FINAL

ENVIRONMENTAL STEWARDSHIP PLAN
FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE
U.S. Border Patrol Tucson Sector, Nogales Station, Arizona

U.S. Department of Homeland Security
U.S. Customs and Border Protection
U.S. Border Patrol

August 2008

COVER SHEET

FINAL ENVIRONMENTAL STEWARDSHIP PLAN FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE U.S. BORDER PATROL TUCSON SECTOR, NOGALES STATION, ARIZONA

Responsible Agencies: U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP).

Coordinating Agencies: U.S. Forest Service (USFS); U.S. Army Corps of Engineers (USACE)-Los Angeles District; U.S. Fish and Wildlife Service (USFWS); and the U.S. Section, International Boundary and Water Commission (USIBWC).

Affected Location: Public and private lands east of the DeConcini Port of Entry (POE) in Nogales, Santa Cruz County, Arizona.

Project Description: The Planned Action consists of the construction of primary pedestrian and vehicle fence starting 1 mile east of the DeConcini POE and extending eastward for a total of 7.6 miles. Bollard-style primary pedestrian fence will be installed approximately 3 to 6 feet north of the U.S./Mexico border. Normandy-style vehicle fence will be installed within the Santa Cruz River floodplain and temporarily removed during each monsoon season. A road will be constructed along the border to allow installation and maintenance of the fence; due to steep terrain, the construction footprint will be up to 125 feet wide. A new access road will connect USFS Road 4903 to the border. The new road will be approximately 1.34 miles long.

Report Designation: Final Environmental Stewardship Plan (ESP)

Abstract: CBP will construct, operate, and maintain approximately 7.6 miles of tactical infrastructure, including two discrete sections of primary pedestrian fence, vehicle fence, and patrol and access roads along the U.S./Mexico international border in the USBP Tucson Sector, Nogales Station, Arizona. Segment D-5B will start approximately 1 mile east of the DeConcini POE and extend 5.2 miles eastward. Segment D-6 will extend another 2.4 miles eastward and include both primary pedestrian and vehicle fence. A new access road will be constructed through the USFS Coronado National Forest. This ESP analyzes and documents environmental consequences associated with the Planned Action.

The public may obtain additional copies of the ESP from the project Web site at *www.BorderFencePlanning.com*; by emailing *information@BorderFencePlanning.com*; or by written request to Mr. Loren Flossman, Program Manager, SBI Tactical Infrastructure, Suite 7.2C, 1300 Pennsylvania Ave, NW, Washington, DC 20229, Tel: (877) 752-0420, Fax: (703) 752-7754.

EXECUTIVE SUMMARY

BACKGROUND

United States (U.S.) Customs and Border Protection (CBP) and U.S. Border Patrol (USBP) will construct, operate, and maintain approximately 7.6 miles of tactical infrastructure (TI) along the U.S./Mexico international border in Santa Cruz County, Arizona, east of the City of Nogales, Arizona. TI will consist of primary pedestrian fence, construction/maintenance road, and improvements to existing roads within the USBP Tucson Sector. The Planned Action will occur within the USBP Nogales Station's Area of Operation (AO).

In Section 102(b) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA), Congress mandated that the U.S. Department of Homeland Security (DHS) install fencing, barriers, roads, lighting, cameras, and sensors on not less than 700 miles of the southwestern border. This total includes certain priority miles of fencing in areas most practical and effective in deterring illegal entry and smuggling into the United States. Congress has mandated that these priority miles be completed by December 2008. To that end, DHS plans to complete 370 miles of pedestrian fencing and 300 miles of vehicle fencing along the southwestern border by the end of 2008. As of March 21, 2008, 201 miles of primary pedestrian fence and 140 miles of vehicle fence remained to be constructed to meet the December 2008 deadline. These efforts support the CBP mission to prevent terrorists and terrorist weapons from entering the U.S., while also facilitating the flow of legitimate trade and travel.

On April 1, 2008, the Secretary of DHS, pursuant to his authority under Section 102(c) of IIRIRA, exercised his authority to waive certain laws that were an impediment to the expeditious construction of tactical infrastructure along the southwestern border. Although the Secretary's waiver means that CBP no longer has any specific legal obligations under these laws, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP strongly supports this objective and remains committed to being a good steward of the environment.

In support of this commitment, CBP will continue to work in a collaborative manner with local government, state and federal land managers, and the interested public to identify and minimize the impact to environmentally sensitive resources.

CBP is performing an environmental review of the fencing projects and will publish the results of this analysis in Environmental Stewardship Plans (ESPs), including mitigation and Best Management Practices (BMPs) developed to minimize adverse effects to the environment. These ESPs will be developed for each USBP Sector scheduled for tactical infrastructure improvements and will address each segment of pedestrian and vehicle fencing covered by the waiver.

GOALS AND OBJECTIVES OF THE PLANNED ACTION

The goal of the project is to increase border security within the USBP Tucson Sector with an ultimate objective of reducing illegal cross-border activity. The project further meets the objectives of the Congressional direction in the Fiscal Year (FY) 2007 DHS Appropriations Act (Public Law [P.L.] 109-295), Border Security Fencing, Infrastructure, and Technology appropriation to install fencing, infrastructure, and technology along the border.

The USBP Tucson Sector identified two distinct areas along the border that experience high levels of illegal cross-border activity. This activity occurs in areas near POEs where concentrated populations might live on either side of the border, are fairly remote and not easily accessed by USBP agents, contain thick vegetation that can provide concealment, or have quick access to U.S. transportation routes.

The Planned Action will help to deter illegal entries within the USBP Tucson Sector by improving enforcement efficiency, thus preventing terrorists and terrorist weapons, illegal aliens, drugs, and other cross border violators and contraband from entering the U.S., while providing a safer work environment for USBP agents.

