Construction noise can be controlled with appropriate mitigation measures. These mitigation measures include:

- Construction of temporary walls and/or earth berms;
- Providing equipment enclosures;
- Re-route truck traffic away from sensitive receptors;
- Minimizing nighttime construction activities;
- Avoiding impact pile driving if possible;
- Using quieter equipment, such as enclosed air compressors and mufflers.

In addition, community relations would be important. The affected communities would be informed about the duration and extent of the construction activities.

4.10.2.2 Operational Noise

The INS operations associated with this alternative, such as firing ranges, helicopters and airplanes, electric power generator and substations, etc., would cause long-term increases in noise levels. The magnitude of these increase would depend upon ambient noise levels, distance to sensitive receptors, increase in number of such operational activities and duration.

Firing ranges would usually be located in rural areas far away from the communities for safety reasons. Therefore, noise impacts from firing ranges would be minimal. Portable generators for lights would also be situated primarily in remote areas, where access to electrical power sources is not readily available and thus, likely away from sensitive receptors.

Ground vehicle, aircraft, and helicopter noise during the border patrol and reconnaissance operations would be mostly temporary in nature. However, long-term noise increases could occur around regional airfields and heliports wherever the number of daily flights is increased substantially (more than 10 percent of the total annual operation) and/or the helicopters are used frequently near noise sensitive locations. If it is determined to be necessary, a detailed aircraft noise assessment would predict noise levels using Federal Aviation Administration (FAA) methodologies and prediction models, such as Integrated Noise Model (INM) and Helicopter Noise Model (HNM). Noise impact would be assessed based on FAA and project specific criteria, the existing ambient noise level, the number of operations, the flight path, and the adjacent land uses.

In addition, a detailed traffic noise assessment may be required to predict noise levels using Federal Highway Administration (FHWA) methodologies and prediction model, Traffic Noise Model (TNM) if there is substantial increase (more than 50 percent of the peak-hour volume) in vehicular traffic on existing and proposed roads near noise sensitive receptors.

4.10.3 Alternative 2

4.10.3.1 Construction Noise

This alternative would be restricted to construction activities related to technology-based infrastructures, and therefore, would experience substantially less construction noise impacts than Alternative 1.

4.10.3.2 Operational Noise

Over flights, training at firing ranges, and other operational activities would still occur and produce noise. The magnitude of these effects would depend upon the variables described under Alternative 1. Operation of most technology–based systems (e.g., RVS, ground sensors, stadium lights) would produce little or no noise.

4.10.4 Alternative 3

If implemented, this alternative would result in increased overflights, training at firing ranges, and other operational activities and would produce additional noise. The magnitude of these effects would depend upon the variables described under Alternative 1.

Ground vehicle, aircraft, and helicopter noise during the patrol and reconnaissance operations would be mostly temporary in nature. However, long-term noise increases could occur around regional airfields and heliports wherever the number of daily flights is increased substantially and/or the helicopters are used frequently near the noise sensitive locations. Target locations for increased noise are difficult to predict with certainty as is inherent of any type of law enforcement activity in hot pursuit.

4.10.5 Alternative 4

Implementation of this alternative would result in similar construction related noise impacts discussed under Alternative 1. Further evaluations would be necessary when the specific locations have been determined. Noise generated by operational activities would be similar to that described under the No Action Alternative.

SECTION 5.0
CUMULATIVE IMPACTS

5.0 CUMULATIVE IMPACTS

This section of the PEIS addresses the potential cumulative impacts associated with the implementation of the alternatives outlined in Section 2.0 and other projects/programs that are planned for the region. The following paragraphs present a general discussion regarding cumulative effects that would be expected irrespective of the alternative selected.

The Council of Environmental Quality defines cumulative impact as the incremental impact of multiple present and future actions with individually minor but collectively significant effects. Cumulative impact can be concisely defined as the total effect of multiple land uses and developments, including their interrelationships, on the environment, including cultural and socioeconomic resources.

Past NEPA documents were reviewed to evaluate cumulative effects of the USBP operations/activities and infrastructure construction projects for the southwest border region. These included, but were not limited to, EAs from previous and current INS and JTF-6 projects, a Programmatic Environmental Impact Statement (USACE 1994), EA for INS infrastructure within Naco-Douglas Corridor (INS 2000), Environmental Assessment for Operation Skywatch for Tucson Sector, Arizona (INS 2002), Environmental Assessment for Operation Desert Grip within the Tucson and Yuma Sector, Arizona (INS 2002), and Supplemental Programmatic Environmental Impact Statement (USACE 2001). Other agency plans and actions in the region which could also affect the region's natural and human environment were also reviewed to evaluate cumulative effects (Section 5.1.10). An analysis of each component of the affected environment was completed from the existing documents in order to identify cumulative impacts as a result of the past and proposed activities.

5.1 Affected Environment

5.1.1 Soils and Water Quality

Resources such as soil and water supplies would be impacted for a short term during and immediately after completion of infrastructure construction projects. Construction of

proposed USBP infrastructure may require installation of water wells for water supply. None of USBP proposed infrastructure and operations would be expected to produce significant cumulative adverse impacts to soils and water quality of the project area. Soils that are denuded as a result of construction activities would be vulnerable to erosion. However, the vast majority of the road projects are planned to alleviate soil erosion; thus, the cumulative effect to soils would be beneficial. A reduction in erosion rates would have consequent beneficial results to area surface water quality by reducing turbidity and biochemical oxygen demands.

5.1.2 Vegetation

The primary cumulative effect of the past and proposed projects is permanent loss of vegetation and associated wildlife habitat. Throughout the entire U.S.-Mexico border (California to Texas), a total of about 3,750 acres of vegetation, mostly semi-desert grassland and desert scrub communities, has been removed by JTF-6 road, range, fence, and helipad repair and other construction activities primarily for the INS (USACE 1999). This represents less than 0.01 percent of the total land area within the area along the entire U.S.-Mexico border.

Since 1994, INS and JTF-6 activities were expected to impact about 2,054 acres primarily due to construction of road and fence projects (USACE 2001). These effects combined with the area anticipated to be disturbed over the next five years and the amount altered previous to 1994, would amount to approximately 12,006 acres during the period 1989 to 2004.

As indicated in Tables 4-3, about 6,124 acres would be impacted by infrastructure construction under Alternative 1. This represents about 24 percent of the total impact area projected by INS and JTF-6 (USACE 2001). It should be emphasized again, that these are worst-case estimates. Much of the area estimated to be impacted has been previously disturbed (e.g., existing roads) or is naturally void of vegetation. In addition, impacts from roads and fences are calculated separately, when, in reality, these infrastructure would typically be constructed within the same footprint. Most of the impacts associated with infrastructure projects would occur within 500 feet of the international border.

5.1.3 Wildlife

Long-term indirect cumulative effects have occurred and would continue to occur. However, these effects, both beneficial and adverse, are difficult, if not impossible, to quantify. Reductions in and fragmentation of habitat have undoubtedly created inter- and intra-species competition for available food and shelter and, eventually, slight reductions in some wildlife populations. Increased patrol activities would increase the potential for some wildlife specimens to be accidentally hit and killed. Such losses would not be expected to result in significant reductions to the populations.

The increase in lighting along the border also could have produced some long-term cumulative effects, although the magnitude of these effects in some areas is not presently known. Some species, such as insectivorous bats, may benefit from the concentration of insects that would be attracted to the lights. Circadian rhythms of other diurnal species, however, may be disturbed enough that breeding or feeding patterns are skewed, causing synergistic physiological changes. Most lighting would be placed near urban areas, thus, reducing the chances of indirect effects, if any, to wildlife populations.

Installation of stadium style lights and RVS sites were considered regarding the potential increase for raptors to be electrocuted or to become entangled in overhead power lines. Although injuries and deaths to raptors due to collision with power lines and support (guy) wires do occur, studies have indicated these structures do not present a major problem. The relative infrequency of collisions is due to the high visual acuity of raptors and the large size of transmission line conductors (Raptor Research Foundation 1996). The proposed RVS systems would also comply with USFWS guidelines (see http://migratorybirds.fws.gov/issues/towers/comtow.html) for reducing fatal bird strikes on communication towers (USFWS 2002). These guidelines recommend co-locating new antennae arrays on existing towers whenever possible and to build towers as short as possible without guy wires or lighting and use white strobe lights whenever lights are necessary for aviation safety. In addition, most RVS towers are less than (b) (7)(E) high and, thus, do not typically require guy wires. The stadium style lights and RVS towers do provide artificial perch sites for raptors. Consequently, raptor predation on small mammals is likely to increase in the study area.

5.1.4 Sensitive Areas

USBP operations have occurred in unique and sensitive areas such as National Parks and National Wildlife Refuges. The USBP is authorized and mandated by the U.S. Congress to enter any lands within 25 miles of the border during the pursuit of illegal entrants. Consequently, when UDAs or smugglers attempt to illegally enter the U.S. through these sensitive areas, the USBP agents must attempt to apprehend them. Close coordination and approval from the appropriate state agencies would be required for any construction activity potentially affecting any unique or sensitive areas (i.e., wilderness areas, conservation areas, national parks, etc.) to ensure adverse effects would be avoided or substantially reduced in significance.

5.1.5 Wetlands and Waters of the U.S.

According to the USACE (2001) Final Programmatic Environmental Impact Statement, the total amount of wetlands and waters of the U.S. that have been impacted by INS and or JTF-6 since 1994 has been less than five acres. Impacts to these valuable habitats have been avoided, wherever practicable, resulting in the low acreage figure. Each project that cannot avoid wetland/waters of the U.S. effects, however, is coordinated through the Section 404/401 permit process with the appropriate regulatory agencies.

5.1.6 Air Quality

Vehicles, aircraft, and heavy equipment have produced air emissions; however, these have not resulted in significant cumulative impacts due to the short duration of the activities, dust suppressant techniques used during construction (e.g. water trucks), and the dispersion capabilities of the region. None of the proposed USBP operations or infrastructure improvements would be expected to yield significant cumulative impacts. Furthermore, none of the projects to date have indicated a potential excursion which could violate air quality standards, especially within non-attainment areas. Thus far, no Federal Class I areas have been affected.

5.1.7 Socioeconomics

Direct cumulative impacts on socioeconomics would be expected to be beneficial but insignificant. The magnitude of the effects would depend upon the project costs (i.e., local expenditures) and the economic multipliers in the region. Cumulative indirect effects to socioeconomic resources (e.g., purchase of diesel) would be beneficial, but insignificant. The implementation of the Preferred Alternative (Alternative 1) would allow USBP to more efficiently and effectively detect, deter and apprehend illegal traffickers, thereby reducing social costs associated with property damages, violent crimes, drug treatment and rehabilitation, and entitlement programs.

Indirect increases in traffic and/or vehicular speeds could occur as a result of improvement to roads. The magnitude of these effects would depend upon current traffic conditions, proximity to population centers, and other available transportation corridors. However, based upon observations made after past road improvement projects, these effects, if any, are expected to be insignificant.

5.1.8 Benefits Associated with INS Activities

Many positive cumulative impacts have also been realized through INS activities. Construction and maintenance activities have had cumulative positive impacts on socioeconomic resources within the border area and the nation through reductions in illegal drug smuggling activities. Additional knowledge regarding numerous threatened or endangered species' locations, distribution, and life requisites have been obtained through surveys and monitoring efforts associated with INS actions. The INS activities completed from 1994 to 1999 have provided information on over 100 new cultural resources considered being potentially eligible for NRHP listing. Erosion has been alleviated on hundreds of miles of road and fences have precluded illegal foot and vehicular traffic through environmentally sensitive areas (USACE 1999).

5.1.9 Other INS/USBP Operations

The INS/USBP might be required to implement other activities and operations that are currently not forseen or mentioned in this document. These actions could be in

response to National emergencies or security events (e.g., the terrorist attack on 11 September 2001) or to changes in the mode of operations of the UDAs and smugglers. For instance, during the previous two summers, the Tucson Sector had to temporarily detail aircraft and support personnel from other sectors to provide additional SAR missions. The sole purpose of these missions (known as Operation Skywatch) was to save the lives of illegal entrants. Operation Skywatch would temporarily assign (b) (7)(E) (b) (7)(E) and other support personnel as needed to the Tucson Sector for a period of approximately 125 days, beginning around 1 June each year for the next five years. SAR aerial reconnaissance also indirectly benefited the natural environment by reducing the amount of off-road traffic required to rescue UDAs. The INS has prepared an EA documenting the potential impacts. Additional support would be provided by the Yuma Sector on an as needed basis. The INS recently completed an EA for Operation Desert Grip (INS 2002g). (b) (7)(E) in two areas with high illegal entrant and drug smuggling activity in a remote region of the desert in both the Tucson and Yuma sectors. Trailers will be located on previously disturbed areas. (b) (7)(E) border to deter illegal entrants and drug smugglers in an effort to save lives. Both, Operation Skywatch (INS 2002c) and Operation Desert Grip (INS 2002g) received emergency consultation under Section 7 of the Environmental Site Assessment and will be addressed in the draft Tucson Sector Biological Assessment and revised draft Yuma Sector Biological Assessment. Other major operations/actions would be evaluated as prescribed in 28 CFR Part 61, Appendix C to determine the need for and level of, NEPA documentation.

5.1.10 Other Agencies

Plans by other agencies in the region which would also affect the region's natural and human environment include various road improvements by ADOT, a commercial truck U.S. Highway 80 bypass and border crossings near Douglas, a bypass highway near Yuma that will traverse the BMGR, the Bisbee-Douglas International Airport expansion, and the reactivation of the abandoned Southern Pacific railroad line. With the exception of the proposed new bypasses and border crossing near Douglas, all the rest of the projects would be along existing corridors and/or within previously disturbed sites (e.g.,

airport). Land use would change along the bypass, and additional wildlife habitat would be lost. The magnitude of these effects would depend upon the length and width of the bypass ROW and the extant conditions within and adjacent to the ROW. Reactivation of the railroad line and crossing near Naco would result in additional habitat losses, even though the rail would probably be constructed along the existing, but abandoned, line. The tracks were removed in 1975 and thus have had ample time to revegetate. Reactivation of the line would also increase noise in the immediate vicinity and increase potential health and safety risks due to possible transportation of hazardous cargo.

In addition, a few projects are currently being planned which could affect areas currently in use by the USBP. The INS and USBP should maintain close coordination with these agencies to ensure that their activities do not conflict with other agency(s) policies or management plans. The USBP will consult with the USAF and USMC representatives prior to performing any construction activities and will coordinate operations on military properties so that it does not impact the mission of other agencies. The following is a list of projects other agencies are conducting within the U.S.-Mexico border region. The USFWS is currently working on a Comprehensive Conservation Plan (CCP), which addresses the managment of public lands in the Sonoran Desert. The CCP could propose the closure and reclamation of some roads currently traveled by USBP agents. The USAF and USMC are also in the process of producing Integrated Natural Resources Management Plan (INRMP) for the BMGR and a draft EIS for implementation of the INRMP on BMGR. This plan, if implemented, could also change the areas available for certain USBP operations/activities. The OPCNM is in the process of preparing a wilderness management plan for the wilderness located within their boundaries.

SECTION 6.0
ENVIRONMENTAL DESIGN MEASURES

6.0 ENVIRONMENTAL DESIGN MEASURES

This chapter describes those measures that could be implemented to reduce or eliminate potential adverse impacts to the human and natural environment. INS and USBP have incorporated many of these measures as standard operating procedures on past projects. The mitigation measures are presented for each resource category that could be potentially affected. It should be emphasized that these are general measures; development of specific measures would be required for each current and future action once the specific location and project design is identified. The proposed measures would be coordinated through the appropriate agencies and land managers/administrators.

6.1 Biological Resources

Professional biologists would be utilized to perform field surveys of major construction sites as early as possible in the planning and design stages in order to avoid environmentally sensitive resources. These surveys would be coordinated through the appropriate Federal and state agencies. All areas which are known to support threatened or endangered species would be considered off limits to avoid impacts to these resources, to the extent practicable. If possible, construction activities would be scheduled at times when they are least likely to disturb breeding and nesting activities. Additionally, USBP would minimize losses to vegetation by: (1) trimming vegetation along roadsides rather than removing entire plants, (2) require heavy equipment to utilize road pullouts or other such disturbed areas, and (3) through revegetative efforts. Disturbed sites or sites with low quality habitat would be utilized to the maximum extent practicable for construction and operational support activities.

To comply with Executive Order 13112 Invasive Species (64 Federal Register 6183, February 8, 1999), INS would minimize ground disturbance when possible. However, when disturbance in unavoidable, INS would revegetate with native species in order to decrease the potential of promoting the establishment and spread of invasive species.

The Migratory Bird Treaty Act (MBTA) requires that private contractors obtain a construction permit if the construction activity is scheduled during nesting seasons (March through August). Surveys would be performed to identify active nests, so that these nests

could be avoided during construction. Another mitigation measure that would be considered is to schedule all construction activities outside the nesting season (September through February).

Unique and sensitive habitats and areas such as caves, riparian communities, parks, refuges, wilderness areas, conservation areas, national forests, scenic streams, unique vegetation communities, or other sensitive resources would be avoided to the maximum extent practicable. Any unavoidable effects to such communities shall be closely coordinated with the appropriate Federal and/or state agency(s) to ensure that impacts are kept to an absolute minimum and that restoration actions are considered and implemented, where plausible. Road-kill impacts may potentially increase due to the proposed infrastructure (i.e., road maintenance, vehicle barriers, fences). However, USBP is committed to avoid impacts to the greatest extent plausible through education and minimization of disturbance areas.

Environmental design features which would be considered, especially in areas that support protected species, include the development of vegetation corridors to avoid habitat fragmentation and the proper placement and size of culverts to adequately convey stormwater and allow wildlife to safely cross roads. Project specific mitigation plans would be required for projects with potential to cause substantial impacts to wildlife habitat or to impact protected species or other environmentally sensitive resources; these plans would be closely coordinated with, and approved by, the USFWS and appropriate state resource agency(s) prior to initiation of construction. It is policy, however, to mitigate adverse impacts through the sequence of avoidance, minimization, and finally, compensation. Compensation varies and includes activities such as restoration of habitat in other areas, acquisition of lands, etc. and is coordinated with the USFWS and appropriate state resource agencies.

The USBP small, four-passenger, OH-6A observation helicopters avoid known concentrations of Sonoran pronghorn on normal, routine flights. Known fawning areas (i.e., Mohawk Dunes, Pinta Sands) are avoided to the maximum extent possible during the peak fawning period (April through June). Deviation to routine flight patterns is conducted in response to “sign” or evidence of illegal entry. (b) (7)(E) (b) (7)(E) generally

(b) (7)(E)

(b) (7)(E)

(b) (7)(E)

(b) (7)(E) As another example, according to the conservation agreement for the flat-tailed horned lizard, environmental design measures include minimizing surface disturbance projects to a level of one percent of the management area over five years; collecting compensation fees; prohibiting off-highway competitive events; supporting continuing lizard monitoring and research; and attempting to acquire all private inholdings. Like most plans, the flat-tailed horned lizard conservation agreement is a working document subject to revision. Therefore, during the planning phase of projects with the potential to impact protected species (such as the flat-tailed horned lizard), INS coordinates with the USFWS to obtain the most current information available about species status, habitat requirements, potential project impacts, and environmental design measures to avoid, minimize, and/or compensate for impacts.

6.2 Cultural Resources

Potential adverse impacts to historic properties have been mitigated through a policy of site avoidance. The continuation of a program of archeological survey and monitoring for INS and/or USBP activities with the potential for ground disturbances would ensure that cultural resources that are deemed to be potentially eligible for NRHP listing would be avoided; consequently, such activities would have no effect on historic properties. Surveys and monitoring on Native American Nation properties would be performed in conjunction with and upon approval of the appropriate Indian Tribal Government. INS would be responsible for coordinating with the Arizona and California SHPO along with the appropriate THPO, if applicable, for maintenance activities involving earth-moving operations in areas where historic properties have been previously identified. This coordination is necessary to ensure mitigation measures are implemented. Mitigation measures that could be used, when approved by the appropriate SHPO and/or THPO, to preclude impacts include, but are not limited to, data recovery, preservation through site burial, and use of professional archeologists as monitors during the maintenance operations.

All construction activities shall be at least two feet away from the international boundary to avoid impacts to historical boundary monuments and other demarcations. Near each permanent boundary monument, strict construction precautions would be implemented to avoid potential damage to these items. Additionally, (b) (7)(E) (b) (7)(E) The INS/USBP have coordinated with the U.S. Section, IBWC in their efforts to design a gate that could be used in border fences, which would allow access to movements or maintenance purposes and protect the monument from construction activities.

The revised 36 CFR Part 800 has been broadened to emphasize more strongly the roles of tribes as consulting parties. According to Sec. 800.2(c)(3) of the revised regulations, Federal agencies are required to consult not only with the SHPO and/or the THPO, but also with relevant tribes that might claim cultural affinity in the area of the undertaking. Such consultation would take place on all Federal undertakings subject to Section 106 review. Such consultation would occur at all levels of the Section 106 process. The following tribes claim cultural affinity to the current project area in Arizona: Ak-Chin Indian Community, Gila River Indian Community , Tohono O'odham Indian Nation, Hopi, Salt River Pima-Maricopa Indian Community, Yavapai, Zuni Pueblo, Fort Yuma – Quechan, San Carlos – White Mountain Apache Aavapai Prescott, Y-Apache, Hia C-ed O'odham, Ft. Mohave. and the Cocopah (Arizona State Parks 1999). The California tribes with cultural affinity to project area include the Campo Band of Mission Indians, La Posta Band of Mission Indians, Manzanita Band of Mission Indians, Viejas Band of Kumeyaay Indians, Los Coyotes Band of Mission Indians, Torres-Martinez Desert Cahuilla Indians, and the Twenty-Nine Palms Band of Mission Indians.

6.3 Air Quality

Proper and routine maintenance of all vehicles, generators, aircraft and other equipment would be implemented to ensure that air emissions are within the design standards of the piece of equipment. Construction activities within non-attainment areas would be coordinated with the appropriate environmental agency(s) to ensure that the emissions would conform with regulations specified in the Clean Air Act. Construction sites within urban areas, along major transportation routes, or in biologically sensitive areas (e.g., wildlife refuges) would be kept wet, to the extent practicable, to reduce fugitive dust

emissions. Where practicable, drop lines from local electrical systems would be used as a substitute for generators. When electrical service is not available, generators will utilize low-sulfur fuels, such as diesel fuel or natural gas, to minimize emissions to the extent practicable.

6.4 Water Resources

Each proposed construction project that affects greater than five acres would require a SWPPP as part of the National Pollution Discharge Elimination System (NPDES) permit process. The threshold for requiring a SWPPP and compliance with the NPDES is scheduled to be lowered to one acre in March 2003. Similarly, if wetlands or waters of the U.S. are expected to be affected, early coordination by INS with the USACE Los Angeles District, Regulatory Branch (jurisdictional authority over the USACE Phoenix Field Office) and Arizona Department of Water Resources agencies would be conducted. Applicable Section 404 permit procedures and Section 401 Water Quality Certification shall be completed prior to initiation of the construction activities, as required. Mitigation and compensation would be implemented to ensure no net loss of waters of the U.S., including wetlands.

No action would be initiated that may affect wetlands or floodplains without performing the requisite analysis and findings specified by Executive Orders 11990 and 11988 respectively, prior to taking any action. Construction storage or staging sites would be located at least 0.25 miles from wildlife and livestock tanks or other permanent surface water bodies to reduce potential effects of accidental spills. Conservation measures would be implemented to preclude unnecessary waste of water supplies. Discharges of gray water and other wastes to drainages or other water courses/bodies are prohibited. Portable latrines, provided and maintained by licensed contractors, would be used to the extent practicable during construction and operational support activities.

6.5 Hazardous Materials

Prior to implementation of construction or the expansion of existing operations, and/or acquisition of additional lands required to implement those actions, the INS would perform standard due diligence, as appropriate, to ascertain the possible presence of

contamination at specific project locations. This due diligence would consist of a review of a specific site to determine historical usage (if any) and potential presence of hazardous materials. If contamination is discovered, INS would implement the necessary corrective actions prior to and during construction activities. Based upon the locations of proposed projects associated with the alternatives included in this analysis, the presence of hazardous material sites is not anticipated since the study area consists of predominantly rural locations with historically low industrial activity, small populations and low number of reported sites.

6.6 Noise

Mitigation of noise levels may occur at the noise source, along the path of the noise, or at receiver locations. Mitigation of noise levels occur in nature to varying degrees as sound propagates from the source over terrain surfaces (scattering and ground attenuation), as the distance between the source and receiver increases (dispersion), and when intervening natural terrain features intersect the path of the noise source to the receiver (diffraction). Within practical limits, these same principles would be applied to the mitigation of noise levels from proposed construction and operations.

Placing roadways and heliports away from sensitive receptors can potentially reduce noise impacts. However, the selection of alternative alignments and profiles for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters.

Acquisition of real property or interest therein to serve as a buffer zone is also practical for this project. Noise insulation of buildings, such as schools, provides an additional type of mitigation, which is available for reducing noise levels, although this method would only potentially reduce noise levels inside the building and would not benefit outdoor activities.

The most common type of designed mitigation is the construction of physical barriers, typically in the form of noise walls (noise barriers) and/or earth berms between the noise source and the receptor locations.

Mitigation measures would also be incorporated into the contract documents to lessen potential construction noise impacts. The following mitigation strategies may be employed to the extent possible to limit the potential impact of noise. Since infrastructure considered as part of this project will be located in remote and/or non-developed areas, mitigation required is expected to be minimal.

- **Source Control** - This option includes regular equipment maintenance especially including designed engine enclosures, intake silencers and exhaust systems are functioning properly.

- **Site Control** - This option includes placement of stationary equipment as far away from sensitive receptors as possible (i.e., pumps, compressors, aggregate crushers, AC plants, operators, etc.), choice of disposal sites/haul routes and employing shielding where possible.

- **Time and Activity Constraints** - Schedule of operations to coincide with periods when people would least likely be affected. This includes limiting working hours and workdays to least noise sensitive times.

- **Community Awareness** - This option includes public notification of construction operations.

SECTION 7.0
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7.0 REFERENCES

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	Gulf South Research Corporation	GIS/Graphics	7 years GIS analysis	Graphics and GIS
	Gulf South Research Corporation	Environmental Studies	3 years natural resource and NEPA Studies	Soils, Vegetation, Water Resources, and Environmental Design Measures
	Gulf South Research Corporation	Forestry and Wildlife	14 years NEPA and related studies	GSRC Project Manager, Scoping Process and EIS Review
	Gulf South Research Corporation	Wildlife Conservation	9 years natural resource and 2 years NEPA Studies	EIS preparation
	The Louis Berger Group, Inc.	Environmental Engineering	7 years environmental engineering, NEPA studies	Air Quality and Hazardous Materials
	The Louis Berger Group, Inc.	Transportation and Land Use Planning	13 years of transportation/ land use planning for the preparation of NEPA studies	Land Use and Transportation
	The Louis Berger Group, Inc.	Transportation Planning	12 years environmental planning, and NEPA studies	Noise and Acoustical Analysis
	The Louis Berger Group, Inc.	Environmental Science & Engineering	24 years NEPA studies, air quality modeling & monitoring	Air Quality

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APPENDIX A
PUBLIC INVOLVEMENT

NOTICE OF INTENT

for the Standards for the Classification of Federal Data on Race and Ethnicity.

6. An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond: 17,667 agencies with 106,002 responses (including zero reports); and with an average of 6 hours and 35 minutes annually devoted to compilation of data for this information collection.

7. An estimate of the total public burden (in hours) associated with both collections: 15,900 annually.

Public comments on this proposed information collection are strongly encouraged.

If additional information is required contract: Mr. Robert B. Briggs, Department Clearance Officer, U.S. Department of Justice, Information Management and Security Staff, Justice Management Division, Suite 1221, National Place Building, 1331 Pennsylvania Ave., NW, Washington, DC 20530.

Dated: July 27, 2000.

Robert B. Briggs,

Department Clearance Officer, Department of Justice.

[FR Doc. 00-19358 Filed 7-31-00; 8:45 am]

BILLING CODE 4410-02-M

DEPARTMENT OF JUSTICE

Immigration and Naturalization Service

[INS No. 2082-00]

Notice of Intent To Prepare a Draft Environmental Impact Statement for the Implementation of Border Barriers for Enforcement Initiatives in Arizona

AGENCY: Immigration and Naturalization Service (INS), Justice.

ACTION: Notice of Intent to Prepare a Draft Environmental Impact Statement (DEIS).

SUMMARY:

Proposed Action

In furtherance of its mission to gain and maintain control of the Arizona border, in 1994, the INS launched Operation Safeguard, an aggressive initiative that brought new agents, equipment, and technology to the Tucson Border Patrol Sector. The goal of Operation Safeguard is to heighten deterrence and improve control along the nearly 300 miles of international border in Arizona. The aim of INS' comprehensive border enforcement effort, which includes Operation Gatekeeper in California and Operations Hold the Line and Rio Grande in Texas, is to reduce the adverse effects of illegal immigration and improve the quality of life for residents along the immediate border and throughout the nation. The INS will now expand Operation Safeguard by utilizing new resources and technology within the following Arizona Border Patrol stations: Ajo/Why, Casa Grande, Douglas, Naco, Nogales, Sonoita, Tucson, Wellton, Wilcox, and Yuma. The enhancements will bolster the efforts to ensure the safety of migrants, ranchers, and local residents, as well as provide increased safety of operations for agents. Enhancement will include, but not be limited to, additional Border Patrol personnel, support vehicles, air support, border barriers, lighting, border road improvements, and remote video surveillance systems.

Alternatives

In developing the DEIS, the options of no action and alternatives for Operation Safeguard will be fully and thoroughly examined.

Scoping Process

During the preparation of the DEIS, there will be numerous opportunities for public involvement in order to determine the environmental issues to be examined. The meetings will be well publicized and held at a time which will make it possible for the public and interested agencies or organizations to attend. Scoping meetings will be held in Douglas, Tucson, Yuma, and Nogales, Arizona. Notice of the Scoping meetings will be published in local newspapers prior to the meetings indicating the date, time, and location of each Scoping meeting.

DEIS Preparation

Public notice will be published in the **Federal Register** concerning the availability of the DEIS for public review and comment.

FOR FURTHER INFORMATION CONTACT: Manny Rodriguez, Chief Policy and Planning, Immigration and Naturalization Service, Facilities and Engineering Branch, 425 I Street, NW., Washington, D.C. 20536, Room 2060, Telephone: 202-353-0383.

Dated: July 25, 2000.

Doris Meissner,

Commissioner, Immigration and Naturalization Service.

[FR Doc. 00-19335 Filed 7-31-00; 8:45 am]

BILLING CODE 4410-10-M

DEPARTMENT OF LABOR

Employment and Training Administration

Notice of Determinations Regarding Eligibility To Apply for Worker Adjustment Assistance and NAFTA Transitional Adjustment Assistance

In accordance with section 223 of the Trade Act of 1974, as amended, the Department of Labor herein presents summaries of determinations regarding eligibility to apply for trade adjustment assistance for workers (TA-W) issued during the period of July 2000.

In order for an affirmative determination to be made and a certification of eligibility to apply for worker adjustment assistance to be issued, each of the group eligibility requirements of section 222 of the Act must be met:

(1) That a significant number or proportion of the workers in the workers' firm, or an appropriate subdivision, thereof, have become totally or partially separated;

That sales or production, or both, of the firm or subdivision have decreased absolutely; and

(3) That increases of imports of articles like or directly competitive with articles produced by the firm or appropriate subdivision have contributed importantly to the separations, or threat thereof, and to the absolute decline in sales or production.

Negative Determinations for Worker Adjustment Assistance

In each of the following cases the investigation revealed that criterion (3) has not been met. A survey of customers indicated that increased imports did not contribute importantly to worker separations at the firm.

TA-W-37,403; R. Daye Limited, New York, NY

TA-W-37,596; The Bethlehem Corp., Easton, PA

In the following cases, the investigation revealed that the criteria for eligibility have not been met for the reasons specified.

TA-W-37,837; American General Assurance Co., Reading, PA

TA-W-37,763; Destination Film Distribution Co., Inc., Wheelman Products, Santa Monica, CA

TA-W-37,762; Hearst Entertainment, King Telpro Productions, Los Angeles, CA

TA-W-37,623; Lear Corp., Mold and die Shop, El Paso, TX

TA-W-37,836; Shenandoah Rag Co., Inc., Shenandooh, PA

PUBLIC SCOPING

[redacted]

STAR PUBLISHING COMPANY

Tucson, Arizona

STATE OF ARIZONA)
COUNTY OF PIMA)

Janice Anderson, being first duly sworn deposes and says: that she is the Legal Advertising Representative of the **STAR PUBLISHING COMPANY**, a corporation organized and existing under the laws of the State of Arizona, and that the said **STAR PUBLISHING COMPANY** prints and publishes The Arizona Daily Star, a daily newspaper printed and published in the City of Tucson, Pima County, State of Arizona, and having a general circulation in said City, County, State and elsewhere, and that the attached

Legal Notice

was printed and published correctly in the entire issue of the said The Arizona Daily Star on each of the following dates, to-wit:

September 12, 2000

Janice Anderson

Subscribed and sworn to before me this 13th day of September, 2000

Notary Public

OFFICIAL SEAL
LYNETTE J. VAN ARB
NOTARY PUBLIC - ARIZONA
PIMA COUNTY
My Comm. Expires Sept. 2, 2001

My commission expires

TNI AD NO. 900492

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PUBLIC NOTICES

PUBLIC SCOPING MEETINGS

Notice is hereby given that pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, the U.S. Immigration and Naturalization Service will prepare a Programmatic Environmental Impact Statement to address operational activities conducted by the U.S. Border Patrol Yuma and Tucson Sectors. These operations can include aerial reconnaissance, on- and off-road ground patrols, drag road maintenance and remote sensing and surveillance operations. [illegible]

There will be four separate public scoping meetings held in October for this project. The dates and locations are as follows:

- Tucson, Arizona, October 2, 2000, at the Tucson Convention Center, the Maricopa Room. The address is 260 S. Church Avenue, Tucson, Arizona.
- Nogales, Arizona, October 4, 2000, in the meeting room at the Days Inn. The address is 884 N. Grand Avenue, Nogales, Arizona. [illegible]
- Sells, Arizona, October 6, 2000, at the Legislative Council Chambers, in the Administration Building.
- Yuma, Arizona, October [illegible], 2000, at the Yuma Civic and Convention Center. The address is 1440 W. Desert Hills Drive, Yuma, Arizona.

These meetings will begin at 7:00 p.m. (local time). These meetings are held for the purpose of identifying issues and concerns that should be addressed in the PEIS. Members of the INS Headquarters and U.S. Border Patrol Yuma and Tucson Sectors will be present to provide the public with information [illegible]

For more information contact either Mr. Joe Lamphear, INS Environmental Officer (949) 425-7081; INS Western Region, 24000 Avila Road, Laguna Niguel, CA 92677 or Mr. Eric Verwers, Assistant Director, INS A-E Resource Center, (817) 978-0202.

Publish: September 11, 2000

[signature] KIMBERLY L. MARINUS being first duly sworn, deposes and says: That (he) (she) is the Agent to the Publisher of the SIERRA VISTA HERALD and the BISBEE DAILY REVIEW newspapers printed and published six days a week in the County of Cochise, State of Arizona, and of general circulation in the cities of Sierra Vista and Bisbee, County of Cochise, State of Arizona and elsewhere, and the hereto attached

PUBLIC SCOPE MEETING
PREPARE PROGRAMMATIC
ENVIRONMENTAL IMPACT
STATEMENT TO ADDRESS
OPERATIONAL ACTIVITY

was printed and published correctly in the regular and entire issue of said SIERRA VISTA HERALD and BISBEE DAILY REVIEW for 1 issues, that the first was made on the 11th day of SEPTEMBER ~~19~~ 20 00 and the last publication thereof was made on the 11th day of SEPTEMBER ~~19~~ 20 00 that said publication was made on each of the following dates, to wit:

09/11/00

Request of
GULF SOUTH RESEARCH CORP.

Sierra Vista Herald
Bisbee Daily Review

By [signature]

Subscribed sworn to before me this 11th day of SEPTEMBER ~~19~~ 20 00

OFFICIAL SEAL
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Notary Public - Arizona
COCHISE COUNTY
My Comm Exp 5/21/2004

Notary Public in and for the County of Cochise, State of Arizona

My Commission Expires: 5/21/2004

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STATE OF ARIZONA }
COUNTY OF SANTA CRUZ } ss.

DON HENSON being of first duly sworn, deposes and says: that he/she is PUBLISHER of the NOGALES INTERNATIONAL, a newspaper published in the County of Santa Cruz, State of Arizona, and of general circulation in said County, State and elsewhere, and that the hereto attached legal notice

NOTICE OF PUBLIC SCOPING MEETING - October 2000

was printed and published correctly in the regular and entire issue of said NOGALES INTERNATIONAL for 1 issues; that the first publication was made on the 12 day of September 20 00, and the last publication thereof was made on the 12 day of September 20 00.

NOGALES INTERNATIONAL

By _____

Subscribed and sworn to before me this 12 day of September, 20 00

_____ Notary Public

My commission expires

OFFICIAL SEAL
SANDRA L. MORALES
Notary Public - State of Arizona
SANTA CRUZ COUNTY
My Comm. Expires Jan. 11, 2001

PUBLIC SCOPING MEETING

Notice is hereby given that, pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, the U.S. Immigration and Naturalization Service will prepare a Programmatic Environmental Impact Statement to address operational activities conducted by the U.S. Border Patrol Yuma and Tucson Sectors. These operations can include aerial reconnaissance; on- and off-road ground patrols; drag road maintenance and remote sensing and surveillance operations.

There will be four separate public scoping meetings held in October for this project. The dates and locations are as follows:

Tucson, Arizona, October 3, 2000, at the Tucson Convention Center, the Maricopa Room. The address is: 260 S. Church Avenue, Tucson, Arizona.

Nogales, Arizona, October 4, 2000, in the meeting room at the Days Inn. The address is: 844 N. Grand Avenue, Nogales, Arizona.

Sells, Arizona, October 5, 2000, at the Legislative Council Chambers, in the Administration Building.

Yuma, Arizona, October 17, 2000, at the Yuma Civic and Convention Center. The address is: 1440 W. Desert Hills Drive, Yuma, Arizona.

These meetings will begin at 7:00 p.m. (local time). These meetings are held for the purpose of identifying issues and concerns that should be addressed in the EIS. Members of the INS Headquarters and U.S. Border Patrol Yuma and Tucson Sector staff will be present to provide the public with information.

For more information, contact either Mr. Joe Kamphear, INS Environmental Officer (949) 425-7081, INS Western Region, 24000 Avila Road, Laguna Niguel, CA. 92677 or Mr. Eric Verwers, Assistant Director, INS W-E Resource Center, (817) 978-0202.

Pub: 9/12/00
Req: GSR

Publisher's Affidavit of Publication

0O0

STATE OF ARIZONA }
COUNTY OF YUMA }

PUBLIC SCOPING MEETING

Notice is hereby given that pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, the U.S. Immigration and Naturalization Service will prepare a Programmatic Environmental Impact Statement to address operational activities conducted by the US Border Patrol Yuma and Tucson Sectors. These operations can include aerial reconnaissance, on and off road ground patrols, drag road maintenance, and remote sensing and surveillance operations. There will four separate public scoping meetings held in October for this project. The dates and locations are as follows:

Tucson, Arizona, October 3, 2000 [redacted] Convention Center [redacted] The address [redacted] Avenue, Tucson [redacted] 4, 2000 [redacted] the Days Inn [redacted] 849 N. Grand Avenue, Nogales [redacted] 2000, at the [redacted] Council Chambers, in the Administration Building, Yuma, Arizona, October 17, 2000 [redacted] Yuma [redacted] and Convention Center [redacted] address is: 1440 W. Desert Hills Drive, Yuma, Arizona.

