust” cycles (e.g., mining and timber) to a more service-oriented economy, which includes growing and more sustainable recreation and tourism oriented enterprises. Many more rural counties and local communities are experiencing economic growth because of the nearby recreational amenities such as state parks, National Parks, National Forests, National Wildlife Refuges, lakes, reservoirs, rivers, streams, other public lands (e.g., BLM managed areas), and waters with available access for recreation. Visitors to popular recreational areas depend upon nearby communities for visitor services and recreational supplies, particularly food and lodging.

Recreation and tourism are important economic activities, especially for the communities along the Colorado River and Lake Havasu. The Colorado River, Lake Havasu, Lake Havasu National Wildlife Refuge, and Lake Havasu State Park are primary water-oriented attractions in the region. The Lake Havasu City Chamber of Commerce estimates that the city receives 1.5 million visitors annually. Bullhead City and Parker are other local communities that capitalize on their locations on the water to promote outdoor recreation and the economic activity associated with it. These local communities have a variety of enterprises providing food, lodging, lake tours, marine rentals/sales and service, and many other recreational support goods and services.

Tourism spending contributes to a number of the industrial sectors displayed in Tables P-6 and P-7. The two sectors most directly associated with tourism are Arts, Entertainment, Recreation, and Accommodations and Food Service. In 2001, the Arts, Entertainment, and Recreation sector of the regional economy accounted for $2.0 billion in earnings, or 2.1% of the total for the five-county area. This sector provided over 92,250 jobs, which was 3.3% of the total. The Accommodations and Food Services sector provided almost $4.0 billion in earnings, 4.0% of the region's total earnings. The more than 161,250 positions in this sector made up 5.8% of the region's total jobs. In Mohave County, these two sectors provided 11% of the jobs and 6.3% of the earnings. Retail Trade is another sector of the economy that is somewhat associated with tourism. Certainly, spending by visitors for retail sales of souvenirs and other items such as sporting goods and some clothing contribute as part of the tourism related economy.

Besides being an area associated with water-oriented recreation, the planning area provides extensive areas for land-based recreation. Off-highway vehicle (OHV) use is a growing recreational activity that largely depends upon access to public lands in the planning area. On the national resource lands managed by the BLM, OHV use is limited to existing roads and trails (on 563,478 acres) except for two designated open areas (2,603 acres) located on the Parker Strip. An additional 41,073 acres with designated trails is available for OHV use. Other areas, such as the five wilderness areas, are closed year-round to OHVs. Some areas critical to wildlife have seasonal closures. One designated racecourse, the Parker 400, is open to competitive, commercial OHV events.

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Appendix Q
Parker Dam

Parker Dam spans the Colorado River between the states of Arizona and California 17miles northeast of the town of Parker, Arizona. The dam was constructed between 1934 and 1938 by the Department of Interior's United States Bureau of Reclamation. The construction of Parker Dam formed a reservoir, Lake Havasu, which is about 45 miles long and covers 29,390 acres. Lake Havasu may store up to a total of 619,400 acre-feet, of which 28,600 acre-feet is dead storage to the maximum elevation of 650.0 feet. Parker Dam is the last dam on the Colorado River that has a significant storage capacity and is managed to release water for downstream requirements below Parker. Therefore, water releases downstream must be scheduled carefully to meet the requirements for irrigation and similar uses without waste. Releases are within the limits of flood control requirements for river regulation, which may cause minor fluctuations in the available storage.

Two other main purposes that Parker Dam achieves under normal lake fluctuations are to provide separate forebays from which water can be diverted by the Metropolitan Water District (MWD) and the Central Arizona Project. The water diverted by the MWD's Whitset Pumping Plant lifts water into the Colorado River Aqueduct and is eventually delivered to the Southern California area. The Whitset Pumping Plant is located 2 miles upstream from Parker Dam on the California side of Lake Havasu. The Central Arizona Project's (CAP) Mark Wilmer Pumping Plant is located two miles upstream from Parker Dam on the Arizona side of Lake Havasu. The water diverted by the Mark Wilmer pumping plant is lifted into the Hayden-Rhodes Aqueduct. The CAP began pumping water from Lake Havasu into the Hayden-Rhodes Aqueduct in 1985. It has a capacity for delivery to water users in central and southern Arizona.

Parker Dam is one of the deepest dams in the world; 73% of its structural height of 320 feet is below the original riverbed. About 85 feet of the dam is visible. The dam's superstructure rises another 62 feet above the roadway across the top of the dam. Parker Powerplant is located on the California side of the Colorado River immediately below the dam. It houses four hydroelectric generating units, each of which may produce 30,000 kilowatts of hydroelectric power. Four 22-foot-diameter penstocks carry up to 5,500 cubic feet per second (cfs) each to feed the generating units. Fifty percent of the plant's power output is reserved for MWD's use to pump water along the Colorado River Aqueduct to the Pacific coast. The Western Area Power Administration (WAPA) accomplishes marketing power. WAPA is a Department of Energy agency. Under an

agreement between the Bureau of Reclamation and MWD, the latter agency financed essentially the entire cost of constructing Parker Dam.