PLANNED ACTION

The Planned Action consists of the construction of primary pedestrian and vehicle fence starting 1 mile east of the DeConcini POE and extending eastward for a total of 7.6 miles. The fence will be installed approximately 3 to 6 feet north of the U.S./Mexico border. USBP will construct a bollard style fence for the primary pedestrian fence. The performance measures of such a design dictate that the fence must: extend 15 to 18 feet above ground and several feet below ground; be capable of withstanding an impact from a 10,000-pound gross weight vehicle traveling at 40 miles per hour; be semi-transparent, as dictated by operational need; be designed to survive extreme climate changes of a desert environment; be designed to allow movement of small animals from one side to the other; and not impede the natural flow of water. A Normandy-style vehicle fence will be installed within the floodplain of the Santa Cruz River, so that it could be removed prior to each monsoon season and replaced shortly after flood flows subside.

A road will be constructed adjacent to the border to allow installation and future maintenance of the fence, as well as for patrols and other operations. The construction footprint of this road will encompass a 60- to 125-foot wide corridor. In order to facilitate operation of equipment, staging of materials, and construction access to the project corridor, four temporary staging areas and three existing access roads will be used. One of these will be a new road that will be constructed to connect USFS Road 4903 to the border, near the eastern end of the project corridor.

SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION

Table ES-1 provides an overview of potential environmental impacts by specific resource areas. Chapters 3 through 12 of this ESP address these impacts in more detail. CBP followed specially developed design criteria to reduce adverse environmental impacts and will implement mitigation measures to further reduce or offset adverse environmental impacts. Design criteria to reduce adverse environmental impacts include selecting a route that will minimize impacts, consulting with Federal and state agencies and other stakeholders to avoid or minimize adverse environmental impacts, and developing appropriate BMPs to conserve natural and cultural resources. Potential effects, including physical disturbance and construction of solid barriers on wetlands, riparian areas, streambeds, and floodplains, will be avoided or mitigated whenever possible. BMPs will include implementation of a Storm Water Pollution Prevention Plan (SWPPP), Construction Mitigation and Restoration (CM&R) Plan, Spill Prevention Control and Countermeasures Plan (SPCCP), Dust Control Plan, Fire Prevention and Suppression Plan, and Unanticipated Discovery Plan to protect natural and cultural resources. BMPs relative to wildlife populations and their habitats are described in detail in Appendix B of this document.

Table ES-1. Summary of Anticipated Environmental Impacts

Resource Area	Effects of the Project	Best Management Practices/Mitigation
Air Quality	Minor and temporary impacts on air quality will occur during construction; air emissions will remain below *de minimis* levels.	Dust Control Plan. Fire Prevention and Suppression Plan. Maintain equipment according to specifications.
Noise	Minor temporary increases to ambient noise during construction activities will occur.	Equipment will be operated on an as-needed basis. A majority of the activities will occur away from population centers.
Land Use, Recreation, and Aesthetics	Beneficial effects, such as reduced vandalism, habitat degradation, debris left by IAs, and wildfires will be expected.	No mitigation needed.
Soils	Minor to moderate impact on soils. No prime or unique farmland soils will be impacted.	Dust Control Plan. SWPPP.
Hydrology and Groundwater	A temporary and one-time water usage will require 7.6 acre-feet of water. There will be a negligible to minor impact on the availability of water in the region. Grading and contouring will result in short-term minor adverse impacts.	SPCC and CM&R plans.

Table ES-1, continued

Resource Area	Effects of the Project	Best Management Practices/Mitigation
Surface Waters and Waters of the United States	Minor and temporary impacts on surface water resources from sedimentation and erosion caused by construction. Surface runoff potential will result in short-term minor adverse impacts on wetlands. Impacts to 1.0 acre of unvegetated Waters of the U.S. (WUS) will occur at 27 stream crossings.	Mitigation measures pertaining to WUS crossings include minimizing construction time in drainage areas, incorporating energy dissipation designs into drainage crossings, requiring nonessential construction to avoid crossing wetland areas, storing and returning the top foot of soil from WUS areas to preserve root stock for regrowth.
Floodplains	Direct, minor impact on floodplains at Santa Cruz River.	Installation of vehicle fence, rather than primary pedestrian fence within the floodplain. Remove the vehicle fence prior to monsoon season.
Vegetation Resources	Minor to moderate impact on vegetation communities (116 acres), primarily desert grassland/scrub habitats. Less than 2 acres of cottonwood-willow riparian corridor will be affected, but is considered a moderate impact due to the scarcity of this resource.	Fire Suppression and Prevention Plan. Biological monitor on site during construction to ensure all appropriate BMPs and mitigation plans are followed. Consider replanting cottonwood-willow saplings.
Wildlife and Aquatic Resources	Fragmentation of wildlife habitat for large mammals will occur along the corridor where primary pedestrian fence is installed. Bollard-style fence will minimize impact for other small animals. Beneficial impact on wildlife populations is anticipated as a result of protecting habitat from IA traffic.	Surveys of nesting migratory birds will be conducted and migratory bird nests, including burrowing owl burrows, will be flagged and avoided, to the extent practicable. Use of vehicle fence at Santa Cruz River will minimize fragmentation effects for larger mammals. See general BMPs in Appendix B.
Threatened and Endangered Species	Pima pineapple cactus, Chiricahua leopard frog, Huachuca water umbel, jaguar and lesser long-nosed bat may be affected but is not likely to be adversely affected by the planned actions.	CBP will implement BMPs for these species, such as the use of biological monitors during construction, limited night-time construction, avoidance of bat roots, and salvage of Pima pineapple cacti (when off-site conservation opportunities are not available). See general and other species-specific BMPs in Appendix B.
Cultural Resources	No impacts are expected.	No mitigation needed.
Hazardous Material	No impacts are expected.	SPCCP will be implemented.

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SECTION 1.0
GENERAL PROJECT DESCRIPTION

1.0 GENERAL PROJECT DESCRIPTION

1.1 INTRODUCTION TO THE ENVIRONMENTAL STEWARDSHIP PLAN (ESP)

In Section 102(b) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA), Congress mandated that the United States (U.S.) Department of Homeland Security (DHS) install fencing, barriers, roads, lighting, cameras, and sensors on not less than 700 miles of the southwestern border. This total includes certain priority miles of fencing in areas most practical and effective in deterring illegal entry and smuggling into the U.S. Congress has mandated that these priority miles be completed by December 2008. To that end, DHS plans to complete 370 miles of pedestrian fencing and 300 miles of vehicle fencing along the southwestern border by the end of 2008. As of March 21, 2008, 201 miles of primary pedestrian fence and 140 miles of vehicle fence remained to be constructed to meet the December 2008 deadline. These efforts support the U.S. Customs and Border Protection (CBP) mission to prevent terrorists and terrorist weapons from entering the U.S., while also facilitating the flow of legitimate trade and travel.