These meetings will begin at 7:00 p.m. (local time). These meetings are held for the purpose of identifying issues and concerns that should be addressed in the PEIS. Members of the INS Headquarters and US Border Patrol Yuma and Tucson Sector staff will be present to provide the public with information.

For more information, contact either: Mr. Joe Lamphear, INS Environmental Officer (949) 425-7081, INS Western Region, 24000 Avila Road, Laguna Nigel, CA 92677 or Mr. Eric Verwers, Assistant Director, INS A-E Resource Center, [redacted]-0202.

Daily [redacted] 2000 L21609

Julie Moreno or Lee Knapp, having been first duly sworn, deposes and says: that The Yuma Daily Sun is a newspaper of general circulation published daily in the City of Yuma, County of Yuma, State of Arizona; that (s)he is the publisher or business manager of said paper; that the

PUBLIC SCOPING MEETING

a printed copy of which, as it appeared in said paper, is hereto attached and made a part of this affidavit, was published in The Yuma Daily Sun

For ONE issues; that the date of the first publication of said PUBLIC SCOPING MEETING

was SEPTEMBER 11 ,2000 and the date of the last publication being SEPTEMBER 11 ,2000 and that the dates when said

PUBLIC SCOPING MEETING

was printed and published in said paper were

SEPTEMBER 11, 2000

Lee Knapp

Subscribed and sworn to before me, by the said Julie Moreno or Lee Knapp

29th day of September, 2000

OFFICIAL SEAL
VIRGEN P PEREZ
Notary Public - State of Arizona
YUMA COUNTY
My Comm. Expires MAY 10, 2001

Virgen P. Perez Notary Public

My commission expires May 10, 2001

BW1 FOIA CBP 009836

The Daily Dispatch

530 11th Street, Douglas, AZ 85607 • (520) 364-3424

Monica Martinez, being first duly sworn deposes and says
that she is an agent of The Daily Dispatch, a daily newspaper, published in the City of Douglas, County of Cochise, State of Arizona: That the Notice, a copy of which is hereto attached, described as follows:

Public Scoping Meeting

was published daily in the entire and regular issue of said THE DAILY DISPATCH, for

1 consecutive weeks, the FIRST publication of said notice being

_____ in the issue dated

_____, and the LAST publication being in the issue dated

Aug. 2, 2000.

The deponent further says that the Notice was published in the newspaper proper, and not in a supplement thereof.

(SIGNED) Monica Martinez

Sworn and Subscribed to me this

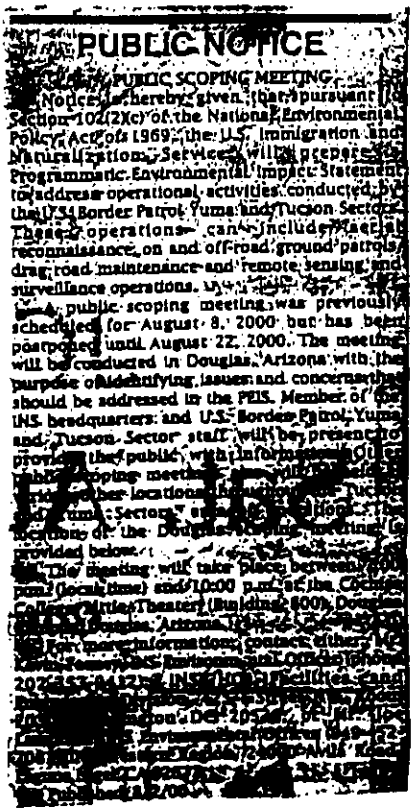
1st day of

September, 2000

OFFICIAL SEAL
LAWRENCE L. BLASKEY
NOTARY PUBLIC - ARIZONA
COCHISE COUNTY
My Comm. Expires June 2, 2003

Notary Public

My commission expires: June 2, 2003



PUBLIC NOTICE

PUBLIC SCOPING MEETING

Notice is hereby given that pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, the U.S. Immigration and Naturalization Service will prepare a Programmatic Environmental Impact Statement to address operational activities conducted by the U.S. Border Patrol Yuma and Tucson Sectors. These operations can include tactical reconnaissance, on and off-road ground patrols, drag road maintenance and remote sensing and surveillance operations.

A public scoping meeting was previously scheduled for August 8, 2000 but has been postponed until August 22, 2000. The meeting will be conducted in Douglas, Arizona with the purpose of identifying issues and concerns that should be addressed in the PEIS. Members of the INS headquarters and U.S. Border Patrol Yuma and Tucson Sector staff will be present to provide the public with information

The meeting will take place between 6:00 pm (local time) and 10:00 p.m. at the Cochise College Artist Theater (Building 600), Douglas, Arizona.

For more information, contact [redacted]

STAR PUBLISHING COMPANY

Tucson, Arizona

STATE OF ARIZONA)
COUNTY OF PIMA)

Janice Anderson, being first duly sworn deposes and says: that she is the Legal Advertising Representative of the STAR PUBLISHING COMPANY, a corporation organized and existing under the laws of the State of Arizona, and that the said STAR PUBLISHING COMPANY prints and publishes The Arizona Daily Star, a daily newspaper printed and published in the City of Tucson, Pima County, State of Arizona, and having a general circulation in said City, County, State and elsewhere, and that the attached

Legal Notice

was printed and published correctly in the entire issue of the said The Arizona Daily Star on each of the following dates, to-wit:

July 26, 2000

Janice Anderson

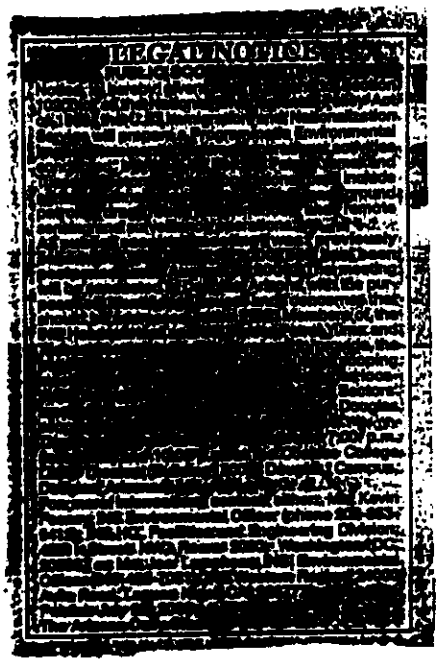
Subscribed and sworn to before me this 27th day of July, 2000

Notary Public

OFFICIAL SEAL
LYNETTE J. VAN ARB
NOTARY PUBLIC - ARIZONA
PIMA COUNTY
My Comm. Expires Sept. 2, 2001

My commission expires

TNI AD NO. 830552



Publisher's Affidavit of Publication

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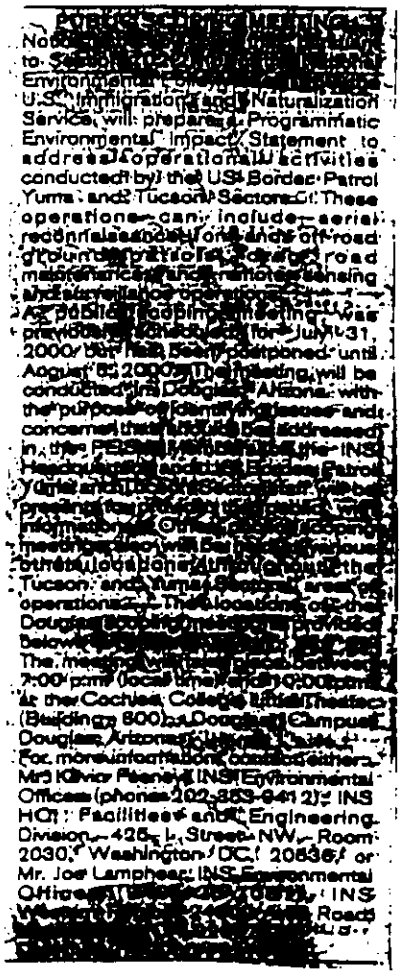
STATE OF ARIZONA }
COUNTY OF YUMA }



Samuel J. Pepper or Lee Knapp, having been first duly sworn, deposes and says: that The Yuma Daily Sun is a newspaper of general circulation published daily in the City of Yuma, County of Yuma, State of Arizona; that he is the publisher or business manager of said paper; that the

PUBLIC SCOPING MEETING

a printed copy of which, as it appeared in said paper, is hereto attached and made a part of this affidavit, was published in The Yuma Daily Sun

For ONE issues; that the date of the first publication of said PUBLIC SCOPING MEETING

was JULY 27 ,2000 and the date of the last publication being JULY 27 ,2000 and that the dates when said PUBLIC SCOPING MEETING

was printed and published in said paper were

JULY 27, 2000

Lee Knapp

Subscribed and sworn to before me, by the said Samuel J. Pepper or Lee Knapp

1st day of August, 2000

Virgen P. Perez Notary Public

My commission expires May 10, 2001

OFFICIAL SEAL
VIRGEN P PEREZ
Notary Public State of Arizona
YUMA COUNTY
My Comm Expires MAY 10, 2001

STAR PUBLISHING COMPANY

Tucson, Arizona

TATE OF ARIZONA)
OUNTY OF PIMA)

anice Anderson, being first duly sworn deposes and ays: that she is the Legal Advertising epresentative of the STAR PUBLISHING COMPANY, a orporation organized and existing under the laws f the State of Arizona, and that the said STAR UBLISHING COMPANY prints and publishes The Arizona aily Star, a daily newspaper printed and published n the City of Tucson, Pima County, State of rizona, and having a general circulation in said ity, County, State and elsewhere, and that the ttached

Legal Notice

as printed and published correctly in the entire ssue of the said The Arizona Daily Star on each of he following dates, to-wit:

July 18, 2000

Janice Anderson

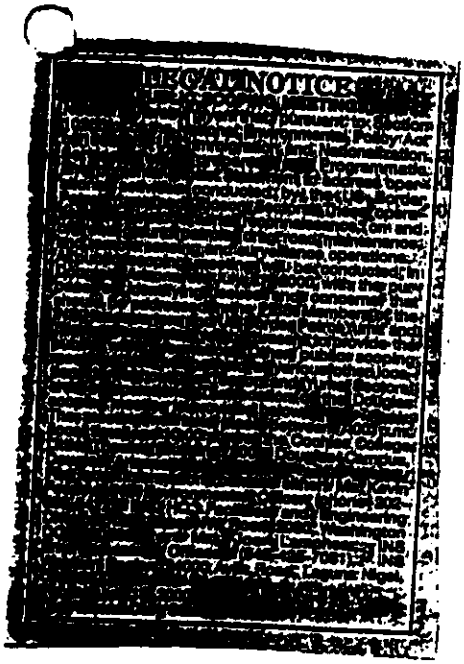
ubscribed and sworn to before me this 20th day f July, 2000

Notary Public

OFFICIAL SEAL
LYNETTE J. VAN ARB
NOTARY PUBLIC - ARIZONA
PIMA COUNTY
My Comm. Expires Sept. 2, 2001

y commission expires

NI AD NO. 819333


LEGAL NOTICE

BW1 FOIA CBP 009840

STATE OF ARIZONA)
:ss.
COUNTY OF COCHISE)

AFFIDAVIT OF PUBLICATION

KIMBERLY L. MARINUS being first duly sworn, deposes and says: That (he) (she) is the Agent to the Publisher of the SIERRA VISTA HERALD and the BISBEE DAILY REVIEW newspapers printed and published six days a week in the County of Cochise, State of Arizona, and of general circulation in the cities of Sierra Vista and Bisbee, County of Cochise, State of Arizona and elsewhere, and the hereto attached

SCOPE MEETING-
IMPACT STATEMENT TO
ADDRESS OPERATIONAL
ACTIVITIES CONDUCTED
BY US BORDER PATROL

was printed and published correctly in the regular and entire issue of said SIERRA VISTA HERALD and BISBEE DAILY REVIEW for 1 issues, that the first was made on the 16th day of JULY 2000 and the last publication thereof was made on the 16th day of JULY 2000 that said publication was made on each of the following dates, to wit:

07/16/00

PUBLIC NOTICE

PUBLIC SCOPING [illegible]

Notice is hereby given that pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, the U.S. Immigration and Naturalization Service will prepare a Programmatic Environmental Impact Statement to address the operational activities conducted by the US Border Patrol Yuma and Tucson Sectors. These operations can include aerial reconnaissance, on and off-road ground patrols, drag road maintenance, and remote sensing and surveillance operations.

A public scoping meeting will be conducted in Douglas, Arizona on July 31, 2000 with the purpose of identifying issues and concerns that should be addressed in the PEIS. Members of the INS Headquarters and US Border Patrol Yuma and Tucson Sector staff will be present to provide the public with information. Other public scoping meetings also will be held at various other locations throughout the Tucson and Yuma Sectors' area of operation. The location of the Douglas scoping meeting is provided below:

The meeting will take place between 7:00 p.m. (local time) and 10:00 p.m. at the Cochise College Little Theatre (Building 800), Douglas Campus, Douglas, Arizona. [illegible]

For more information, contact either Mr. Kevin Feeney, INS Environmental Officer (phone 202-353-[illegible]), INS HQ, [illegible] and Engineering Division, 425 I Street NW, Room [illegible], Washington DC 20536; or Mr. Joe Lamphear, INS Environmental Officer (949-425-7081), INS Western Region, 24000 Avila Road, Laguna Niguel, CA 92677.

Publish: July 16, 2000

Request of GULF SOUTH RESEARCH CORP.

Sierra Vista Herald
Bisbee Daily Review

By Deborah A. Marple

Subscribed sworn to before me this 16th day of JULY 2000

OFFICIAL SEAL
DEBORAH A. MARPLE
NOTARY PUBLIC ARIZONA
COCHISE COUNTY
My Comm. Expires June 30 2001

Notary Public in and for the County of Cochise, State of Arizona

My Commission Expires: 6/30/01

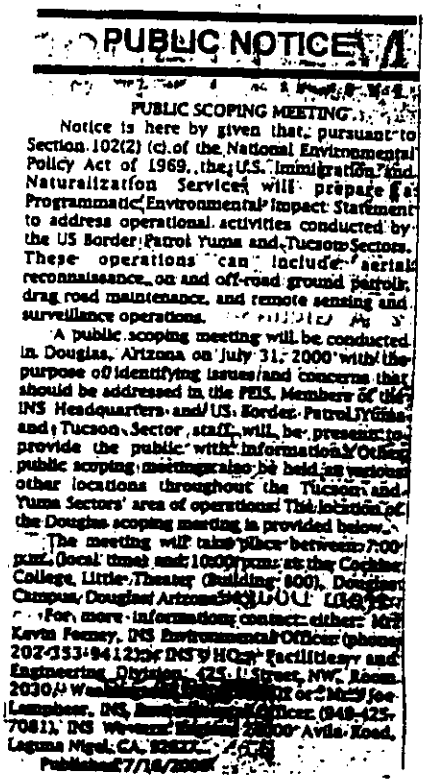
BW1 FOIA CBP 009841

The Daily Dispatch

530 11th Street, Douglas, AZ 85607 • (520) 364-3424

Monica Martinez, being first duly sworn deposes and says
that she is an agent of The Daily Dispatch, a daily newspaper, published in the City of Douglas, County of Cochise, State of Arizona: That the Notice, a copy of which is hereto attached, described as follows:

National Environmental Policy Act of 1969



PUBLIC NOTICE

PUBLIC SCOPING MEETING

Notice is here by given that, pursuant to Section 102(2) (c) of the National Environmental Policy Act of 1969, the U.S. Immigration and Naturalization Services will prepare a Programmatic Environmental Impact Statement to address operational activities conducted by the US Border Patrol Yuma and Tucson Sectors. These operations can include: aerial reconnaissance, on and off-road ground patrols, drag road maintenance, and remote sensing and surveillance operations.

A public scoping meeting will be conducted in Douglas, Arizona on July 31, 2000 with the purpose of identifying issues and concerns that should be addressed in the PEIS. Members of the INS Headquarters and US Border Patrol Yuma and Tucson Sector staff will be present to provide the public with information. Other public scoping meetings also be held in various other locations throughout the Tucson and Yuma Sectors' area of operations. The location of the Douglas scoping meeting is provided below.

The meeting will take place between 7:00 p.m. (local time) and 10:00 p.m. at the Cochise College, Little Theater (Building 800), Douglas Campus, Douglas, Arizona. [illegible]

For more information contact either: Mr. Kevin Feeney, INS Environmental Officer (phone 202-353-9412) or INS HQ's Facilities and Engineering Division, 425 I Street, NW, Room 2030, Washington, DC [illegible] or Mr. Joe Lamphear, INS, [illegible] Officer, (949-425-7081), INS Western Regional Office, 24000 Avila Road, Laguna Niguel, CA. 92677.

Published 7/16/2000

was published daily in the entire and regular issue of said THE DAILY DISPATCH, for

1 consecutive weeks, the FIRST publication of said notice being

_____ in the issue dated

_____, and the LAST publication being in the issue dated

July 16, 2000.

The deponent further says that the Notice was published in the newspaper proper, and not in a supplement thereof.

(SIGNED) Monica Martinez

Sworn and Subscribed to me this

18 day of

July, 2000

OFFICIAL SEAL
LAWRENCE L. BLASKEY
NOTARY PUBLIC - ARIZONA
COCHISE COUNTY
My Comm. Expires June 2, 2003

Notary Public

My commission expires: June 2, 2003

Publisher's Affidavit of Publication

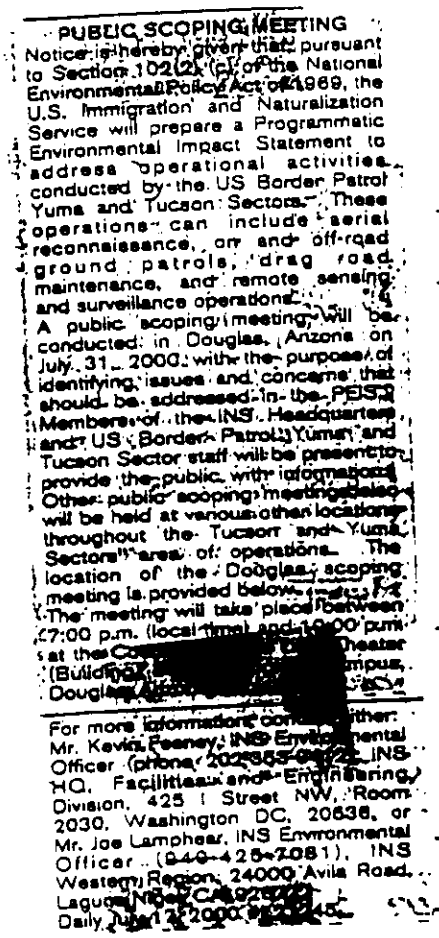
80306005

000

STATE OF ARIZONA }
COUNTY OF YUMA }

Samuel J. Pepper or Lee Knapp, having been first duly sworn, deposes and says: that The Yuma Daily Sun is a newspaper of general circulation published daily in the City of Yuma, County of Yuma, State of Arizona; that he is the publisher or business manager of said paper; that the

PUBLIC SCOPING MEETING



PUBLIC SCOPING MEETING
Notice is hereby given that pursuant to Section 102(2)(C) of the National Environmental Policy Act of 1969, the U.S. Immigration and Naturalization Service will prepare a Programmatic Environmental Impact Statement to address operational activities conducted by the US Border Patrol Yuma and Tucson Sectors. These operations can include aerial reconnaissance, on and off-road ground patrols, drag road maintenance, and remote sensing and surveillance operations.
A public scoping meeting will be conducted in Douglas, Arizona on July 31, 2000, with the purpose of identifying issues and concerns that should be addressed in the PEIS. Members of the INS Headquarters and US Border Patrol Yuma and Tucson Sector staff will be present to provide the public with information. Other public scoping meetings also will be held at various other locations throughout the Tucson and Yuma Sectors' areas of operations. The location of the Douglas scoping meeting is provided below. The meeting will take place between 7:00 p.m. (local time) and 10:00 p.m. at the Co[redacted] Theater (Building [redacted] mpus, Douglas, Arizona.
For more information contact either: Mr. Kevin Feeney, INS Environmental Officer (phone 202/353-[redacted]), INS HQ, Facilities and Engineering, Division, 425 I Street NW, Room 2030, Washington DC, 20536, or Mr. Joe Lamphear, INS Environmental Officer (949-425-7081), INS Western Region, 24000 Avila Road, Laguna Niguel, CA 92677.
Daily July 17, 2000 [illegible]

a printed copy of which, as it appeared in said paper, is hereto attached and made a part of this affidavit, was published in The Yuma Daily Sun

For ONE issues; that the date of the first publication of said PUBLIC SCOPING MEETING

was JULY 17 ,2000 and the date of the last publication being JULY 17 ,2000 and that the dates when said PUBLIC SCOPING MEETING

was printed and published in said paper were

JULY 17, 2000

Lee Knapp

Subscribed and sworn to before me, by the said Samuel J. Pepper or Lee Knapp

1st day of August, 2000

Virgen P. Perez Notary Public

My commission expires May 10, 2001

PUBLIC SCOPING MEETINGS SUMMARY REPORT

Scoping meetings for the Programmatic Environmental Impact Statement (PEIS) for the U.S. Border Patrol (USBP) Tucson and Yuma Sectors were held at five locations. The following paragraphs describe the information presented to the audience and the individual comments made by the public. The summaries are divided into the locations of which these public scoping meetings were held. All general categories are included in these summary descriptions in descending order of the frequency in which they were made at each meeting. A summary list of the comments that are relevant to incorporation into the PEIS is included at the end.

SUMMARY OF SPEAKERS

A U.S. Army Corps of Engineers' representative moderated each meeting. He briefly discussed the project and introduced the various speakers for the evening. Border Patrol agents representing each sector included in this project briefly discussed problems encountered in their areas, the hazards of crossing the border, a general list of the projects anticipated for implementation within their respective sectors, and the benefits to the public for patrolling these areas. In addition, the National Environmental Policy Act (NEPA) process was discussed so that everyone attending the meeting would have a better understanding of how this project would be investigated and completed.

I Douglas, Arizona: Cochise College, Building 800, on 22 August 2000, at 7:00 p.m.

Scheduled Speakers: 4
Commenting Participants: 10

Comments Presented:

1. Concern and frustration about the confusion of the starting time of the meeting.

2. Off-road USBP traffic and environmental impacts to the desert habitat. Dragging operations are also a concern especially in sensitive areas such as the Coronado National Forest and Cabeza Prieta.

3. Concerns and opposition, in general, to the numerous on-going and possible future construction activities along the border.

4. Requests for mandatory training of the Border Patrol agents in cultural sensitivity and within the indigenous people such as the Tohono O'odham Nation.

5. Desire to de-militarize the entire border and opposition to border fences or barriers and any harassment of individuals crossing the border.

6. Numerous comments were expressed on the type of analyses that should be conducted during this study. The suggested analyses include:

   - Noise, air and water quality
   - Economic and environmental impacts
   - Archeological impacts

- Coordination and communication with the tribal nations
- The amount of radiation released from the communication devices proposed and how it will impact the wildlife
- Impacts to wildlife and individuals due to low-flying aircraft
- Specific analysis on the protected and sensitive species of the desert
- Stadium lighting effects on wildlife
- Construction of barriers or border fence impacts on wildlife corridors

7. Suggestion to conduct a public meeting in Sells, Arizona, to ensure the Tohono O'odham Nation is included in the scoping process.

8. Concerns about the format and frequency of the public notices.

9. Concern about accumulation of trash and the accusation that USBP requires apprehended aliens to leave their belongings on the ground.

10. Terminology should be politically correct (illegal, criminal, etc.) when describing the individuals apprehended while crossing the border.

II. Tucson, Arizona: Tucson Convention Center, on 3 October 2000, at 7:00 p.m.

Scheduled Speakers: 4
Commenting Participants: 34

Comments Presented:

1. Concern about stadium lighting effects on a variety of species.

2. Impacts of the barriers and surveillance equipment to be constructed and erected along the border.

3. Analysis of the cumulative impacts of all proposed border activities of INS.

4. The socioeconomic impacts of increasing the patrols along the border, as well as the effects of harassment, intimidation and apprehensions.

5. Environmental impacts of off-road vehicular use within sensitive areas in the desert.

6. Impacts to the wildlife due to aircraft noise (low-flying).

7. Addressing and disclosing all INS activities along the southwest border.

8. Addressing all alternatives fully and analysis concerning the environmental benefits of removing the Border Patrol responsibilities along the southwest border.

9. Concerns about the militarization of the border and the impacts to the residents.

10. Suggestions to better train the agents patrolling the area in human right issues and cultural sensitivity.

11. Concerns about the number of deaths that have occurred in the area of individuals attempting to cross the border and why they occurred.

12. Concerns about the format and frequency of the public notices.

13. Desire to de-militarize the entire border and opposition to border fences or barriers and any harassment of individuals crossing the border.

14. Desire to completely open the borders to anyone wanting to enter the US.

III. Nogales, Arizona: Days Inn, on 4 October 2000, at 7:00 p.m.

Scheduled Speakers: 4
Commenting Participants: 14

Comments Presented:

1. Appreciation for the Border Patrol agents protecting their land and families.

2. Increased in the quality of life within the Nogales area due to the decrease in the destruction on their private property, such as fences bordering their ranches, trash, and residence. This has assisted in the economic development of the community.

3. Discuss number of alien lives that the Border Patrol has saved while illegal aliens were trying to cross treacherous terrains.

4. Concerns of disrupting the nightly activities of nocturnal animals, some of which are sensitive or protected species.

5. Request made to better train the agents for human and civil rights, especially for people of color.

6. Concern for USBP off-road vehicular traffic within sensitive habitat areas. A number of residents noticed Border Patrol agents driving off-road on to sensitive habitat areas for protected species. It was suggested that the agents maintain their vehicles and ATVs on the established roads.

IV. Sells, Arizona: at the Legislative Council Chambers, on 5 October 2000, at 7:00 p.m.

Scheduled Speakers: 4
Commenting Participants: 6

Comments Presented:

1. Gratitude for the presence of the Border Patrol agents in the area.

2. Concerns about USBP agent training, especially cultural sensitivity. Some felt that the agents harass people within this Nation even though they may know these individuals.

3. Concerns about the format and frequency of the public notices.

4. Concerns about the speeding Border Patrol vehicles and public safety.

5. Concerns about dragging operations that have caused erosion and consequential damage to roads and fences. Concerns by the ranchers of the agents not closing the fences, or repairing the fences damaged while apprehending or patrolling the area. This allows the cattle to leave their property.

6. Concern about accumulation of trash and the accusation that USBP requires apprehended aliens to leave their belongings on the ground. It was mentioned that this problem should be resolved by the Border Patrol since they knew the "hot spots", areas where most illegal entries occur.

7. Concern and frustration about the confusion of the starting time of the meeting held in Douglas. Also concerned about the format of the meeting, particularly the five-minute time limit provided to speakers.

8. Request to conduct another series of meetings after the draft EIS is released for reviewed by the public.

9. The draft EIS should list as many alternatives as possible.

V. Yuma, Arizona: Yuma Civic and Convention Center, on 17 October 2000, at 7:00 p.m.

Scheduled Speakers: 4
Commenting Participants: 2

Comments Presented:

1. The Border Patrol and Department of Justice should be careful not to violate the Arizona Desert Wilderness Act established in the 1980s.

2. A programmatic approach should be done for the entire border concerning any NEPA studies.

3. EIS should address indirect effects of the Border Patrols concentrated efforts in urban areas which may cause illegal crossings in less developed areas of higher environmental values.

Written comments presented by Federal, state, and local agencies, organizations, and individuals are listed below:

1. The restriction of off-road vehicle use within sensitive desert areas.

2. Training the Border Patrol agents in cultural sensitivity and human rights.

3. Analyze the cumulative effects of socio-economic, environmental and environmental justice issues of the daily operations of the Border Patrol activities, as well as the ongoing actions within the Sonoran Desert.

4. Analysis on the impacts of the undocumented aliens traveling through ecologically sensitive areas, and the protection of the wilderness areas.

5. Full disclosure of all INS activities occurring along the southwest border, and the effects/benefits of removing the Border Patrol from this area.

SUMMARY OF SIGINFICANT COMMENTS AND ISSUES

The following is a list of the issues that were identified during the scoping process which is contained within the scope of the PEIS and, thus, will be addressed in the PEIS. Other comments and issues (e.g., confusion of starting time of Douglas meeting, demilitarization of the border, nationwide effects of Border Patrol activities, etc.) are beyond the scope of this PEIS and will not be addressed. These comments and issues will, of course, be identified in the public involvement section of the PEIS, but will not included in the alternatives formulation or impact analysis.

1. Impacts to desert ecosystem and cultural resources from off-road traffic and dragging operations.
2. Indirect effects of illegal immigration traffic in remote areas once urban areas are controlled.
3. Training of USBP agents in cultural sensitivity.
4. Reduction and control of trash left behind by illegal aliens.
5. Public safety concerns (vehicular speed and rescue operations).
6. Overflight impacts on wildlife, especially protected species.
7. Coordination with Native American Nations.
8. Impacts to vegetation and wildlife from lights.
9. Radiation effects of communication and other technological devices.
10. Socioeconomic benefits due to reduction in crime and trespassing.
11. Impacts to wildlife migration due to fence construction.
12. Loss of habitat due to infrastructure construction.

CORRESPONDENCE

U.S. Department of Justice
Immigration and Naturalization Service
Architect-Engineer Resource Center

Attention: CESWF-PM-INS
819 Taylor Street, Room 3A28
P.O. Box 17300
Fort Worth, TX 76102-0300

October 20, 2000

U.S. Fish and Wildlife Service
ATTN: (b) (6)
2730 Loker Avenue West
Carlsbad, CA 92008

Dear (b) (6)

The Immigration and Naturalization Service (INS) intends to prepare an Environmental Impact Statement (EIS) addressing U.S. Border Patrol (USBP) activities along the U.S.-Mexico Border in Arizona and a portion of California. We are currently in the process of gathering the most current information available regarding Federally listed species potentially occurring within the project area.

INS would like to formally request a current list of Federally protected species potentially occurring in Imperial County. Any information you may have regarding critical habitat areas for these species would also be greatly appreciated. To better assess potential impacts to these species, we would like to present as much data in a GIS format as possible. Any GIS information, or information sources, you could provide regarding current distribution of the protected species would also be very helpful.

If you have any questions, or require additional information, please contact me at (b)(6)(b)(7)(C) Thank you for your prompt attention and cooperation.

Sincerely,

(b)(6);(b)(7)(C) Assistant Director
Immigration and Naturalization Service,
A/E Resource Center

U.S. Department of Justice
Immigration and Naturalization Service
Architect-Engineer Resource Center

Attention: CESWF-PM-INS
819 Taylor Street, Room 3A28
P.O. Box 17300
Fort Worth, TX 76102-0300

September 28, 2000

U.S. Fish and Wildlife Service
ATTN: (b) (6)
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951

Dear (b) (6)

The Immigration and Naturalization Service (INS) intends to prepare an Environmental Impact Statement (EIS) addressing U.S. Border Patrol (USBP) activities along the U.S.-Mexico Border in Arizona. We are currently in the process of gathering the most current information available regarding Federally listed species potentially occurring within the USBP Tucson and Yuma Sectors. Operational activities of the Tucson Sector are concentrated in Cochise, Pima, Yuma, and Santa Cruz counties of Arizona.

A current list of Federally threatened or endangered species that potentially occur in these counties is included as attachment A. Please review this list for accuracy and completeness. Any information you may have regarding potential or known presence, critical habitat, general habitat, descriptions, distribution, and status of these species would be greatly appreciated. To better assess potential impacts to these species, we would like to present as much data in a GIS format as possible. Any GIS information, or information sources, you could provide regarding current distribution of the above mentioned species would also be appreciated. Additionally, any past Biological Opinions prepared by the USFWS for these species would be very helpful.

We look forward to working with you on this project. If you have any questions, or require additional information, please contact me at (b)(6)(b)(7)(C) Thank you for your prompt attention and cooperation.

Sincerely,

(b)(6)(b)(7)(C) Assistant Director
Immigration and Naturalization Service
A/E Resource Center

Threatened and Endangered Species

Listing by County in southern Arizona

(Tucson and Yuma USBP Sectors)

Common Name	Scientific Name	Listing Status	County
Beautiful shiner	*Cyprinella formosa*	Threatened	Cochise
Canelo Hills ladies'tresses	*Spiranthes delitescens*	Endangered	Cochise, Santa Cruz
Cochise pincushion cactus	*Coryphantha robbinsorum*	Threatened	Cochise
Desert pupfish	*Cyprinodon macularius*	Endangered	Santa Cruz, Pima
Gila topminnow	*Poeciliopsis occidentalis occidentales*	Endangered	Cochise, Santa Cruz, Pima
Huachuca water umbel	*Lilaeopsis schaffneriana recurva*	Endangered	Cochise, Santa Cruz, Pima
Jaguar	*Panthera onca*	Endangered	Cochise, Santa Cruz, Pima
Jaguarundi	*Felis yagouaroundi cacomitli*	Endangered	Cochise, Santa Cruz, Pima
Kearney's blue star	*Amsonia kearneyana*	Endangered	Pima
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	Endangered	Cochise, Santa Cruz, Pima
Masked bobwhite	*Colinus virginianus ridgwayi*	Endangered	Pima
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	Cochise, Santa Cruz, Pima
New Mexico ridge-nosed rattlesnake	*Crotalus willardi obscurus*	Threatened	Cochise
Nichol's Turk's head cactus	*Echinocactus horizonthalonius nicholii*	Endangered	Pima, Yuma
Northern aplomado falcon	*Falco femoralis septentrionalis*	Endangered	Cochise, Santa Cruz
Ocelot	*Felis pardalis*	Endangered	Cochise, Santa Cruz, Pima
Pima pineapple cactus	*Coryphantha scheeri robustispina*	Endangered	Santa Cruz, Pima
Razorback sucker	*Xyrauchen texanus*	Endangered	Yuma
San Xavier talussnail	*Sonorella eremita*	Species of Concern	Pima
Sonora tiger salamander	*Ambystoma tigrinum stebbinsi*	Endangered	Cochise, Santa Cruz
Sonoran pronghorn	*Antilocapra americana sonoriensis*	Endangered	Pima, Yuma
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Cochise, Santa Cruz, Pima, Yuma
Yaqui catfish	*Ictalurus pricei*	Threatened	Cochise
Yaqui chub	*Gila purpurea*	Endangered	Cochise
Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered	Yuma

U.S. Department of Justice
Immigration and Naturalization Service
Architect-Engineer Resource Center

Attention: CESWF-PM-INS
819 Taylor Street, Room 3A28
P.O. Box 17300
Fort Worth, TX 76102-0300

September 28, 2000

U.S. Department of Agriculture
Tucson Office
Plant Services Division
400 W. Congress, Suite 124
Tucson, AZ 85710

To Whom It May Concern:

The Immigration and Naturalization Service (INS) intends to prepare an Environmental Impact Statement (EIS) addressing U.S. Border Patrol (USBP) activities along the U.S.-Mexico Border in Arizona. We are currently in the process of gathering the most current information available regarding Federally listed species potentially occurring within the USBP Tucson and Yuma Sectors. Operational activities of the Tucson Sector are concentrated in Cochise, Pima, Yuma, and Santa Cruz counties of Arizona.

The INS AERC respectfully requests that your agency provide a list and/or description of the native plants that you believe may be affected by the USBP activities in this area. We intend to provide your agency with a copy of the Draft EIS once it is completed. Please inform us if additional copies are needed and/or if someone else within your agency other than you should receive the Draft EIS.

We look forward to working with you on this project. If you have any questions, or require additional information, please contact me at (b)(6)(b)(7)(C) Thank you for your prompt attention and cooperation.

Sincerely,

(b)(6)(b)(7)(C) Assistant Director
Immigration and Naturalization Service
A/E Resource Center

U.S. Department of Justice
Immigration and Naturalization Service
Architect-Engineer Resource Center

Attention: CESWF-PM-INS
819 Taylor Street, Room 3A28
P.O. Box 17300
Fort Worth, TX 76102-0300

September 28, 2000

Arizona Game and Fish Department
ATTN: (b) (6)
9140 E. County 10½ Street
Yuma, Arizona 85365

Dear (b) (6)

The Immigration and Naturalization Service (INS) intends to prepare an Environmental Impact Statement (EIS) addressing U.S. Border Patrol (USBP) activities along the U.S.-Mexico Border in Arizona. We are currently in the process of gathering the most current information available regarding Federally listed species potentially occurring within the USBP Tucson and Yuma Sectors. Operational activities of the Tucson Sector are concentrated in Cochise, Pima, Yuma, and Santa Cruz counties of Arizona.

A current list of Federally threatened or endangered species that potentially occur in these counties is included as attachment A. Please review this list for accuracy and completeness. Any information you may have regarding potential or known presence, critical habitat, general habitat, descriptions, distribution, and status of these species would be greatly appreciated. To better assess potential impacts to these species, we would like to present as much data in a GIS format as possible. Any GIS information, or information sources, you could provide regarding current distribution of the above mentioned species would also be appreciated. Additionally, any past Biological Opinions prepared by the USFWS for these species would be very helpful.

We look forward to working with you on this project. If you have any questions, or require additional information, please contact me at (b)(6)(b)(7)(C) Thank you for your prompt attention and cooperation.

Sincerely,

(b)(6)(b)(7)(C) Assistant Director
Immigration and Naturalization Service
A/E Resource Center

APPENDIX B
LIST OF COMMON WILDLIFE SPECIES IN STUDY AREA

Appendix C
State Protected Species of Potential Occurrence in Cochise County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Mexican long-tongued bat	*Choeronycteris mexicana*	SC	WC	--
western red bat	*Lasiurus blossevillii*	--	WC	--
lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E	WC	--
jaguar	*Panthera onca*	E	WC	--
Arizona shrew	*Sorex arizonae*	SC	WC	--
BIRDS				
northern goshawk	*Accipiter gentilis*	SC	WC	--
violet-crowned hummingbird	*Amazilia violiceps*	--	WC	--
Baird's sparrow	*Ammodramus bairdii ammordramus*	SC	WC	--
Sprague's pipit	*Anthus spragueii*	--	WC	--
northern gray hawk	*Asturina nitida maxima*	SC	WC	--
common black-hawk	*Buteogallus anthracinus*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
black-bellied whistling duck	*Dendrocygna autumnalis*	--	WC	--
northern buff-breasted flycatcher	*Empidonax fulvifrons pygmaeus*	SC	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
American peregrine falcon	*Falco peregrinus anatum*	SC	WC	--
Mississippi kite	*Ictinia mississippiensis*	--	WC	--
Mexican spotted owl	*Strix occidentalis lucida*	T	WC	--
elegant trogon	*Trogon elegans tyrannus*	--	WC	--
thick-billed kingbird	*Crassirostris tyrannus*	--	WC	--
tropical kingbird	*Melancholicus agosia*	--	WC	--
REPTILES				
Arizona ridgenose rattlesnake	*Crotalus willardi willardi*	--	WC	--
Sonoran desert tortoise	*Gopherus agassizii*	SC	WC	--
desert massasauga	*Sistrurus catenatus edwardsi*	--	WC	--
Mexican garter snake	*Thamnophis eques megalops*	SC	WC	--
AMPHIBIANS				
Sonoran tiger salamander	*Ambystoma tigrinum stebbinsi*	E	WC	--
western barking frog	*Eleutherodactylus augusti cactorum*	--	WC	--
plains leopard frog	*Rana blairi*	--	WC	--
Chiricahua leopard frog	*Rana chiricahuensis*	PT	WC	--
Ramsey Canyon leopard frog	*Rana subaquavocalis*	SC	WC	--
lowland leopard frog	*Rana yavapaiensis*	SC	WC	--
FISHES				
gila chub	*Gila intermedia*	C	WC	--
Yaqui chub	*Gila purpurea*	E	WC	--
roundtail chub	*Gila robusta*	SC	WC	--
Yaqui catfish	*Poeciliopsis occidentalis sonoriensis*	E	WC	--
loach minnow	*Tiaroga cobitis*	T	WC	--
PLANTS				
plummer onion	*Allium plummerae*	--	--	SR
redflower onion	*Allium rhizomatum*	--	--	SR

Cochise County Continued.