Metallic Mineral Production by District

Mineral District	Duration	County	Copper (Cu) (pounds)	Lead (Pb) (pounds)	Zinc (Zn) (pounds)	Gold (Au) (ounces)	Silver (Ag) (ounces)	Manganese (Mn) (pounds)	Tungsten (W) (short tons)	Uranium (U) (pounds)
Alamo	1902-1958	La Paz	38,000	16,000	---	100	100	---	---	---
Artillery	1954-1979	Mohave	13,000	---	---	Under 100	600	---	---	---
Artillery Peak	1946-1959	La Paz & Mohave	---	---	---	---	---	95,108,000	---	---
Black Burro	Unknown	Mohave	---	---	---	---	---	311,000	---	6
Bouse	1928-1980	La Paz	13,000	---	---	100	Under 100	---	---	---
	(Mn) 1952-1954	La Paz	---	---	---	---	---	9,659,000	---	---
Buck Mountains	1905-1936	Mohave	300	20,000	---	600	700	---	---	---
Bullard	1931-1964	Yavapai	610,000	---	---	3600	6000	---	---	---
Chemehuevis	1913-1958	Mohave	500	27,000	---	1000	3000	---	148	---
Cienega	1870-1969	La Paz	1,714,000	---	---	12,000	1600	---	---	---
Clara	1911-1956	La Paz	4,669,000	---	---	Under 100	2000	---	---	---
Cleopatra	1905-1962	Mohave	480,000	500	---	2000	12,000	---	---	---
Cunningham Pass	1901-1960	La Paz	1,558,000	4000	---	4000	2600	---	---	---
Ellsworth	1901-1963	La Paz	583,000	12,000	---	1300	11,000	---	>252	---
	1967-1978	La Paz	---	---	---	---	---	---	1378	---
Harcuvar	1916-1956	La Paz	7000	---	---	30	30	---	---	---
Harquahala	1905-1981	La Paz	61,000	1500	---	2800	7300	(reserves at	---	---

Mineral District	Duration	County	Copper (Cu) (pounds)	Lead (Pb) (pounds)	Zinc (Zn) (pounds)	Gold (Au) (ounces)	Silver (Ag) (ounces)	Manganese (Mn) (pounds)	Tungsten (W) (short tons)	Uranium (U) (pounds)
								20% Mn)		
Lincoln Ranch	Unknown	La Paz	---	---	---	---	---	24,000,000	---	---
Little Harquahala	1888-1963	La Paz	50,000	156,000	---	143,000	90,000	---	---	---
Mammon	1909-1955	La Paz	87,000	---	---	Under 100	100	---	---	---
Mesa	Unknown	Mohave	---	---	---	---	---	40,000 – 80,000	---	---
Midway	1907-1971	La Paz	9400	---	---	Under 100	Under 100	---	---	---
New Water	1907-1969	La Paz	58,000	499,000	47,000	200	314,000	512,900	---	---
Northern Plomosa	1901-1955	La Paz	346,000	25,000	---	5000	7000	---	---	---
Owens	1921-1956	Mohave	3000	63,000	---	100	10,000	---	---	---
Pilot Rock *	---	Mohave	---	---	---	---	---	---	---	---
Pride	1911-1912	La Paz	20	---	---	10 or under	Under 100	---	---	---
Planet	1862-1970	La Paz	19,520,000	---	---	400	300	---	---	---
	(Mn) 1916	La Paz	---	---	---	---	---	237,500	---	---
	1953-1954	La Paz	---	---	---	Less than 100	300	---	---	---
Plomosa Pass	1910-1930	La Paz	50,000	---	---	---	500	---	---	---
Rawhide	1921-1958	Mohave	11,000	260,000	23,000	Under 100	8000	---	---	---
Swansea	1909-1962	La Paz	26,457,000	---	---	500	33,000	---	---	---
Topock	1905-1941	Mohave	3000	---	---	100	100	---	---	---
Triple H	Unknown	Mohave	---	---	---	---	---	---	---	(reserves)

Mineral District	Duration	County	Copper (Cu) (pounds)	Lead (Pb) (pounds)	Zinc (Zn) (pounds)	Gold (Au) (ounces)	Silver (Ag) (ounces)	Manganese (Mn) (pounds)	Tungsten (W) (short tons)	Uranium (U) (pounds)
Yucca	1941-1958	Mohave	---	---	---	---	---	175,400 (+ reserves)	---	---

* No reported production through 1981

Well Data

Location	Operator	Completion Date	Status	Total Depth (feet)	County	Landowner
T7N, R19W, sec. 10, SE¼SE¼	El Paso Natural Gas	June 1968	Stratigraphic Test Well	1,400	La Paz	State
T7N, R19W, sec. 24, NE¼NW¼	El Paso Natural Gas	June 1968	Stratigraphic Test Well	2,815	La Paz	State
T8N, R13W, sec. 20, SW¼SW¼	El Paso Natural Gas	April 1968	Stratigraphic Test Well	1,358	La Paz	State
T8N, R14W, sec. 13, NW¼SW¼ NW¼	Bendex Field Engineering Corporation	1979	Stratigraphic Test Well	1,341	La Paz	State
T8N, R19W, sec. 15, NE¼NW¼ NW¼	U.S. Geological Survey	Not Available	Stratigraphic Test Well	1,000	La Paz	State
T8N, R20W, sec. 29, NE¼NE¼ NW¼	U.S. Geological Survey	Not Available	Stratigraphic Test Well	763	La Paz	CRIT
T9N, R19W, sec. 5, SE¼SE¼ SE¼	U.S. Geological Survey	Not Available	Stratigraphic Test Well	520	La Paz	CRIT
T10N, R10W, sec. 30, NE¼NE¼ SE¼	Bendex Field Engineering Corporation	1979	Stratigraphic Test Well	5,055	La Paz	BLM
T10N, R14W, sec. 6, SW¼SE¼	S. T. Sutton	1946	Dry Hole	400	La Paz	BLM
T11N, R16W, sec. 20, SW¼SE¼ NE¼	Bendex Field Engineering Corporation	1979	Stratigraphic Test Well	2,456	Mohave	Private

Sources: Conley et al. 1995, Koester et al. 1996, and Rauzi 2002.

The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that take into account the long term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific, and cultural values.

BLM/AZ/PL-05/005

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