On April 1, 2008, the Secretary of DHS, pursuant to his authority under Section 102(c) of IIRIRA, exercised his authority to waive certain laws that were an impediment to the expeditious construction of tactical infrastructure along the southwestern border. Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the Clean Water Act (CWA), Clean Air Act (CAA), or National Historic Preservation Act (NHPA), Endangered Species Act (ESA) and others, for the tactical infrastructure (TI) segments addressed in this Environmental Stewardship Plan (ESP), the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP supports this objective and has applied the appropriate standards and guidelines associated with these Federal regulations as the basis for evaluating potential environmental impacts and appropriate mitigations. A copy of the waiver is included as Appendix A.

CBP and USBP plan to construct, operate, and maintain approximately 7.6 miles of TI along the U.S./Mexico international border in Santa Cruz County, Arizona, east of the City of Nogales, Arizona (Figure 1-1). TI is a term used by USBP to describe physical structures that facilitate enforcement activities. These items typically include, but are not limited to, roads, fences, lights, gates, boat ramps, and barriers. TI will consist of primary pedestrian fence, Normandy Style Vehicle Fence, minor improvements to existing roads, and construction of new unimproved construction/maintenance roads along the U.S./Mexico border. The Planned Action will occur within the USBP Tucson Sector, Nogales Station's area of operation (AO).

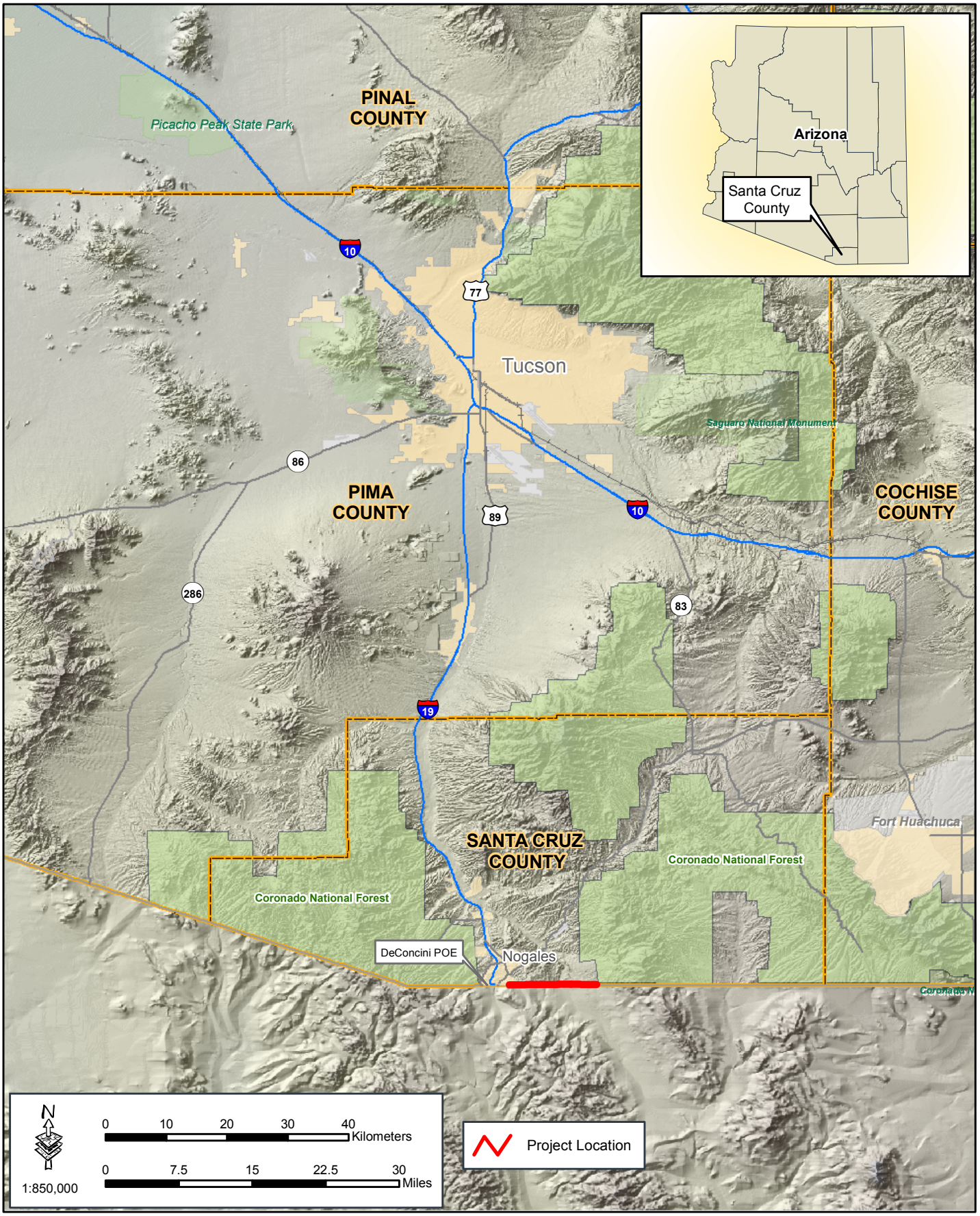

Figure 1-1: Vicinity Map

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January 2008

In October 2003, CBP issued a signed Finding of No Significant Impact (FONSI) and *Final Environmental Assessment for Nogales Infrastructure Improvements, USBP, Tucson Sector, Nogales Station, Santa Cruz County, Arizona* (CBP 2003). This Environmental Assessment (EA) addressed the continued operation of up to 60 portable lights, construction of 1.5 miles of all-weather patrol roads and improvements to 0.5 mile of roadway, installation of 1 mile of primary pedestrian fence, and installation and operation of 15 remote video surveillance systems (CBP 2003). All proposed TI was located east of the DeConcini port of entry (POE) in Nogales, Arizona. A short segment of the proposed lighting and all-weather patrol road overlapped with the westernmost portion of the current project corridor. In May 2007, CBP issued a signed FONSI and the *Final Supplemental Environmental Assessment (SEA)*, *Nogales Infrastructure Improvements, USBP, Tucson Sector, Nogales Station, Santa Cruz County, Arizona*, herein referred to as the 2007 SEA (CBP 2007a). This SEA addressed proposed all-weather patrol road realignments to 0.34 mile of road and relocation of 55 permanent lights (CBP 2007a). The all-weather patrol road and permanent lights were proposed approximately 150 feet north of the U.S./Mexico border.