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
chiricahua rock flower	*Apacheria chiricahueniss*	--	--	SR
coppermine milk-vetch	*Cobrensis var. maguirei*	SC	--	SR
Huachuca milk-vetch	*Astragalus hypoxylus*	SC	--	SR
playa spider plant	*Cleome multicaulis*	SC	--	SR
Santa Cruz beehive cactus	*Coryphantha recurvata*	--	--	HS
Cochise pincushion cactus	*Coryphantha robbinsorum*	T	--	HS
slender needle corycactus	*Coryphantha scheeri var. valida*	--	--	SR
cob corycactus	*Coryphantha strobiliformis*	--	--	SR
pinaleno hedgehod cactus	*Echinocereus ledingii*	--	--	SR
Texas rainbow cactus	*Echinocereus pectinatus var. pectinatus*	--	--	SR
needle-spined pineapple cactus	*Echinomastus erectocentrus var. erectocentrus*	SC	--	SR
button cactus	*Epithelantha micromeris*	--	--	SR
chiricahua fleabane	*Erigeron kuschei*	SC	--	SR
lemmon fleabane	*Erigeron lemmonii*	C	--	HS
San Carlos wild-buckwheat	*Eriogonum capillare*	SC	--	SR
woodland spurge	*Euphorbia macropus*	SC	--	SR
Wislizeni gentian	*Gentianella wislizeni*	SC	--	SR
Bartram stonecrop	*Graptopetalum bartramii*	SC	--	SR
crested coral root	*Hexalectris spicata*	--	--	SR
Texas purple spike	*Hexalectris warnockii*	SC	--	HS
Huachuca water umbel	*Lilaeopsis schaffneriana var. recurva*	E	--	HS
lemmon lily	*Lilium parryi*	SC	--	SR
leafy lobelia	*Lobelia fenestralis*	--	--	SR
Madrean adders mouth	*Malaxis corymbosa*	--	--	SR
purple adders mouth	*Malaxis porphyrea*	--	--	SR
slender adders mouth	*Malaxis tenuis*	--	--	SR
varied fishhook cactus	*Mammillaria viridiflora*	--	--	SR
Wilcox fishook cactus	*Mammillaria wrightii var. wilcoxii*	--	--	SR
catalina beardtongue	*Penstemon discolor*	--	--	HS
Chiricahua rock daisy	*Cochisensis phyllanthus*	--	--	SR
Thurber's bog orchid	*Platanthera limosa polemonium*	--	--	SR
blumer's dock	*Rumex orthoneurus*	SC	--	HS
fallen ladies'-tresses	*Schiedeella parasitica*	--	--	SR
Huachuca groundsel	*Senecio huachucanus*	--	--	HS
canelo hills ladies'-tresses	*Spiranthes delitescens*	E	--	HS
Michoacan ladies'-tresses	*Stenorrhynchos michuacanus*	--	--	SR
tepic flame flower	*Talinum marginatum*	SC	--	SR
limestone Arizona rosewood	*Vauquelinia californica* spp. *pauciflora*	SC	--	SR
green death camas	*Zigadenus virescens*	--	--	SR

State Protected Species of Potential Occurrence in Pima County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Sonoran pronghorn	*Antilocapra americana sonoriensis*	E	WC	--
Mexican long-tongued bat	*Choeronycteris mexicana*	SC	WC	--
western red bat	*Lasiurus blossevillii*	--	WC	--
lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E	WC	--
California leaf-nosed bat	*Macrotus californicus*	SC	WC	--
jaguar	*Panthera onca*	E	WC	--
BIRDS				
northern goshawk	*Accipiter gentilis*	SC	WC	--
baird's sparrow	*Ammodramus bairdii ammordramus*	SC	WC	--
northern gray hawk	*Asturina nitida maxima*	SC	WC	--
common black-hawk	*Buteogallus anthracinus*	--	WC	--
crested caracara	*Caracara cheriway*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
masked bobwhite	*Colinus virginianus ridgwayi*	E	WC	--
black-bellied whistling duck	*Dendrocygna autumnalis*	--	WC	--
northern buff-breasted flycatcher	*Empidonax fulvifrons pygmaeus*	SC	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
American peregrine falcon	*Falco peregrinus anatum*	SC	WC	--
cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	E	WC	--
rose-throated becard	*Pachyramphus aglaiae*	--	WC	--
osprey	*Pandoin haliaetus*	--	WC	--
Mexican spotted owl	*Strix occidentalis lucida*	T	WC	--
thick-billed kingbird	*Crassirostris tyrannus*	--	WC	--
tropical kingbird	*Melancholicus agosia*	--	WC	--
REPTILES				
Sonoran desert tortoise	*Gopherus agassizii*	SC	WC	--
Mexican garter snake	*Thamnophis eques megalops*	SC	WC	--
cowles fringe-toed lizard	*Uma notata rufopunctata*	SC	WC	--
AMPHIBIANS				
great plains narrowmouth toad	*Gastrophyryne olivacea*	--	WC	--
lowland burrowing treefrog	*Pternohyla fodiens*	--	WC	--
Chiricahua leopard frog	*Rana chiricahuensis*	PT	WC	--
lowland leopard frog	*Rana yavapaiensis*	SC	WC	--
FISHES				
Quitobaquito desert pupfish	*Cyprinodon macularius eremus*	E	WC	--
desert pupfish	*Cyprinodon macularius macularius*	E	WC	--
gila chub	*Gila intermedia*	C	WC	--
gila topminnow	*Poeciliopsis occidentalis occidentalis*	E	WC	--
PLANTS				
Pima indian mallow	*Abutilon parishii*	SC	--	SR
thurber indian mallow	*Abutilon thurberi*	--	--	SR
Santa Cruz striped agave	*Agave parviflora ssp. parviflora*	SC	--	HS
trelease agave	*Agave schottii var. treleasei*	SC	--	HS
goodding onion	*Allium gooddingii*	SC	--	HS
plummer onion	*Allium plummerae*	--	--	SR

Pima County Continued.

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
saiya	*Amoreuxia gonzalezii*	SC	--	HS
Kearney's blue star	*Amsonia kearneyana*	E	--	HS
Pima pineapple cactus	*Coryphantha scheeri var. robustispina*	E	--	HS
gentry indigo bush	*Dalea tentaculoides*	--	--	HS
Nichol turk's head cactus	*Echinocactus horizonthalonius var. nicholii*	E	--	HS
acuna cactus	*Echinomastus erectocentrus var. acunensis*	C	--	HS
needle-spined pineapple cactus	*Echinomastus erectocentrus var. erectocentrus*	SC	--	SR
San Carlos wild-buckwheat	*Eriogonum capillare*	SC	--	SR
golden barrel cactus	*Ferocactus eastwoodiae*	--	--	SR
Bartram stonecrop	*Graptopetalum bartramii*	SC	--	SR
crested coral root	*Hexalectris spicata*	--	--	SR
Huachuca water umbel	*Lilaeopsis schaffneriana var. recurva*	E	--	HS
lemmon lily	*Lilium parryi*	SC	--	SR
broadleaf twayblade	*Listera convallarioides*	--	--	SR
senita	*Lophocereus schottii*	--	--	SR
feather bush	*Microphylla var. thornberi*	--	--	SR
slender adders mouth	*Malaxis tenuis*	--	--	SR
fishhook cactus	*Mammillaria mainiae*	--	--	SR
thornber fishhook cactus	*Mammillaria thornberi*	--	--	SR
varied fishhook cactus	*Mammillaria viridiflora*	--	--	SR
dahlia rooted cereus	*Neoevansia striata*	--	--	SR
catalina beardtongue	*Penstemon discolor*	--	--	HS
Ajo rock daisy	*Perityle ajoensis*	--	--	SR
Thurber's bog orchid	*Platanthera limosa polemonium*	--	--	SR
fallen ladies'-tresses	*Schiedeella parasitica*	--	--	SR
organ pipe cactus	*Stenocereus thurberi*	--	--	SR
blue sand lily	*Palmeri tumamoca*	--	--	SR
tumamoc globeberry	*Macdougalii vauquelinia*	--	--	SR

State Protected Species of Potential Occurrence in Santa Cruz County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Mexican long-tongued bat	*Choeronycteris mexicana*	SC	WC	--
western red bat	*Lasiurus blossevillii*	--	WC	--
lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E	WC	--
California leaf-nosed bat	*Macrotus californicus*	SC	WC	--
Arizona shrew	*Sorex arizonae*	SC	WC	--
BIRDS				
northern goshawk	*Accipiter gentilis*	SC	WC	--
violet-crowned hummingbird	*Amazilia violiceps*	--	WC	--
baird's sparrow	*Ammodramus bairdii ammordramus*	SC	WC	--
Sprague's pipit	*Anthus spragueii*	--	WC	--
northern gray hawk	*Asturina nitida maxima*	SC	WC	--
common black-hawk	*Buteogallus anthracinus*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
black-bellied whistling duck	*Dendrocygna autumnalis*	--	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
American peregrine falcon	*Falco peregrinus anatum*	SC	WC	--
cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	E	WC	--
rose-throated becard	*Pachyramphus aglaiae*	--	WC	--
osprey	*Pandion haliaetus*	--	WC	--
black-capped gnatcatcher	*Polioptila nigriceps*	--	WC	--
Mexican spotted owl	*Strix occidentalis lucida*	T	WC	--
elegant trogon	*Trogon elegans tyrannus*	--	WC	--
thick-billed kingbird	*Crassirostris tyrannus*	--	WC	--
tropical kingbird	*Melancholicus agosia*	--	WC	--
REPTILES				
Arizona ridgenose rattlesnake	*Crotalus willardi willardi*	--	WC	--
Mexican vine snake	*Oxybelis aeneus*	--	WC	--
Mexican garter snake	*Thamnophis eques megalops*	SC	WC	--
AMPHIBIANS				
Sonoran tiger salamander	*Ambystoma tigrinum stebbinsi*	E	WC	--
western barking frog	*Eleutherodactylus augusti cactorum*	--	WC	--
great plains narrowmouth toad	*Gastrophryne olivacea*	--	WC	--
Chiricahua leopard frog	*Rana chiricahuensis*	PT	WC	--
lowland leopard frog	*Rana yavapaiensis*	SC	WC	--
FISHES				
Sonoran chub	*Gila ditaenia*	T	WC	--
gila chub	*Gila intermedia*	C	WC	--
roundtail chub	*Gila robusta*	SC	WC	--
gila topminnow	*Poeciliopsis occidentalis occidentalis*	E	WC	--
PLANTS				
Pima indian mallow	*Abutilon parishii*	SC	--	SR
Santa Cruz striped agave	*Agave parviflora ssp. parviflora*	SC	--	HS
redflower onion	*Allium rhizomatum*	--	--	SR
saiya	*Amoreuxia gonzalezii*	SC	--	HS
Huachuca milk-vetch	*Astragalus hypozylus*	SC	--	SR

Santa Cruz County Continued.

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
Santa Cruz beehive cactus	*Coryphantha recurvata*	--	--	HS
Pima pineapple cactus	*Coryphantha scheeri var. robustispina*	E	--	HS
gentry indigo bush	*Dalea tentaculoides*	SC	--	HS
woodland spurge	*Euphorbia macropus*	SC	--	SR
Bartram stonecrop	*Graptopetalum bartramii*	SC	--	SR
crested coral root	*Hexalectris spicata*	--	--	SR
Huachuca water umbel	*Lilaeopsis schaffneriana var. recurva*	E	--	HS
lemmon lily	*Lilium parryi*	SC	--	SR
leafy lobelia	*Lobelia fenestralis*	--	--	SR
Mexican lobelia	*Lobelia laxiflora*	--	--	SR
supine bean	*Macroptilium supinum*	SC	--	SR
Madrean adders mouth	*Malaxis corymbosa*	--	--	SR
purple adders mouth	*Malaxis porphyrea*	--	--	SR
Wilcox fishook cactus	*Mammillaria wrightii var. wilcoxii*	--	--	SR
catalina beardtongue	*Penstemon discolor*	--	--	HS
whisk fern	*Psilotum nudum*	--	--	HS
fallen ladies'-tresses	*Schiedeella parasitica*	--	--	SR
Huachuca groundsel	*Senecio huachucanus*	--	--	HS
canelo hills ladies'-tresses	*Spiranthes delitescens*	E	--	HS
Pinos Altos flame flower	*Talinum humile*	SC	--	SR
tepic flame flower	*Talinum marginatum*	SC	--	SR

State Protected Species of Potential Occurrence in Yuma County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Sonoran pronghorn	*Antilocapra americana sonoriensis*	E	WC	--
spotted bat	*Euderma maculatum*	SC	WC	--
California leaf-nosed bat	*Macrotus californicus*	SC	WC	--
BIRDS				
great egret	*Ardea alba*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
snowy egret	*Egretta thula*	--	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	E	WC	--
California black rail	*Laterallus jamaicensis coturniculus*	SC	WC	--
Yuma clapper rail	*Rallus longirostris yumanensis*	E	WC	--
REPTILES				
Sonoran desert tortoise	*Gopherus agassizii*	SC	WC	--
flat-tailed horned lizard	*Phrynosoma mcallii*	SC	WC	--
cowles fringe-toed lizard	*Uma notata rufopunctata*	SC	WC	--
FISHES				
razorback sucker	*Xyrauchen texanus*	E	WC	--
PLANTS				
parish onion	*Allium parishii*	--	--	SR
senita	*Lophocereus schottii*	--	--	SR
straw-top cholla	*Opuntia echinocarpa*	--	--	SR
sand food	*Pholisma sonorae*	SC	--	SR
Kearney sumac	*Rhus kearneyi*	--	--	SR
blue sand lily	*Palmeri washingtonia*	--	--	SR
California fan palm	*Filifera charina trivirgata*	--	--	SR

Legend: WSCA – Wildlife of Special Concern in Arizona
NPL – Arizona Native Plant Law
E – Federally Endangered
T – Federally Threatened
C – Candidate
PT – Proposed Threatened
SC – Species of Concern
WC – Wildlife of Special Concern
SR – Salvage Restricted: collection only with permit
HS– Harvest Restricted: permits required to remove plant by-products

Source: Arizona Game and Fish Department 2000b. Last Updated October 25, 2000.

State Protected Species of Potential Occurrence in Imperial County, California

Common Name	Scientific Name	Federal Status	State Status
MAMMALS			
peninsular bighorn sheep	*Ovis canadensis cremnobates*	E	T
BIRDS			
Arizona bell's vireo	*Vireo bellii arizonae*	--	E
California black rail	*Laterallus jamaicensis coturniculus*	--	T
elf owl	*Micrathene whitneyi*	--	E
gila woodpecker	*Melanerpes uropygialis*	--	E
gilded flicker	*Colaptes chrysoides*	--	E
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	E
willow flycatcher	*Empidonax traillii*	--	E
Yuma clapper rail	*Rallus longirostris yumanensis*	E	T
REPTILES			
barefoot banded gecko	*Coleonyx switaki*	--	T
desert tortoise	*Xerobates agassizii*	T	T
FISHES			
Colorado squawfish	*Ptychocheilus lucius*	E	E
desert pupfish	*Cyprinodon macularius*	E	E
razorback sucker	*Xyrauchen texanus*	E	E
PLANTS			
Peirson's milk-vetch	*Astragalus magdalenae var. peirsonii*	T	**E**
algodones dunes sunflower	*Helianthus niveus spp. tephrodes*	SC	**E**
mountain springs bush lupine	*Lupinus excubitus var. medius*	SC	**--**
Munz's cholla	*Opuntia munzii*	SC	**--**
giant Spanish-needle	*Palafoxia arida var. gigantea*	SC	**--**
sand food	*Pholisma sonorae*	SC	**--**
mecca-aster	*Xylorhiza cognata*	SC	**--**
Orcutt's woody-aster	*Xylorhiza orcuttii*	SC	**--**

Legend: E – Endangered
T – Threatened
SC – Species of Concern

Source: California Department of Fish and Game 2000. Last Updated October 16, 2000.

APPENDIX C
LIST OF STATE PROTECTED SPECIES

Appendix C
State Protected Species of Potential Occurrence in Cochise County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Mexican long-tongued bat	*Choeronycteris mexicana*	SC	WC	--
western red bat	*Lasiurus blossevillii*	--	WC	--
lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E	WC	--
jaguar	*Panthera onca*	E	WC	--
Arizona shrew	*Sorex arizonae*	SC	WC	--
BIRDS				
northern goshawk	*Accipiter gentilis*	SC	WC	--
violet-crowned hummingbird	*Amazilia violiceps*	--	WC	--
Baird's sparrow	*Ammodramus bairdii ammordramus*	SC	WC	--
Sprague's pipit	*Anthus spragueii*	--	WC	--
northern gray hawk	*Asturina nitida maxima*	SC	WC	--
common black-hawk	*Buteogallus anthracinus*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
black-bellied whistling duck	*Dendrocygna autumnalis*	--	WC	--
northern buff-breasted flycatcher	*Empidonax fulvifrons pygmaeus*	SC	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
American peregrine falcon	*Falco peregrinus anatum*	SC	WC	--
Mississippi kite	*Ictinia mississippiensis*	--	WC	--
Mexican spotted owl	*Strix occidentalis lucida*	T	WC	--
elegant trogon	*Trogon elegans tyrannus*	--	WC	--
thick-billed kingbird	*Crassirostris tyrannus*	--	WC	--
tropical kingbird	*Melancholicus agosia*	--	WC	--
REPTILES				
Arizona ridgenose rattlesnake	*Crotalus willardi willardi*	--	WC	--
Sonoran desert tortoise	*Gopherus agassizii*	SC	WC	--
desert massasauga	*Sistrurus catenatus edwardsi*	--	WC	--
Mexican garter snake	*Thamnophis eques megalops*	SC	WC	--
AMPHIBIANS				
Sonoran tiger salamander	*Ambystoma tigrinum stebbinsi*	E	WC	--
western barking frog	*Eleutherodactylus augusti cactorum*	--	WC	--
plains leopard frog	*Rana blairi*	--	WC	--
Chiricahua leopard frog	*Rana chiricahuensis*	PT	WC	--
Ramsey Canyon leopard frog	*Rana subaquavocalis*	SC	WC	--
lowland leopard frog	*Rana yavapaiensis*	SC	WC	--
FISHES				
gila chub	*Gila intermedia*	C	WC	--
Yaqui chub	*Gila purpurea*	E	WC	--
roundtail chub	*Gila robusta*	SC	WC	--
Yaqui catfish	*Poeciliopsis occidentalis sonoriensis*	E	WC	--
loach minnow	*Tiaroga cobitis*	T	WC	--
PLANTS				
plummer onion	*Allium plummerae*	--	--	SR
redflower onion	*Allium rhizomatum*	--	--	SR

Cochise County Continued.

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
chiricahua rock flower	*Apacheria chiricahueniss*	--	--	SR
coppermine milk-vetch	*Cobrensis var. maguirei*	SC	--	SR
Huachuca milk-vetch	*Astragalus hypoxylus*	SC	--	SR
playa spider plant	*Cleome multicaulis*	SC	--	SR
Santa Cruz beehive cactus	*Coryphantha recurvata*	--	--	HS
Cochise pincushion cactus	*Coryphantha robbinsorum*	T	--	HS
slender needle corycactus	*Coryphantha scheeri var. valida*	--	--	SR
cob corycactus	*Coryphantha strobiliformis*	--	--	SR
pinaleno hedgehod cactus	*Echinocereus ledingii*	--	--	SR
Texas rainbow cactus	*Echinocereus pectinatus var. pectinatus*	--	--	SR
needle-spined pineapple cactus	*Echinomastus erectocentrus var. erectocentrus*	SC	--	SR
button cactus	*Epithelantha micromeris*	--	--	SR
chiricahua fleabane	*Erigeron kuschei*	SC	--	SR
lemmon fleabane	*Erigeron lemmonii*	C	--	HS
San Carlos wild-buckwheat	*Eriogonum capillare*	SC	--	SR
woodland spurge	*Euphorbia macropus*	SC	--	SR
Wislizeni gentian	*Gentianella wislizeni*	SC	--	SR
Bartram stonecrop	*Graptopetalum bartramii*	SC	--	SR
crested coral root	*Hexalectris spicata*	--	--	SR
Texas purple spike	*Hexalectris warnockii*	SC	--	HS
Huachuca water umbel	*Lilaeopsis schaffneriana var. recurva*	E	--	HS
lemmon lily	*Lilium parryi*	SC	--	SR
leafy lobelia	*Lobelia fenestralis*	--	--	SR
Madrean adders mouth	*Malaxis corymbosa*	--	--	SR
purple adders mouth	*Malaxis porphyrea*	--	--	SR
slender adders mouth	*Malaxis tenuis*	--	--	SR
varied fishhook cactus	*Mammillaria viridiflora*	--	--	SR
Wilcox fishook cactus	*Mammillaria wrightii var. wilcoxii*	--	--	SR
catalina beardtongue	*Penstemon discolor*	--	--	HS
Chiricahua rock daisy	*Cochisensis phyllanthus*	--	--	SR
Thurber's bog orchid	*Platanthera limosa polemonium*	--	--	SR
blumer's dock	*Rumex orthoneurus*	SC	--	HS
fallen ladies'-tresses	*Schiedeella parasitica*	--	--	SR
Huachuca groundsel	*Senecio huachucanus*	--	--	HS
canelo hills ladies'-tresses	*Spiranthes delitescens*	E	--	HS
Michoacan ladies'-tresses	*Stenorrhynchos michuacanus*	--	--	SR
tepic flame flower	*Talinum marginatum*	SC	--	SR
limestone Arizona rosewood	*Vauquelinia californica* spp. *pauciflora*	SC	--	SR
green death camas	*Zigadenus virescens*	--	--	SR

State Protected Species of Potential Occurrence in Pima County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Sonoran pronghorn	*Antilocapra americana sonoriensis*	E	WC	--
Mexican long-tongued bat	*Choeronycteris mexicana*	SC	WC	--
western red bat	*Lasiurus blossevillii*	--	WC	--
lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E	WC	--
California leaf-nosed bat	*Macrotus californicus*	SC	WC	--
jaguar	*Panthera onca*	E	WC	--
BIRDS				
northern goshawk	*Accipiter gentilis*	SC	WC	--
baird's sparrow	*Ammodramus bairdii ammordramus*	SC	WC	--
northern gray hawk	*Asturina nitida maxima*	SC	WC	--
common black-hawk	*Buteogallus anthracinus*	--	WC	--
crested caracara	*Caracara cheriway*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
masked bobwhite	*Colinus virginianus ridgwayi*	E	WC	--
black-bellied whistling duck	*Dendrocygna autumnalis*	--	WC	--
northern buff-breasted flycatcher	*Empidonax fulvifrons pygmaeus*	SC	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
American peregrine falcon	*Falco peregrinus anatum*	SC	WC	--
cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	E	WC	--
rose-throated becard	*Pachyramphus aglaiae*	--	WC	--
osprey	*Pandoin haliaetus*	--	WC	--
Mexican spotted owl	*Strix occidentalis lucida*	T	WC	--
thick-billed kingbird	*Crassirostris tyrannus*	--	WC	--
tropical kingbird	*Melancholicus agosia*	--	WC	--
REPTILES				
Sonoran desert tortoise	*Gopherus agassizii*	SC	WC	--
Mexican garter snake	*Thamnophis eques megalops*	SC	WC	--
cowles fringe-toed lizard	*Uma notata rufopunctata*	SC	WC	--
AMPHIBIANS				
great plains narrowmouth toad	*Gastrophyryne olivacea*	--	WC	--
lowland burrowing treefrog	*Pternohyla fodiens*	--	WC	--
Chiricahua leopard frog	*Rana chiricahuensis*	PT	WC	--
lowland leopard frog	*Rana yavapaiensis*	SC	WC	--
FISHES				
Quitobaquito desert pupfish	*Cyprinodon macularius eremus*	E	WC	--
desert pupfish	*Cyprinodon macularius macularius*	E	WC	--
gila chub	*Gila intermedia*	C	WC	--
gila topminnow	*Poeciliopsis occidentalis occidentalis*	E	WC	--
PLANTS				
Pima indian mallow	*Abutilon parishii*	SC	--	SR
thurber indian mallow	*Abutilon thurberi*	--	--	SR
Santa Cruz striped agave	*Agave parviflora ssp. parviflora*	SC	--	HS
trelease agave	*Agave schottii var. treleasei*	SC	--	HS
goodding onion	*Allium gooddingii*	SC	--	HS
plummer onion	*Allium plummerae*	--	--	SR

Pima County Continued.

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
saiya	*Amoreuxia gonzalezii*	SC	--	HS
Kearney's blue star	*Amsonia kearneyana*	E	--	HS
Pima pineapple cactus	*Coryphantha scheeri var. robustispina*	E	--	HS
gentry indigo bush	*Dalea tentaculoides*	--	--	HS
Nichol turk's head cactus	*Echinocactus horizonthalonius var. nicholii*	E	--	HS
acuna cactus	*Echinomastus erectocentrus var. acunensis*	C	--	HS
needle-spined pineapple cactus	*Echinomastus erectocentrus var. erectocentrus*	SC	--	SR
San Carlos wild-buckwheat	*Eriogonum capillare*	SC	--	SR
golden barrel cactus	*Ferocactus eastwoodiae*	--	--	SR
Bartram stonecrop	*Graptopetalum bartramii*	SC	--	SR
crested coral root	*Hexalectris spicata*	--	--	SR
Huachuca water umbel	*Lilaeopsis schaffneriana var. recurva*	E	--	HS
lemmon lily	*Lilium parryi*	SC	--	SR
broadleaf twayblade	*Listera convallarioides*	--	--	SR
senita	*Lophocereus schottii*	--	--	SR
feather bush	*Microphylla var. thornberi*	--	--	SR
slender adders mouth	*Malaxis tenuis*	--	--	SR
fishhook cactus	*Mammillaria mainiae*	--	--	SR
thornber fishhook cactus	*Mammillaria thornberi*	--	--	SR
varied fishhook cactus	*Mammillaria viridiflora*	--	--	SR
dahlia rooted cereus	*Neoevansia striata*	--	--	SR
catalina beardtongue	*Penstemon discolor*	--	--	HS
Ajo rock daisy	*Perityle ajoensis*	--	--	SR
Thurber's bog orchid	*Platanthera limosa polemonium*	--	--	SR
fallen ladies'-tresses	*Schiedeella parasitica*	--	--	SR
organ pipe cactus	*Stenocereus thurberi*	--	--	SR
blue sand lily	*Palmeri tumamoca*	--	--	SR
tumamoc globeberry	*Macdougalii vauquelinia*	--	--	SR

State Protected Species of Potential Occurrence in Santa Cruz County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Mexican long-tongued bat	*Choeronycteris mexicana*	SC	WC	--
western red bat	*Lasiurus blossevillii*	--	WC	--
lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	E	WC	--
California leaf-nosed bat	*Macrotus californicus*	SC	WC	--
Arizona shrew	*Sorex arizonae*	SC	WC	--
BIRDS				
northern goshawk	*Accipiter gentilis*	SC	WC	--
violet-crowned hummingbird	*Amazilia violiceps*	--	WC	--
baird's sparrow	*Ammodramus bairdii ammordramus*	SC	WC	--
Sprague's pipit	*Anthus spragueii*	--	WC	--
northern gray hawk	*Asturina nitida maxima*	SC	WC	--
common black-hawk	*Buteogallus anthracinus*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
black-bellied whistling duck	*Dendrocygna autumnalis*	--	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
American peregrine falcon	*Falco peregrinus anatum*	SC	WC	--
cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	E	WC	--
rose-throated becard	*Pachyramphus aglaiae*	--	WC	--
osprey	*Pandion haliaetus*	--	WC	--
black-capped gnatcatcher	*Polioptila nigriceps*	--	WC	--
Mexican spotted owl	*Strix occidentalis lucida*	T	WC	--
elegant trogon	*Trogon elegans tyrannus*	--	WC	--
thick-billed kingbird	*Crassirostris tyrannus*	--	WC	--
tropical kingbird	*Melancholicus agosia*	--	WC	--
REPTILES				
Arizona ridgenose rattlesnake	*Crotalus willardi willardi*	--	WC	--
Mexican vine snake	*Oxybelis aeneus*	--	WC	--
Mexican garter snake	*Thamnophis eques megalops*	SC	WC	--
AMPHIBIANS				
Sonoran tiger salamander	*Ambystoma tigrinum stebbinsi*	E	WC	--
western barking frog	*Eleutherodactylus augusti cactorum*	--	WC	--
great plains narrowmouth toad	*Gastrophryne olivacea*	--	WC	--
Chiricahua leopard frog	*Rana chiricahuensis*	PT	WC	--
lowland leopard frog	*Rana yavapaiensis*	SC	WC	--
FISHES				
Sonoran chub	*Gila ditaenia*	T	WC	--
gila chub	*Gila intermedia*	C	WC	--
roundtail chub	*Gila robusta*	SC	WC	--
gila topminnow	*Poeciliopsis occidentalis occidentalis*	E	WC	--
PLANTS				
Pima indian mallow	*Abutilon parishii*	SC	--	SR
Santa Cruz striped agave	*Agave parviflora ssp. parviflora*	SC	--	HS
redflower onion	*Allium rhizomatum*	--	--	SR
saiya	*Amoreuxia gonzalezii*	SC	--	HS
Huachuca milk-vetch	*Astragalus hypozylus*	SC	--	SR

Santa Cruz County Continued.

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
Santa Cruz beehive cactus	*Coryphantha recurvata*	--	--	HS
Pima pineapple cactus	*Coryphantha scheeri var. robustispina*	E	--	HS
gentry indigo bush	*Dalea tentaculoides*	SC	--	HS
woodland spurge	*Euphorbia macropus*	SC	--	SR
Bartram stonecrop	*Graptopetalum bartramii*	SC	--	SR
crested coral root	*Hexalectris spicata*	--	--	SR
Huachuca water umbel	*Lilaeopsis schaffneriana var. recurva*	E	--	HS
lemmon lily	*Lilium parryi*	SC	--	SR
leafy lobelia	*Lobelia fenestralis*	--	--	SR
Mexican lobelia	*Lobelia laxiflora*	--	--	SR
supine bean	*Macroptilium supinum*	SC	--	SR
Madrean adders mouth	*Malaxis corymbosa*	--	--	SR
purple adders mouth	*Malaxis porphyrea*	--	--	SR
Wilcox fishook cactus	*Mammillaria wrightii var. wilcoxii*	--	--	SR
catalina beardtongue	*Penstemon discolor*	--	--	HS
whisk fern	*Psilotum nudum*	--	--	HS
fallen ladies'-tresses	*Schiedeella parasitica*	--	--	SR
Huachuca groundsel	*Senecio huachucanus*	--	--	HS
canelo hills ladies'-tresses	*Spiranthes delitescens*	E	--	HS
Pinos Altos flame flower	*Talinum humile*	SC	--	SR
tepic flame flower	*Talinum marginatum*	SC	--	SR

State Protected Species of Potential Occurrence in Yuma County, Arizona

Common Name	Scientific Name	Federal Status	WSCA Status	NPL Status
MAMMALS				
Sonoran pronghorn	*Antilocapra americana sonoriensis*	E	WC	--
spotted bat	*Euderma maculatum*	SC	WC	--
California leaf-nosed bat	*Macrotus californicus*	SC	WC	--
BIRDS				
great egret	*Ardea alba*	--	WC	--
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	WC	--
snowy egret	*Egretta thula*	--	WC	--
southwestern willow flycatcher	*Empidonax traillii extimus*	E	WC	--
cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	E	WC	--
California black rail	*Laterallus jamaicensis coturniculus*	SC	WC	--
Yuma clapper rail	*Rallus longirostris yumanensis*	E	WC	--
REPTILES				
Sonoran desert tortoise	*Gopherus agassizii*	SC	WC	--
flat-tailed horned lizard	*Phrynosoma mcallii*	SC	WC	--
cowles fringe-toed lizard	*Uma notata rufopunctata*	SC	WC	--
FISHES				
razorback sucker	*Xyrauchen texanus*	E	WC	--
PLANTS				
parish onion	*Allium parishii*	--	**--**	SR
senita	*Lophocereus schottii*	--	**--**	SR
straw-top cholla	*Opuntia echinocarpa*	--	**--**	SR
sand food	*Pholisma sonorae*	SC	**--**	SR
Kearney sumac	*Rhus kearneyi*	--	**--**	SR
blue sand lily	*Palmeri washingtonia*	--	**--**	SR
California fan palm	*Filifera charina trivirgata*	--	**--**	SR

Legend: WSCA – Wildlife of Special Concern in Arizona
NPL – Arizona Native Plant Law
E – Federally Endangered
T – Federally Threatened
C – Candidate
PT – Proposed Threatened
SC – Species of Concern
WC – Wildlife of Special Concern
SR – Salvage Restricted: collection only with permit
HS– Harvest Restricted: permits required to remove plant by-products

Source: Arizona Game and Fish Department 2000b. Last Updated October 25, 2000.

State Protected Species of Potential Occurrence in Imperial County, California

Common Name	Scientific Name	Federal Status	State Status
MAMMALS			
peninsular bighorn sheep	*Ovis canadensis cremnobates*	E	T
BIRDS			
Arizona bell's vireo	*Vireo bellii arizonae*	--	E
California black rail	*Laterallus jamaicensis coturniculus*	--	T
elf owl	*Micrathene whitneyi*	--	E
gila woodpecker	*Melanerpes uropygialis*	--	E
gilded flicker	*Colaptes chrysoides*	--	E
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	--	E
willow flycatcher	*Empidonax traillii*	--	E
Yuma clapper rail	*Rallus longirostris yumanensis*	E	T
REPTILES			
barefoot banded gecko	*Coleonyx switaki*	--	T
desert tortoise	*Xerobates agassizii*	T	T
FISHES			
Colorado squawfish	*Ptychocheilus lucius*	E	E
desert pupfish	*Cyprinodon macularius*	E	E
razorback sucker	*Xyrauchen texanus*	E	E
PLANTS			
Peirson's milk-vetch	*Astragalus magdalenae var. peirsonii*	T	**E**
algodones dunes sunflower	*Helianthus niveus spp. tephrodes*	SC	**E**
mountain springs bush lupine	*Lupinus excubitus var. medius*	SC	**--**
Munz's cholla	*Opuntia munzii*	SC	**--**
giant Spanish-needle	*Palafoxia arida var. gigantea*	SC	**--**
sand food	*Pholisma sonorae*	SC	**--**
mecca-aster	*Xylorhiza cognata*	SC	**--**
Orcutt's woody-aster	*Xylorhiza orcuttii*	SC	**--**

Legend: E – Endangered
T – Threatened
SC – Species of Concern

Source: California Department of Fish and Game 2000. Last Updated October 16, 2000.

APPENDIX D
TUCSON & YUMA SECTOR
BIOLOGICAL ASSESSMENTS & OPINIONS

AUGUST 2002

REVIEW DRAFT REPORT

BIOLOGICAL ASSESSMENT

U.S. BORDER PATROL
TUCSON SECTOR
ARIZONA

IMMIGRATION AND NATURALIZATION SERVICE
WASHINGTON, D.C.

BIOLOGICAL ASSESSMENT

U.S. BORDER PATROL
TUCSON SECTOR

REVIEW DRAFT

Submitted by:
U.S. Department of Justice
Immigration and Naturalization Service
Washington, D.C.

August, 2002

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INTRODUCTION

1.0 INTRODUCTION

Gulf South Research Corporation (GSRC) was tasked by the Immigration and Naturalization Service (INS) through the U.S. Army Corps of Engineers (USACE) to prepare a Biological Assessment (BA) for U.S. Border Patrol (USBP) Tucson Sector operational activities. A preliminary draft was submitted on March 3, 2000 and considered the effects to nine species in detail. Because of the extended timeframe since the first submittal and receipt of comments, additional species have been added for detailed analysis and some species have been deleted as a result of informal consultation with the U.S. Fish and Wildlife Service (USFWS) in February 2002. This document considers 12 species for detailed analysis because they potentially occur throughout the Tucson Sector, and there was less potential for the USBP to avoid the species during operational activities. However, potential effects to some protected species (i.e. bald eagle, mountain plover) are not analyzed in detail because (e.g., Bald eagle, mountain plover, Acuna cactus, etc.) the species and/or their habitats do not occur near USBP activities or the USBP can avoid these species. Brief descriptions of all species identified by the USFWS as potentially occurring within the study area are included as Section 2.0 of this document. Operational/enforcement actions that have a potential to impact listed species are described in Section 3.0. General mitigation and conservation measures for all species identified by the USFWS are outlined in Section 4.0.

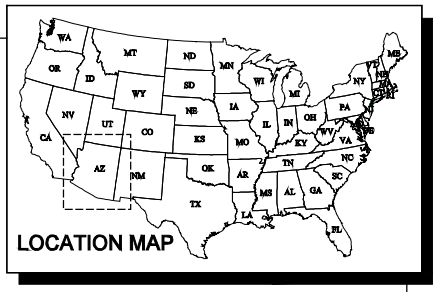
1.1 Overview

The Endangered Species Act of 1973, as amended, requires that any action authorized, funded, or carried out by a Federal agency is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of critical habitat [50 CFR 7(a)(2)]. The Endangered Species Act (ESA) further states that agencies shall seek to conserve endangered or threatened species and shall utilize their authorities in the furtherance of the purposes of the ESA [50 CFR 7(a)(1)]. If a Federal agency determines that their activities may have an affect upon a listed species, the agency is required under Section 7 of the Endangered Species Act, to enter into consultation with the USFWS to obtain an opinion regarding the potential affect upon the species and its continued existence [50 CFR 7(a)(3)]. Consultation generally consists of the development of a BA, which identifies the proposed action, the species that may be affected, and the potential effects on those species if the action is implemented. The USFWS, upon review of the BA for completeness, will issue a Biological Opinion (BO) [50 CFR 7(b)(3)(A)].

The scope of this BA encompasses all field operation activities conducted by the USBP - Tucson Sector, as part of its mission to detect, deter and apprehend illegal aliens and drug traffickers. Infrastructure projects (e.g., fences, roads, etc.) are not addressed in this BA because these activities will require site-specific NEPA documentation and possibly Section 7 consultation. The Tucson Sector is comprised of nine stations as follows: Ajo, Casa Grande, Tucson, Nogales, Sonoita, Naco, Douglas, and Willcox. This document will examine potential effects to protected species for the eight stations that include part of the U.S.-Mexico border in their Area of Operations (AO) (Figure 1-1). Currently, the Phoenix Station is not operational and is not included in this analysis. Furthermore, should the Phoenix Station reopen, it does not have jurisdiction in the border region and conducts its operational/enforcement actions primarily on paved roads, where there is no potential to affect listed species. The focus of this document; therefore, will be the areas adjacent to the border where USBP operations occur. The border area assessed includes approximately 13,600 square miles and 280 miles of U.S.-Mexico border contained within three southeastern and south central Arizona counties: Pima, Santa Cruz, and Cochise (Figure 1-2).

While all of these stations have as their mission to control and halt the flow of illegal immigrants, drugs, and terrorists into the U.S., various strategies may be employed at each station due to differences in local topography, demographics, sensitive areas and resources, access to lands, proximity to the U.S.-Mexico border, and type of illegal trafficking that occurs within each stations' AO. Consequently, many of the operational activities conducted by USBP personnel could potentially cause different types of effects upon the same species. Therefore, this BA is being prepared to assess the potential effects of the USBP field activities on protected species within the AO of each respective station. However, this BA is intended as partial fulfillment for formal Section 7 consultation for the Tucson Sector, and not as consultation for individual USBP stations.

All Federally protected species that are known or presumed to occur within the study area have been identified by the USFWS (Section 8.0). Those species potentially affected will be thoroughly addressed. The remaining species will be identified and briefly discussed in case future activities are determined to potentially affect the species or if the status of the species changes, which may require subsequent evaluations. A summary of all the potential impacts, by station and species, is presented in Section 3.0 of this document.



(b) (7)(E)

N

★ Tucson Sector Headquarters

Figure 1-1: U.S. Border Patrol Station Boundaries within the Tucson Sector

Scale:	not to scale
Date:	August 2002

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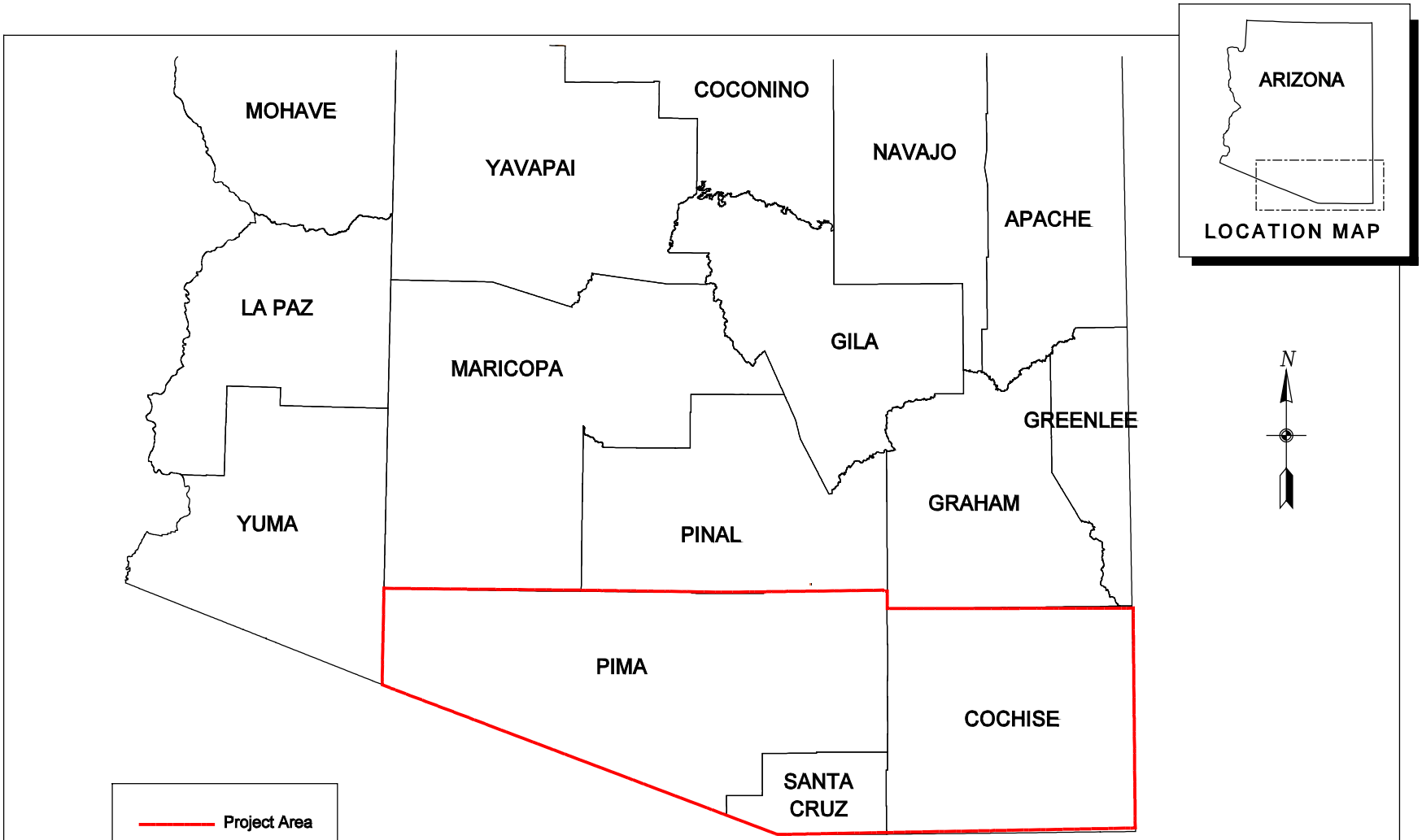

Figure 1-2: Counties Within the Project Area

Scale:	not to scale
Date:	August 2002

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1.2 U.S. Border Patrol Mission

The mission of the USBP Tucson Sector is to protect the U.S.-Mexico border in Arizona through the detection and prevention of smuggling, illegal entry of undocumented aliens (UDA), and terrorists into the United States. The mission includes the enforcement of the Immigration and Nationality Act (INA) and the performance of a uniformed, Federal law enforcement agency with authority delegated by the U.S. Attorney General.

In February 1994, the Attorney General and INS Commissioner announced a comprehensive strategy to strengthen enforcement of the Nation's immigration laws. The first priority of this strategy focused on strengthening immigration control efforts along the entire 2,200 miles of U.S.-Mexico border. A new border strategy, known as "prevention through deterrence" was developed and adopted to concentrate additional resources on the front lines at the most active illegal entry points along the U.S.-Mexico border (GAO 1997).

In July 1994, the USBP developed its own plan to implement the U.S. Attorney General's strategy. The intent of this plan is to maximize alien apprehensions through the presence of human and physical barriers, thereby making illegal entry so difficult that it is considered futile. The plan directs enforcement efforts at the areas of greatest illegal activity along the U.S.-Mexico border. The Tucson Sector has incorporated this strategy into its current operational plan. Enforcement activities (i.e., type, duration, and location) currently in use by the Tucson Sector are the basis of discussion in this document and provide background information regarding potential impacts these activities could have on protected species.

The primary sources of authority granted to officers of the INS are the INA, found in Title 8 of the United States Code (8 U.S.C.), and other statutes relating to the immigration and naturalization of aliens. The secondary sources of authority are administrative regulations implementing those statutes, primarily those found in Title 8 of the Code of Federal Regulations (8 CFR Section 287), judicial decisions, and administrative decisions of the Board of Immigration Appeals.

Subject to constitutional limitations, INS officers may exercise the authority granted to them in the INA. The statutory provisions related to enforcement authority are found in Sections 287(a), 287(b), 287(c), and 287(e) [8 U.S.C. **§** 1357(a,b,c,e)]; Section 235(a) (8 U.S.C. **§** 1225); Sections 274(b) and 274(c) [8 U.S.C. **§** 1324(b,c)]; Section 274A (8 U.S.C. **§** 1324a); and Section 274C(8 U.S.C. **§** 1324c) of the INA.

Other statutory sources of authority are Title 18 of the United States Code (18 U.S.C.), which has several provisions that specifically relate to enforcement of the immigration and nationality laws; Title 19 [19 U.S.C. 1401 **§** (i)], relating to Customs cross-designation of INS officers; and Title 21(21 U.S.C. **§** 878), relating to Drug Enforcement Agency cross-designation of INS officers.

1.3 Purpose and Need

The purpose of the operations discussed in this BA is to facilitate USBP law enforcement along the identified section of the U.S.–Mexico border as mandated by Federal laws and the effect of those efforts on listed species and habitats. The need for these operations and programs is to gain, maintain, and extend control of the U.S.-Mexico border. Additional information to support this need and purpose is provided in the following paragraphs.

The U.S. experiences a substantial influx of illegal immigrants and drugs each year. Both of these illegal activities cost the American citizens billions of dollars annually due directly to criminal activities, as well as the cost of apprehension, detention and incarceration of criminals; and, indirectly in loss and destruction of property, illegal participation in government programs and increased insurance costs.

The INS is charged with the responsibility to detect and control illegal entrants into the United States between the land ports-of-entry. The USBP is the primary enforcement agency within the INS and has become the leading Federal enforcement agency in the apprehensions of undetected aliens (UDAs) and drug traffickers.

Rising rates of violent crime, serious damage to the Nation's health and economy, and strains on vital relationships with international allies led the U.S. Congress to develop the National Drug Control Strategy. The National Drug Control Strategy included the USBP and mandated a “prevention through deterrence” strategy. The National Drug Control Strategy also formulated a

multi-year approach that required the USBP and other local Drug Law Enforcement Agencies to "... gain, maintain, and extend control..." of the border region into the United States.

USBP stations along the U.S.-Mexico border experienced a 25 percent increase in the number of drug seizures from fiscal year (FY) 1996 to FY 2001, and an overall 30 percent increase since FY 1995. More importantly, the value and number of drug seizures along the southwestern border represent at least 95 percent of those made by the USBP throughout the nation. In addition, the United States is also experiencing epidemic levels of drug use and drug-related crimes as reported by the Office of National Drug Control Policy (1999 and 2000):

- Illegal drugs cost our society approximately $110 billion annually
- 1.5 million Americans were arrested in 1997 for violating drug laws
- 819 persons per 100,000 population were murdered during drug related offenses
- 322,000 Americans are casual heroin users and over 800,000 are heavy users
- 1.5 to 3 million Americans are casual cocaine users
- Prison populations (drug-related crimes) doubled between 1989 and 1996
- Over 10 percent of Americans used some form of illicit drug in 1998

The constant flow of UDAs passing through the U.S.-Mexico border area also threatens public lands, historical structures, and endangered species. Vehicles used by smugglers are continuously being abandoned in National Parks and other natural and sensitive areas. Removal of these vehicles is becoming an ever-increasing burden on Federal and State land managers, private landowners, as well as the USBP. UDAs have trampled vegetation and left litter, abandoned vehicles and deposited human excrement in an area that extends from the Bureau of Land Management's (BLM) Guadalupe Canyon in the southeast corner of Arizona to the U.S. Forest Service's (USFS) Coronado National Memorial south of Sierra Vista (Arizona Daily Star 2000). Smugglers crossing the border in vehicles, as well as, pedestrian UDAs have created new roads and trails and left abandoned vehicles on the Cabeza Prieta National Wildlife Refuge (CPNWR) destroying valuable habitat that supports Federal and state protected and sensitive species. The following description was taken from a letter written by James Bellamy, Superintendent at the Coronado National Monument to Senator Jon Kyl on June 20, 2000.

> *"This activity* [UDA invasion into protected areas] *has significantly impacted park resources. Human foot traffic has created several trails the width of one-lane roads. The*

large numbers of people have destroyed vegetation, exposed bare ground, eroded deep hillsides, and caused scars that will take years to heal. Smaller trails cover some parts of the park like spider webs. Litter covers the ground in many places, particularly plastic water bottles, food containers, discarded clothing and blankets. Conditions are very unsanitary in many places due to the amount of feces and toilet paper."

Thus, the purpose and need of the operations and infrastructure deployed by the Tucson Sector:

(1) Satisfy the USBP mission mandated by the U.S. Congress to gain and maintain control of the border to prevent the unlawful entry of persons into the United States.

(2) Provide a safe, effective, and efficient environment in which to accomplish the USBP mission.

(3) Enhance the effectiveness of the apprehension activities through the combined use of manpower, technology and infrastructure to increase deterrence.

(4) Protect sensitive resources, public and private lands, and U.S. citizens from illegal entrants and illegal activities.

Furthermore, following the terrorist attacks on U.S. soil on September 11, 2001, the U.S. Attorney General emphasized the need to prevent terrorism. The INS and USBP are key elements in responding to this new threat to our nation and its citizens. The ability of the USBP to insure the integrity and security of our national borders is an integral part of this effort to deter and prevent terrorism. The deployment of agents, equipment, infrastructure, and technology strategies along the U.S.–Mexico border are key elements in the USBP's efforts to deter and prevent terrorist from entering the U.S.

The Tucson Sector is responsible for approximately 280 miles of the U.S.-Mexico border in Arizona, most of which are remote and rugged lands. Monitoring such a vast area creates a somewhat daunting task. Illegal immigrants and/or drug traffickers use many areas of the border to gain access to the U.S. Numerous tactics are employed to detect illegal entrants including remote sensing techniques as well as visual observations. Remote sensing techniques used in the Tucson Sector include (b) (7)(E) ,(b) (7)(E) (b) (7)(E) , and counterintelligence data collection. Visual observations can be obtained from aerial reconnaissance using (b) (7)(E) aircraft or helicopters, or on the ground by USBP agents on foot or using vehicles, bicycles, motorbikes, all-terrain vehicles, or horses. The USBP

conducts special operations for the purpose of deterring illegal entry and saving lives during the extreme summer months (e.g., Operation Skywatch, Operation Desert Grip). Other non-operational deterrents used by the USBP include lights (portable and fixed) and the construction of fences and vehicle barriers along the U.S.-Mexico border.

1.4 Operations

Several measures are employed by the USBP to detect illegal activity. These measures include road patrols, low level flights, drag roads, and establishment of checkpoints and observation points. Once illegal activity is detected, the USBP agents must attempt to apprehend and detain illegal entrants. Ground vehicles, horses, and aircraft may be used, individually or collectively to make the apprehensions. When possible, the USBP agents remain on existing roads while attempting to apprehend illegal entrants; however, since illegal entrants attempt to avoid detection by avoiding existing roads, off-road activity by the USBP is sometimes required.

For the purposes of this BA, USBP activities have been placed in activity groups to evaluate the potential impacts of various methods of apprehending illegal entrants. The activity groups are patrol roads, drag roads, off-road operations, sensors, air operations, and checkpoints and observation points. Descriptions of each of these activity groups follow.

1.4.1 Patrol Roads

Patrol roads are improved and semi-improved roads within a station's AO. These roads are generally located within or near known illegal alien travel corridors and are patrolled on a regular basis. Most of these are improved or semi-improved roads traveled by the general public, and USBP traffic constitutes a small percentage of the total traffic volume.

1.4.2 Drag Roads

Drag roads are existing, unimproved roads that are highly traveled or regularly crossed by illegal aliens. The surface of these roads is prepared using a method known as dragging. Dragging is accomplished by the use of a 4-wheel drive vehicle towing several tires bolted together along sections of the road at speeds between (b) (7)(E) miles per hour. This method erases old tracks and smoothes the road surface so new tracks crossing the road can be easily located. Drag roads are located within known illegal alien travel corridors and are instrumental in detecting evidence of vehicle and/or pedestrian crossings. Many of these roads are open to the

public and used as general transportation routes. The frequency these roads are prepared varies for each station but can occur up to (b) (7)(E) .

1.4.3 Off-Road Operations

Off-road operations are defined for the purposes of this BA as any ground activity conducted by the USBP outside of established roads or trails. Off-road operations may include foot patrol, horse patrol, 4-wheel drive vehicles, all-terrain vehicles (ATVs), and motor bikes. Ground units rarely travel off-road to follow the tracks of illegal entrants. Off-road pursuit by vehicle only occurs when it has been determined that the persons are likely to be in a specific area or when they have been located. Off-road operations are conducted at intervals that range from (b) (7)(E) depending on the station and the situation. These operations are conducted for the purpose of apprehending UDAs and smugglers or during search and rescue (SAR) missions. Vehicles (b) (7)(E) on National Wildlife Refuges and parks (e.g., Cabeza Prieta and Coronado National Memorial) within a station's AO.

1.4.4 Ground Sensors

Sensors are small transmitters which are (b) (7)(E)
(b) (7)(E)
(b) (7)(E)
Sensors have historically been used by the USBP to improve their apprehension efficiency by increasing the area agents can monitor illegal entry. The use of sensors also reduces the number of agents needed to patrol a station's AO and the area patrolled, thus reducing environmental impacts resulting from USBP activities. Furthermore, strategically placed sensors help agents determine (b) (7)(E) UDAs entering the U.S. Routine maintenance requires (b) (7)(E) . Typically, this process takes approximately (b) (7)(E) . In some instances, sensors will malfunction, requiring additional maintenance. Sensors are generally serviced and placed (b) (7)(E) . (b) (7)(E) sensor locations may be changed in response to shifts in the patterns of illegal traffic.

1.4.5 Air Operations

Currently, the Tucson Sector maintains 11 aircraft consisting of seven OH-6A helicopters, one A-star helicopter, one UH-1 Huey helicopter, and two fixed-wing aircraft (one Cesna 182 and one Piper PA-18-150 supercub). Normal air support functions and duties include: line watches (i.e., patrol the border), support agents on the ground, sensor response, SAR missions, assist in vehicle pursuits, and assist other agencies as needed. All fixed wing aircraft are required to fly (b) (7)(E) above ground level (AGL), but helicopters have a low flight waiver. Currently, the air operations are located at the Tucson International Airport and Ft. Huachuca's Libby Airfield. Potential impacts resulting from the relocation would be analyzed in a project specific environmental assessment (e.g. Operation Skywatch). There are generalized flight routes; however, when assistance is requested, helicopters will fly anywhere within the Tucson Sector.

1.4.6 Checkpoints

Checkpoints are vehicle inspection points located along major highways leading away from the U.S.-Mexico border. The checkpoints are established to inspect vehicle traffic and intercept smuggling operations. The sites used for checkpoints are generally sections of road with wide shoulders that allow parking of vehicles and trailers on the roadside without undue interference to traffic flow. Some checkpoints are located adjacent to the mainstem of the highways and require traffic to exit the highway to access the checkpoint. Although USBP checkpoints do not normally interfere with traffic flows, there is the potential for adverse effects to the natural environment, as UDAs travel off-road to avoid checkpoints. These impacts are especially noticeable in sensitive areas (e.g., National Parks, National Wildlife Refuge, protected species habitat, etc.).

1.4.7 Observation Points

Observation points are usually elevated locations overlooking routes used by illegal aliens. These sites are used as platforms for infrared tracking scopes and other optical devices. These locations are accessible by vehicle on established roads or trails. Because illegal migration routes often change to avoid apprehension, observation points change on a regular basis.

1.4.8 Repeater Sites

Repeater locations are also used by the USBP for radio and sensor communications. These locations are on mountain or hilltop sites where antennas and electronic signal receiving and transmission equipment are placed. Generally, several companies and organizations use these

sites for similar purposes. The locations often have radio, television, and telephone equipment at the sites. Access to repeater sites is by established road or by helicopter.

1.4.9 Special Operations

Special operations are conducted on an as needed basis to address circumstances out of the ordinary. During the period of May to September, 2001, the Ajo Station, in conjunction with the Yuma Sector, Wellton Station, maintained a 24-hour presence on the Los Vidrios Trail. This action was in response to (b) (7)(E)

The Tucson and Yuma sectors initiated Operation Desert Grip on May 5, 2002. This operation has allowed the USBP to establish a 24-hour presence along the U.S.-Mexico border near the Los Vidrios Trail and El Camino Del Diablo. This operation is a cooperative action where USBP agents patrol an area from near (b) (7)(E) east into the Ajo Station's AO at (b) (7)(E) using (b) (7)(E) . (b) (7)(E) (INS 2002a).

The primary purpose of the operation is to assist in identifying and rescuing UDAs and illegal drug traffickers who may be at risk of dying due to overexposure along the U.S.-Mexico border. A secondary purpose of the operation is to reduce illegal immigration and drug trafficking along the border by increasing the USBP's presence in these remote areas. Current USBP operations within this area are minimal due to the distance, time involved to drive to this area, conditions of the roads into the area, and the limited manpower experienced by the Wellton and Ajo stations. As a result, within the past several years this area has become the route of choice for alien and narcotics smugglers for illegal entry. This area of the border is very remote and numerous walking groups ill-prepared for the 50 to 70-mile journey from the international border to the perceived safety of Interstate 8 fall victim to the harsh environment of the desert. Smugglers often deviate from established administrative roads (Photo 1) and abandon disabled vehicles (Photo 2) without regard to environmentally sensitive areas. Operation Desert Grip allows the USBP to detect and deter illegal entry and smuggling, prevent damage to valuable habitat on the CPNWR and Organ Pipe Cactus National Monument (OPCNM), and avoid unwanted deaths.


Photo 1


Photo 2

Under Operation Desert Grip, two camp detail sites or temporary "stations" have been established, one in the Global Station's AO and one in the Wellton Station's AO. The Ajo temporary station is located at Bates Well in the OPCNM and at the Los Vidrios camping area in the CPNWR. The temporary station consists of a 27-foot camp trailer parked in a disturbed area along an established road. (b) (7)(E) agents have been detailed at the temporary station on 7-day shifts and work (b) (7)(E) (INS 2002a). An environmental assessment (EA) was completed and emergency consultation under Section 7 of the ESA was initiated for this operation. This operation is being included as part of this BA to comply with the follow up consultation requirement for emergency consultations.

During the summers of 2000 and 2001 the Tucson Sector conducted Operation Skywatch. The purpose of Operation Skywatch is to conduct aerial reconnaissance along the U.S.–Mexico border to detect or rescue UDAs during the extremely hot summer months (May/June to September). Operation Skywatch commenced in early June of this year (2002) and will continue for approximately 125 days. The USBP Tucson Sector maintains and operates two additional fixed-winged single engine aircraft and up to 20 helicopters (including the nine helicopters normally maintained by the Tucson Sector), reassigned on a temporary basis from the Yuma Sector and other USBP sectors, for aerial reconnaissance missions along the U.S.-Mexico border in Arizona. The aircraft support personnel for the action include (b) (7)(E) supervisory aircraft pilots, (b) (7)(E) journeymen pilots, and up to (b) (7)(mechanics (INS 2002b). The USBP has proposed to conduct Operation Skywatch annually for the next five years. Environmental assessments were prepared for the 2000, 2001 Operation Skywatch programs. Emergency Section 7 consultation with the USFWS, Phoenix Field Office was initiated for the 2000

Operation Skywatch program. An EA and FONSI have been completed for the 2002 Operation Skywatch program. In addition, INS and the USBP has entered into emergency Section 7 consultation for the 2002 program (INS 2002b).

The aircraft has been primarily staged at the Tucson International Airport. However, a secondary staging site has been established at the Sierra Vista Municipal Airport. Other staging areas might be required, depending on changing operational needs. The Yuma Sector will also assist in the Tucson Sector's search and rescue mission by providing two fixed-wing aircraft on an as-needed basis. During the operations, all aircraft provided by the Yuma Sector would remain under the operational control of the Yuma Sector and based out of Yuma. Effects to Federally protected species from air support provided by the Yuma Sector is addressed in a BA for that sector.

The helicopters would typically fly at an altitude of (b) (7)(E) feet AGL or higher. Typical reconnaissance missions (i.e., fixed wing aircraft) will be flown at (b) (7)(E), but pilots may drop down to (b) (7)(E) AGL to accurately evaluate UDA conditions to determine if rescue operations are necessary. Shifts for the aircraft crew (pilots, mechanics, and other support personnel, as needed) would initially be (b) (7)(E) to provide at least one aircraft aloft at any time (from Douglas/Naco to Ajo). Fixed wing aircraft would normally fly along the border corridor during (b) (7)(E) and typically at higher altitudes. Most of the aerial reconnaissance efforts would be conducted over Pima, Santa Cruz, and Cochise counties (INS 2002b).

1.5 Report Organization

The operational measures previously discussed above are considered to possibly have an effect upon some of the protected species within the Tucson Sector. Consequently, the INS and USBP elected to prepare this BA to determine the extent of these potential effects. The remainder of this BA is organized as follows: Section 2.0 presents descriptions and accounts of the protected species potentially occurring within the project area, including range, distribution, habitat requirements, current status, and any threats and reasons for decline. Section 3.0 summarizes USBP activities at the station level, describes potential impacts to the protected species that potentially occur within each station's AO, and references the effect determination for each protected species potentially occurring within the Tucson Sector. Section 4.0 describes conservation and mitigation measures which could be utilized within the Tucson Sector to

minimize impacts on protected species. Section 5.0 provides a list of preparers and a list of acronyms and abbreviations is provided as Section 6.0. Section 7.0 provides a list of references used in the preparation of this BA.A list of persons contacted during the preparation of the BA is provided as Section 8.0. Agency coordination letters are provided in Section 9.0.

SECTION 2.0
DESCRIPTION OF FEDERALLY PROTECTED SPECIES

2.0 DESCRIPTIONS OF FEDERALY PROTECTED SPECIES

A current list of endangered, threatened, proposed, and candidate species potentially occurring in Pima, Santa Cruz, and Cochise counties was retrieved from the USFWS, Arizona Ecological Field Services website on August 29, 2002 (Appendix A). A copy of the coordination letter is included in Section 9.0 of this report. Current status and habitat requirements for each of these species are presented in Table 2-1. Based on known species occurrence and habitat requirements and discussions with the USFWS, it was determined that this BA should focus primarily on 12 protected species including: Sonoran pronghorn, Cochise pincushion cactus, Mexican spotted owl, cactus ferruginous pygmy-owl, lesser long-nosed bat, Huachuca water umbel, Gila topminnow, ocelot, jaguar, masked bobwhite, Chiricahua leopard frog, and Pima pineapple cactus. The following accounts provide background information on each of these 12 species, including a general description, habitat preferences and requirements, range, status, and threats to their existence. Brief accounts and descriptions are also provided for the remaining species identified by the USFWS (2001).

2.1 Sonoran Pronghorn

2.1.1 General Description

Pronghorn (*Antilocapra americana*) are proportionately long-legged, small-bodied artiodactyls distinguished by large white areas of hair present on the rump, sides of face, two bands on the throat, under-parts, and part-way up the sides of the body. They have slightly curved horns, the males with a single prong projecting forward, and have a wooly undercoat overlaid with long, straight, coarse, brittle guard hairs. The color of the animal varies from yellowish to tan, except for blackish on the top of the nose (Hoffmeister 1986).

The Sonoran pronghorn becomes sexually mature at 12 to 16 months of age. Sonoran pronghorn mate from July to September, and give birth from February through May (USFWS 1998). Sonoran pronghorn grow to approximately 3.3 feet (1 meter) in height and weigh from 75 to 140 pounds (34 to 64 kilograms). They are among the fastest mammals on earth and can maintain speeds of 40 miles per hour (mph), reaching 60 mph in short bursts.

The Sonoran pronghorn (*Antilocapra americana sonoriensis*) was first described by Goldman (1945) from a type specimen taken on December 11, 1932 at a ranch southwest of Hermosillo, Sonora, Mexico. The specimen was described as being the smallest subspecies of *Antilocapra*

Table 2-1
Federally Listed, Proposed, and Candidate Species Potentially Occurring within Cochise, Pima, and Santa Cruz Counties

Common/Scientific Name	Status	Date Listed	Counties	Habitat
PLANTS				
Acuna cactus *Echinomastus erectocentrus acunensis*	C	NA	Pima	Well drained knolls and gravel ridges in Sonoran desertscrub
Canelo Hills ladies' tresses *Spiranthes delitescens*	E	1/6/97	Cochise, Santa Cruz	Finely grained, highly organic, saturated soils of cienegas
Cochise pincushion cactus *Coryphantha robbinsorum*	T	1/9/86	Cochise	Semidesert grassland with small shrubs, agave, other cacti, and grama grass
Huachuca water umbel *Lilaeopsis schaffneriana* ssp. *recurva*	E	1/6/97	Cochise, Pima, Santa Cruz	Cienegas, perennial low gradient streams, wetlands
Kearney's blue star *Amsonia kearneyana*	E	1/19/89	Pima	West-facing drainages in the Baboquivari Mountains
Lemmon fleabane *Erigeron lemmonii*	C	NA	Cochise	Crevices, ledges, and boulders in canyon bottoms in pine-oak woodlands
Nichol's turk's head cactus *Echinocactus horizonthalonius* var. *nicholii*	E	10/26/79	Pima	Sonoran desertscrub on limestone slopes in desert hills
Pima pineapple cactus *Coryphantha scheeri robustispina*	E	9/23/93	Pima, Santa Cruz	Sonoran desertscrub or semi-desert grassland communities

Legend:
E= Endangered
T= Threatened
P= Proposed Endangered or Threatened
C= Candidate
NA= Not Applicable

Source: U.S. Fish and Wildlife Service 2002

Table 2-1
Federally Listed, Proposed, and Candidate Species Potentially Occurring within Cochise, Pima, and Santa Cruz Counties

Common/Scientific Name	Status	Date Listed	Counties	Habitat
BIRDS				
Bald Eagle *Haliaeetus leucocephalus*	T	1/12/95	Cochise, Pima, Santa Cruz	Large trees or cliffs near water with abundant prey
Cactus ferruginous pygmy-owl *Glaucidium brasilianum cactorum*	E	3/10/97	Cochise, Pima, Santa Cruz	Mature cottonwood/willow, mesquite bosques, and Sonoran Desertscrub
California brown pelican *Pelecanus occidentalis californicas*	E	6/2/70	Cochise, Pima Santa Cruz	Coastal land and islands, found around lakes and rivers in Arizona
Masked bobwhite *Colinus virginianus ridgewayi*	E	3/11/67	Pima	Desert grasslands with diversity of dense native grasses, forbs and brush
Mexican spotted owl *Strix occidentalis lucida*	T	3/15/93	Cochise, Pima, Santa Cruz	Nests in canyons and dense forests with multi-layered foliage structure
Mountain plover *Charadrius montanus*	P	2/18/99	Cochise, Pima, Santa Cruz	Open arid plains, short-grass prairies, and scattered cactus
Northern aplomado falcon *Falco femoralis septentrionalis*	E	1/25/86	Cochise, Santa Cruz	Grassland and Savannah
Southwestern willow flycatcher *Empidonax traillii extimus*	E	2/27/95	Cochise, Pima, Santa Cruz	Cottonwood/willow and tamarisk vegetation communities along rivers and streams
Yellow-billed cuckoo *Coccyzus americanus*	C	NA	Cochise, Pima, Santa Cruz	Large blocks of riparian woodlands

Legend:
E= Endangered
T= Threatened
P= Proposed Endangered or Threatened
C= Candidate
NA= Not Applicable

Source: U.S. Fish and Wildlife Service 2002

Table 2-1
Federally Listed, Proposed, and Candidate Species Potentially Occurring within Cochise, Pima, and Santa Cruz Counties

Common/Scientific Name	Status	Date Listed	Counties	Habitat
FISHES				
Beautiful shiner *Cyprinella formosa*	T	8/31/84	Cochise	Small to medium sized streams and ponds with sand, gravel, and rock bottoms
Desert pupfish *Cyprinodon macularius*	E	3/31/86	Pima, Santa Cruz	Shallow springs, small streams, and marshes; tolerates saline and warm water
Gila chub *Gila intermedia*	P	8/9/02	Cochise, Pima, Santa Cruz	Pools, springs, cienegas, and streams
Gila topminnow *Poeciliopsis occidentalis occidentalis*	E	3/11/67	Pima, Santa Cruz	Lower-elevation (below 1500m) streams, springs, and cienegas vegetated warm water shallows, tolerates saline
Loach minnow *Tiaroga cobitis*	T	10/28/86	Cochise, Pima	Small to large perennial streams with swift shallow water over cobble and gravel
Sonora chub *Gila ditaenia*	T	4/30/86	Santa Cruz	Large, deep, and permanent pools with bedrock-sand substrates
Spikedace *Meda fulgida*	T	7/1/86	Cochise, Pima	Small to large perennial streams with swift shallow water over cobble and gravel
Yaqui catfish *Ictalurus pricei*	T	8/31/84	Cochise	Moderate to large streams with slow current over sand and rock bottoms
Yaqui chub *Gila purpurea*	E	8/31/84	Cochise	Deep pools of small streams, pools, or ponds near undercut banks
Yaqui topminnow *Poeciliopsis occidentalis sonoriensis*	E	3/11/67	Cochise	Vegetated springs, brooks, and margins of backwaters. Found generally in the shallows

Legend:
E= Endangered
T= Threatened
P= Proposed Endangered or Threatened
C= Candidate
NA= Not Applicable

Source: U.S. Fish and Wildlife Service 2002

Table 2-1
Federally Listed, Proposed, and Candidate Species Potentially Occurring within Cochise, Pima, and Santa Cruz Counties

Common/Scientific Name	Status	Date Listed	Counties	Habitat
MAMMALS				
Black-tailed prairie dog *Cynomys ludovicianus*	C	NA	Cochise	Burrows in plains and grassland habitats
Jaguar *Panthera onca*	E	7/22/97	Cochise, Pima	Variety of habitats from Sonoran desert to conifer forests
Jaguarundi *Felis yagouaroundi tolteca*	E	6/14/76	Cochise, Pima, Santa Cruz	Dense thorny thickets of mesquite and acacia
Lesser long-nosed bat *Leptonycteris curasoae yerbabuenae*	E	9/30/88	Cochise, Pima, Santa Cruz	Desert scrub habitat with agave and columnar cacti present as food plants
Mexican gray wolf *Canis lupus baileyi*	E	3/11/67	Cochise, Pima, Santa Cruz	Chaparral, woodland, and forested areas; may cross desert areas
Ocelot *Felis pardalis*	E	7/21/82	Cochise, Pima, Santa Cruz	Humid tropical and sub-tropical forests, savannahs, and semi-arid thornscrub
Sonoran pronghorn *Antilocapra americana sonoriensis*	E	3/11/67	Pima	Broad, intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associates

Legend:
E= Endangered
T= Threatened
P= Proposed Endangered or Threatened
C= Candidate
NA= Not Applicable

Source: U.S. Fish and Wildlife Service 2002

Table 2-1
Federally Listed, Proposed, and Candidate Species Potentially Occurring within Cochise, Pima, and Santa Cruz Counties

Common/Scientific Name	Status	Date Listed	Counties	Habitat
REPTILES				
New Mexican ridge-nosed rattlesnake *Crotalus willardi obscurus*	T	4/4/78	Cochise	Presumably canyon bottoms in pine-oak and pin-fir communities
Sonoyta mud turtle *Kinosternon sonoriense longifemorale*	C	NA	Pima	Ponds and streams
AMPHIBIANS				
Chiricahua leopard frog *Rana chiricahuensis*	T	NA	Cochise, Pima, Santa Cruz	Streams, rivers, backwaters, ponds, and stock tanks
Sonora tiger salamander *Ambystoma tigrinum stebbinsi*	E	1/6/97	Cochise, Santa Cruz	Stock tanks and impounded cienegas in San Rafael Valley, Huachuca Mountains
INVERTEBRATES				
Huachuca springsnail *Pyrgulopsis thompsoni*	C	NA	Cochise, Santa Cruz	Aquatic areas, small springs with vegetation slow to moderate flow
Stephan's riffle beetle *Heterelmis stephani*	C	NA	Santa Cruz	Free-flowing springs and seeps

Legend:
E= Endangered
T= Threatened
P= Proposed Endangered or Threatened
C= Candidate
NA= Not Applicable

Source: U.S. Fish and Wildlife Service 2002

americana. The coloration of *Antilocapra americana sonoriensis* is paler and cranial features are distinctively different from other subspecies.

Although there has been evidence to suggest that *Antilocapra americana sonoriensis* is not a genetically distinct subspecies (Arizona Game and Fish Department [AGFD] 1981; Fain 1996), the Sonoran pronghorn Core Working Group (USFWS 1998) has determined that this designated subspecies should continue to be protected under the Isolated Vertebrate Population Policy within the ESA as an isolated distinct vertebrate population (USFWS 1998). The Sonoran pronghorn core working group was reorganized into the Recovery Team for the Sonoran pronghorn in January of 2000.

2.1.2 Habitat

Sonoran pronghorn inhabit the broad alluvial valleys of the Sonoran Desert in Arizona and Mexico. Their range includes the plains of west central Sonora, Mexico, north to southwestern Arizona (Hervert *et al.* 2000). Historically, pronghorn were found in every open valley along the U.S.–Mexico border from Nogales, Arizona to Yuma, Arizona (Hervert *et al.* 2000). Visibility is a key factor to Sonoran pronghorn in determining acceptable habitat. Open valleys provide the pronghorn with good visibility for detecting and identifying predators. They prefer more open sandy areas and low hillsides with a variety of palatable forage. The availability of forage is another factor that influences pronghorn distribution. In early fall, pronghorn are found on the upper slopes and/or bajadas of desert mountains, where forage is abundant until November or December (AGFD 1981). In 1985, the Arizona Game and Fish Department (AGFD) reported that pronghorn used flat valleys and isolated hills to a greater degree than other topographic features (e.g., mountain ranges).

Sonoran pronghorn inhabit two of the seven subdivisions of the Sonoran Desert as outlined by Brown (1994). These are the Lower Colorado River Valley and the Arizona Upland subdivisions. Creosote (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) make up the major vegetation component of the Lower Colorado River Valley. Species along the major watercourses include ironwood (*Olney tesota*), blue palo verde (*Cercidium floridum*), and mesquite (*Prosopis* sp.). Common vegetation in the Arizona Upland includes foothill palo verde (*Cercidium microphyllum*), catclaw acacia (*Acacia greggii*), along with chain fruit cholla (*Opuntia fulgida*), and teddy bear cholla (*O. bigelovii*).

The diet of Sonoran pronghorn consists of a variety of plant materials. Sonoran pronghorn have been observed eating triangle-leaf bursage (*Ambrosia deltoidea)*, chain fruit cholla, mesquite *(Prosopis velutina)*, and mistletoe (*Phorandendron* spp.) [USFWS 1998]. The fruit of cholla constitutes a large portion of the Sonoran pronghorn diet. They have been observed eating cholla fruit 70 percent of the time (USFWS 1998). Other plant species utilized by the Sonoran pronghorn includes: false filaree (*Erodium texanum*), poverty weed (*Monolepsis nuttalliana*), wooly plantain (*Plantago inularis*), wild carrot (*Daucus pusillus*), and Arizona blanket-flower (*Gaillardia arizonica)* [USFWS 1998]. A fecal analysis conducted from July 1996 to June 1991 indicates the following plant species are heavily used by the Sonoran pronghorn: careless weed (*Amaranthus palmeri*), ragweed (*Ambrosia* sp.), *Astraglus* spp., brome grass (*Bromus* spp.), broom snakeweed (*Guterrezia sarothrae*), and chain fruit cholla (USFWS 1998).

Although data collected from radio-collared animals have provided the beginning for an understanding of the types of habitat necessary for this species, critical habitat has yet to be designated for the Sonoran pronghorn (USFWS 1998).