In December 2004, USBP issued a signed FONSI and *Final EA for Temporary Vehicle Barriers (TVB), Tucson Sector, Pima, Santa Cruz, and Cochise Counties, Arizona* (CBP 2004a), herein referred to as the 2004 TVB EA. The 2004 TVB EA addressed 37 miles of TVBs in 21 different locations throughout the Tucson Sector AO, of which 2.7 miles of TVBs currently overlap with primary pedestrian and vehicle fence alignments planned for this project. The existing TVBs will be removed and either dismantled and recycled or placed in other border areas.

Two other EAs addressing projects in the ROI, and from which information is incorporated by reference, include the March 2007 FONSI and *Final EA for the Construction of New Patrol and Drag Roads, Office of Border Patrol, Nogales Station, Santa Cruz County, Arizona* (CBP 2007b), herein referred to as the 2007 Road EA, and the November 2007 FONSI and *Final EA for Construction of 2.4 miles of Primary Pence, USBP, Tucson Sector, Nogales Station, Santa Cruz County, Arizona* (CBP 2007c), herein referred to as the 2007 Fence EA. These two EAs included construction of 3 miles of all-weather patrol roads and 2.4 miles of primary pedestrian fence approximately 1 mile west of the Mariposa POE. The purpose of these projects was to address USBP agent safety issues and enhance enforcement effectiveness in the area.

Information from these previous EAs will be incorporated by reference, as appropriate, in this ESP.

1.2 USBP BACKGROUND

The mission of CBP is to prevent terrorists and terrorist weapons from entering the U.S., while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the U.S. border. USBP's mission strategy consists of five main objectives:

- Establish substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between the POEs.
- Deter illegal entries through improved enforcement.
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband.
- Leverage "smart border" technology to multiply the effect of enforcement personnel.
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

USBP has nine administrative sectors along the U.S./Mexico international border. Each sector is responsible for implementing an optimal combination of personnel, technology, and infrastructure appropriate to its operational requirements. The Tucson Sector is responsible for Cochise, Pima, and Santa Cruz Counties, Arizona. The areas affected by the Planned Action include the southernmost portion of Santa Cruz County, east of the City of Nogales, Arizona.

1.3 GOALS AND OBJECTIVES OF THE PLANNED ACTION

The goal of the project is to increase border security within the USBP Tucson Sector with an ultimate objective of reducing illegal cross-border activity. The project further meets the objectives of the Congressional direction in the Fiscal Year (FY) 2007 DHS Appropriations Act (Public Law [P.L.] 109-295), Border Security Fencing, Infrastructure, and Technology appropriation to install fencing, infrastructure, and technology along the border.

The USBP Tucson Sector identified two distinct areas along the border that experience high levels of illegal cross-border activity. This activity occurs in areas near POEs where concentrated populations might live on either side of the border, are fairly remote and not easily accessed by USBP agents, contain thick vegetation that can provide concealment, or have quick access to U.S. transportation routes. The Planned Action will help to deter illegal entries within the USBP Tucson Sector by improving enforcement efficiency, thus preventing terrorists and terrorist weapons, illegal aliens, drugs, and other cross border violators and contraband from entering the U.S., while providing a safer work environment for USBP agents.

1.4 STAKEHOLDER AND PUBLIC OUTREACH

Prior to the waiver, CBP prepared a SEA and draft FONSI to address the potential effects of the Planned Action. A Notice of Availability (NOA) for the draft SEA and FONSI were published in the *Arizona Daily Star* on 18 and 23 January 2008, announcing the release of documents for a 30-day public comment period. In addition, a public meeting was conducted in Tucson on 31 January 2008.

Although the Secretary of DHS issued the waiver, and thus, CBP has no responsibilities under the National Environmental Policy Act (NEPA) for this project, CBP reviewed, considered, and incorporated comments received from the public and other Federal, state, and local agencies, as appropriate, during the preparation of this ESP. CBP responses to public comments received under the NEPA process will be provided on the www.BorderFencePlanning.com Web site.

In addition to the past public involvement and outreach program, CBP has continued to coordinate with various Federal and state agencies during the development of this ESP. These agencies are described in the following paragraphs.

U.S. Section, International Boundary and Water Commission (USIBWC) - CBP has coordinated with USIBWC to ensure that any construction along the international border does not adversely affect International Boundary Monuments or substantially impede floodwater conveyance within international drainages.

U.S. Army Corps of Engineers (USACE), Los Angeles District - CBP has coordinated all activities with USACE to identify potential jurisdictional Waters of the U.S., including wetlands, and to develop measures to avoid, minimize or compensate for losses to these resources.

U.S. Fish and Wildlife Service (USFWS) - CBP has coordinated extensively with USFWS to identify listed species that have the potential to occur in the project area and have cooperated with the USFWS to prepare a Biological Resources Plan (BRP) that presents the analysis of potential effects to listed species and the BMPs, which could be implemented to reduce or off-set any adverse impacts. A copy of the BRP is contained in Appendix B.

U.S. Department of the Interior (DOI) - CBP has continued to coordinate with U.S. Department of the Interior (DOI) and its bureaus throughout the southwest border, including the USFWS, U.S. Bureau of Land Management (BLM), U.S. Bureau of Indian Affairs (BIA), and U.S. Bureau of Reclamation (Reclamation).

U.S. Department of Agriculture (USDA) – CBP has continued to coordinate with the USDA, U.S. Forest Service (USFS), Coronado National Forest (CNF) during the planning of the extension of the eastern most access road, since this action will occur on CNF lands.