2.1.3 Distribution and Range

Sonoran pronghorn range from the plains of central and western Sonora, Mexico north to southwestern Arizona (NGFD 1986). In Arizona, Sonoran pronghorn occur on the CPNWR, the Barry M. Goldwater Range (BMGR), and Organ Pipe Cactus National Monument (OPCNM), from Highway 85 west to the Cabeza Prieta Mountains and from approximately the Wellton-Mohawk Canal south to the U.S.-Mexican border. Recent unconfirmed sightings suggest that some animals may occur on the Tohono O'odham Reservation and in the Lechuguilla Desert, west of the Cabeza Prieta Mountains, as well (INS 2002c). In Sonora, Mexico, the Sonoran pronghorn is known from near Sonoyta south to the Puerto Penasco area, east to the sandy plains around Bahia de San Jorge, and west into flats surrounding the Sierra de Pinacate (INS 2002a). The current range of the Sonoran pronghorn is estimated at more than 4.9 million acres INS 2002a). Historically, the range of the Sonoran pronghorn may have been much larger, extending further west, possibly into the Yuma Desert, Imperial Valley of California, and northeastern Baja California; to north of the Gila River; east to the Baboquivari Mountains; and south to Bahia Kino or Huayinas. However, precise determination of the historic range is precluded by a lack of specimens and the largely anecdotal nature of historic records. In addition, the subspecies was not described until 1945, many years after the population had declined and marginal populations were extirpated (AGFD 1986). During an international

boundary survey from 1892-1894, Sonoran pronghorn were seen in every open valley from Nogales, Mexico to Yuma, Arizona. Ajo Valley supported a large population, and Sonoran pronghorn were frequently seen along El Camino del Diablo (AGFD 1986). The Pinta Sands and the Tule Desert adjacent to the Mexican Border have been identified as sensitive areas for Sonoran pronghorn (INS 2002c).

2.1.4 Current Status

The Sonoran pronghorn was listed as Federally endangered on March 11, 1967 (32 FR 4001), and is currently recognized as one of five subspecies of pronghorn (Nowak and Paradiso 1983). The USFWS and CPNWR finalized a Revised Sonoran Pronghorn Recovery Plan in November of 1998. The Regional Director of the USFWS approved the Recovery Plan on December 3, 1998. The USFWS released the draft supplement and amendment to the 1998 Final Revised Sonoran Pronghorn Recovery Plan (USFWS 2001a). This Sonoran pronghorn was listed by the AGFD as "Wildlife of Special Concern" in 1996, and listed on the Mexican federal endangered species list as endangered in 1994. The Sonoran pronghorn currently inhabits southwestern Arizona in the U.S. and Northwestern Sonora in Mexico (USFWS 1998).

2.1.5 Threats and Reasons for Species Decline

Environmental factors such as drought, predation, and available forage, as well as human factors such as illegal hunting, fencing, and human encroachment have all been identified as possible reasons for the decline of the Sonoran pronghorn. While all of these factors may have historically contributed to the decline, drought has apparently caused most of the population fluctuations in recent time. Detected changes in the pronghorn population are believed to be the result of less favorable environmental conditions. For Sonoran pronghorn to be successful they must have substantial winter rains followed by early, summer rains to produce the necessary food for survival (Hervert 1999a).

Although predation may impact the Sonoran pronghorn population, recent information suggests that fawns are surviving through the early development stages when they are most vulnerable to predators (Hervert *et al*. 2000). In other parts of the country, fawn mortality is highest during the first three weeks following birth (when animals are most susceptible to predation); however, Sonoran pronghorn mortality is highest between four and five months of age (Hervert *et al*. 2000). Research indicates a direct correlation between rainfall, and hence forage conditions, and fawn recruitment (Hervert *et al.* 2000). Adequate winter rainfall is needed to sustain

nutritious winter annuals into the spring and early summer. Spring and early summer are a critical period when does are lactating and fawns are born, weaned, and must develop rapidly (Bright *et al.* 2001). Lower quality forage resulting from the lack of rainfall may sustain adult pronghorns, but lacks the nutritional value for lactating does. Summer droughts combined with extremely high temperatures may cause direct water deprivation stresses for pronghorn, thus forcing pronghorns to forage on the fruit of chainfruit cholla, which contains 85 percent of water by weight, in order to satisfy their water requirements (Bright *et al.* 2001). However, chain-fruit cholla is less nutritious than other plant foods available to the Sonoran pronghorn.

During a drought from the summer of 1995 through the fall of 1997, only 12 fawns per 100 does were recruited in 1995 and no known recruitment occurred in 1996 or 1997 (Hervert *et al*. 2000). In addition, adult mortality (38 percent based on radio collared adults) was observed in 1996. Good fawn recruitment was observed in 1998 (33 fawns per 100 does) when rainfall was above the long-term average. Again no fawn recruitment was observed in 1996 when rainfall was 2.17 inches below average. Rainfall was low in the spring of 2000 (2.60 inches below normal) and fawn recruitment is estimated at 14 fawns per 100 does for 2000. As of August 2002, it is assumed that most of the fawn recruitment for 2002 has been lost as a result of low rainfall. The status of the 2002 fawn recruitment will not be known until December 2002 (Bright 2002). In addition adult mortality was observed in 2000 with nine (33 percent) adult collared pronghorn dying (Bright *et al.* 2001).

Based on the Sonoran pronghorn aerial survey for 2000, it appears the U.S. Sonoran pronghorn population has decreased 30 percent from the 1998 survey population (approximately 142 individuals) [Bright *et al.* 2001]. Currently, the size of the Sonoran pronghorn population in the U.S. is estimated at 50 to 80 animals (Bright 2002). A large portion of this population decline is attributable to the lack of rainfall the past six years, as previously mentioned.

Another factor in the large population decline observed during the 2000 survey may be the advanced age of the population (Bright *et al.* 2001). Mortality among radio-collared adult Sonoran pronghorns has averaged 22 percent over the last six years, while fawn recruitment has averaged 10 fawns per 100 does. In 2000, nine (33 percent) adult collared pronghorn died (Bright *et al.* 2001). Based on population survey numbers, fawn recruitment success over the last six years, and a male:female ratio of 63:100, approximately 61 percent of the population is greater than 6 years old. Based on these numbers over half of the current population can be

expected to die in the next several years, even with good rainfall and range conditions (Bright *et al*. 2001). During the first eight months of 2002, the adult mortality rate has been observed to be 66 percent (Bright 2002). As can be seen from the 2000 survey, good fawn recruitment the next few years is essential to maintain the U.S. Sonoran pronghorn population.

2.1.6 Recovery Plan

The USFWS initialized a recovery plan for the Sonoran pronghorn in 1982. The recovery objective was defined as "maintain existing population numbers and distribution of Sonoran pronghorn while developing techniques which will result in a U.S. population of 300 animals (average for a five-year period) or numbers determined feasible for the habitat" (USFWS 1982a). The recovery plan underwent a revision in 1998. The final plan calls for downlisting the Sonoran pronghorn to threatened when there is an estimated 300 adults in one self-sustaining population in the U.S. that remains stable for a minimum of five years, or when numbers are determined to be adequate to sustain the population through time; and at least one other self-sustaining population is established in the U.S. (USFWS 1998).

The draft supplement and amendment to the 1998 Final Revised Sonoran Recovery Plan released in 2001 listed eight recovery efforts for the near-term. These efforts include:

"(1) improving habitat for fawn survival and recruitment through establishment and evaluation of forage enhancement plots on the BMGR;

(2) initiating a quantitative evaluation of pronghorn use and reliance on sources of free water (temporary and permanent);

(3) reducing predation through the selective removal of coyotes from specific areas and at times of the year when adult female pronghorn are most susceptible to predation (the need for coyote control will vary from year-to-year based on environmental conditions);

(4) evaluating potential transplant locations, establishing relocation methodology and protocols, developing interagency agreements (including with Mexico as required), acquiring funding, and initiating reestablishment projects;

(5) increasing frequency and expanding scope of aerial monitoring in Mexico to improve comparability with U.S. surveys;

(6) investigating potential pronghorn disease vectors;

(7) reducing disturbance at critical times of the year; and

(8) investigating and reducing movement barriers" (USFWS 2001).

2.2 Cochise Pincushion Cactus

2.2.1 General Description

W.H. Earle (1978) originally named the Cochise pincushion cactus. Dr. A.D. Zimmerman (1978) later assigned the species to the genus *Coryphantha*, which is currently the most frequently accepted placement. The holotype collected by James Jimmy and John Robbins has been deposited at the Arizona State University herbarium (USFWS 1993a).

The Cochise pincushion cactus (*Coryphantha robbinsorum*) is a small unbranched cactus (two inches tall) with few, if any, central spines. The 11 to 17 white radial spines are long and needle-like. Juvenile plants have 10 white spines that are more even in length and densely covered with fine hairs. The flowers of this cactus are bell-shaped and pale yellow-green in color, while the fruit is orange to red in color when ripe (AGFD 2001a).

2.2.2 Habitat

The Cochise pincushion cactus occurs in semi-desert grasslands associated with small shrubs, agave (*Agave* sp.), grama grass (*Bouteloua* sp.), and other cacti (USFWS 1993a). The species occurs on hills of Permian limestone at an elevation of 4,200-4,700 feet (USFWS 1993a). Soils are composed of thin, gravelly loam over Permian limestone rock, usually with fist-sized limestone rocks, or rubble. In addition to requiring high calcium limestone substrates, plants may also require the well-drained substrate offered by the coarse limestone chips and rock crevices in bedrock. Most individuals of Cochise pincushion cactus are in the open and exposed to bright sunlight (USFWS 1993a). The USFWS (1986a) did not designate critical habitat for this species because of its restricted distribution, accessibility, and the potential threat of poaching by cactus collectors.

2.2.3 Distribution and Range

The total range of the Cochise pincushion cactus is southeastern and southwestern Cochise County, Arizona and northern Sonora, Mexico (AGFD 2001a).

2.2.4 Current Status

The Cochise pincushion cactus was listed as a Federally threatened species on January 9, 1986 (51 FR 952). A Cochise Pincushion Cactus Recovery Plan was prepared by Dennis J. Miller of the Chihuahuan Desert Research Institute and Dr. Richard A. Hilsenbeck of Sul Ross State University in September of 1993. The Regional Director of the USFWS approved the

Recovery Plan on September 27, 1993. The Cochise pincushion cactus was listed as "highly safeguarded" by the Arizona Department of Agriculture in 1993, and "sensitive" by the USFS for Region 3 in 1990.

The Cochise pincushion cactus is known from the San Bernardino Valley, southwestern Cochise County, Arizona, and northern Sonora, Mexico (Lopresti 1984). All of the Cochise pincushion cacti populations occur on private or state land (USFWS 1993a).

2.2.5 Threats and Reasons for Decline

Threats to this species include illegal collection, habitat degradation from cattle and wildlife, and extended periods of drought. Illegal collection is believed to be a major factor in the decline of many protected cactus species. Demand for rare cactus species in illegal markets can be high, leading to the over-collection of natural populations. Illegal collection posses the biggest threat to this species because a collector could quickly eliminate all reproductive plants within a high-density population. Livestock grazing is currently the only human related impact in the area, with the exception of illegal drug trafficking (USFWS 1993a). It is difficult to assess how historical livestock use affected Cochise pincushion cactus populations. Whether the vegetation and flora were significantly altered due to livestock use may never be known for certain. As a result, interpreting the status of, and resolving the threats to, this species will be difficult (USFWS 1993a). Drought periods may increase mortality of plants, particularly seedlings and juveniles. Below-average rainfall also impacts the amount of fruits and seed produced, and therefore affects the seed bank and future recruitment (USFWS 1993a).

2.2.6 Recovery Plan

The recovery of this species will require permanent protection and management of the habitat, trade protection through retention of the species following delisting, and demonstration through ten years of monitoring that viable populations are being maintained. According to the USFWS, the following actions are needed to ensure recovery of this species:

"(1) Develop and implement a habitat management plan in cooperation with both private and state landowners;

(2) Study the population biology of this species to determine the effects of management;

(3) Protect from loss of individuals and habitat;

(4) Establish an *ex situ* conservation and research program;

(5) Define the range and distribution of Cochise pincushion cactus; and

(6) Conduct biological studies necessary for effective management of the species."The goal of the recovery plan is to maintain conditions within Cochise pincushion cactus habitat to sustain 50 high density, viable populations with 300 plants in each population that are linked with existing habitat maintaining low-density populations" (USFWS 1993a).

2.3 Mexican Spotted Owl

2.3.1 General Description

The Mexican spotted owl (*Strix occidentalis lucida*) is a medium-sized owl measuring approximately 17.5 inches in length, with a wingspan of 3.5 feet. It is generally brownish and heavily spotted with white or beige. Unlike most owls, Mexican spotted owls have dark eyes and no ear tufts. Several thin white bands mark an otherwise brown tail (USFWS 1995a).

2.3.2 Habitat

Mexican spotted owls nest, roost, and forage in a diverse array of biotic communities. Mixed-conifer forests are the type of habitat commonly used throughout most of its range (USFWS 1995a). In general, Douglas fir (*Pseudotsuga menziesii*) and/or white fir (*Abies concolor*) dominate these forests, with codominant species including southwestern white pine (*Pinus strobiformis*), limber pine (*Pinus flexilis*), and ponderosa pine (*Pinus ponderosa*) [Brown 1994]. In southern Arizona, Madrean pine-oak forests are also commonly used for habitat (USFWS 1995a). Nesting occurs in canyons and older forests of mixed-conifer or ponderosa pine/Gambel's oak (*Quercus gambelii*) with a multi-layered foliage structure, usually at elevations between 4,100-9,000 feet. Foraging and juvenile dispersion corridors are often in more open, oak-dominated habitat. Sites with cool microclimates appear to be of importance or are preferred for nesting (USFWS 1995a).

The USFWS published critical habitat for the Mexican spotted owl on June 6, 1995 (60 FR 29914). Since that time, the USFWS had been in consultation with action agencies on the affects of proposed and ongoing actions on critical habitat. However, on March 25, 1998 the USFWS amended the list of Threatened and Endangered Wildlife to remove critical habitat designation for the Mexican spotted owl (50 FR 14378). This revocation also gave notice to Federal agencies that the USFWS would no longer consider critical habitat for the Mexican spotted owl for the purpose of conducting Section 7 consultation. On July 21, 2000 the USFWS re-proposed critical habitat designation for the Mexican spotted owl (65 FR 45336-45353) and

on February 1, 2001 the final designation of critical habitat for the Mexican spotted owl was released (66 FR 8530-8553). Now by court order, critical habitat was designated and became effective on March 5, 2001.

2.3.3 Distribution and Range

The Mexican spotted owl's historic range is southern Utah and Colorado south through Arizona and New Mexico to the Mexican Plateau (Michoacan and Guanajuato). It currently occupies most of its historic range; however, it does not occur uniformly throughout its range (USFWS 1995a). The Mexican spotted owl has not recently been reported along major riparian corridors in Arizona and New Mexico, nor in historically documented areas in southern Mexico (USFW S 1995a). In Arizona, the Mexican spotted owl is patchily distributed in forested mountains statewide (AGFD 2001b).

2.3.4 Current Status

The Mexican spotted owl was listed as Federally threatened on March 16, 1993 (58 FR 14248), and is one of three spotted owl subspecies (USFWS 1995a). The Regional Director of the USFWS approved a Recovery Plan for the Mexican spotted owl on October 16, 1995. The Mexican spotted owl was listed by the AGFD as "Wildlife of Special Concern" in 1996, and by the USFS as "sensitive" for Region 3 in 1988.

The Mexican spotted owl inhabits and has been found nesting in diverse forest types scattered across an even more physically diverse landscape. Further, human activities vary dramatically throughout the owl's range. Therefore, to better assess the recovery status of this species, the Recovery Plan divided the owl's United States range into six geographic units called "Recovery Units" (USFWS 1995a). An additional, five Recovery Units were also designated in Mexico. Southern Arizona, including the entire project area for this BA, is included in the Basin and Range – West Recovery Unit. Mexican spotted owls are known to occupy a wide range of habitat types within this Recovery Unit. The majority of owls occur in isolated mountain ranges (USFWS 1995a). Federal lands encompass 36 percent of this recovery unit, mostly administered by the BLM, followed by the USFS and a small portion by the National Park Service (NPS). Privately owned lands amount to 22 percent; state lands, 19 percent; tribal lands (San Carlos Apache Reservation), 12 percent; and Department of Defense (DoD) lands, 11 percent. Within this recovery unit, the Mexican spotted owl occupies primarily USFS lands,

and the majority occur within the Coronado National Forest. DoD lands support the owl on Fort Huachuca Army Base in the Huachuca Mountains (USFWS 1995a).

2.3.5 Threats and Reasons for Decline

The final rule listing the Mexican spotted owl as a threatened species (58 FR 14248) cited past, current, and future timber-harvest practices by the USFS as primary factors leading to listing of the species as threatened (USFWS 1995a). It also implied that forest management practices created ecotones favored by great horned owls, a predator of the Mexican spotted owl.

2.3.6 Recovery Plan

A recovery plan for the Mexican spotted owl was published in December 1995. The recovery plan provides delisting criteria that must be met to consider delisting the species. Delisting criteria include:

> "(1) the Mexican spotted owl population in the three most populated Recovery Units must be stable or increasing after 10 years of monitoring;
>
> (2) scientifically-valid habitat monitoring protocols are designed and implemented to assess (a) gross changes in habitat quantity across the range of the Mexican spotted owl, and (b) habitat modifications and habitat trajectories within treated stands; and
>
> (3) a long-term management plan is in place to ensure appropriate management for the spotted owl and its habitat." (USFWS 1995).

If these three conditions are met and threats have been moderated or regulated and habitat trends are stable or increasing, the Mexican spotted owl may be delisted within any Recovery Unit.

2.4 Cactus Ferruginous Pygmy-owl

2.4.1 General Description

The cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) is a small bird weighing approximately 2.3 - 3.1 ounces and measuring 5.8 – 7.2 inches (AGFD 2001c). The pygmy-owl is reddish-brown overall, with a cream-colored belly streaked with reddish-brown. The crown is lightly streaked, and paired black and white spots on the nape suggest eyes. The ears lack tufts, and the eyes are yellow. The tail is relatively long for an owl and is colored reddish brown with darker brown bars. The pygmy-owl is diurnal, and its call is a monotonous series of short notes (USFWS 1998). The diet of the pygmy-owl consists of various reptiles, insects, birds,

small mammals and frogs. The pygmy-owl begins nesting activities in late winter to early spring. Three to six eggs are laid in cavities in trees or large columnar cacti (USFWS 1997).

2.4.2 Habitat

In Arizona, the pygmy-owl occurs in Sonoran riparian deciduous woodlands, dense Sonoran desertscrub areas, and riparian paloverde-mesquite-saguaros habitat as well as the riparian cottonwood-mesquite areas. Cavities for nesting and roosting may be an important component of pygmy-owl habitat. In Arizona, in Sonoran desertscrub areas, saguaros may provide the majority of potential cavities (Lesh and Corman 1995). Critical habitat (730,000 acres) for this species was delineated in 1999 (Federal Register 64(132):37419-37440); however, a U.S. Distrcit Court ruling in 2001 removed the critical habitat designation for the cactus ferruginous pygmy-owl (Center for Biological Diversity [CBD] 2001). The ruling was the result of a law suit filed by the Southern Arizona Homebuilders Association, the National Association of Homebuilders, and the Homebuilders Association of Southern Arizona in 2000 (CBD 2001). The USFWS is expected to redesignate critical habitat for the cactus ferruginous pygmy-owl by April 2003 (CBD 2001).

2.4.3 Distribution and Range

The cactus ferruginous pygmy-owl occurs from lowland central Arizona south through western Mexico to the States of Colima and Michoacan, and from southern Texas south through the Mexican States of Tamaulipas and Nuevo Leon (USFWS 1998). In Arizona, the owl has been historically documented as far north as New River and Cave Creek in northern Maricopa County. The eastern-most record was along the Gila River near the community of Fort Thomas. This species has been documented in the southeastern part of Arizona near Dudleyville along the San Pedro River, near the Mexican border in Santa Cruz County, near Patagonia, and in Sycamore Canyon west of Nogales. Records for Pima County exist from the Santa Cruz River and its tributaries near Tucson, and in southwestern Pima County at OPCNM and Sasabe. One sighting was recorded in 1955 at Cabeza Prieta Tanks in CPNWR (Monson 1998) and two males have recently been sighted near Papago Well on the CPNWR (Coffeen 2002). Present day locations have been documented in Pima, Santa Cruz, Southern Pinal counties. The owls inhabit areas within OPCNM, Buenos Aires NWR (BANWR), Tohono O'odham Nation, and privately-owned lands in the northwest Tucson area and southern Pinal County (INS 1999).

2.4.4 Current Status

The cactus ferruginous pygmy-owl was listed as an endangered species in the 1997 *Federal Register* 62(46):10730-10747. This species was listed as "Wildlife of Special Concern" by the AGFD in 1996, and as "sensitive" for Region 3 by the USFS in 1988.

The cactus ferruginous pygmy-owl was once fairly numerous in central and southern Arizona along the Gila, Salt, Verde, San Pedro, and Santa Cruz Rivers and drainages (Lesh and Corman 1995). AGFD conducted breeding surveys in 1997 and located nine owls near Tucson in addition to two birds in OPCNM. All of the owls located in the Tucson area were found in Sonoran desertscrub with fairly diverse structure nesting in cavities of saguaro cactus.

2.4.5 Threats and Reasons for Species Decline

The pygmy-owl's decline is believed to be due to the loss of riparian habitat and competition for nest sites with European starlings. Urban and agricultural development, channelization, water diversion, groundwater pumping, livestock overgrazing, and timber harvesting account for the various causes of riparian habitat destruction (Lesh and Corman 1995).

2.4.6 Recovery Plan

A recovery plan has not been published for this species.

2.5 Lesser Long-nosed Bat

2.5.1 General Description

The lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) is a grayish to reddish-brown bat with an elongated snout. The bat has a nose-leaf, an erect triangular flap of skin at the tip of the snout. Compared to other bats, the lesser-long nosed bat has larger eyes and reduced ears. It is distinguished from other bats of this family by its reduced tail membrane and complete lack of a tail. These bats are strong fliers capable of flight speeds of up to about 14 miles per hour (mph) and overnight foraging flights of up to 40 miles from roosts (AGFD 1998a). Lesser long-nosed bats do not hibernate. They migrate in September or October to Mexico, where they breed and spend the winter. They then return to Arizona as early as April to bear young. Females form maternity colonies that may number in the hundreds or thousands, and males form smaller colonies. After the young are weaned, the maternity colonies begin to disband in July and August, but some bats remain in these roosts into October (USFWS 1995b). The lesser long-nosed bats' diet consists of nectar and pollen from flowers of columnar cacti (e.g. saguara cactus and organ pipe cactus) in early summer and agave later in the summer

and early fall. They may also feed on ripe cactus fruits at the end of the flowering season (AGFD 1998a).

2.5.2 Habitat

The lesser long-nosed bat's habitat is described as desert grassland and shrubland up to oak transition. According to the AGFD, this species' preferred plant community is described as palo verde/saguaro, semi-desert grassland, and oak woodland. These bats roost in caves, mine tunnels, and occasionally in old buildings and were reported once in a culvert in Madera Canyon of the Santa Rita Mountains (AGFD 1998a). Two of the three major maternity roost sites in Arizona occur within the Tucson Sector. Both maternity roosts are located within the Ajo Station's AO. Of these, the Copper Mountain roost is the largest and contains nearly 20,000 adult females. The second roost, Bluebird Mine, contains up to 4,000 adult females (USFWS 1995b). Four additional roost sites, Cave of Bells, Patagonia Bat Cave, Manila Mine, and State of Texas Mine, also occur within the project area. This species currently has no designated critical habitat.

2.5.3 Distribution and Range

The lesser long-nosed bat occupies the lowland deserts of Mexico from Oaxaca and Veracruz through western Mexico to Baja California, southeasterly through Guatemala to El Salvador, and northward to south-central and southeastern Arizona and southwest New Mexico. In Arizona, the lesser long-nosed bat ranges from the Picacho Mountains, southwesterly to the Agua Dulce Mountains, and southeasterly to the Galiuro and Chiricahua Mountains (AGFD 1998a).

2.5.4 Current Status

The lesser long-nosed bat was listed as an endangered species in the 1988 *Federal Register* [53(190):38456-38560] with no designated critical habitat. A recovery plan was published by the USFWS in 1995. The lesser long-nosed bat was also listed by the AGFD as "Wildlife of Special Concern" in 1996, by the USFS as "sensitive" for Region 3 in 1988, and as threatened in Mexico's Secretaría de Desarollo Social in 1994.

Recent survey efforts indicate that thousands of lesser long-nosed bats roost and/or feed in Arizona seasonally (USFWS 1995b). If the most recent census numbers are correct, the lesser long-nosed bat has had a substantial increase in numbers since the 1984-1985 surveys. Its

population size appears to be far larger (by two orders of magnitude in Arizona) than was known in 1985, and its numbers in some locations appear to be relatively stable from year-to-year (USFWS 1995b).

2.5.5 Threats and Reasons for Species Decline

The main threats to this species are the reduction in numbers of maternity colonies and decline in size of remaining colonies due to exclusion and disturbance. In addition, large reductions in acreage of native agaves over large areas of northern Mexico due to excessive harvesting for local manufacture of mescal and tequila are also reasons for decline of this species (AGFD 1998a).

2.5.6 Recovery Plan

The lesser long-nosed bat recovery plan provides protective actions needed for the recovery of the bat. Protection of all known roost sites and food plants within a radius of 50 miles around known roosts will help prevent this species from going extinct. In addition, the protection of food resources along migratory pathways may be important to the survival of the species (USFWS 1995b). Specifically, the following actions are needed for recovery:

> "(1) Continue protecting roost sites and evaluate the need for and implement protection for food plants;
>
> (2) Monitor all major roosts in Arizona, New Mexico, and Mexico once a year;
>
> (3) Continue surveying for additional roosts in the U.S. and Mexico;
>
> (4) Develop and conduct a public education and information campaign in Arizona, New Mexico, and Mexico on the beneficial aspects of bats in general and the lesser long-nosed bat specifically; and
>
> (5) Conduct critical research on population census techniques, physical requirements for roosts, foraging ranges of roosts, reproduction and mating systems and other life history and habitat questions" (USFWS 1995b).

The lesser long-nosed bat will be considered for downlisting, in part, when each major roost population has been monitored yearly for at least five years, and monitoring results indicate that populations in all roosts have remained stable (± 10%) or have increased in size for at least five years following approval of the recovery plan (USFWS 1995b).

2.6 Huachuca Water Umbel

2.6.1 General Description

Huachuca water umbel (*Lilaeopsis schaffneriana* var. *recurva*), a member of the parsley family, is a herbaceous semi-aquatic perennial. The water umbel has pale green, cylindrical hollow leaves of two or three per node. When growing above water in wet soil near streams, stems are often 1.2 to 2.0 inches tall, but may be up to 8.0 inches. The flowers, that are approximately 0.04 to 0.08 inches wide and are born below the leaves, have tiny maroon-tinted petals. Flowering has been observed from March through October. The rhizomes of the Huachuca water umbel branch freely, forming large mats, and make it impossible to identify individual plants. It appears that the Huachuca water umbel flowers are self fertile, and rapid colonization of ponds in San Bernardino National Wildlife Refuge (SBNWR) is evidence that this species may have extended seed dormancy (AGFD 1997a).

2.6.2 Habitat

According to the AGFD, Huachuca water umbel habitat is described as cienegas and associated vegetation within Sonoran desertscrub, grassland or oak woodland, and conifer forest. It requires perennial water, gentle stream gradients, small to medium sized drainage areas, and mild winters. It is usually found in water depths averaging from 2.0 to 16.0 inches. Optimum substrate consists of submerged sand, mud and/or silt. Habitat elevation ranges from 4,000 to 6,500 feet (AGFD 1997).

2.6.3 Distribution and Range

Huachuca water umbel inhabits southwestern New Mexico, southeastern Arizona, and Sonora, Mexico (AGFD 1997a). In Arizona, Huachuca water umbel has been found in three counties. In Pima County, it has been found in Tucson. In Cochise County, it has been found in the Huachuca Mountains, the San Pedro area, and at Saint David, where it has been extirpated from the San Bernardino Valley/Black Draw area. In Santa Cruz County, it has been found near Sonoita Creek, Canelo Hills/Turkey Creek, Sonoita Creek, and San Rafael Valley (AGFD 1997a).

2.6.4 Current Status

The Huachuca water umbel was listed as an endangered species in the 1997 *Federal Register* [62(3):665-689] with critical habitat designated in *Federal Register* 63 FR 71838. The Huachuca water umbel was also listed as “highly safeguarded” by the Arizona Department of

Agriculture in 1993, and as "sensitive" in Region 3 by the USFS in 1990. The species appears to be lost from four historic sites in Arizona (Saint David, 2 sites; Tucson; Monkey Springs) because of the loss of cienegas; however, in 1993 and 1994 it was observed to be naturally recolonizing San Pedro River at several locations including the Hwy 90 crossing and Boquillas Ranch (AGFD 1997a), apparently as a result of improved aquatic habitat stability following improvement in management of the BLM San Pedro Riparian National Conservation Area.

2.6.5 Threats and Reasons for Species Decline

The Huachuca water umbel's major reasons for decline are limited distribution and destruction of wetland habitat. The Huachuca water umbel is restricted to wetland habitats which are typically rare in the southwestern United States and Mexico. Its habitat has been affected by watershed degradation due to livestock grazing development; and trampling by livestock; diversion of water and dewatering of habitats; and flash flooding; and lowering of the water table (AGFD 1997a).

2.6.6 Recovery Plan

A recovery plan has not been published for this species.

2.7 Gila Topminnow

2.7.1 General Description

The Gila topminnow (*Poeciliopsis occidentalis occidentalis*) is a small, dimorphic fish with males rarely exceeding 0.98 inches and females rarely exceeding 1.97 inches (Shoenherr 1974). Dorsal profile is slightly concave, the mouth is wide and superior, and the dorsal and caudal fins are rounded to almost square. Most individuals are cream to light brown with tinges of greenish blue iridescence. Territorial males are entirely black except for yellowish dorsal, anal, and caudal fins, and a pale yellow gonopodium (Shoenherr 1974). The reproductive season normally lasts from January through August. Yet, in thermal waters, reproduction occurs all year long. Gila topminnows are omnivorous, utilizing a broad spectrum of foods such as detritus and amphipods, but feed voraciously on aquatic insect larvae, especially mosquitoes, when abundant (AGFD 2001d).

2.7.2 Habitat

Gila topminnows occupy headwater springs and vegetated margins and backwater areas of intermittent and perennial streams and rivers. This species prefers lower-elevation (below

5,000 feet) shallow warm water in a moderate current with dense aquatic vegetation and algae mats. The topminnow does not inhabit high gradient streams. Topminnows can withstand water temperatures from near freezing to 90 to 100° F [degrees Fahrenheit (°F)]. They also can live in a fairly wide range of water chemistries, with pH ranging from 6.6 to 8.9, dissolved oxygen levels from 2.2 to 11 ppm, and salinity ranging from tap water (near zero parts per million) to sea water (Stefferud 1982). Gila topminnows are associated with the cottonwood/willow or burrobrush/seep willow terrestrial riparian communities.

2.7.3 Distribution and Range

The Gila topminnow once occupied aquatic habitats in the Gila River drainage in New Mexico, Arizona, and Mexico. In Arizona, they were once found in most perennial springs, streams and vegetated margins of rivers in the Gila River drainage in Yavapai, Gila, Pinal, Maricopa, Graham, Greenlee, Cochise, Pima, Santa Cruz, and Yuma counties. Currently, disjunct populations exist in nine to 11 natural locations, 22 to 24 reintroduced locations within the Gila River drainage, and one location in the Bill Williams River drainage along the Arizona/California border (AGFD 2001d).

2.7.4 Current Status

The Gila topminnow was listed as an endangered species in the 1967 *Federal Register* 32:4001 with no critical habitat designation. This species was also listed in 1988 as threatened by the AGFD, in 1996 as “Wildlife of Special Concern” by the AGFD, in 1988 as “sensitive” in Region 3 by the USFS, and in 1994 as threatened in Mexico’s Secretaría de Desarollo Social.

Gila topminnows were once the most common fish in southern Arizona. They have declined to only nine to 11 isolated natural populations as described above. Predatory fish threaten the Sharp Spring, Bylas Spring, Sonoita Creek, Redrock Canyon, Santa Cruz River, and Fresno Canyon populations. However, the Cottonwood Spring, Monkey Spring, and Cienega Creek populations appear to be relatively stable and secure. Over 300 attempts to re-introduce Gila topminnow have resulted in only the Gila River drainage and Bill Williams River drainage populations (AGFD 2001d).

2.7.5 Threats and Reasons for Species Decline

The main threat to the Gila topminnow is the introduction of exotic fish, especially the mosquitofish (*Gambusia affinis*). Other factors include mining, grazing, fuel-wood cutting, and logging (AGFD 2001d).

2.7.6 Recovery Plan

A recovery plan has not been published for this species.

2.8 Pima Pineapple Cactus

2.8.1 General Description

The Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina)* is a succulent perennial measuring between 4 and 18 inches in height and between 3 and 7 inches in diameter. It has strong straw-colored central spines measuring up to 1.2 inches long that form clusters of one per areole, which are covered with a deciduous wool that disappears at maturity. The central spine that measures 0.08 inches in diameter is curved at an abruptly narrowing tip. There are six radial spines in young plants and 10 to 15 in older plants. Tubercles are grooved along their upper surface. Stems can branch and form clumps. The flowers of the Pima pineapple cactus are silky yellow with coral edges. The fruit is green, ellipsoid, succulent, and sweet, and the seeds are brown or black and finely veined or netted. Flowering occurs in mid-July with the onset of summer rains (AGFD 2001e).

2.8.2 Habitat

The habitat of the Pima pineapple cactus is described as ridges in semi-desert grassland and alluvial fans in Sonoran desertscrub with elevation ranges from approximately 2,300 to 5,000 feet. The Pima pineapple cactus community is defined by the AGFD as lower Sonoran desertscrub and semi-desert grassland dominated by white-thorn acacia (*Acacia constricta*), velvet mesquite (*Prosopis velutina*), thread snakeweed (*Gutierrezia microcephala*), triangle-leaf bursage (*Ambrosia deltoidea*), and various other cacti and grasses (AGFD 2001e).

2.8.3 Distribution and Range

The total range of the Pima pineapple cactus is south-central Arizona and north-central Sonora, Mexico (AGFD 2001e). Its range in Arizona is southeastern Arizona is bounded in the east by the Santa Rita Mountains in Santa Cruz County, in the west by the Baboquivari Mountains in

Pima County, in the north by Tucson, and in the south by the Arizona-Mexican border (AGFD 2001e).

2.8.4 Current Status

The Pima pineapple cactus was listed as an endangered species in the 1993 *Federal Register* [58(188):51159] with no critical habitat designation. It was also listed as "highly safeguarded" by the Arizona Department of Agriculture in 1993, and as "sensitive" in Region 3 by the USFS in 1990. Seeds are currently being collected and stored at the Arizona-Sonora Desert Museum. Only five to 10 percent of species range is on Federal land. Small isolated tracts of BLM land are critical to the survival of species (AGFD 2001e).

2.8.5 Threats and Reasons for Species Decline

Limited range and sparse distribution appear to be the greatest potential threat to the Pima pineapple cactus. Other factors include loss of habitat due to urban development, off-road vehicle use, road construction, agriculture, and mining, habitat degradation due to livestock grazing; and alteration of habitat due to aggressive non-native grasses, illegal collecting, and range management practices that cause surface disturbances (AGFD 2001e).

2.8.6 Recovery Plan

A recovery plan has not been published for this species.

2.9 Ocelot

2.9.1 General Description

The ocelot (*Felis pardalis*) is a medium-sized cat measuring 30 to 41 inches and weighing 15 to 40 pounds (AGFD 1998b). It has grayish or buff under parts, heavily marked with blackish spots, small rings, blotches or short bars (Leopold 1959). The under parts are white spotted with black (Schmidly 1977). The long tail is either ringed or marked with dark bars on its upper surface (Guggisberg 1975). Some of the dark markings are elongate, forming streaks that run obliquely down the sides, and there are two black stripes on each cheek (AGFD 1998b).

2.9.2 Habitat

The ocelot inhabits a variety of habitats including desertscrub communities in Arizona dense, almost impenetrable thickets in Texas, and humid tropical forests, coastal mangroves, and swampy savannahs in areas south of the United States (AGFD 1998b). The minimum acreage

required for an area to be classified as suitable habitat is 99 acres of brush or 74 acres of two or more proximate brush stands (USFWS 1990a). Virtually nothing is known of the ocelot in Arizona, but recent reports of ocelots in southeastern Arizona warrant further investigation of its status in Arizona and northern Sonora (USFWS 1990a).

2.9.3 Distribution and Range

The historic range of the ocelot includes southern Texas and Arizona to northern Argentina (USFWS 1990a).

2.9.4 Current Status

The ocelot was listed as endangered by the USFWS on July 21, 1982 (47 FR 31670). Critical habitat has not been designated for this species. The northern range of the ocelot was included in the *Listed Cats of Texas and Arizona Recovery Plan* that was completed in August 1990. This species is listed as a "Wildlife of Special Concern" and "Prohibited Wildlife" in the State of Arizona, and endangered in Mexico's Secretaría de Desarollo Social. Since 1980, four ocelots have been inadvertently trapped in Arizona: two from the San Pedro Valley, one from the Holbrook-Concho area, and one from Sasabe (USFWS 1990a). One ocelot sighting was reported in the last two years in Mexico near Douglas, Arizona (INS 2002c). Sightings have been reported in Maricopa County, Arizona, but these are probably due to escaped or released captive animals (USFWS 1990a).

2.9.5 Threats and Reasons for Decline

Dating as far back as the Aztec civilization, the ocelot was hunted for its prized pelt. From the early 1960s to the mid-1970s, an estimated 200,000 ocelots were taken every year for the fur trade, more than any other spotted cat species in the world. By the 1980s, the survival of this small, spotted feline was at risk (USFWS 1990a).

Even though measures have been taken to protect the ocelot throughout Latin America, it remains vulnerable to illegal fur trade. In addition, there are no protections in place for the species in countries such as Ecuador, El Salvador, and Guyana.

In North America, the greatest threat is fragmented habitat. For example, in the Lower Rio Grande, ocelots rely upon thick vegetation for hunting, resting and establishing dens. Biological corridors, such as rivers, shorelines, and natural drainages are essential, for travel between

core habitat areas. In northeastern parts of Mexico, ocelots also suffer from habitat loss, as areas are destroyed primarily for charcoal production, agriculture and ranches. Road construction and land use changes have recently become a greater cause for concern.

2.9.6 Recovery Plan

In 1990, the Arizona-Sonoran Desert Museum prepared the recovery plan for Federally listed cats in Texas and Arizona for the USFWS. The plan called for an emphasis on the ocelot. The plan identified major steps needed for down listing and ultimately delisting the cat from Federal endangered species listing. The plan noted that specific criteria were difficult to determine; however, specific tasks were identified in steps to reach this goal (USFWS 1990a).

Criteria for down listing and delisting the ocelot are hard to determine for two reasons. First, only a small fraction of the historic range exists in the U.S. and, the Texas population will most likely become isolated from its population in Mexico due to loss of habitat corridors. The second reason is due to the lack of information on population and viability of the ocelot.

The plan concluded that virtually nothing is known on the ocelot and its presence in Arizona and that more information from the field would be necessary to assess its status. Recovery has been based on data collected from known populations in Texas (USFWS 1990a).