1.5 MITIGATION

It is CBP's policy to reduce impacts through the sequence of avoidance, minimization, mitigation, and finally, compensation. Mitigation efforts vary and include activities such as restoration of habitat in other areas and implementation of appropriate BMPs. CBP coordinates its environmental design measures with the appropriate Federal and state resource agencies, as appropriate. Both general BMPs and species-specific BMPs

have been developed during the preparation of this ESP. A detailed description of the BMPs are included in the BRP, which was prepared as part of this ESP.

This section describes those measures that may be implemented to reduce or eliminate potential adverse impacts on the human and natural environment. Many of these measures have been incorporated by CBP as standard operating procedures on past projects. Environmental design measures and BMPs are presented for each resource category that will be potentially affected. The mitigation measures will be coordinated with the appropriate agencies and land managers or administrators, as appropriate.

1.5.1 General Construction Activities

BMPs will be implemented as standard operating procedures during all construction activities, and will include proper handling, storage, and/or disposal of hazardous and/or regulated materials. To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein. The refueling of machinery will be completed following accepted industry guidelines, and all vehicles will have drip pans during storage to contain minor spills and drips. Although a major spill is unlikely to occur, any spill of 5 gallons or more will be contained immediately within an earthen dike, and an absorbent (e.g., granular, pillow, sock, etc.) will be applied to contain the spill. Furthermore, a spill of any regulated substance in a reportable quantity will be cleaned up and reported to the appropriate Federal and state agencies. Reportable quantities regulated substances will be included as part of a project-specific Spill Prevention, Control and Countermeasures Plan (SPCCP). An SPCCP will be in place prior to the start of construction and all personnel will be briefed on the implementation and responsibilities of this plan. Additionally, all construction activities will follow DHS Management Directive for 5100.1 for waste management.

All equipment maintenance, laydown, and dispensing of fuel, oil, or any other such activities, will occur in staging areas identified for use in the Project description. The designated staging areas will be located in such a manner as to prevent any runoff from entering waters of the United States, including wetlands. All used oil and solvents will be recycled if possible. All non-recyclable hazardous and regulated wastes will be collected, characterized, labeled, stored, transported, and disposed in manners consistent with EPA standards.

Solid waste receptacles will be maintained at staging areas and in compliance with DHS Management Directive 5100.1. Non-hazardous solid waste (trash and waste construction materials) will be collected and deposited in on-site receptacles. Waste materials and other discarded materials contained in these receptacles will be removed from the site as quickly as possible. Solid waste will be collected and disposed of properly.

In order to ensure that primary fence designs do not impede or limit access to existing border monuments for maintenance, all final engineering designs will be submitted to USIBWC for review prior to start of construction activities.

Once activities in any given construction segment of the project corridor are completed, active measures will be implemented to rehabilitate areas outside of the 60- foot construction area and established staging areas (except for temporary impacts in disturbed areas and nonnative grassland). CBP will coordinate with the appropriate land managers to determine the most suitable and cost-effective measures for successful rehabilitation.

For successful rehabilitation, all or some of the following measures may be conducted on the part of USBP:

- Site preparation through ripping and disking to loosen compacted soils.
- Hydro mulch with native grasses and forbs in order to control soil erosion and ensure adequate re-vegetation.
- Planting of native shrubs as required.
- Temporary irrigation (i.e., truck watering) for seedlings.
- Periodic monitoring to determine if additional actions are necessary to successfully rehabilitate areas.

Additional general construction BMPs are included in the BRP (see Appendix B).

1.5.2 Air Quality

Standard construction BMPs, such as routine watering of the construction and access roads, will be used to control fugitive dust during the construction phases of the Planned Action. Additionally, all construction equipment and vehicles will be maintained in good operating condition to minimize exhaust emissions.

1.5.3 Soils

Proper site-specific BMPs are designed and utilized to reduce the impact of non-point source pollution during construction activities. BMPs may include such things as buffers around washes to reduce the risk of siltation, installation of waterbars to slow the flow of water down hill, and placement of culverts, low-water crossings, or bridges where washes need to be traversed. These BMPs will greatly reduce the amount of soil lost to runoff during heavy rain events and ensure the integrity of the construction site. Soil erosion BMPs can also beneficially impact air quality by reducing the amount of fugitive dust.

Vehicular traffic associated with construction will remain on established roads to the maximum extent practicable. Upon completion of the construction activities, rehabilitation of the staging areas will include loosening compacted soils, re-vegetating, or distributing geological materials (i.e., boulders and rocks) over the disturbed area to reduce erosion while allowing the area to naturally vegetate. In addition, erosion control

measures and appropriate BMPs, as required and promulgated through the SWPPP, will be implemented before, during, and after construction activities.

Road construction and maintenance will avoid, to the extent practicable, making wind rows with the soils once grading activities are completed. Any excess soils not used during construction of the planned infrastructure will be distributed throughout the project corridor.

1.5.4 Water Resources

A Stormwater Pollution Prevention Plan (SWPPP) will be prepared and implemented to reduce potential stormwater erosion and sedimentation effects to local drainages. In addition, CBP will seek technical advise from the USACE Los Angeles District in determining mitigation measures to offset impacts to jurisdictional Waters of the U.S. (WUS) and vegetated wetlands, as appropriate.

All engineering designs and subsequent hydrology reports will be reviewed by USIBWC prior to the start of construction activities so that the results of those activities do not increase, concentrate, or relocate overland surface flows into either country.

Vehicular traffic associated with construction will remain on established roads to the maximum extent practicable. Areas with highly erodible soils will be given special consideration to ensure incorporation of various and effective compaction techniques, aggregate materials, wetting compounds, and rehabilitation to reduce potential soil erosion. Erosion control measures such as waterbars, gabions, straw bales, and re-vegetation will be implemented during and after construction activities. Re-vegetation efforts will be needed to ensure long-term recovery of the area and to prevent major soil erosion problems.

1.5.5 Biological Resources

Construction equipment will be cleaned following BMPs described in an SWPPP prior to entering and departing the project corridor to minimize the spread and establishment of non-native invasive plant species.

To minimize impacts on vegetation, designated construction travel corridors will be marked with easily observed removable or biodegradable markers, and travel will be restricted to the project corridor, staging areas, and access roads.

Numerous BMPs have been identified that, if implemented, could reduce impacts to floral and faunal species. Many of these are general BMPs, designed to alleviate overall effects to wildlife populations and vegetation communities. Some are species-specific BMPs designed to avoid or offset impacts to rare and protected species. These BMPs are discussed in detail in Appendix B, as well as in Section 8.2.3 of this ESP.

BMPs that will be considered, especially in areas that support protected species, include coordination with local resource agencies' biologists, as deemed necessary, and monitoring by qualified biologists of sensitive species potentially impacted by

construction. The installation of a bollard-style pedestrian fence, as well as a vehicle fence within the Santa Cruz, is also a BMP that will reduce impacts to transboundary wildlife migration. Construction crews will be informed of sensitive resources and the need to avoid impacts to these resources. Once fence post holes or trenches are excavated, construction crews will conduct daily inspections for trapped animals under the guidance of qualified biologists, and will continue to do so until the concrete foundations are set.

Since avoidance of the breeding/nesting season (March through September) is unlikely for this project, surveys for migratory birds may be completed prior to clearing and grubbing activities. Any migratory bird nests that are observed in the project corridor and are active will be flagged and avoided to the extent practicable. Construction activities that can not avoid damage or disturbances to an active migratory bird nest, egg, or chicks will be reported to Arizona Game and Fish Department (AZGFD) for informational purposes.

Native seeds or plants, which are compatible with the enhancement of protected species, will be used to the extent feasible to re-vegetate staging areas and turnarounds. In addition, organic material will be collected and stockpiled during construction to be used for erosion control after construction while the areas naturally re-vegetate.

Construction equipment will be cleaned at the temporary staging areas, in accordance with BMPs, prior to entering and departing the project corridor, to minimize the spread and establishment of non-native invasive plant species.

1.5.6 Cultural Resources

Cultural resources surveys of the project corridor have been completed and five Border Monuments and one prehistoric archaeological site that have the potential to be eligible for listing on the National Register of Historic Places fall within the project APE. The area around the Border Monuments will be flagged to avoid any damage to the monuments during construction activities. The prehistoric site is recommended for avoidance and if not possible, testing is recommended to mitigate adverse affects.

1.5.7 Hazardous Materials

Refueling of machinery will be allowed only at designated staging areas using a properly located and designated fuel truck equipped with a proper spill containment kit. All vehicles will have drip pans during storage to contain minor spills and drips, in accordance with the SPCCP.

All used oil and solvents will continue to be recycled if possible. All non-recyclable hazardous and regulated wastes will continue to be collected, characterized, labeled, stored, transported, and disposed of in accordance with all Federal, state, and local regulations, including proper waste manifesting procedures.

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SECTION 2.0
DESCRIPTION OF THE PROJECT

2.0 DESCRIPTION OF THE PROJECT

The locations of the Planned Action are based on a USBP Tucson Sector assessment of local operational requirements, where such infrastructure will assist USBP agents in reducing illegal cross-border activities. USBP will construct, operate, and maintain approximately 7.6 miles of primary pedestrian and vehicle fence, as well as a construction/maintenance road along the U.S./Mexico border in the USBP Tucson Sector. TI will begin approximately 1 mile east of the DeConcini POE and extend 7.6 miles eastward across the Santa Cruz River and end near the western boundary of the CNF. Figure 2-1 illustrates the location of the Planned Action within the Tucson Sector, noted as segments D-5b (5.2 miles) and D-6 (2.4 miles) as well as the access roads and staging areas to be used during the fence construction.

Currently, USBP plans to install the primary pedestrian fence approximately 3 to 6 feet north of the U.S./Mexico border or along the southern toe of the construction/maintenance road. The primary pedestrian fence design will be a personnel-vehicle fence type 1 (PV-1). The design performance measures dictate that the fence must:

- extend 15 to 18 feet above ground and be supported in subsurface footers at depths deemed necessary;
- be capable of withstanding an impact from a 10,000-pound gross weight vehicle traveling at 40 miles per hour (mph);
- be semi-transparent, as dictated by operational need;
- be designed to survive extreme climate changes of a desert environment;
- be designed to allow movement of small animals from one side to the other; and
- not impede the natural flow of water.

The PV-1 fence is an anchored, 23-foot long grout-filled steel bollard-style fence designed to prevent passage by both people and vehicles (Photograph 2-1). Panels of PV-1 fence will be welded together off site and transported on site by small trucks with lowboy trailers. Using a crane, fence panels will be set in concrete-filled trenches. Construction of new fence will be completed using a trencher, a cement mixer, and a crane. No pile driving will be required for construction of PV-1 fence.