In order to better determine the status of the ocelot in North America, the plan called for preliminary objectives and tasks designed at understanding the population in Texas and gathering additional information on the status in Arizona.

2.10 Masked Bobwhite

2.10.1 General Description

The masked bobwhite (*Colinus virgiananus ridgwayi*) male is distinguished by its rich red breast and black head and throat. Some males have a white to yellowish-white superciliary stripe and sometimes touches of white elsewhere on the head. The female is mottled brown, buff and white, with a buff throat and superciliary stripe (Tomlinson 1972). Females closely resemble other races of the species and are essentially indistinguishable from the Texas bobwhite (*Colinus virginianus texanum*) (Banks 1975). There is no evidence that masked bobwhite integrated with other races historically, although its close resemblance to black-headed

bobwhites (*Qrtyx graysoni*) suggests a link in the not-too-distant past with this species, which occurs on of the Pacific slope of southwestern Mexico (Johnsgard 1973).

2.10.2 Habitat

Masked bobwhite habitat in the Sonora desert is relatively open, subtropics, summer-active savanna grassland with dry-tropic scrub. The scrub components are characteristic of Sinaloan thornscrub and Sonoran desertscrub (USFWS 1995). Favored habitats require moderately dense native grass cover characterized by Rothrock grama grass (*Bouteloua rothrockii*), cane beardgrass (*Andropogon barbinoides*), tanglehead (*Heteropogon contortus*), and three-awn grass (*Aristida hamulosa*) (Goodwin 1985).

Recent studies were conducted in detail on reintroduced bobwhites from 1979 to 1981 on the Buenos Aires Ranch, now the BANWR, north of Sasabe, Arizona (Goodwin 1982). These studies suggested that masked bobwhite used the bottomlands of the main and side drainages extensively. Furthermore, they displayed a specific range of preferences for understory shrub cover and grass-forb density and diversity within a general habitat type. Individuals were generally absent in areas having less than 8 percent shrub cover. Instead, overstory shrub cover of 15-30 percent was preferred. Young mesquite with low, pendulous branches close to the ground appeared ideal. Large mesquite provided little cover at ground level. Goodwin believed size and distribution of overstory cover was a key factor in masked bobwhite habitat (Goodwin 1982).

2.10.3 Distribution and Range

Historically, the masked bobwhite inhabited grasslands throughout Sonora, Mexico, and the Altar and Santa Cruz valleys of Pima and Santa Cruz counties in Arizona. The masked bobwhite inhabited the Sonoran savanna grasslands, the Sonoran desertscrub, and the Sinaloan thornscrub of extreme south central Arizona and adjacent central Sonora, Mexico (AGFD 1998b). Historic accounts and collections indicate that this subtropical subspecies was always restricted to level plains and river valleys in Sonora and extreme south-central Arizona, between elevations of approximately 492 and 3,950 feet (Brown 1885, 1904; Van Rossem 1945; Ligon 1952; Tomlinson 1972).

2.10.4 Current Status

The masked bobwhite became endangered shortly after being collected in 1884 (USFWS 1995c). As a result, this species was included among the first fauna identified as endangered. The masked bobwhite was listed as endangered by the USFWS on March 11, 1967 (35 FR 8495) with no designated critical habitat. A Recovery Plan was completed in February 1978 and revised in 1984 and 1985. The masked bobwhite is listed as a "Species of Special Concern" by the State of Arizona, and endangered in Mexico's Secretaría de Desarollo Social. According to the AGFD, the masked bobwhite was extirpated from the United States by 1900 (AGFD 1998b). In 1985, AGFD established a refuge population and captive-rearing program at BANWR in Pima County, Arizona. There was an estimated population between 300 and 500 individual birds at the refuge in 1996. Three small natural populations still persist in central Sonora, Mexico, consisting of fewer than 1,000 individuals (AGFD 1998b).

2.10.5 Threats and Reasons for Decline

Destruction of native grass ecosystems by grazing, periodic droughts, erosion, and wildfire suppression have reduced natural food supplies. Another threat is that several areas in Sonora, Mexico are being converted to buffelgrass (*Cenchrus ciliaris*), which provides no food source for the masked bobwhite (AGFD 1998b).

2.10.6 Recovery Plan

The first Recovery Plan was initiated in February 1978. It is currently on its second revision, which was issued in 1995. The initial revised plan issued in 1984 called for establishing and permanently protecting habitat for three or more self sustaining masked bobwhite populations in Arizona. Additionally, plans identified the need to permanently protect or re-create habitat suitable to maintain or reestablish one or more populations at a similar level of abundance in Sonora, Mexico (USFWS 1995c). As part of this objective, the USFWS established the Buenos Aires Ranch in 1985 as the BANWR. The primary goal of BANWR is to support a sustaining population (500 birds) of masked bobwhite quail.

Tasks were identified for achieving the objectives of the recovery plan as well as serving as the basis for the revised recovery plan. These tasks were;

"(1) Maintain at least two captive populations at widely separated locations;

(2) Continue release of propagated stock on BANWR until a viable self-sustaining population of 500 birds is established;

(3) Implement habitat management on BANWR to maintain and increase the existing population;

(4) Determine species biology, population dynamics, habitat needs, management and winter requirements in Mexico and U.S.;

(5) Assist in monitoring masked bobwhite populations in Mexico;

(6) Establish and maintain at least two wild populations in Mexico;

(7) Establish a second self-sustaining wild population in the U.S" (USFWS 1995c).

The current 1995 revised plan proposes, if possible, to establish a second site outside of BANWR where a sustainable population can be established. Currently, the criteria for reclassifying the mask bobwhite quail to threatened are to maintain two sustainable populations in the U.S., as well as two or more populations in Mexico (USFWS 1995c).

2.11 Chiricahua Leopard Frog

2.11.1 General Description

One of seven known leopard frogs found in Arizona, the Chiricahua leopard frog (*Rana chiricahuensis*) is greenish-brown usually with a green face. Its dorsal spots are generally smaller and more numerous than in other leopard frogs. The rear of the frog's thigh is speckled with "salt and pepper" markings. Its ventral side is whitish or yellowish with gray mottling on the throat and sometimes on the chest. The groin and lower abdomen are yellow in color (Platz and Mecham 1979).

2.11.2 Habitat

This species is highly aquatic, living in a variety of water sources including rocky streams with deep rock-bound ponds, river overflow pools, oxbows, permanent springs, eastern stock tanks, and ponds (AGFD 2001f). The riparian habitat along these water bodies generally consist of oak and mixed oak and pine woodlands, but it can also range into areas of chaparral, grassland, and even desert.

2.11.3 Distribution and Range

The Chiricahua leopard frog's range includes mountain regions of central and southeastern Arizona; southwestern New Mexico, from the Sierra Madre Occidental south to Chihuahua and Durango, Mexico (AGFD 2001f). Its Arizona range is divided into two portions: from montane central Arizona east and south along Mogollon Rim to montane parts of western New Mexico;

and the southeastern montane sector of Arizona and portions of Sonora, Mexico (Platz and Mecham 1979).

2.11.4 Current Status

The Chiricahua leopard frog was listed as threatened without critical habitat on July 15, 2002 (Federal register 67(117): 40790-40811). It was also listed in 1996 as "Wildlife of Special Concern" by the AGFD, in 1988 as "sensitive" for Region 3 by USFS, and in 1994 as threatened in Mexico's Secretaría de Desarollo Social.

2.11.5 Threats and Reasons for Decline

Of all of Arizona's leopard frogs, the Chiricahua leopard frog has undergone perhaps the largest, most dramatic decline (Sredl and Waters 1995). To better understand the frog's status, AGFD biologists have conducted locality and historical surveys since 1990. The conclusions suggested that the Chiricahua leopard frog is absent from 82 percent of its historical localities.

In the petition to list the Chiricahua leopard frog, the USFWS cited known threats as habitat alteration, destruction, and fragmentation; predation by nonnative organisms; and introduced species such as bullfrogs and fish; and disease. Habitat loss has resulted from water diversions, dredging, livestock grazing, mining, degraded water quality, and groundwater pumping. Problems associated with small population numbers and size also threaten the species (AGFD 2001f).

Since 1970, the introduction of non-native species of fishes, bullfrogs and crayfishes has been the most important factor in recent declines of all leopard frog populations in the southwest. Recent studies; however, have implicated diseases such as the chytrid fungus as a factor of the frog's decline. Scientists first discovered the chytrid fungus in amphibians in 1998 (Dazak 2000). The chytric fungus is a skin infection that causes a thickening of the outer epidermis and usually results in death of infected amphibians. This fungus has been associated with global climate change (Dazak 2000).

2.11.6 Recovery Plan

No recovery plan has been developed for this species.

2.12 Jaguar

2.12.1 General Description

The jaguar (*Panthera onca*) is the largest and most robust of the North American cats. A number of accounts of individuals present in the southwestern United States have attributed to several subspecies documented in Arizona, New Mexico (*Pantera onca arizonensis),* and Texas (*Panthera onca veraecrucis*) (Goldman 1932 & 1933). This large cat extends approximately 7.8 feet in length, and weighs in range from 90 to 300 pounds (AGFD 1998b). They can be described as muscular with massive limbs and a deep chested body. The tail is short and bristly. Ground color varies from pale yellow to rusty red dorsally, paler on the sides, and white on the underparts and inner surfaces of the legs (USFWS 1980). Markings are irregular blotches and rosettes, the latter centered with black spots (USFWS 1980). Both black and albino individuals occur on occasion.

2.12.2 Habitat

The jaguar is found near water in the warm tropical climate of savannah and forests. Individuals in Arizona have been found in Sonoran desertscrub up through subalpine conifer forests (AGFD 1998b). It requires dens in rocky caves and dense thickets (USFWS 1980).

2.12.3 Distribution and Range

Historically, the jaguar inhabited the southwestern United States including California, Arizona, New Mexico, Louisiana, Texas, and into central South America. In Arizona, the species range included the mountainous parts of eastern Arizona to the Grand Canyon (AGFD 1998b). Currently, the jaguar is restricted to central Mexico and central South America.

2.12.4 Current Status

The jaguar was designated as an endangered species by the USFWS on July 22, 1997 (Federal Register 62(140): 39147-39157). Critical habitat has not been designated for this species. The jaguar is listed as ”Wildlife of Special Concern” by the State of Arizona. The jaguar is also protected from international trade by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). There are no known breeding populations in the United States. Individuals are believed to be transients and may cross into Texas, New Mexico, and Arizona. The most recent confirmed account in southwest Arizona was captured on film by Jack Childs in December of 2001 by a motion-activated camera (Associated Press 2002). This was the first jaguar photographed in approximately six years in North America (INS 2002d).

Prior to that, the last confirmed sighting of a jaguar was in 1996 near the Baboquivari Mountains in Pima County, Arizona (INS 2002d). According to AGFD the nearest known population occurs in Mexico approximately 135 miles south of Tucson, Arizona.

2.12.5 Threats and Reasons for Decline

Deliberate persecution, excessive and illegal hunting, over-exploitation by the fur industry, and predator control activities have extirpated this species from much of its original range and seriously reduced numbers in most of the rest (USFWS 1980). Timber and brush clearing have degraded and destroyed habitat to the point where reestablishment of populations in the northern part of the range is doubtful (USFWS 1980). Mining and oil exploration and development have made formerly remote Central and South American areas more accessible to human activity and subsequent illegal killings of this species (USFWS 1980).

2.12.6 Recovery Plan

The designation of the jaguar as endangered requires that efforts are made to recover this species. The jaguar was briefly addressed in a recovery plan issued in 1990 for the Listed cats of Texas and Arizona. However, in the 1997 ruling by USFWS it was recommended that designation of a critical habitat would not be beneficial to the species. Furthermore, it was ruled that the primary threat to the jaguar in the U.S. is from taking rather than destruction of habitat (USFWS 1997b).

The AGFD has currently implemented the Jaguar Conservation Team. This initiative is composed of a group of agencies and individuals from state, Federal, and local governments, private individuals, and other entities with an interest in jaguar conservation. The efforts of the team focus on occurrence information, development of a handling and kill verification protocol and description of procedures for livestock reimbursement from depredating jaguars (AGFD 2002).

2.13 Other Listed Species

The following species were identified by the USFWS as potentially occurring within the study area. Brief descriptions and accounts for each are included here to identify species, other than the 12 included for detailed analysis, which could be affected by USBP activities within the Tucson Sector. Because the USBP operational activities can avoid and would not have an

affect on these species, potential effects to these protected species are not analyzed in detail. However, general mitigation and conservation measures for all species, including these other species, are outlined in Section 4.0.

2.13.1 Kearney Blue Star

Kearney blue star (*Amsonia kearneyana*) is a perennial herb in the dogbane family. Mature plants grow up to 2.3 feet in height and nearly 3.3 feet across. Kearney blue star is known to occur naturally only on the western slopes of the Baboquivari Mountains in South and Sycamore Canyons in Pima County. These plants have been introduced into Brown Canyon, which is on the east side of the Baboquivari Mountains (AGFD 1997b). They inhabit elevation ranges from 3,750 to 4,500 feet. The Kearney blue star habitat is defined as canyon bottoms on sandy alluvium in partial shade under deciduous riparian trees, and the optimum substrate is granitic alluvium (AGFD 1997b). Its plant community can be described as "Mexican Blue Oak association, Sonoran Desertscrub, Semidesert Grassland plant communities, or a transition zone between the two" (Reichenbacher and Welch 1993).

The Kearney blue star was listed as an endangered species in the 1989 *Federal Register* [54(12):2131-2134] with no designated critical habitat. It was also listed in 1993 as "highly safeguarded" by the Arizona Department of Agriculture, and in 1990 as "sensitive" in Region 3 by the USFS. In 1982, McLaughlin found there to be a total of eight individuals in the entire population in South Canyon, and a follow-up survey in 1987 revealed no new individuals (AGFD 1997b). In 1987, USFWS contracted with Southwestern Field Biologists to transplant Arizona Sonoran Desert Museum seeds from South Canyon to establish a new population. An introduced population in Brown Canyon declined from approximately 130 to 35 following a flood in 1990. The one native population consists of approximately 10 to 15 individuals (AGFD 1997b). The native population exists on land owned by the Tohono O'odham Nation, and the introduced sites exist on land owned by BANWR. Because of the vulnerable canyon bottom habitat, Kearney blue star is greatly affected by flooding. It is also threatened by disturbance and damage from livestock.

The USFWS published a recovery plan for this species in 1993. Actions needed for downlisting of this species are:

"(1) Protect and manage populations and habitat;

(2) Gather biological information needed to describe habitat requirements and determine management decisions;

(3) Survey for new populations;

(4) Reintroduce populations as needed to meet downlisting criteria;

(5) Establish *ex situ* conservation programs in botanical gardens and natural settings" (USFWS, 1993b).

The objective of the recovery plan is to maintain 10 self-sustaining natural populations containing 200 reproducing individuals of Kearney's blue star and establish procedures to insure continued protection of these populations from human and natural threats (USFWS 1993b).

2.13.2 New Mexican Ridge-nosed Rattlesnake

The New Mexican ridge-nosed rattlesnake (*Crotalus willardi obscurus*) is distinguished by its upturned internasal and canthal scales that form a ridge around the front of the snout (Stebbins 1966). This species is relatively small, attaining a length of about two feet (Klauber 1972). Coloration of the New Mexican ridge-nosed rattlesnake is a light brown with irregularly spaced white crossbars with dark edges. The underparts are white to pale brown. It lacks the distinct white facial markings of the other subspecies. This subspecies has never been documented in Arizona although it has been observed near the Arizona border in the Peloncillo Mountains. The New Mexican ridge-nosed rattlesnake is most commonly found in moist canyons in coniferous forests to pine and pine-oak woodland, but it is also found in adjacent, more arid woodland and ecotonal grassland habitats (AGFD 1996). In the Animas Mountains of New Mexico, this subspecies has been found in and adjacent to habitats classified as Douglas fir forests, pine-oak woodland, Emory oak woodland, Arizona oak woodland, netleaf/silverleaf oak woodland, Gambel oak woodland, riparian woodland, pinyon pine-juniper woodland, manzanita chaparral, oak chaparral, mixed chaparral, and talus slopes (Hubbard *et. al* 1979).

The New Mexican ridge-nosed rattlesnake was listed as threatened by the USFWS on August 4, 1978 (43 FR 34479). A Recovery Plan was completed in March 1985, and critical habitat was designated in a portion of Hidalgo County, New Mexico. The New Mexican ridge-nosed rattlesnake is listed as a "Species of Special Concern" by the State of Arizona.

This species is listed as "threatened" because of its limited range, vulnerability, and past collecting. After the species was discovered in 1957 in the Animas Mountains of New Mexico, collectors came from all parts of the country (Applegath *et. al* 1980). Collectors also destroyed or altered habitat in their collecting efforts. Other threats include destruction of habitat due to excessive grazing and infestation by certain flagellates and bacterium (Johnson 1983).

2.13.3 Sonora Tiger Salamander

The Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*) is a large, stocky salamander, approximately 3 to 6.5 inches in length, with small eyes, a broad rounded snout, no parotid glands, and tubercles on the underside of the front and hind feet. The dorsum has yellow to dark olive spots and blotches, often with irregular edges between front and hind limbs (AGFD 2001g). The Sonora tiger salamander is found in south-central Arizona. It is restricted to the San Rafael Valley in Santa Cruz County, Arizona. The San Rafael Valley is bordered to the north by Canelo Hills, to the east by the Huachuca Mountains, and the Patagonia Mountains to the west. Its habitat varies from rolling grassland to mountain forests (AGFD 2001g).

The Sonora tiger salamander was listed as an endangered species in the 1997 *Federal Register* [62(3):665-689] with no designated critical habitat. It was also listed as "Wildlife of Special Concern" in 1996 by the AGFD, and as "sensitive" for Region 3 by USFS. Collins et al. (1988) reported that by 1988, the Sonora tiger salamander was extirpated from at least three of the 18 known colonies (AGFD 2001g). The major threats to this species are disease and predation by introduced nonnative fish and bullfrogs. Additional threats include habitat destruction, reduced fitness due to inbreeding, and increased probability of random extirpation characteristic of small populations (AGFD 2001g).

2.13.4 Beautiful Shiner

The beautiful shiner (*Cyprinella formosa mearnsi*) is a small fish rarely exceeding 3.5 inches total length, characterized by an elliptical, compressed, and elongated body. Breeding males are brilliantly colored with orange or yellow fins and a bright greenish-blue body tending to have a wash of yellow or orange on dorsal and anterior surfaces. Females remain drab, yellowish-brown with colorless, clear, or slightly yellowed fins throughout the year (Minckley 1973). This species inhabits riffles of smaller streams or intermittent pools of creeks that have a high percentage of riffles (Hendrickson *et al*. 1980).

Historically, the beautiful shiner's range included the Rios Yaqui, Casas Grandes, Santa Maria, and Santa Clara drainages in Sonora and Chihuahua, Mexico; the Rio Yaqui (San Bernardino Creek) in Arizona; and the Mimbres River, New Mexico. It is still found over most of its historic range in Mexico. The beautiful shiner was extirpated from the U.S. in 1970, but in 1990 it was re-introduced into four ponds on the SBNWR (AGFD 2001h). The beautiful shiner is currently only found in San Bernardino Creek within the SBNWR, where its population is relatively scarce (AFGD 2001h).

The beautiful shiner was listed as a threatened species in the 1984 *Federal Register* [49(171):34490-34497]. Critical habitat was established in 1984 and includes all aquatic habitat on the SBNWR. This species was also listed in 1996 as "Wildlife of Special Concern" by the AGFD, in 1988 as "sensitive" in Region 3 by the USFS, and in 1994 as threatened in Mexico's Secretaría de Desarollo Social. Over 700 fish were captured in Mexico and transported to Dexter National Fish Hatchery and Technology Center in New Mexico to establish a captive breeding program. Fish were re-introduced into the SBNWR in May of 1990 and were still in existence in 1994 (AGFD 2001h).

The primary reasons for the decline of this species are arroyo erosion due to overgrazing and the removal of riparian vegetation, pumping of groundwater, damming of watercourses, and the introduction of exotic species (USFWS 1995d). More specifically, within the U.S., capping of the artesian well leading to what is now Twin Ponds on the SBNWR in 1970 destroyed a short spring-fed run that served as a breeding habitat and refuge. Capping of the well forced the fish into a pond inhabited by predatory fishes causing extirpation of the species in the United States (Minckley 1973).

A recovery plan was developed by the USFWS for four protected fishes species, including the beautiful shiner, that occur in the Rio Yaqui Basin in the U.S. and Mexico. The plan establishes delisting criteria and actions needed for downlisting the species. Actions needed for downlisting the beautiful shiner include:

"(1) Developing a co-operative effort with Mexico for the recovery of Yaqui fishes;

(2) Secure habitat and water sources for the Yaqui fishes in the U.S. and Mexico;

(3) Conduct research on the biology and habitat requirements of Yaqui fishes;

(4) Manage the fish and essential habitats;

(5) Introduce and maintain self-sustaining populations within their historic range; and

(6) Monitor existing and establish populations and habitats" (USFWS 1995d).

Delisting of the beautiful shiner will occur when this species is re-established, self-sustaining and secure for at least 10 years in the Mimbres River and other available habitats within its historic range in New Mexico (USFWS 1995d).

2.13.5 Desert Pupfish

The desert pupfish (*Cyprinodon macularius macularius*) is a small, 3-inch long, laterally compressed fish with a smoothly rounded body. They are found in shallow water of desert springs, small streams, and marshes below 5,000 feet elevation. It was once common in desert springs, marshes, backwaters, and tributaries of the Rio Sonoyta, lower Gila River, and lower Colorado River drainages in Arizona, California, and Mexico (USFWS 2001b). They are often associated with areas of soft substrates and clear water (USFWS 1993c). These fish are capable of withstanding extreme environmental conditions. They have been known to survive in water with low oxygen content, temperatures over 95°F, and salinities almost three times that of sea water (Minckley 1973).

The only remaining natural populations are found in a few sites in the Salton Sea drainage in California, the Colorado Delta in Baja California, and Sonora, Mexico (Minckley 1973, USFWS 1993c). There are no natural populations of this subspecies remaining in Arizona. Reintroduced populations exist in small springs, streams, and ponds in Pima, Pinal, Maricopa, Graham, Cochise, La Paz, and Yauapai Counties, Arizona (USFWS 2001b). The Quitobaquito pupfish (*Cyprinodon macularis cremus*), a subspecies of Cyprinodon macularis, exists at the Quitobaquito Spring in the OPCNM (USFWS 2001b).

The desert pupfish was listed as an endangered species in the 1986 *Federal Register* [51(61):10842-10850] with designated critical habitat. Critical habitat was designated at Quitobaquito Springs in Pima County, Arizona. This species was also listed in 1996 as "Wildlife of Special Concern" by the AGFD, and in 1988 as "sensitive" in Region 3 by the USFS. This species has been extirpated from most of its natural range. The desert pupfish population continues to decline as a result of stocking exotic predatory and competitive fishes, water impoundment and diversion, water pollution, groundwater pumping, stream channelization, and habitat modification (USFWS 2001b).

A recovery plan establishing delisting criteria and actions needed for downlisting this species was published by the USFWS in September 1993. Actions needed for downlisitng of this species include:

"(1) Protect natural populations and their habitats;

(2) Re-establish populations;

(3) Establish a refugium population;

(4) Develop a protocol for exchange of genetic material;

(5) Monitor natural and replicated populations;

(6) Determine factors affecting population persistence; and

(7) Information and education" (USFWS 1993c).

Delisting of this species will occur, in part, when naturally occurring populations in the U.S. and Mexico are secure, including five metapopulations at 12 known locations (USFWS 1993c).

2.13.6 Spikedace

The spikedace (*Meda fulgida*) is a small, slim fish less than 3 inches in length. It is characterized by very silvery sides and spines in the dorsal and pelvic fins (USFWS 2000). The spikedace is found in moderate to large perennial streams within shallow riffles with moderate to swift currents and swift pools with sand, gravel, and rubble subtrates. Specifically, it inhabits shear zones where rapid-flow borders slower flow, areas of sheet flow at the upper ends of mid-channel sand/gravel bars; and eddies at downstream riffle edges. Regular flooding is required to maintain loach minnow habitat and to provide the species with a competitive advantage over non-native aquatic species. Historically, the spikedace was common throughout much of the Gila River basin, including the mainstem Gila Riva upstream of Phoenix, and the Verde, Agua Fria, Salt, San Pedro, and San Francisco subbasins (USFWS 2000). The spikedace occupies mainstream reaches and moderate-gradient perennial tributaries up to 6,500 feet elevation (USFWS 2000).

The spikedace was listed as a Federally threatened species in the *Federal Register* on July 28, 1986 (51 FR 23769-23781). Critical habitat was originally designated for the species on March 8, 1994 (59 FR 10906-10915); however, this critical habitat designation was revoked on March

25, 1998 (63 FR 14378-14379). Critical habitat was re-proposed and approved on April 25, 2000 (65 FR 24327-24372). Habitat destruction and competition and predation by non-native aquatic species have greatly reduced the spikedace's range and abundance (USFWS 2000). It currently occupies approximately 10 to 15 percent of it's historical range. The spikedace is restricted to the following areas: upper Gila River (Grant, Catron, and Hidalgo counties, NM); middle Gila River (Pinal County, AZ); lower San Pedro River (Pinal County, AZ); Aravaipa Creek (Graham and Pinal counties, AZ); Eagle Creek (Graham and Greenlee counties, AZ); and the Verde River (Yavapai, County, AZ) (USFWS 2000).

A recovery plan for this species was published by the USFWS in 1991. No specific recovery criteria are set forth in the recovery plan; however, the plan does set forth mechanisms to obtain information necessary to determine quantification criteria for describing a spikedace population capable of sustaining itself into perpetuity. Delisting of this species is dependent upon establishment of such a population (USFWS 1991a). The recovery plan does set forth the following recovery actions:

"(1) Protection of existing populations;

(2) Monitoring of existing populations;

(3) Studies of interactions of spikedace and non-native fishes;

(4) Quantification of habitat and effects of habitat modification;

(5) Enhancement of habitats of depleted populations;

(6) Reintroduction of spikedace into historic range;

(7) Quantification of characteristics of self-sustaining population;

(8) Captive propagation; and

(9) Information and education" (USFWS 1991a).

2.13.7 Loach Minnow

The loach minnow (*Tiaroga cobitis*) is a small, slender, elongated fish less than 3 inches in length. It has an olive coloration and is strongly blotched with darker pigment. The mouth is oblique (slanting) and terminal, and the eyes are markedly directed upward (USFWS 2000). This species is found in small to large perennial streams. Specifically, it inhabits shallow, turbulent riffles with primarily cobble substrate and swift currents. It uses the spaces between large substrate for resting and spawning (USFWS 2000). Regular flooding is required to

maintain loach minnow habitat and to provide the species with a competitive advantage over non-native aquatic species. Historically, the loach minnow was common throughout much of the Gila River basin, including the mainstem Gila River upstream of Phoenix, Arizona and the Verde, Agua Fria, Salt, San Pedro, and San Francisco subbasins (USFWS 2000). The loach minnow occupies mainstream reaches and moderate-gradient perennial tributaries up to 6,500 feet elevation (USFWS 2000).

The loach minnow was listed as a Federally threatened species in the *Federal Register* on October 28, 1986 (51 FR 39468-39478). Critical habitat was originally designated for the species on March 8, 1994 (59 FR 10906-10915); however, this critical habitat designation was revoked on March 25, 1998 (63 FR 14378-14379). Critical habitat was re-proposed and approved on April 25, 2000 (65 FR 24327-24372). Habitat destruction and competition and predation by non-native aquatic species have greatly reduced the loach minnow's range and abundance (USFWS 2000). The loach minnow currently occupies approximately 15 to 20 percent of its historical range. It is restricted to the following areas: upper Gila River (Grant, Catron, and Hildago counties, NM); the San Francisco and Tularosa Rivers and their tributaries Negrito and Whitewater Creeks (Catron County, NM); the Blue River and its tributaries Dry Blue, Campbell Blue, Little Blue, Pace, and Frieborn Creeks (Greenlee County, AZ and Catron County, NM); Aravaipa Creek and its tributaries Turkey and Deer creeks (Graham and Pinal counties, AZ); Eagle Creek (Graham and Greenlee counties, AZ); the White River (Apache, Gila, and Navajo counties, AZ); and the Black River (Apache and Greenlee counties, AZ) (USFWS 2000). None of the areas listed are in the study area addressed in this BA.

A recovery plan for this species was published by the USFWS in 1991. No specific recovery criteria are set forth in the recovery plan; however, the plan does set forth mechanisms to obtain information necessary to determine quantification criteria for describing a loach minnow population capable of sustaining itself into perpetuity. Delisting of this species is dependent upon establishment of such a population (USFWS 1991b). The recovery plan does set forth the following recovery actions:

"(1) Protection of existing populations;

(2) Monitoring of existing populations;

(3) Studies of interactions of loach minnow and non-native fishes;

(4) Quantification of habitat and effects of habitat modification;

(5) Enhancement of habitats of depleted populations;

(6) Reintroduction of loach minnow into historic range;

(7) Quantification of characteristics of self-sustaining population;

(8) Captive propagation; and

(9) Information and education" (USFWS 1991b).

2.13.8 Gila Chub

The Gila chub (*Gila intermedia*) has a chunky body with large, thick, and broadly imbricated scales. They have a dark coloration overall with a lighter belly sometimes. Breeding males have orange or red on lower cheek, posterior parts of lips, paired fin bases and on ventro-lateral surfaces (AGFD 2001i).

Gila chubs are normally found in the smaller headwater streams, cienegas and springs or marshes of the Gila River basin. Adults prefer habitats that consist of deep pools with heavily vegetated margins and undercut banks. Juveniles prefer habitats with rifles, pools, or undercut banks of runs. The associated plant community is a broadleaf riparian habitat consisting of cottonwood, willow, ash, alder, sycamore, walnut, and *Baccharis* spp. in association with submerged aquatic vegetation typical of cienega/marsh habitats. Gila chubs are usually found in association with Gila topminnow, desert and Sonora sucker, and longfin and speckled dace (AGFD 2001i).

Historically, Gila chubs were found in headwater streams of the Gila River drainage in Arizona and New Mexico, and likely in San Pedro and Santa Cruz River systems in Sonora, Mexico. In Arizona, Gila chubs are found in the following drainages: Cienega Creek, Sabino Canyon, and Sheehy Spring of the Santa Cruz River; Eagle, Bonita and Harden Cienega Creeks, San Carlos River, and Blue River of the Middle Gila River; Bass, O'Donnell and Redfield Canyons; Babocomari River and Turkey Creek of the San Pedro River; Silver and Sycamore Creeks of the Agua Fria River; and Spring and Walker Creeks of the Verde River. In Arizona, this species has been extirpated from Monkey Spring of the Santa Cruz River and Fish and Cave Creeks of the Salt River (AGFD 2001i).

The Gila chub was listed as a candidate species in the 1997 *Federal Register* [62(182):49402] with no designated critical habitat. This species was also listed in 1996 as "Wildlife of Special

Concern" by the AGFD, in 1988 as "sensitive" in Region 3 by the USFS, and in 1994 as endangered in Mexico's Secretaría de Desarollo Social. This species has been extirpated from three waterways (Cave Creek, Fish Creek, and Monkey Spring) in Arizona. Threats to the Gila chub include the cumulative effects of the introduction of exotic fish and land management activities that effect watersheds, alter stream flow characteristics, affect the amount of perennial water in streams, increase erosion, and destroy stream banks (AGFD 2001i). Gila chubs currently co-exist with green sunfish (*Lepomis cyanellus*) in several streams; however, they have been extirpated from one location by largemouth bass (*Micropterus salmoides*) (AGFD 2001i).

2.13.9 Sonora Chub

The Sonora chub (*Gila ditaenia*) is a fine-scaled, medium-sized cyprinid. Adults are typically less than 5 inches in total length and are generally chubby and dark colored with two prominent dark lateral bands and a dark caudalspot. The Sonora Chub is endemic to streams of the Rio de la Concepcion drainage of Sonora, Mexico and Arizona. In Sonora, it inhabits the Rios Altar and Magdalena. In Arizona, it occurs in Sycamore Creek (Bear Canyon), a tributary of the Rio Altor, 15.5 miles west of Nogales in Santa Cruz County. In addition, it occurs in two tributaries of Sycamore Creek (Penasco Creek and an unnamed stream) [AGFD 2001j]. The Sonora Chub is found in the largest, deepest, and most permanent pools, with bedrock-sand substrates, and areas free of thick pads of floating algae (Carpenter and Maughan 1993).

The Sonora Chub was listed as a threatened species in the 1986 *Federal Register* [51(83):16042-16047]. This species was also listed in 1996 as "Wildlife of Special Concern" by the AGFD, in 1988 as "sensitive" in Region 3 by the USFS, and in 1994 as endangered in Mexico's Secretaría de Desarollo Social. Critical habitat was proposed in 1986 and signed into effect. Critical habitat includes Sycamore Creek, extending downstream from and including Yanks Spring. Also designated was the lower 1.2 miles of Penasco Creek and the lower 0.25 miles of an unnamed stream entering Sycamore Creek from the west, about 1.5 miles downstream from Yanks Spring. In addition, critical habitat includes a 12 meter-wide riparian area along each side of Sycamore and Penasco Creeks. This species appears to be locally abundant and should remain secure. The major threat to the Sonora Chub is the modification of Sycamore Creek by human activities including grazing, mining, recreation, and the introduction of exotic taxa (USFWS 1992). This species is isolated from other populations of Sonora Chub and has marginal habitat. The predation by exotic green sunfish is also a cause of concern.

2.13.10 Yaqui Catfish

The Yaqui catfish (*Ictalurus pricei*) is a moderately large, fork-tailed species characterized by a distinguished pattern of wrinkles on the skin (USFWS 1995d). Adult size is approximately 22.4 inches. Coloration is dark gray to black dorsally with a white to gray belly. Body is usually profusely speckled (AGFD 2001k). The Yaqui catfish is similar to channel catfish but with shorter pectoral and dorsal spines (AGFD 2001k).

The Yaqui catfish's range includes the Rio Yaqui system in Sonora and Chihuahua, Mexico. This species was formerly found in extreme southeast Arizona to include San Bernardino Creek as far up as San Bernardino Ranch. In November 1997, a small population of 350 fish was re-introduced into the Rio Yaqui on the northern most portion of the SBNWR (AGFD 2001k). This species can be found in many different aquatic habitats including ponds, small streams, or large rivers, although it is primarily found in larger rivers in areas of medium to slow currents over sand/rock bottom (Hendrickson *et al*. 1979).

The Yaqui catfish was listed as a threatened species in the 1984 *Federal Register* [49(171):34490-34497]. The USFWS has designated all aquatic habitat in the SBNWR as critical habitat and a recovery plan has been approved for this fish (USWFS 1995d). This species was also listed in 1996 as "Wildlife of Special Concern" by the AGFD, in 1988 as "sensitive" in Region 3 by the USFS, in 1994 as rare in Mexico's Secretaría de Desarollo Social, and a "Special Concern Species" by the American Fisheries Society. The Yaqui catfish has been extirpated from U.S. waters (Minckley 1973). A small population (350 fish) was re-introducted into the Rio Yaqui on the northern most portion of SBNWR in 1997 (AGFD 2001k).

The Yaqui catfish survived in San Bernardino Creek until spring flows diminished because of groundwater pumping. Remaining habitat was severely trampled by livestock. Other catfish introduced into the Yaqui basin have out-competed the Yaqui catfish (AGFD 2001k). According to the Recovery Plan, actions needed for downlisting of this species include:

"(1) Developing a co-operative effort with Mexico for the recovery of Yaqui fishes;

(2) Secure habitat and water sources for the Yaqui fishes in the U.S. and Mexico;

(3) Conduct research on the biology and habitat requirements of Yaqui fishes;

(4) Manage the fish and essential habitats;

(5) Introduce and maintain self-sustaining populations within their historic range; and
(6) Monitor existing and establish populations and habitats" (USFWS 1995d).

Delisting can occur when recovery in the form of protection of wild populations from threats of hybridization, negative interactions with non-indigenous species or other negative impacts are assured in Mexico and Mexican populations are secure and self-sustaining (USFWS 1995d).

2.13.11 Yaqui Chub

The Yaqui chub (*Gila purpurea*) is a relatively small (less than 6 inches) fish but deep bodied with large scales. The Yaqui chub's current distribution in Mexico is unknown. In the U.S. it is found only in Arizona, where it is limited to SBNWR and Leslie Canyon National Wildlife Refuge (LCNWR) in Cochise County. On SBNWR, the current distribution of the Yaqui chub includes Leslie Creek; House, Twin, North, and Mesquite Ponds; Black Draw; and El Coronado Ranch (Turkey Creek and ponds) [AGFD 2001l]. The Yaqui chub is heavily dependent on artesian wells and spring flows on SBNWR. Yaqui chub habitat is described as deeper pools of small streams near undercut banks or debris and often in association with dense aquatic vegetation. The Yaqui chub is also found in swifter areas with clean, gravel bottoms and abundant growths of algae (AGFD 2001l).

The Yaqui chub was listed as an endangered species in the 1984 *Federal Register* [49(171):34490-34497]. Critical habitat was established in 1984 and includes all aquatic habitat on the SBNWR. The Yaqui chub is included in the recovery plan for the fishes of the Rio Yaqui approved by USFWS in 1995 (USWFS 1995d). This species was also listed in 1996 as "Wildlife of Special Concern" by the AGFD, in 1988 as "sensitive" in Region 3 by the USFS, and in 1994 as endangered in Mexico's Secretaría de Desarollo Social. U.S. populations appear to be low but stable. Propagation in captivity at Dexter National Fish Hatchery and Technology Center is currently underway (AGFD 2001l). Threats to the Yaqui chub include water development and pumping of underground aquifers, the introduction of nonnative species, and overgrazing with subsequent erosion (AGFD 2001l).

Actions presented in the recovery plan that are needed for downlisting of this species are the same as those described for the Yaqui catfish (USFWS 1995d). As of 1995, delisting of this species was not currently considered an option due to the limited historic distribution of the Yaqui chub. Downlisting to threatened status could occur when self-sustaining populations are

established and secure on SBNWR and LCNWR lands and West Turkey Creek, Arizona (USFWS 1995d).

2.13.12 Yaqui Topminnow

The Yaqui topminnow (*Poeciliopsis occidentalis sonoriensis*) is a small live-bearing fish. Males rarely exceed 0.98 inches in length; females average 1.18 to 1.77 inches. They are tan to olive in color with a darker dorsal area and yellowish to whitened belly (AGFD 2001m). The Yaqui topminnow is found only in the Rio Yaqui basin in the SBNWR. It is found in lowland and some upland streams of desert and grassland, and margins of large, lowland rivers (AGFD 2001m). It is a typical inhabitant of vegetated springs, brooks, and margins and backwaters of larger bodies of water (Minckley 1973). Topminnows live near the surface in shallow water and are often associated with aquatic vegetation or other cover (Rinne and Minckley 1991). The Yaqui topminnows seem to prefer streams with riparian communities consisting of cottonwood/willow or borrowbrush/seep willow (USFWS 1983).