Photograph 2-1. Example of PV-1 Fence

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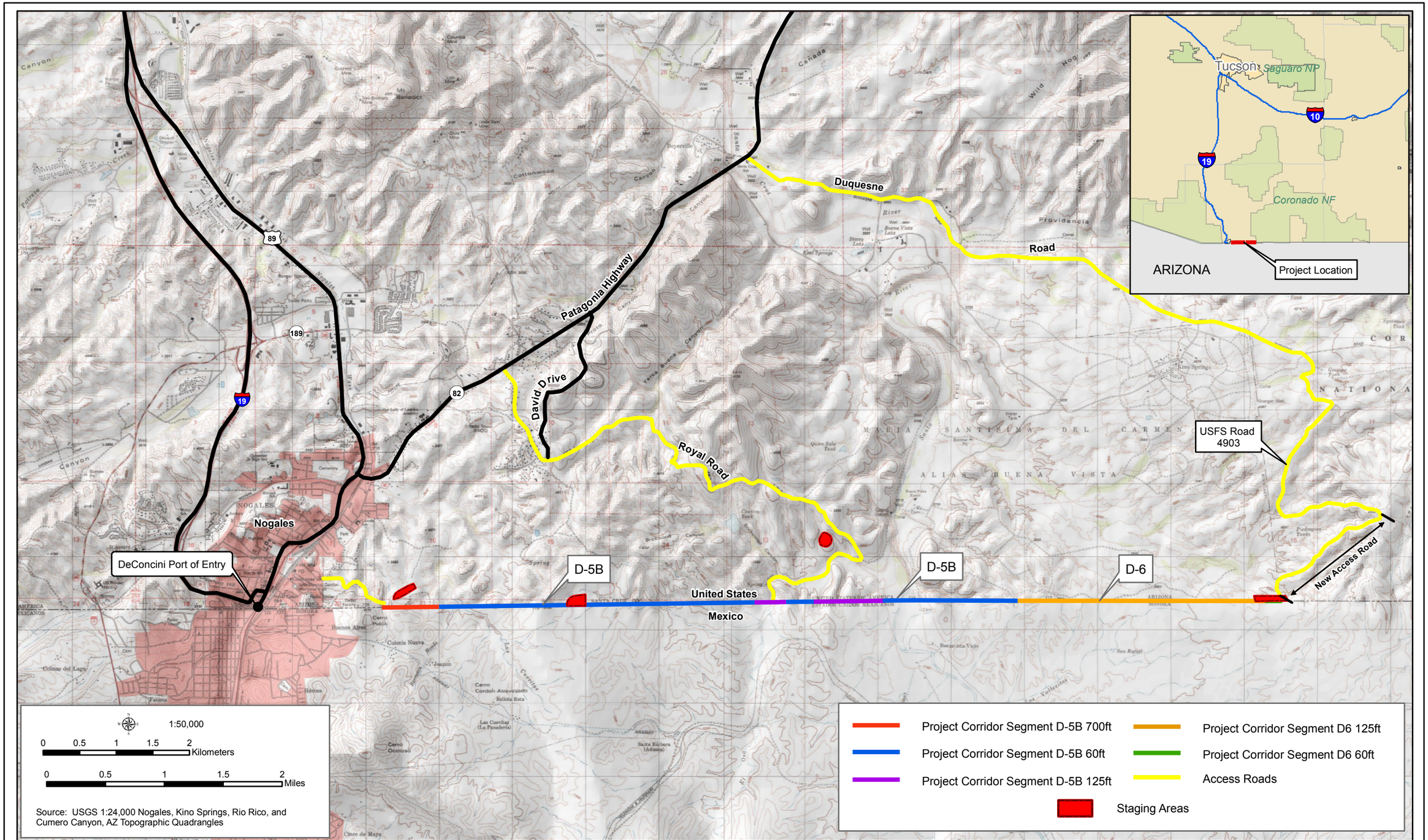

Figure 2-1: Project Location

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The existing temporary vehicle barriers (TVBs) currently within the project corridor were constructed off-site, transported into the border corridor, and placed using cranes and forklifts. This action required minimal clearing of vegetation and ground disturbance. Similar construction techniques are not feasible for the installation of the primary pedestrian fence and construction/maintenance road. Consequently, a road will be constructed adjacent to the border to allow installation of the fence. Construction under the Planned Action will encompass a 60-foot to 125-foot wide project corridor beginning at the U.S./Mexico border and extending northward.

Within the floodplain of the Santa Cruz River, Normandy Style vehicle fence will be installed. An example of this style fence is depicted in Photograph 2-2. The vehicle fence will be placed, using forklifts, along the border. A construction/maintenance road will be constructed in order to place the vehicle fence and is expected to require a width of up to 60 feet. The vehicle fence will be removed by CBP prior to each monsoon season and replaced when flood conditions are no longer eminent.

Photograph 2-2. Example of Normandy Style Vehicle Fence

Additionally, in other washes and arroyos, the fence will be designed and constructed, as appropriate, to ensure proper conveyance of floodwaters and to eliminate the potential to cause ponding on either side of the border.

In order to facilitate operation of equipment, staging of materials, and construction access to the project corridor, four temporary staging areas, totaling 26 acres, and three existing access roads have been identified along the project corridor. Vegetation will be cleared and grading may occur where needed in the staging areas. Upon completion of construction activities, the temporary staging areas will be rehabilitated. No improvements to existing access roads are anticipated, as these roads are currently maintained through use agreements between USBP and landowners. These minor maintenance activities are expected to continue, yet are not expected to be a result of construction activities.

One new access road, however, will be constructed to connect USFS road 4903 to the border. This new road will be approximately 20 to 30 feet wide (including parallel ditches and shoulders) and 1.34 miles long (see Figure 2-1). The road will be built to allow construction access to the east end of the project corridor.

Nighttime construction activities will occur only when absolutely necessary for adequate concrete pours or in the case of an accelerated construction schedule to meet Federal

mandates. Therefore, to account for heat restrictions for adequate concrete drying and curing processes, most concrete pours for low-water crossings, other drainage structures, and fencing will be conducted during the pre-dawn hours of summer months. However, the possibility exists that work will have to occur on a 24-hour basis in order to maintain the work task schedule due to weather or other unforeseen situations. In order to facilitate construction activities during these work hours, portable lights will be used. It is estimated that no more than 10 lights will be in operation at any one time at each project site.

A 6-kilowatt self-contained diesel generator powers these lights (Photograph 2-3). Each unit typically has four 400- to 1000-watt lamps. The portable light systems can be towed to the desired construction location, as needed. Upon completion of construction activities, all portable lights used for construction will be removed from the project corridor. Lights will be oriented to illuminate the work area, but the area affected by illumination will be expected to be limited to 200 feet from the light source. Also, because they will not be deployed specifically for providing lighting for enforcement purposes and due to the fact that no circumstances such as threatened and endangered species warrant it, these lights may or may not have shields placed over the lamps to reduce or eliminate the effects of backlighting.

Photograph 2-3. Portable lights

It is anticipated that construction will begin in July 2008 and be completed by December 2008. Equipment anticipated to be used during the construction will include bulldozers, dump trucks, portable light generators, graders, cement trucks, front-end loaders or forklifts, and flatbed trucks.

SECTION 3.0
AIR QUALITY

3.0 AIR QUALITY

3.1 AFFECTED ENVIRONMENT

Air quality issues and conditions for the ROI were discussed in the 2004 TVB EA and most recently in the 2007 Road EA (CBP 2004, 2007b). Those discussions are incorporated herein by reference.

In summary, the U.S. Environmental Protection Agency (USEPA) Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants. The major pollutants of concern, or "criteria pollutants," are carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, suspended particulate matter less than 10 microns (PM-10), and lead. Areas that do not meet the NAAQS are called "non-attainment" areas; conversely, areas that meet both primary and secondary standards are known as "attainment" areas.