The Yaqui topminnow was listed as an endangered species in the 1967 *Federal Register* [32:4001] with no designated critical habitat. This species was also listed 1996 as "Wildlife of Special Concern" by the AGFD, in 1988 as "sensitive" in Region 3 by the USFS, and in 1994 as threatened in Mexico's Secretaría de Desarollo Social. The Yaqui topminnow is included in the recovery plan for the fishes of the Rio Yaqui (USFWS 1995d). It is currently found extensively in Mexico. However in Arizona, it is only found in waterways in the SBNWR, Turkey Creek in the Chiricahua Mountains (AGFD 2001m). The main threats posed against the subspecies are loss of habitat and the competition and predation by the mosquitofish, which have caused the elimination of three introduced Yaqui topminnow sites (Bagley *et al.* 1991). Other factors include water development, aquifer pumping, and erosion due to overgrazing.

2.13.13 Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is a unique species in that it has five distinct plumage phases: Immature, White-belly I, White-belly II, Adult transition, and Adult. Sexes are alike in all plumages. Adulthood begins at approximately four years of age. In adulthood, the bald eagle measures about 30 inches in length and sports a wingspan of 71 to 89 inches. Bald eagles weigh 4.4 to 13.6 pounds, with the female usually larger and heavier (AGFD 1997c).

The bald eagle is believed to occur in two populations in North America, a northern population that occurs above the 40th parallel North Latitude and a southern population that occurs below the 40th parallel North Latitude (Hildebrandt 1981). The southwest distribution of this bird includes central Arizona, west-central New Mexico, Baja Peninsula on Isla Cresciente near Almajao Bay, Mexico, and up the coast near Las Tinajas (Fordis 1989).

Historically in Arizona, bald eagles nested on the Mogollon Rim at Stoneman Lake, Mormon Lake, and Lake Mary; however, no breeding currently occurs there. A small resident population can be found in Central Arizona, while a wintering population of bald eagles is found in both Central and Northern Arizona (AGFD 1997c). Territories and nesting localities have occurred in the Bill Williams River Drainage, upper and lower Verde and Salt Rivers (including winter and non-breeding sightings on the Black River, and on Cherry Creek), Roosevelt Lake, Gila River (only when favorable conditions are available), Colorado River (sporadically observed wintering individuals), and the Mogollon Rim and White Mountain Lakes (AGFD 1997c).

Nesting habitat consists of areas with tall trees (usually old growth) that are taller than surroundings (Palmer 1988), although bald eagles nesting in Arizona typically use cliff faces, ledges, and pinnacles (Grub 1988). Cliff nests are generally located within 600 feet of the river bank and approximately 300 feet above the water's surface (USFWS 1982b).

The bald eagle was reclassified from endangered to threatened in all of the lower 48 states by the USFWS in the 1995 *Federal Register* (60 FR 35999–36010). It was also listed in 1996 as "Wildlife of Special Concern" by the AGFD, in 1988 as "sensitive" by the USFS, in 1994 as a "group 3" species by Navajo Nation Fish and Wildlife Department, and in 1994 as endangered in Mexico's Secretaría de Desarollo Social. The major factor leading to the decline and subsequent listing of the bald eagle as an endangered species was disrupted reproduction resulting from contamination by organochlorine pesticides (USFWS 1982b). Four causes of death in bald eagles, based upon necropsies of carcasses submitted for analysis since the early 1960s, are illegal shooting, electrocution, impact injuries, and lead poisoning.

2.13.14 Mountain Plover

The mountain plover (*Charadrius montanus*) is a small bird, measuring approximately 7 inches. It is light brown above with a lighter colored breast, but lacks the contrasting dark breastbelt

common to many other plovers. During the breeding season, it has a white forehead and a dark line between the beak and eye, which contrasts with the dark crown (USFWS 1999b).

The mountain plover is a bird of both short-grass prairie and shrub-steppe landscapes at both breeding and wintering locales. The majority of breeding occurs in Colorado and Montana, and wintering occurs in California, Arizona, Texas, and Mexico. Short vegetation, bare ground, and a flat topography are now recognized as habitat-defining characteristics at both breeding and wintering locales. Mountain plovers generally nest on black-tailed prairie dog (*Cynomys ludovicianis*) towns. They also show a strong affiliation for sites that are heavily grazed by domestic livestock and also attempt breeding on fallow and cultivated fields which mimic natural habitats (USFWS 1999b).

The mountain plover was listed as a proposed threatened species in the 1999 *Federal Register* [64(30):7587-7601]. No recovery plan has been approved for this species. Breeding bird survey trends analyzed for the period of 1966 through 1996 documented a continuous decline of 2.7 percent annually, the highest of all endemic grassland species. Between 1966 and 1991, the continental population of the mountain plover declined an estimated 63 percent. The current total population is estimated to be between 8,000 and 10,000 individuals (USFWS 1999b).

Conversion of grassland habitat for agricultural purposes and the decline of native herbivores are factors that likely have contributed to the mountain plover's decline. Pesticides may be a factor contributing to the decline, but the effects are not completely understood.

2.13.15 Northern Aplomado Falcon

Northern aplomado falcons (*Falco femoralis septentrionalis*) are long-tailed falcons intermediate in size between American kestrels (*Falco sparverius*) and prairie falcons (*Falco mexicanus*) [AGFD 1998b]. A typical adult has a bluish-gray back, rufous underparts, a long blackish tail marked with eight narrow white bands, and a distinctive black and white facial pattern (Hector 1983). Essential components of the habitat of the northern aplomado falcon include open terrain with scattered trees, relatively low ground cover, an abundance of small to medium sized birds, and a supply of nesting platforms, particularly yuccas and mesquite (Hector 1983).

Historically, the northern aplomado falcon was limited to southeastern Arizona, southern New Mexico, southern Texas, and most of Mexico. In Arizona, the bird nested in mesquite, soaptree yucca, cottonwood, western soaptree, and cholla (AGFD 1996).

The northern aplomado falcon was designated as an endangered species by the USFWS on January 25, 1986 (51 FR 6686). Critical habitat has not been designated for this species. A Species Recovery Plan was completed in June 1990. The northern aplomado falcon is also listed as a "Species of Special Concern" by the State of Arizona. There were no confirmed sightings in the U.S, between 1952 and 1995, but a small population was confirmed in northern Chihuahua, Mexico (AGFD 1998b). Several confirmed sightings have been made in the U.S. since 1995. Between 1986 and 1994, 58 nestlings were fledged for release by the Peregrine Fund at Laguna Atascosa National Wildlife Refuge in Texas (AGFD 1998b). As of 1994, 106 total falcons have been fledged in captivity and 62 have been released.

The northern aplomado falcon is declining because of habitat degradation and habitat-type conversion due to brush encroachment fostered by decades of livestock overgrazing and fire suppression, overcollecting and reproductive failure of the species caused by organochlorine pesticide use (AGFD 1998b).

The following actions are outlined in the recovery plan for the downlisting of this species:

(1) Evaluate, monitor, and minimize all threats including pesticides to extant populations;

(2) Identify, maintain, and improve habitat;

(3) Re-establish the northern aplomado falcon in the U.S. and Mexico;

(4) Conduct studies of habitat requirements, physiology ecology, and behavior of wild falcons;

(5) Enhance public support for the recovery effort through educational programs; and

(6) Encourage national and international cooperation and coordination in carrying out these objectives.

To ensure the northern aplomado falcon is no longer threatened, the specific criterion for downlisting has been tentatively identified as a minimum self-sustaining population of 60 pairs in the U.S. (USFWS 1999b).

2.13.16 Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a medium sized bird measuring approximately 6 inches in length, including the tail. Both male and female coloration is the same. Adult coloration is brownish-olive to grayish green on the upper parts with an olive breast, pale yellow belly, whitish throat, and two white wing bars (AGFD 1997d).

The breeding range of this species includes southern California, southern Utah, southern Nevada, southwestern Colorado, Arizona, New Mexico, and western Texas. It is a neotropical migrant and most likely winters in Mexico and Central America (AGFD 1997d). In Arizona, the southwestern willow flycatcher breeds along the Colorado River in the Grand Canyon near the mouth of the Little Colorado River and south of Yuma; at the Little Colorado River headwaters near Greer and Eager; along the middle Gila, Salt, and Verde Rivers; in the middle to lower San Pedro River; and on the upper San Francisco River near Alpine and Roosevelt Lake (AGFD 1997d).

The southwestern willow flycatcher was listed as an endangered species in the 1995 *Federal Register* [60(38):10694-10715]. This species was also listed in 1996 as "Wildlife of Special Concern" by the AGFD. On July 17, 1997, the USFWS designated critical habitat for the southwestern willow flycatcher (62 CFR 39129); however, critical habitat was removed as a result of a Federal court decision in 2001. No recovery plan has been approved for this species. The USFWS identified 18 critical habitat units totaling 599 river miles in Arizona, California, and New Mexico.

The southwestern willow flycatcher populations have experienced significant declines, and breeding populations are known from only about 75 locations. There are an estimated 300 to 500 pairs in existence (Sogge *et al.* 1997). The principal factors resulting in the decline of this species are the extensive loss, modification, and fragmentation of riparian breeding habitat and brood parasitism by brown-headed cowbirds (*Molothrus ater*) [Sogge *et al.* 1997]. Modifications have resulted from river flow management and diversions, agricultural clearing, sand and gravel extraction, urban development, recreation, grazing, groundwater pumping, pollution, fire, flooding, erosion, and the invasion of riparian habitat by exotic tamarisk (Krueper 1993). Brood parasitism by brown-headed cowbirds has reduced songbird reproductive success, including the southwestern willow flycatcher, in forest habitat near open habitat (Sogge *et al*. 1997). Other factors limiting the species population include draining of wetlands, channelization and levying

of streambeds, construction of canals, drains and impoundments, off-road vehicles, and the cutting of woodlands (AGFD 1997d).

2.13.17 Mexican Gray Wolf

The Mexican gray wolf (*Canis lupus baileyia*) ranges in weight from 68 to 91 pounds for males and 58 to 68 pounds for females (McBride 1980). It has a large head, a short, thick muzzle, and a large nose pad. Its chest cavity is deep, and its neck and forequarters are thick (McBride 1980). Black and white guard hairs color and pattern the back and sides; below this, the sides are buff or tawny, and fade to white on the belly (Ames 1984). Fur on the legs is light or white, and there is often a black stripe down the front of the forelegs (McBride 1980). Facial fur is dark on the upper portion of the head, but light or white on the lower cheeks and muzzle, and the backs of the ears are usually rufous (Ames 1984).

Historically, the Mexican gray wolf occurred in the Upper Sonoran woodlands and grasslands of southeastern Arizona and especially in the open ponderosa pine forests and the juniper, pinyon nut pine, and oak foothills (Bailey 1931). Wolves do not have any specific habitat requirements and can exist in forests of all types, rangelands, brushlands, steppes, agricultural lands, wetlands, mountaintops, deserts, tundra, and barren ground areas. The only habitat feature of potential importance is the presence of natural water sources such as springs, seeps, pools, riffles, vernal pools, and arid riparian habitat. Dens are usually dug in slopes where tree roots, rocks, or firmness of soil will lessen the likelihood of a cave-in (McBride 1980).

C. lupis was listed as endangered by the USFWS on March 11, 1967. The subspecies *C. lupis baileyi* (Mexican wolf) was added as an endangered species on April 28, 1976. On March 9, 1978, all subspecies were deleted from the Federal list, and the full species *C. lupis* was added to the list as endangered in all of the 48 contiguous states except Minnesota, where the population was designated as “threatened” with Critical Habitat. The Mexican gray wolf was most likely extirpated from the United States primarily because of conflicts with the livestock industry (AGFD 1996). The last confirmed specimens were from Arizona and Texas in 1970, and from a dead specimen in New Mexico (Peterson 1984). There are approximately 50 wild individuals remaining in mountain ranges of north central Mexico (AGFD 1998b). Approximately 140 individuals are now in zoos in the United States and Mexico that are participating in a captive breeding program for the USFWS (AGFD 1996).

A major reason for the species' decline was primarily due to bounties which almost extirpated wolves from the region (Rutter 1968). Habitat destruction was an indirect factor in the extirpation because as wild habitat was destroyed and livestock introduced, opportunities for wolves to prey on livestock increased. In the southwest, continued urbanization places demands on southwestern forests for recreation, big game hunting, increased production of timber and livestock, and continuing attempts to utilize the soils and water for growing non-native farm crops (AGFD 1998b).

SECTION 3.0
BORDER PATROL ACTIVITIES AND PROTECTED SPECIES BY STATION

3.0 BORDER PATROL ACTIVITIES AND PROTECTED SPECIES BY STATION

3.1 Ajo Border Patrol Station

The Ajo Station is located at Why, Arizona on State Highway 85, about 30 miles north of the Lukeville, Arizona Port of Entry (POE). The Ajo Station's AO consists of approximately 9,000 square miles, and 65 miles of international border all within Pima County. Within the station are the towns of Ajo, Gila Bend, Lukeville and Why. The Ajo Station's AO includes portions of CPNWR, OPCNM, BMGR, and the Tohono O'odham Indian Nation. The terrain is characterized by arid and rural desert with valleys, arroyos and mountains. The majority of mountains in this area trend in a northwest to southeast direction. Valleys are relatively flat and sparsely vegetated allowing vehicles to enter the U.S. in most areas without the need for roads.

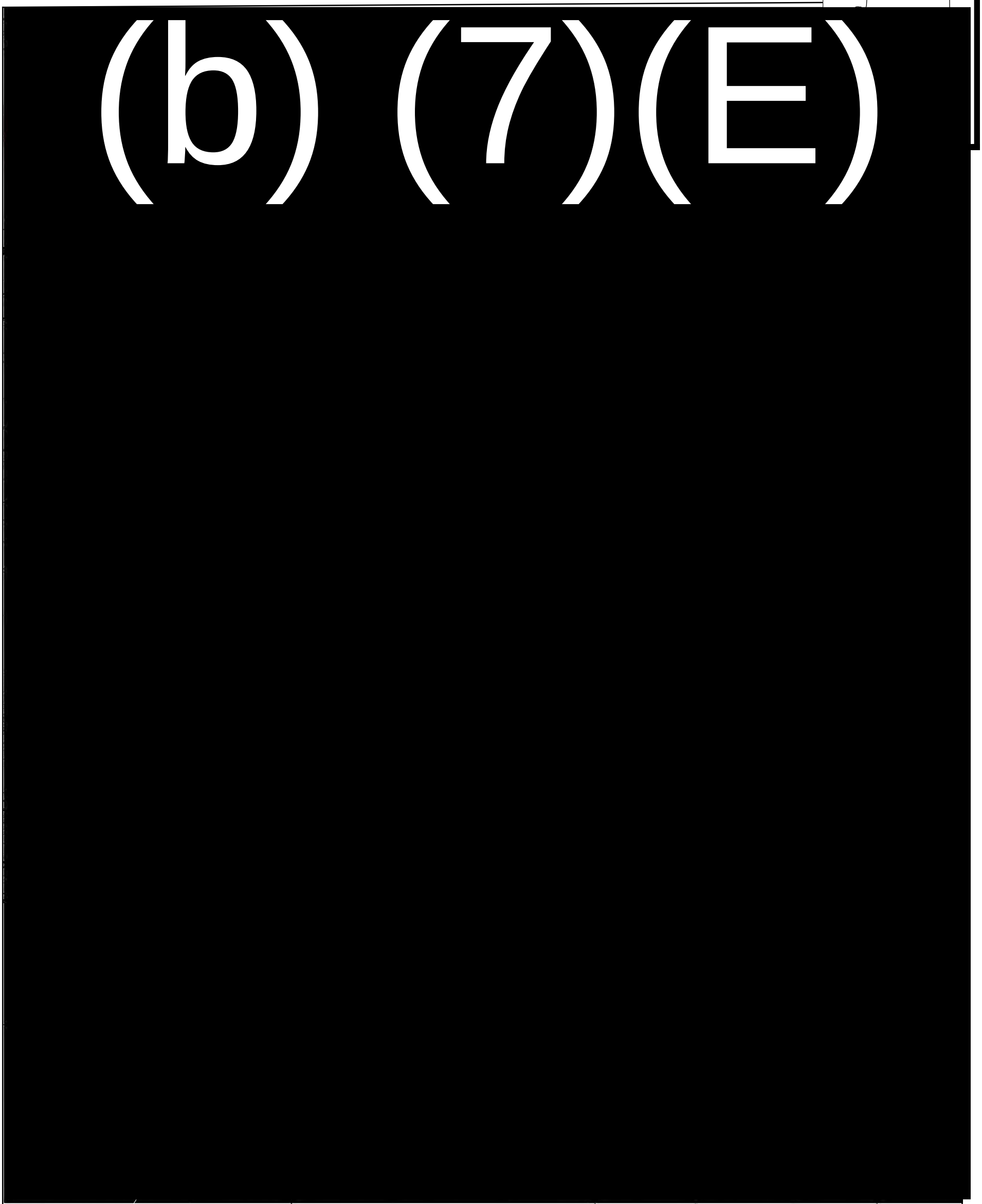
In FY 1999 there were 21,300 illegal alien apprehensions by Ajo Station agents; 20,583 apprehensions in 2000, and 28,905 apprehensions in 2001. The Ajo Station also conducts numerous search and rescue (SAR) missions throughout the year. There are three areas where the majority of illegal aliens attempt to enter the station's AO: (b) (7)(E) (b) (7)(E) The majority of the station's resources are concentrated in these three areas.

3.1.1 Ajo Station Activities

USBP activities within the Ajo Station's AO are discussed below and are presented in Figure 3-1a. There are approximately 79 USBP agents assigned to the station. Patrol roads within the station's AO, including State Highway 85, and cover approximately 185 miles of semi-improved and unimproved roads. (b) (7)(E) however, the roads patrolled change in response to illegal alien traffic patterns. The Ajo Station currently operates (b) (7)(E) on (b) (7)(E). Potential drag roads within the station's AO total approximately four miles and are primarily located along the border on either side of the (b) (7)(E) however, no dragging operations are currently being conducted in the Station's AO.

Off-road operations conducted in the Station's AO include agents on foot, and can include the use of dirt bikes, ATVs, and 4-wheel drive vehicles. Currently, th Ajo Station maintains 13 ATVs. Off-road operations are required approximately (b) (7)(E) and usually occur alongside designated patrol roads.

(b) (7)(E)



Source: Ajo (1982) & Lukeville (1975) USGS 1:250,000 topographic maps

Figure 3-1a: U.S. Border Patrol Activities Within the Ajo Station Area of Operations.

Scale: on map

Date: August 2002

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Currently, the Ajo Station does not have any regularly scheduled flights or set flight routes. A helipad and refueling station are located at the station near the town of Why, Arizona. Flights are conducted on an as needed basis and are usually related to SAR missions for lost and/or distressed aliens, with most flights originating from the Yuma Sector. The only route flown with any regularity is in the (b) (7)(E) (Figure 3-1a). The Yuma Sector conducts overflights in the (b) (7)(E) and these flights are usually related to SAR Missions.

The Ajo Station currently uses approximately 100 sensors. Sensors are scheduled for maintenance every (b) (7)(E). Sensors are located (b) (7)(E) particularly near the border.

3.1.2 Protected Species

These protected species are known to occur within the Ajo Stations AO. They are the Sonoran pronghorn, the cactus ferruginous pygmy-owl and the lesser long-nosed bat.

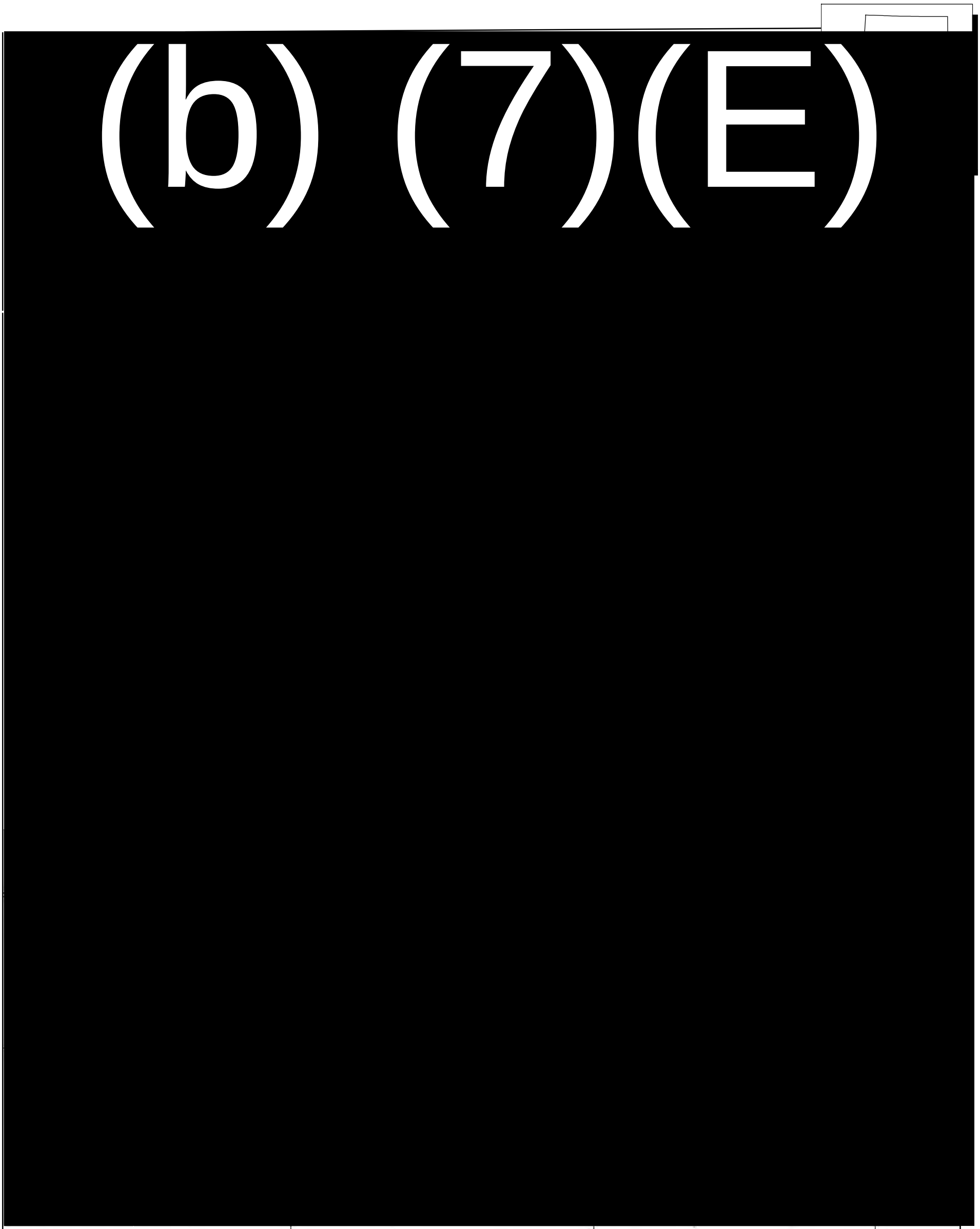
3.1.2.1 Sonoran Pronghorn

Effects to Sonoran pronghorn resulting from USBP activities can be characterized as both potentially adverse, attributable to human presence and noise, and potentially beneficial since an official presence is maintained, thus reducing UDA and illegal smuggling activities within Sonoran pronghorn habitat on the CPNWR and OPCNM. Within the Tucson Sector, only the Ajo Station's AO is within the geographical and home range of the Sonoran pronghorn (Figure 3-1b).

Patrol Road Activities

Patrol roads utilized by USBP Ajo Station agents are generally public and private ranch roads and administration roads on the BMGR, GPNWR, and OPCNM. Although the USBP is not the primary user of these roads, they do have the potential to encounter Sonoran pronghorn during their patrols and could cause the animals to flee the immediate area. Any activity that significantly disrupts the pronghorn's normal behavioral patterns constitutes harassment, and therefore could be considered "incidental take" as defined by USFWS regulations in 50 CFR 17.3. Encounters between USBP vehicles and Sonoran pronghorn are most likely infrequent, short in duration, and would not be expected to significantly disrupt the pronghorn's normal behavior pattern. Minor responses to disturbance, such as fleeing the immediate area, would

(b) (7)(E)



Source: Ajo (1982) & Lukeville (1975) USGS 1:250,000 topographic maps

Figure 3-1b: General Location Map of Protected Species within the Ajo Station Area of Operation	Scale: on map Date: June 2002 gsrc / GULF SOUTH RESEARCH CORPORATION

probably occur, but no long-term significant impacts would occur under the current level of patrol road activities.

Drag Road Activities

Approximately (b) (7)(E) of potential drag roads exist within the Ajo Station's AO, and these are located (b) (7)(E) of the Sonoran pronghorn's range. (b) (7)(E) in the Ajo Station's AO. (b) (7)(E) effects from these activities would be similar to those described for patrol road activities.

Off-road Operations

Off-road operations within the station's AO include agents on foot, and the use of dirt bikes and ATVs. (b) (7)(E). Dirt bike and ATV traffic within the station's AO typically occurs on BLM land (b) (7)(E). (b) (7)(E)

Off-road activities, including foot patrols, could cause disturbances to pronghorn and disrupt normal behavior activities. The magnitude of these effects would depend upon the duration and type of off-road traffic, proximity to pronghorn herds, and time (day/night and season) of the traffic. Motorized off-road activities would be expected to have the most significant effect, especially during the fawning season. These activities would also indirectly affect pronghorn by degrading foraging habitat. The magnitude of these affects would depend upon several biotic and abiotic conditions, including the types of tires used on the off-road vehicles, speed of the vehicles, frequency of off-road traffic, extant conditions of the vegetation, and subsequent precipitation.

(b) (7)(E)

(b) (7)(E) Therefore, if any Sonoran pronghorn were in the area, they would likely have been frightened off prior to arrival of the USBP. This minimizes the potential for encounters between the Sonoran pronghorn and the USBP. Additionally, the presence of the USBP in the area reduces the number of such

disturbances by illegal entrants, as well as reduces the impact to Sonoran pronghorn habitat from illegal foot and vehicle traffic.

Air Operations

No quantitative data exist to evaluate the effects of low-level helicopter flights on Sonoran pronghorn, but observations have been made (INS 1999). A USFWS biologist observed a USBP helicopter at an elevation of less than (b) (7)(E) over a group of approximately five bedded Sonoran pronghorn. Some of the animals rose and ran from the helicopter. In another instance, an AGFD biologist observed a USBP helicopter fly over two female Sonoran pronghorn. Their reaction was limited to standing still and watching the helicopter at a distance of approximately 1000 feet. The pronghorn then resumed feeding. It was noted that pronghorn "always run from a helicopter that is flying directly towards them," a behavior observed during all capture operations conducted by the AGFD (INS 1999). Mr. John Hervert, AGFD Wildlife Program Manager, Region IV, observed a group of pronghorn while radio tracking Sonoran pronghorn from a helicopter. The pronghorn stopped what they were doing and watched the helicopter while remaining motionless. After some period, the pronghorn went back to their original activities (Hervert 2002).

Krausman *et al.* (1993a and 1993b) demonstrated that no detrimental influence on heart rate occurred in mule deer and mountain sheep as a result of overflights. In an initial study (Krausman *et al.* 1993a), desert mule deer and mountain sheep were exposed to simulated low-altitude jet aircraft noise. Heart rate, body temperature, and behavior were monitored and compared for periods before, during, and after simulated overflights. Heart rates increased during over flights, sometimes more than doubling, but returned to resting rates in less than two minutes. As the study progressed, all animals became habituated to the sounds, such that by the end of the study, mean heart rate changes were within normal expectations. In a second study, Krausman *et al*. (1993b), studied mountain sheep that were equipped with heart rate monitors and were exposed to low-level over flights by F-16 aircraft. Heart rates returned to pre-exposure levels in less than two minutes and behavior alterations were of short duration. Although the sheep often ran during noise exposure, they typically resumed normal activities after traveling less than ten meters. Evidence from other subspecies of pronghorn and other ungulates suggests that disturbed pronghorn may exhibit elevated heart rates, may flee, and could alter habitat use in response to low-level helicopter flights (INS 1998).

If it is assumed that Sonoran pronghorn respond in a similar manner to helicopters as other ungulates, some broad statements of the possible affects can be made. In general, areas where low-level helicopters are used most often would have the highest potential for disturbance to the pronghorn. Also, in areas where helicopters fly particularly low and thus create more noise and greater visual stimuli, disturbance to pronghorn would be greater (Weisenberger *et al.* 1996, Workman *et al.* 1992).

Krausman *et al*. (2001) studied behavioral responses of the Sonoran pronghorn to military activities on the North and South Tactical ranges (TAC) on the BMGR. The behavior of Sonoran pronghorn regularly exposed to military activity was compared to the behavior of a Chihuahuan pronghorn population not regularly exposed to military activities on the BANWR. Military activities included fly-overs, strafing, bombing, and ground activities. The primary difference observed in the behavior of adult pronghorn at BMGR and BANWR was related to foraging. Pronghorn foraged less and traveled more at BMGR compared to BANWR; however, this appears to be a factor of resource allocation more than a response to military stimuli. Forage resources occur at a higher density on BANWR than at BMGR. Krausman *et al.* (2001) concluded that military activities at the levels observed had minimal detectable influence on the Sonoran pronghorn (Krausman 2002). These studies suggest that while noise from aircraft flyovers cause some stress in ungulates, serious or lasting detrimental effects of noise on ungulates are unlikely.

Direct human contact could affect the pronghorn to a greater extent than helicopter flights. Weisenberger *et al*. (1996) reported that elk, mountain sheep, mule deer, caribou, and white-tailed deer often respond more severely to direct, unpredicted human harassment than to mining, helicopters, or other disturbances.

One routine helicopter route is regularly flown on along the (b) (7)(E) Additionally, the Ajo Station will, on occasion, request helicopter assistance from the Tucson or Yuma Sectors. (b) (7)(E) Helicopter activities within the Station's AO can occur throughout the Sonoran pronghorn range. Such requests would typically be made in emergency situations where illegal aliens are in trouble or to track UDAs and illegal drug smugglers who have escaped the first line of defense. These situations would require helicopters to fly and, most likely, to hover. (b) (7)(E)

(b) (7)(E) (b) (7)(E)

(b) (7)(E) pronghorn in the vicinity would be disturbed and physiological changes (increased heart rate) would probably occur. Studies show that the greatest response (increase in heart rate) to overflights in other pronghorn subspecies was elicited by hovering helicopters (Workman *et al*. 1992). Evidence also suggests that pronghorn may habituate to disturbance from moving helicopters; however, they may not habituate to low-level hovering helicopters. Helicopters that fly over the BMGR have to remain below (b) (7)(E) per U.S. Air Force regulations.

Based on the information provided here and the decreasing pronghorn population, it is determined that air operation may affect and are likely to adversely affect the Sonoran pronghorn.

Sensors

Sensors are placed at strategic locations along the U.S.-Mexico border (b) (7)(E) . No impacts to Sonoran pronghorn would result from the (b) (7)(E) Sensor installation and/or maintenance activities could disturb Sonoran pronghorn if they are in the immediate area. However, these disturbances would be very infrequent and short in duration. The effects therefore would be temporary and negligible.

Checkpoints and Observation Points

The one checkpoint operated by the Ajo Station is located outside of Sonoran pronghorn habitat (b) (7)(E) Operation of this checkpoint would have no adverse impact on the Sonoran pronghorn. However, UDAs and illegal smugglers attempting to avoid the checkpoint may travel through Sonoran pronghorn habitat on the OPCNM, thus degrading habitat and potentially harassing the pronghorn. (b) (7)(E) (b) (7)(E) therefore, no effect to the species is anticipated.

3.1.2.2 Cactus Ferruginous Pygmy-owl

Two areas of cactus ferruginous pygmy-owls have been documented in the OPCNM within the Ajo Station's AO. Most confirmed sightings have been located just west of the Ajo Mountain Range and along State Highway 85 (Figure 3-1b). Additionally, one owl was sighted in the Puerto Blanco Mountains, and one in vicinity of Bates Well. Recent sightings have also occurred near Papago Well on CPNWR. However, no critical habitat has been designated

within the Ajo Station's AO. No critical habitat is designated at this time; however, when it is re-designated, the acreage is expected to increase.

Patrol Road Activities

(b) (7)(E) This road passes just to the north of an area where a confirmed owl sighting occurred (Figure 3-1a and Figure 3-1b). (b) (7)(E) which is patrolled by USBP agents, passes just west of an area where four confirmed sightings occurred (Figure 3-1a and Figure 3-1b). Both of these routes are public roads with many various users, and the USBP vehicles make up only a small part of the traffic. Still, there is some potential for agents to encounter this species while using these routes. Since patrol road activities are confined to the existing roadway, the only potential effects to this species would be disturbance (vehicle noise) or accidental vehicle strikes.

Drag Road Activities

The four miles of drag roads located in the Ajo Station's AO are located along the U.S.-Mexico border south of any known owl sightings (Figures 3-1a and 3-1b). (b) (7)(E) preparation is not conducted in the Ajo Station's AO. However, should the Ajo Station initiate (b) (7)(E) there is a minimal chance of a USBP agent encountering an owl. The owl nests in large riparian trees or large columnar cacti. The preparation of drag roads is restricted to existing roads and would not remove or disturb this type of vegetation. Therefore, such activities should have no affect on this species.

Off-road Operations

Off-road operations within the station's AO include agents on foot, and the use of dirt bikes and ATVs. (b) (7)(E) Dirt bike and ATV traffic within the station's AO typically occurs on BLM land near (b) (7)(E). Off-road activities would have no effect to this species since there have been no confirmed pygmy-owl sightings on the BLM land. In the event that off-road operations would be conducted within suitable habitat, no columnar cacti or riparian areas would be disturbed. Agents patrolling OPCNM on foot might cause an owl to flee the area for a short time, but this response would not be expected to cause any detrimental effects to the pygmy-owl. Conversely, USBP activities may benefit the cactus ferruginous pygmy-owl by limiting other human activities, such as illegal entry in the area that could adversely affect the owl or its habitat. Therefore, it is determined

that off-road operation in the Ajo Station's AO may affect, but are not likely to adversely affect, the cactus ferruginous pygmy-owl.

Air Operations

One helicopter patrol route is flown regularly by the Yuma Sector through (b) (7)(E) . The Ajo Station normally receives helicopter assistance from the Tucson Sector, or the Yuma Sector, if they are conducting aerial operations in the vicinity. Such requests would typically be made in emergency situations for SAR missions or to apprehend illegal drug smugglers who have escaped the first line of defense. These situations would require helicopters to fly and, most likely, to hover or land. Although these situations occur infrequently (b) (7)(E) (b) (7)(E) if conducted near areas where pygmy-owls have been documented, a disturbance could occur.

Although the owl is a diurnal species, and is presumably active during the same time periods as the USBP, the likelihood of an encounter is remote. However, during the duration of Operation Skywatch (May-September) there is a likelihood for a chance encounter between the cactus ferruginous pygmy-owl and a USBP helicopter. The flight line for Operation Skywatch covers several known owl locations in the Ajo Station's AO. While there is no information available regarding the effects of noise on the cactus ferruginous pygmy-owl, if USBP helicopter overflights do coincide with the presence of this species, there is likely to be some level of disturbance to the owl caused by noise. However, any such disturbance would likely be short in duration and not result in any long-term impacts to the owl. There is a remote possibility of a mid-air collision between an owl and a USBP helicopter (INS 2002c). No known impacts to the cactus ferruginous pygmy-owl have occurred during the previous two Operation Skywatch programs (INS 2002b). Conversely, USBP activities may benefit cactus ferruginous pygmy-owls by limiting other human activities, such as illegal entry in the area that could adversely affect the owl or its habitat.

Sensors

Sensors are placed at strategic locations along the U.S.-Mexico border (b) (7)(E) (b) (7)(E) sensors could be placed within the confirmed pygmy-owl locations near that route. Agents performing installation and/or maintenance activities on foot might cause an owl to flee the area

temporarily. Because of the infrequency and temporal natural of the disturbance, it is determined sensor operations would have no effect on the owl.

Checkpoints and Observation Points

(b) (7)(E) is not near any cactus ferruginous pygmy-owl locations; therefore, an encounter between the pygmy-owl and the USBP is highly unlikely. (b) (7)(E) no effect to the pygmy-owl are anticipated.

3.1.2.3 Lesser Long-nosed Bat

Lesser long-nosed bats have been documented roosting at Bluebird Mine, Copper Mine, and in the Aqua Dulce Mountains within the Ajo Station's AO (Figure 3-1b). Additionally, one bat was sighted in the Puerto Blanco Mountains, and one just north of the Quitobaquito Hills area.

Disturbances that can harm the lesser long-nosed bat can be placed into two broad categories: 1) disturbance to the animals while they are in their daytime roost, and 2) disturbance to their nighttime foraging (INS 2002c). Effects to lesser long-nosed bat resulting from USBP activities can be characterized as both potentially adverse, attributable to noise, and potentially beneficial since an official presence is maintained reducing unauthorized access and illegal activities within known roosting areas. Recent information regarding military aircraft overflights of the Copper Mountain maternity roost found no major effects to roosting bats (Dalton and Dalton 1993). However, it is important to remember that lesser long-nosed bat is sensitive to disturbances in the roost, and a threshold level of what is tolerable and what is not has yet to be established (USFWS 1995b). It should also be noted that no studies have been conducted to assess the effects of helicopter noise on roosting bats.

The lesser long-nosed bat appears to be sensitive to human disturbance when day–roosting (USFWS 1995b). Observations by one scientist indicate that a single brief visit is sufficient to cause a high proportion of lesser long-nosed bats to temporarily abandon their roost (USFWS 1995b). Since many of these areas could be used by illegal aliens, the presence of the USBP reduces the potential for disturbance to this protected species.

Recent survey efforts indicate that thousands of lesser long-nosed bats roost and/or feed in Arizona seasonally (USFWS 1995b). Lesser long-nosed bats migrate to Arizona as early as

April to bear young. After the young are weaned, the maternity colonies begin to disband in July and August, but some bats remain in these roosts into October (USFWS 1995b). Prior to mid-July, most of the bats known to be roosting in Arizona are concentrated in three major maternity roosts. Two of the three major maternity roost sites in Arizona occur within the Ajo Station's AO (see Figure 3-1b).

The columnar cacti and agave, food sources for the bat, are protected under Arizona Native Plant Law (A.R.S. Chapter 7, Article 1) by the State of Arizona. The law does not provide protection from all threats, but does prevent illegal harvest and promotes salvage of specimens in areas where development is going to occur (USFWS 1995b). Section 7 requirements of the Endangered Species Act also provide a level of protection for these plants since their presence is required for the bats to maintain their population numbers (USFWS 1995b). This protection is limited by the lack of understanding of what is required in foraging habitat to support roosting populations.

Patrol Road Activities

Patrol roads utilized by USBP agents are located in the vicinity of known roost sites. One patrol road is located (b) (7)(E) roost site (Figure 3-1a and Figure 3-1b). An additional (b) (7)(E) roost site (Figure 3-1a and Figure 3-1b). Both of these routes are public roads with many various users. Daytime patrol activities on these roads would not affect the bats or the roost. However, USBP agents may encounter foraging bats at night, since lesser long-nosed bats forage within a 50 mile radius of their roost site. Human activity such as lights could cause bats to avoid a particular foraging territory. However, for such a disturbance to be significant, it would have to be present over much of the colony's foraging territory and occur on a regular basis. Therefore, under the current level effort, routine patrols would not have a detrimental or long-term affect on this species.

Drag Road Activities

Potential drag roads in the Ajo Station's AO are located along the U.S.-Mexico border, south of any known lesser long-nosed bat roost site. There is no potential for USBP agents to encounter lesser long-nosed bats during their dragging activities; therefore, no impacts would occur under the current level of effort. Dragging is restricted to existing roads and would not damage any roadside vegetation, especially columnar cacti or agave. (b) (7)(E)

(b) (7)(E), no impacts to the lesser long-nosed bat are expected.

Off-road Operations

Dirt bike and ATV operations within the station's AO occurs only on BLM land near (b) (7)(E). Off-road activities, including foot patrols, could cause disturbances to lesser long-nosed bats and disrupt normal behavior activities. The magnitude of these effects would depend upon the proximity of these activities to roost sites, and the time (day/night and season) of the traffic. Agents entering known roost sites during the day from April through October would be expected to disturb, and most likely effect, this species. USBP agents should only enter these areas when aliens have been observed or tracked to the mine or cave and, in which case, human disturbance has most likely already occurred. U.S. Border Patrol agents entering a roost site may affect the species and these effects could be potentially be adverse.

Air Operations

The Ajo Station normally receives helicopter assistance from the Tucson Sector, or the Yuma Sector, if they are conducting aerial operations in the vicinity. Such requests would typically be made in emergency situations for SAR missions or to pursue UDAs or illegal drug smugglers who have escaped the first line of defense. These situations would require helicopters to fly and, most likely, to hover or land. Although these situations occur infrequently (b) (7)(E) (b) (7)(E) if conducted near known roost sites, lesser long-nosed bats could be disturbed.

The helicopter patrol route along the (b) (7)(E) travels is just north of a known roost site in the (b) (7)(E). Potential impacts to bat roosts from helicopter patrols would not be physical but sensory (e.g., noise) in nature. With the implementation of Operation Skywatch, there is potential for helicopter and fixed-wing overflights near roost sites. Helicopter and fixed-wing aircraft overflights could disturb roosting bats. There is a possibility of nightime helicopter patrols occurring within the foraging territory of known bat roosts. This could result in potential harassment of bats or a potential in mid-air collision between a USBP helicopter and bat. It is determined therefore that USBP activities may affect, but are not likely to adversely affect, the lesser long-nosed bat.

Sensors

(b) (7)(E) no impacts to lesser long-nosed bats would result from the operation and maintenance of sensors.

Checkpoints and Observation Points

(b) (7)(E)

. Therefore, no effect to lesser long-nosed bats are anticipated.

3.1.3 Conclusions

Effect determinations for each Federally protected species occurring in the Ajo Station's AO are discussed by operation in the following paragraphs and are summarized in Table 3-1.

Patrol road operations in the Ajo Station's AO may affect, but are not likely to adversely affect the Sonoran pronghorn, cactus ferruginous pygmy-owl, and lesser long-nosed, bat. Effects to these species would primarily result from disturbances to the species and are expected to be temporary or infrequent.

Drag roads may affect, but are not likely to adversely affect the Snoran pronghorn. These effects would primarily result from disturbances to the species. Drag road operations would have no effect on the cactus ferruginous pygmy-owl, or the lesser long-nosed bat, because drag road activities are r (b) (7)(E)

Off-road operations may affect, but are not likely to adversely affect the Sonoran pronghorn and cactus ferruginous pygmy-owl. These operations may disturb and disrupt normal behavior activities of the Sonoran pronghorn and cactus ferruginous pygmy-owl. Off-road activities may affect, and are likely to adversely affect, the lesser long-nosed bat. Adverse affects to the lesser long-nosed bat would be associated with USBP agents entering mines and caves in pursuit of known illegal entries.

Air operations may affect, but are not likely to adversely affect the cactus ferruginous pygmy-owl and lesser long-nosed bat. Effects would be associated with disturbances to these species. Air

operations may affect, and are likely to adversely affect, the Sonoran pronghorn. It was determined that effects from air operations may be adverse because of disturbance to the species and the decreasing pronghorn population.

Sensor operations would have no effect on the Sonoran pronghorn, cactus ferruginous pygmy-owl, or the lesser long-nosed bat. These operations would not disturb these species or degrade habitat used by these species.

Checkpoint operations may affect, but are not likely to adversely affect the Sonoran pronghorn. Effects resulting from checkpoint operations would be indirect effects associated with illegal entries traveling through pronghorn habitat [redacted] in an attempt to avoid checkpoints. Checkpoint operations would have no effect on the cactus ferruginous pygmy-owl and lesser long-nosed bat.

Table 3-1
Effects Determination Matrix for Federally Protected Species
Within the Ajo Station's Area of Operations

Protected Species	USBP Activities/Operations					
	Patrol Roads	Drag Roads	Off-Road	Air	Sensors	Check Points
Sonoran Pronghorn	NLAA	NLAA	NLAA	LAA	NE	NLAA
Cactus Ferruginous Pygmy-owl	NLAA	NE	NLAA	NLAA	NE	NE
Lesser Long-nosed Bat	NLAA	NE	LAA	NLAA	NE	NE

Legend:
NE = no effect
NLAA = may affect, not likely to adversely affect
LAA = may affect, likely to adversely affect

3.2 Casa Grande Border Patrol Station

The Casa Grande Station's AO is approximately 7,000 square miles, the majority of which is located in western Pima County. There are currently 96 USBP agents assigned to the station. The station's AO encompasses 48 miles of remote international boundary within the Tohono O'odham Indian Nation. The station's AO includes metropolitan areas such as Casa Grande and Chandler, Arizona, as well as the sparsely populated Tohono O'odham Indian Nation. The station's AO is relatively flat desert terrain with numerous washes at the border, and hills scattered throughout the area. Vegetation is sparse in the open and heavy in the washes.

There are no POEs within the station's AO, and the closest town or village to the border is Vamori, Arizona.

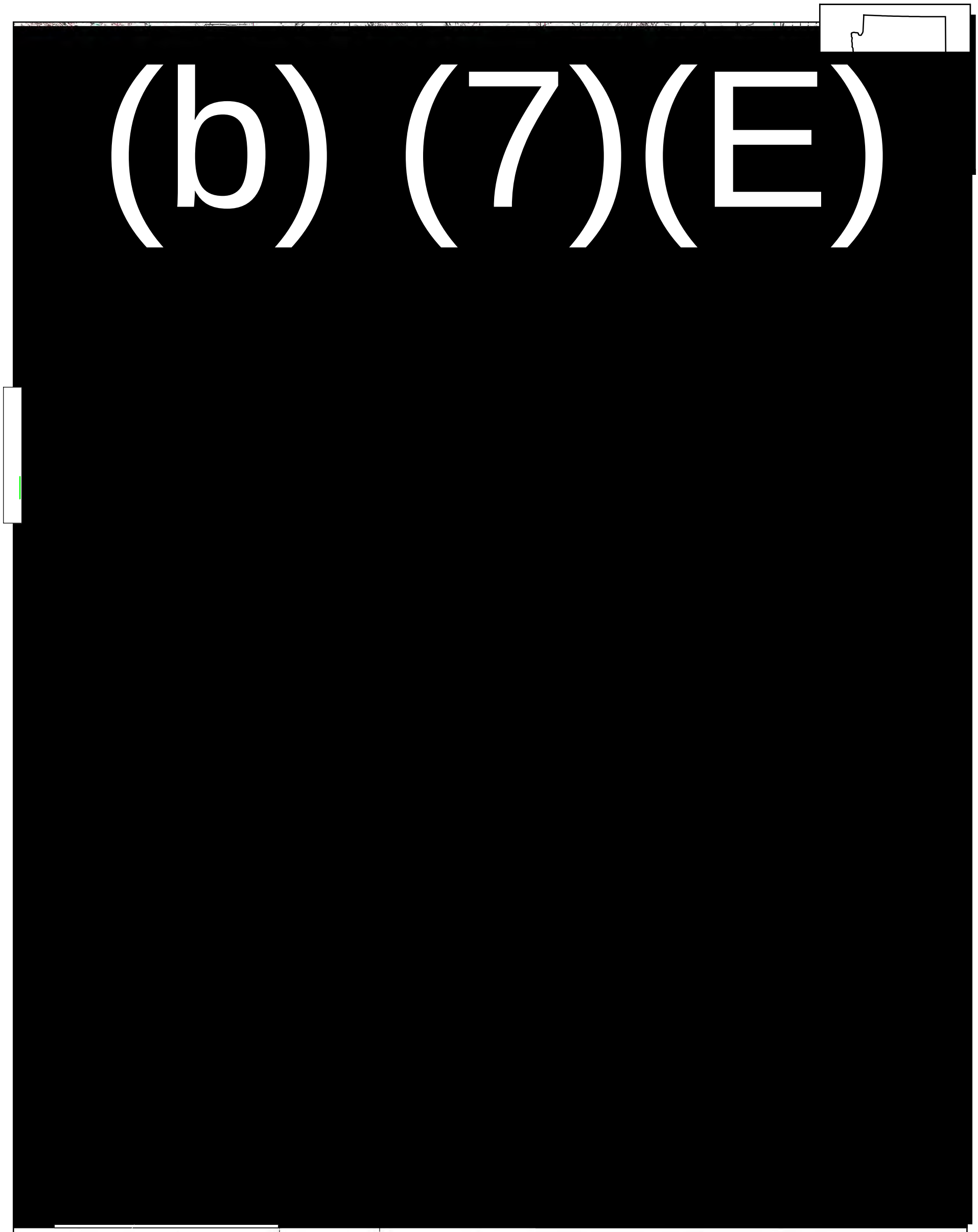
In FY 1999, USBP agents at the Casa Grande Station apprehended 28,616 illegal aliens; 29,530 in FY 2000; and 22,382 in FY 2001. During the spring and summer months when temperatures in the desert can exceed 120º F with very low humidity, UDAs sometimes suffer from exhaustion and dehydration; consequently, agents must occasionally conduct SAR operations.

3.2.1 Casa Grande Station Activities

USBP activities within the station's AO are discussed below and presented in Figure 3-2a. The Casa Grande agents patrol approximately 172 miles of public and unimproved roads. Approximately 47 miles of the 172 miles of patrol roads are unimproved roads (17 miles of unimproved roads are patrolled daily, while the other 30 miles are patrolled infrequently due to a lack of manpower). There are currently no checkpoints or observation points located within the station's AO.

The Casa Grande station currently maintains approximately 48 miles of drag roads, all of which are located along the international border. Drag roads are prepared (b) (7)(E) or (b) (7)(E) (b) (7)(E) Off-road operations in the station's AO entails the use of motorcycles and ATVs on a (b) (7)(E) (b) (7)(E) Arizona. The Casa Grande Station currently uses 16 motorcycles and six ATVs to access the U.S.-Mexico border. Four-wheel drive vehicles are used infrequently to assist agents or rescue distressed aliens.

The Casa Grande Station does not maintain a helipad or refueling tanks. There are no (b) (7)(E) within the station's AO. Flights are ocassional and dependent upon Tucson Sector priorities and pilot availability (USBP 2002). During the summer and winter months SAR missions may occur (b) (7)(E) (USBP 2002). However, when assistance is requested, helicopters fly along the international boundary between the (b) (7)(E) . Deviations from this travel route are only made to follow tracks, persons, or vehicles that have entered the U.S. illegally. Helicopters also assist in SAR missions involving distressed aliens (b) (7)(E) in the station's AO.



Source: Lukeville, Arizona (1975); Nogales, Arizona (1969); Tucson, Arizona (1982) and Ajo, Arizona (1977) USGS 1:250,000 topographic map

Figure 3-2a: U.S. Border Patrol Activities Within the Casa Grande Station Area of Operations.

Scale: on map

Date: August 2002

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The Casa Grande Station utilizes approximately 85 sensors that are primarily located (b) (7)(E) Less than five sensors are moved per year. (b) (7)(E), and about one sensor per month requires repairs.

3.2.2 Protected Species

Two protected species are known to occur within the Casa Grande Station's AO. They are the cactus ferruginous pygmy-owl and jaguar.

3.2.2.1 Cactus Ferruginous Pygmy-owl

One cactus ferruginous pygmy-owl sighting has been documented within the Casa Grande Station's AO. The sightings have been located east of the Baboquivari Mountains near Pitoikam on the Tohono O'odham Reservation (Figure 3-2b).

Patrol Road Activities

Patrol roads utilized by USBP agents are generally public roads or private ranch roads. Currently, (b) (7)(E) The patrol road is (b) (7)(E) of where the cactus ferruginous pygmy-owl is found (Figure 3-2a and Figure 3-2b). Due to the distance between the patrol road and the area of known owl occurrences, the activities of the USBP should have no affect on this species.

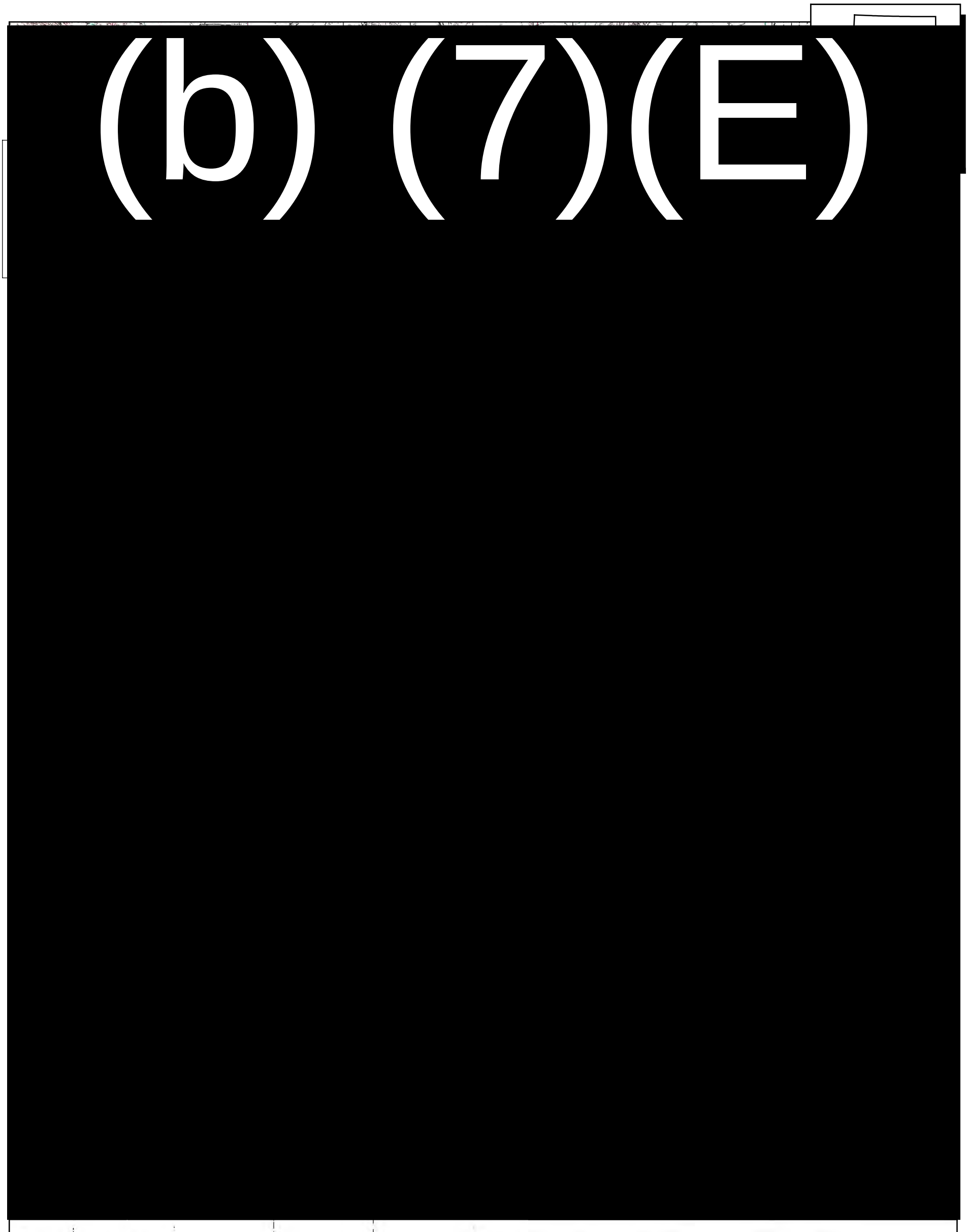
Drag Road Activities

Approximately 48 miles of drag roads are utilized within the Casa Grande Station's AO. These roads are located along the U.S.-Mexico border, south of all confirmed pygmy-owl sightings. Recent studies conducted within 150 miles of the U.S.-Mexico border show numerous territories within areas that were believed not to be inhabited by any pygmy-owls; however, disturbance of vegetation (unlikely with this activity) could potentially impact habitat. Therefore, such activities should have no affect on this species.

Off-road Operations

Off-road operations within the station's AO include the use of dirt bikes and ATVs. Dirt bike and ATV traffic within the station's AO occurs (b) (7)(E) to the U.S.-Mexico border. ATV traffic is infrequent and restricted to established roads, while daily dirt bike traffic is unrestricted.

(b) (7)(E)



Source: Lukeville, Arizona (1975); Nogales, Arizona (1969); Tucson, Arizona (1982) and Ajo, Arizona (1977) USGS 1:250,000 topographic map

Figure 3-2b: General Location Map of Protected Species within the Casa Grande Station Area of Operation	Scale: on map Date: June 2002 gsrc / GULF SOUTH RESEARCH CORPORATION

Off-road activities could affect this species since there have been confirmed pygmy-owl sightings near Pitoikam. In the event that off-road operations were conducted within suitable habitat, no disturbance would be caused to columnar cacti or riparian areas. Agents patrolling this area might cause an owl to flee the area for a short time, but this response would not be expected to cause any detrimental effects to the pygmy-owl.

Air Operations

(b) (7)(E) (b) (7)(E) but is located approximately (b) (7)(E) of all known owl sightings. In the event that an emergency SAR mission would require a helicopter to fly and to hover near the location of the cactus ferruginous pygmy-owl, a disturbance could potentially occur.

Sensors

Sensors are placed at strategic locations along the U.S.-Mexico border on (b) (7)(E) Since no known owls occur within the area where the sensors are located or maintained, the activities would have no effect on this species.

Checkpoints and Observation Points

The Casa Grande Station currently (b) (7)(E) no impacts to the cactus ferruginous pygmy-owl would occur from such activities.

3.2.2.2 Jaguar

There has been one known occurrence of the jaguar within the Casa Grande Station's AO. This account occurred within the Baboquivari Mountains in 1996 (Figure 3-2b). Southern Arizona is the jaguar's northernmost historical range. This species is a reclusive nomad, known to roam extensive areas of its range.

Patrol Road Activities

Patrol roads utilized by USBP agents are generally public roads or private ranch roads. No patrol roads are located within areas where the jaguar has been sighted; therefore, patrol road activities are not expected to affect this species.

Drag Road Activities

All drag road preparation activities in the Casa Grande Station's AO are performed (b) (7)(E) [redacted] the activities are not expected to affect this species.

Off-road Operations

Dirt bike and ATV patrols occur in the (b) (7)(E) [redacted] immediately west of the area of the known sighting. The activities of off-road operations are not expected to affect this species, although there is a remote possibility that agents may encounter a jaguar, causing it to flee temporarily. Due to the unlikely possibility of agents encountering a jaguar and the temporal nature of the effect, effects to the jaguar from USBP activities are not likely.

Air Operations

The Tucson International Airport is currently utilized as a base for air operations within the entire Tucson Sector. [redacted] (b) (7)(E) [redacted] (b) (7)(E)

Helicopter flights within the station's AO usually occur in the (b) (7)(E) [redacted] in response to alien traffic patterns. Helicopter overflights near the (b) (7)(E) [redacted] could potentially cause a jaguar to flee the area if present. An encounter between a USBP helicopter and a jaguar is unlikely and the effects would be temporary. Therefore, any effects to the jaguar are not expected to be adverse.

Sensors

Agents performing sensor installation and/or maintenance activities on foot might physically encounter a jaguar; however, it is expected that any encounter would be brief and not cause any detrimental effects. The jaguar would likely flee the area temporarily and return when the agent has left the area. Due to the temporal nature and frequency of the effect, effects from sensor maintenance are not likely.

Checkpoints and Observation Points

The Casa Grande Station currently [redacted] (b) (7)(E) [redacted] no impacts to the jaguar would occur from such activities.

3.2.3 Conclusions

Effect determinations for each Federally protected species occurring in the Casa Grande Station's AO are discussed by operation in the following paragraphs and are summarized in Table 3-2.

Patrol and drag road operations would have no effect on the cactus ferruginous pygmy-owl and jaguar. No patrol or drag roads are located in the vicinity of the known cactus ferruginous pygmy-owl locations or known sighting of the jaguar.

Off-road operations may affect, but are not likely to adversely affect the cactus ferruginous pygmy-owl or jaguar. Effects resulting from off-road operations are not expected to be adverse due to the temporal nature of the effects.

Air patrols may affect, but not adversely affect, the cactus ferruginous pygmy-owl and jaguar. Because of the temporal nature of the disturbances, effects to either species are not expected to be adverse.

Sensor operations would not affect either the cactus ferruginous pygmy-owl or jaguar. [redacted]. Because of the infrequency and temporal nature of the disturbances, it was determined sensor operations would not affect the jaguar.

Checkpoint and observation point operations would not affect either the cactus ferruginous pygmy-owl or jaguar. [redacted] in the Casa Grande Station's AO.

Table 3-2

Effects Determination Matrix for Federally Protected Species Within the Casa Grande Station's Area of Operations

Protected Species	USBP Activities/Operations					
	Patrol Roads	Drag Roads	Off-Road	Air	Sensors	Check Points
Cactus Ferruginous Pygmy-Owl	NE	NE	NLAA	NLAA	NE	NE
Jaguar	NE	NE	NLAA	NLAA	NE	NE

Legend:
NE = no effect
NLAA = may affect, not likely to adversely affect

3.3 Tucson Border Patrol Station

The Tucson Station includes a portion of Santa Cruz and Pima counties. The AO for this station encompasses 4,000 square miles including 51 linear miles of the international border stretching from the Pima/Santa Cruz County line west to the Baboquivari Mountains. The station includes the metropolitan area of Tucson, Arizona. Large arid deserts, agricultural valleys and rugged mountains characterize the terrain of this station's AO.

In FY 1998, agents at the Tucson Station apprehended 27,234 illegal aliens. In 1999, the number of apprehensions rose to 35,245, and again increased in 2000 to 51,640. In 2001, the number of apprehensions dropped to 36,237. Agents in the Tucson Station also conduct approximately (b)(7)(l) SAR missions per year.

3.3.1 Tucson Station Activities

USBP activities within the Tucson Station's AO are discussed below and presented in Figure 3-3a; however, it does not cover all of the Tucson Station's AO. Tucson Station operations are divided into three phases. The first phase is the responsibility to the immediate border area with the majority of resources directed to those areas. Activities in the first phase have the highest probability of affecting protected species; therefore, these activities are addressed in this BA. The second phase entails the responsibility of backing up the border stations of Douglas, Naco, Sonoita, and Nogales. The third phase is special operations such as criminal alien prosecutions, intelligence and narcotics prosecutions.

(b) (7)(E)

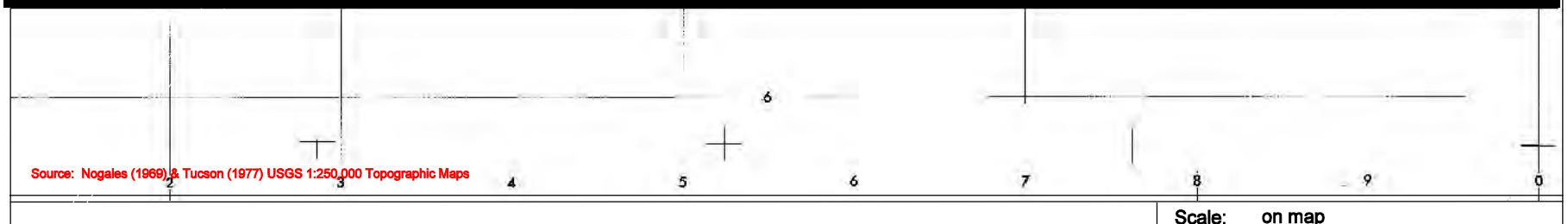


Figure 3-3a: U.S. Border Patrol Activities Within the Tucson Station Area of Operations.

Scale: on map

Date: August 2002

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Agents at the Tucson Station patrol approximately 133 miles of improved and unimproved roads within the station's AO. Currently, there are 180 agents assigned to the Tucson Station. Patrols occur (b) (7)(E) . (b) (7)(E) Off-road activities include the use of 4-wheel drive vehicles, motorcycles, and foot patrols. Off-road activities occur (b) (7)(E) . There are 33 miles of drag roads that are prepared (b) (7)(E). These roads primarily run (b) (7)(E) and branch off from (b) (7)(E)

The Tucson International Airport is currently utilized as a base for air operations within the entire Tucson Sector. Air operations are conducted on an as needed basis and can (b) (7)(E). Air operations use generalized routes and schedules. They are primarily used to assist ground units in the interdiction of illegal entries of UDAs and narcotics and SAR missions. Air operations included both fixed-wing and helicopter aircraft. Fixed-wing aircraft do not fly below (b) (7)(E)

The Tucson Station currently utilizes 100 sensors placed (b) (7)(E) They are located primarily (b) (7)(E) (b) (7)(E)

3.3.2 Protected Species

The protected species that are likely to occur within the Tucson Station's AO include the cactus ferruginous pygmy owl, Pima pineapple cactus, masked bobwhite quail, Chiricahua leopard frog and jaguar.

3.3.2.1 Cactus Ferruginous Pygmy-owl

Three sightings of cactus ferruginous pygmy-owls have been documented in the southern portion of the Tucson Station's AO. One was observed near the community of Sasabe, and two near the San Luis Mountains (Figure 3-3b).

USBP activities do not involve the removal of riparian vegetation or large columnar cacti. Additionally, columnar cacti are protected under Arizona Native Plant Law (A.R.S. Chapter 7, Article 1). The law does not provide protection from all threats, but does prevent illegal harvest and promotes salvage of specimens in areas where development is going to occur (USFWS

(b) (7)(E)

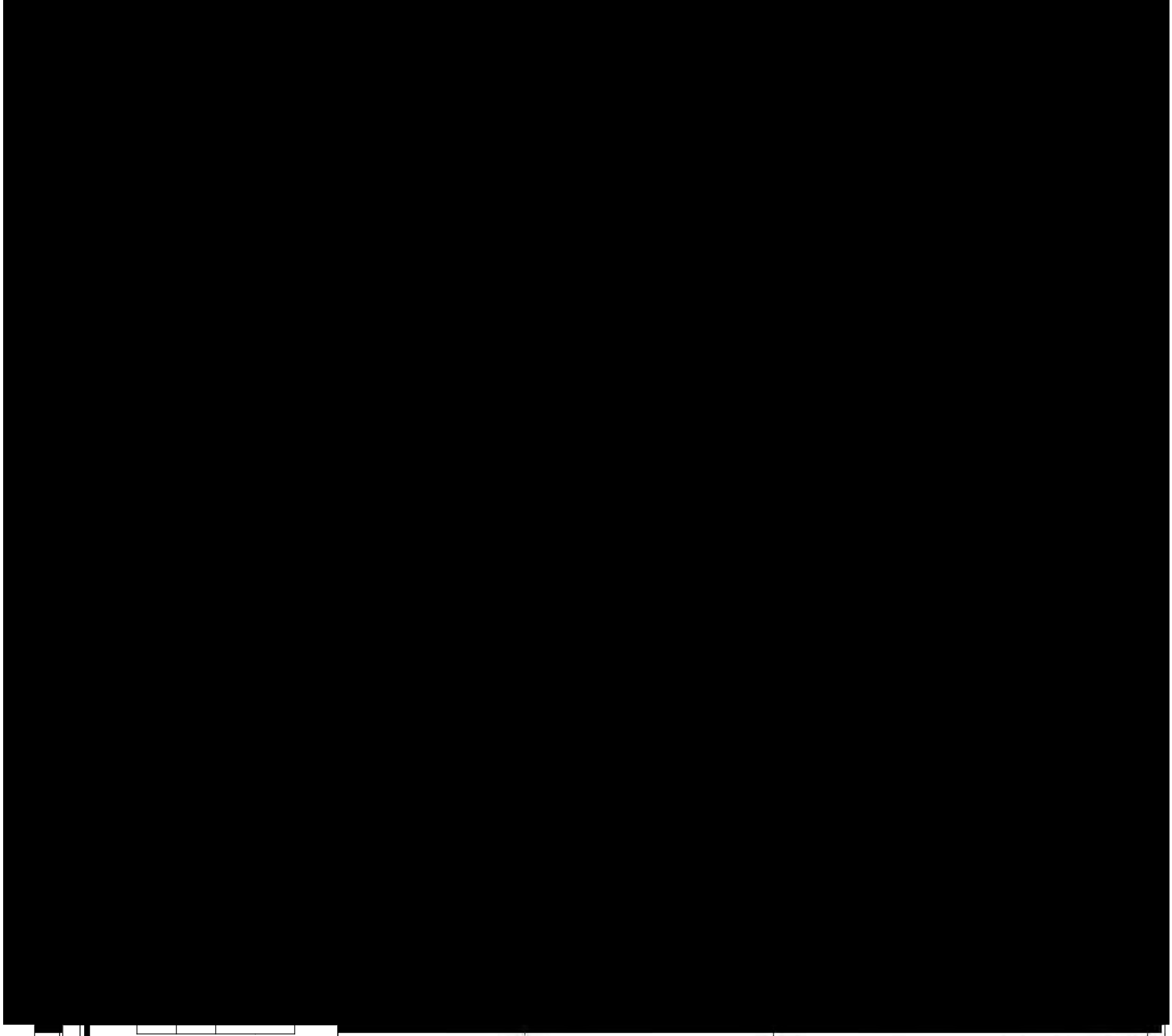

Figure 3-3b: General Location Map of Protected Species within the Tucson Station Area of Operation

Scale: on map

Date: June 2002

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1995b). The Section 7 requirements of the ESA also provides a level of protection for columnar cactus since their presence is required for the Federally protected species, the lesser long-nosed bat, to maintain its population numbers (USFWS 1995b).

Patrol Road Activities

The majority of patrol roads within the station's AO are (b) (7)(E). These roads pass near all three of the confirmed owl sighting locations, in the Tucson Station's AO. There is some potential for agents to encounter this species while using these routes (Figure 3-3a and Figure 3-3b). However, since patrol road activities are (b) (7)(E), the only potential effects to this species would be disturbance (vehicle noise) or accidental vehicle strikes. Columnar cacti or riparian habitat would not be removed or disturbed as a part of this activity.

Drag Road Activities

All drag road preparation activities are performed (b) (7)(E). Columnar cacti or riparian habitat would not be destroyed or disturbed during drag road preparation activities. Because of the (b) (7)(E) it is unlikely that dragging road operation would disturb an owl or that an accidental collision between an USBP vehicle and owl would occur. Therefore, drag road operations are not expected to affect the cactus ferruginous pygmy-owl.

Off-road Operations

Off-road activities include the use of 4-wheel drive vehicles, dirt bikes, and foot patrols and occur (b) (7)(E). Off-road activities might cause an owl to flee the area temporarily, but this response would not be expected to cause any detrimental effects to the pygmy-owl; however, motorized operations within riparian habitats could degrade the habitat preferred by the pygmy-owl. In addition, activities near nesting sites may affect this species; therefore, frequent activity within areas known as nesting sites would be minimized to the greatest extent practicable.

Air Operations

Air operations use generalized routes within the station's AO. Air Operations in the project area are primarily used to assist ground units in the interdiction of illegal entries of aliens and narcotics, or for SAR missions. Helicopter flights within the station's AO usually occur in (b) (7)(E)

(b) (7)(E) in response to alien traffic patterns and can occur on a (b) (7)(E), with no established flight routes. Since there are no established flight routes within the station's AO, it is possible that the USBP helicopter overflights could occur near known pygmy-owl locations. A mid-air collision between an owl and a USBP helicopter is a remote possibility. While there is no information available regarding the effect of noise on the cactus ferruginous pygmy-owl, if USBP helicopter overflights coincide with the presence of this species, there is likely to be some level of disturbance to the owl (INS 2002c).

Sensors

Sensors are placed at strategic locations along the U.S.-Mexico border (b) (7)(E) in (b) (7)(E) (Figure 3-3a). Currently, (b) (7)(E) (b) (7)(E) pygmy-owl location. Agents performing installation and/or maintenance activities on foot might cause an owl to flee the area temporarily, but this response would not be expected to cause any detrimental effects to the pygmy-owl. The installation and (b) (7)(E) maintenance of these sensors does not involve the removal or disturbance of riparian trees or columnar cacti. Therefore, these types of activities would not result in the destruction or modification of pygmy-owl habitat.

Checkpoints and Observation Points

(b) (7)(E) no impacts to cactus ferruginous pygmy-owls would occur from such activities.

3.3.2.2 Pima Pineapple Cactus

Pima pineapple cactus habitat within the station's AO occurs throughout Altar Valley where elevation ranges from 2,300 to 5,000 feet (Figure 3-3b). Limited range and sparse distribution appear to be the greatest potential threat to Pima pineapple cactus. Other factors include loss of habitat due to urban development, off-road vehicle use, road construction, agriculture, mining, habitat degradation due to livestock grazing, alteration of habitat due to aggressive non-native grasses, illegal collecting, and range management practices that cause surface disturbances (AGFD 1999).

Patrol Road Activities

Patrol roads within the station's AO are connected to (b) (7)(E) and are located in (b) (7)(E) and within Pima pineapple cactus habitat (Figure 3-3a and Figure 3-3b). However, since patrol road activities are confined to the existing roadway, there would be no impacts expected from these types of activities.

Drag Road Activities

Drag roads are utilized within the station's AO, and are located off (b) (7)(E). The drag roads are located in (b) (7)(E) and within Pima pineapple cactus habitat. All drag road preparation activities are performed (b) (7)(E) there would be no impacts expected from these types of activities.

Off-road Operations

Off-road activities include the use of 4-wheel drive vehicles, dirt bikes, and foot patrols and occur (b) (7)(E). Vehicles are only used off-road during the pursuit of known illegal entrants. Off-road activities conducted in (b) (7)(E) could cause harm to this species by direct contact (destruction of existing cacti) and/or the degradation of its habitat.

Air Operations

Air operations in the project area are primarily used to assist ground units in the interdiction of illegal entries of aliens and narcotics, or for SAR missions. Helicopter flights within the station's AO usually occur in the (b) (7)(E) in response to alien traffic patterns and occur (b) (7)(E) basis, with no established flight routes. However, the only impacts air operations could have on the Pima pineapple cactus would be the remote possibility of a helicopter landing directly on a plant. The possibility of an aircraft directly impacting an individual plant is so remote that this effect is unlikely.

Sensors

Sensors are placed at strategic locations along the U.S.-Mexico border (b) (7)(E) in the (b) (7)(E) (Figure 3-3a). Currently, (b) (7)(E), and another is located (b) (7)(E) Both of these areas are located in (b) (7)(E). Agents walking to sensor sites to perform installation and/or maintenance activities could cause harm to this species by accidental direct

contact. The installation and maintenance of these sensors does not involve the removal or disturbance of any vegetation, including cacti species. Therefore, these types of activities would have no effect to the viability of this species.

Checkpoints and Observation Points

(b) (7)(E) (b) (7)(E) no impacts to the Pima pineapple cactus would occur from such activities.

3.3.2.3 Masked Bobwhite Quail

The masked bobwhite is known only from the BANWR within the Tucson Station's AO (Figure 3-3b). According to the Audubon Society, approximately 400-700 birds exist on the refuge. In addition to restoring native grassland habitat, the refuge removed grazing and conducts prescribed burns to mimic natural processes.

Patrol Road Activities

Patrol roads utilized by the Tucson Station do occur within the BANWR (Figure3-3a). Although patrol road activities are (b) (7)(E), there is a possibility of a USBP patrol vehicle/quail collision during a pursuit of UDAs.

Drag Road Activities

All drag road preparation activities are (b) (7)(E). Impacts from drag road activities would be similar to those described above for patrol roads. Because of the (b) (7)(E) (b) (7)(E), a collision between a USBP vehicle and quail are highly unlikely. Therefore, drag road operations are not expected to affect the masked bobwhite quail.

Off-road Operations

Off-road activities on the BANWR are (b) (7)(E). Agents pursuing illegal entries (b) (7)(E) would impact existing grassland habitat utilized by the quail and possibly disturb the quail causing it to flee the area for a short time. Therefore, impacts to the masked bobwhite quail are likely. However, disturbances should be temporary. USBP activities would have a beneficial effect to the masked bobwhite quail, as a result of deterring illegal foot and vehicle traffic that destroy protected species' habitat. Grassland habitats may be disturbed as a result

of off-road activities. However, disturbances should be temporary and the habitat would recover.

Air Operations

Air operations in the project area are primarily used to assist ground units in the interdiction of illegal entries of aliens and narcotics or for SAR missions. Helicopter flights within the station's AO usually occur in the (b) (7)(E) in response to alien traffic patterns and occur on a (b) (7)(E) basis. If a USBP helicopter was to land or hover during an apprehension or SAR mission, impacts to the bobwhite from noise would be expected. Noise from helicopters may cause the bobwhite to temporarily flee the area. However, the effects would be temporary.

Sensors

Sensors are placed at strategic locations along the U.S.-Mexico border (b) (7)(E) in the (b) (7)(E) (Figure 3-3a). Grassland habitat would be destroyed during the installation or maintenance of sensors; therefore sensor installation would have no effect on the quail.

Checkpoints and Observation Points

(b) (7)(E) , no impacts to masked bobwhite quail habitat would occur from such activities.

3.3.2.4 Chiricahua Leopard Frog

The Chiricahua leopard frog has been documented in the southeastern portion of the Tucson Station AO. Individuals have been located in various canyons and washes on the edge of the Coronado National Forest (Figure 3-3b).

Patrol Road Activities

One known Chiricahua leopard frog sighting occured near a patrol road in the vicinity of San Luis Wash in the Altar Valley (Figure 3-3a and Figure 3-3b). Since patrol road activities are (b) (7)(E) no impacts to riparian habitat are anticipated. A remote possibility exists that a Chiricahua leopard frog may be directly impacted, if a frog was on a patrol road at the same time as a USBP agent. Because a USBP vehicle/frog collision is highly

unlikely, patrol road operations are not expected to have an adverse effect on the Chiricahua leopard frog.

Drag Road Activities

(b) (7)(E), no effect to the frog is expected.

Off-road Operations

In the event that off-road activities should occur, direct harm could occur to this species as a result of direct impacts from dirt bikes or degradation of riparian areas from increased turbidity from erosion. U.S. Border patrol would only enter riparian areas during the apprehension of illegal entries. Therefore, riparian entries by the USBP would be infrequent and temporary and effects to the Chiricahua leopard frog should not be detrimental.

Air Operations

Air operations in the project area are primarily used to assist ground units in the interdiction of illegal entries of aliens and narcotics or for SAR missions. Helicopter flights within the station's AO usually occur in the (b) (7)(E) in response to alien traffic patterns and occur (b) (7)(E) basis, with no established flight routes. No impacts to the Chiricahua leopard frog are expected from these activities.

Sensors

Currently, (b) (7)(E) is located near the (b) (7)(E) and another is located along (b) (7)(E) (b) (7)(E). Both of these areas are located in (b) (7)(E) far away from known locales of the Chiricahua leopard frog; therefore, no impacts are expected from these activities (Figures 3-3a and 3-3b).

Checkpoints and Observation Points

The Tucson Station (b) (7)(E) (b) (7)(E) no impacts to the Chiricahua leopard frog would occur from such activities.