According to air quality information received from USEPA Region 9 during the development of the 2007 Road EA, unincorporated areas of Santa Cruz County are in attainment of established NAAQS for all criteria pollutants (CBP 2007b). However, the Nogales metropolitan area is currently in violation of the NAAQS for PM-10. The emission sources have been identified as unpaved roads, cleared areas, and paved roads (USEPA 2007).

3.2 ENVIRONMENTAL CONSEQUENCES

Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the CAA, for the TI segments addressed in this ESP, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP supports this objective and has applied the appropriate standards and guidelines associated with the CAA as the basis for evaluating potential environmental impacts and appropriate mitigations.

EPA's NONROAD 2005 Model was used, as recommended by EPA's *Procedures Document for National Emission Inventory, Criteria Air Pollutants, 1985-1999* (EPA 2001), to calculate emissions from construction equipment such as bulldozers, cranes, etc. Assumptions were made regarding the type of equipment, the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used.

Similarly, emissions from delivery trucks and commuters traveling to the job site were calculated using the EPA MOBILE6.2 Model (EPA 2001). Construction workers will temporarily increase the combustible emissions in the airshed during their commute to and from the project area. These emissions were calculated in the air emission analysis and included in the total emission estimates.

Furthermore, large amounts of dust (i.e., fugitive dust) can arise from the mechanical disturbance of surface soils, including grading, driving, and road and fence construction. Fugitive dust emissions were calculated using the emission factor of 0.11 ton per acre per month, which is a more current standard than EPA's 1985 *Compilation of Air Pollutant Emission Factors*, also known as AP-42 (EPA 2001). The total air quality emissions were calculated for the construction activities occurring in Santa Cruz County to compare to the General Conformity Rule. A summary of the total emissions for Santa Cruz County is presented in Table 3-1 and details of the analyses are presented in Appendix C.

Table 3-1. Total Air Emissions (tons/year) from Construction Activities for the Planned Action vs. de minimis Levels

Pollutant	Total (tons/year)	*de minimis* Thresholds (tons/year)
Carbon monoxide	28.62	NA
Volatile Organic Compounds	6.41	NA
Nitrogen oxides	54.55	NA
Particulate matter (< 10 microns)	14.22	100
Particulate matter (< 2.5 microns)	6.41	NA
Sulfur dioxide	6.53	NA

Source: 40 CFR 51.853 and GSRC model projections.

Based on these estimates, the fence and maintenance road construction will result in a minimal and temporary impact on local air quality. During construction, fugitive dust (PM-10) levels will increase in the ROI. However, fugitive dust generated during construction will be minimized by applying water or other wetting solutions as outlined in Section 1.5.2 of this ESP. As indicated in Table 3-1, the PM-10 emissions will be well below the *de minimis* thresholds. Therefore, no major long-term impact on air quality is expected. Conversely, ambient air quality conditions will most likely incur slight improvements due to a reduction of off-road IA traffic and consequent USBP enforcement actions.

SECTION 4.0
NOISE

4.0 NOISE

4.1 AFFECTED ENVIRONMENT

Ambient noise conditions within the project corridor were described in the 2004 TVB EA; the descriptions are incorporated herein by reference. Briefly, noise levels are generally computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (DNL). DNL is the community noise metric recommended by USEPA and has been adopted by most Federal agencies (Federal Interagency Committee on Noise 1992). A DNL of 65 decibels A-weighted scale (dBA) is most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities such as construction. Areas exposed to a DNL above 65 dBA are generally not considered suitable for residential use. The ambient noise levels within the project corridor are expected to be less than 55 dBA due to its remote location. Furthermore, there are no noise-sensitive receptors near the project corridor.

4.2 ENVIRONMENTAL CONSEQUENCES

Construction noise levels created by transport vehicles, portable light generators, and other construction equipment will vary greatly depending on climatic conditions, season, equipment type and model, and construction activity. Although increased noise levels will occur during construction activities, the project corridor is undeveloped and does not contain noise-sensitive receptors (e.g., hospitals, schools, residences). However, during transport operations via public roads and private access roads to and from the project corridor, temporary increases in vehicle-related noise levels will likely occur within residential areas. The potential for extended periods of noise levels above the DNL average will be minimized since transport operations will not occur on a daily basis. Rather, heavy equipment transport will occur intermittently, so that equipment and materials could be stockpiled. In order to further minimize noise increases, transport operations will also be restricted to daylight hours and weekdays, to the extent practicable, when the normal DNL averages are likely at the highest levels. Deviations from such a restricted schedule will be coordinated through Santa Cruz County Public Works Department-Transportation Division. As described in Section 8.2.2 of this ESP, potential impact on wildlife species due to increased noise levels will be temporary and minor.

Construction equipment and maintenance activities for the primary pedestrian fence road will periodically increase noise levels in the project corridor. However, upon completion of these activities, ambient noise levels will return to previous levels. Therefore, the impact will be temporary, localized, and negligible.

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SECTION 5.0
LAND USE, RECREATION AND AESTHETICS

5.0 LAND USE, RECREATION AND AESTHETICS

5.1 AFFECTED ENVIRONMENT

5.1.1 Land Use

The major land uses in the region include agriculture, range land, urban, forest, recreation or special use, water, and border security. Federal agencies that control large land areas in Santa Cruz County are USFS and BLM (Arizona Department of Commerce 2007). The major state agencies controlling large areas of land are Arizona State Land Department, Arizona Game and Fish Department (AZGFD), and Arizona State Parks. The remaining land ownership category includes land controlled by other Federal agencies, such as National Park Service (NPS), along with county and municipal lands.

Land within the project corridor is currently open cattle range land under private ownership. USBP routinely uses existing roads along the U.S./Mexico border as patrol roads, and maintains approximately 2.7 miles of intermittently positioned TVBs along the U.S./Mexico border to control illegal vehicle traffic. The USFS CNF is located at the eastern end of the D-6 segment. Land use on the CNF includes timber production, grazing leases, and recreation.

5.1.2 Aesthetics

Aesthetic and visual resources were discussed in the 2004 TVB EA and the discussion is incorporated herein by reference. Aesthetic and visual resources consist of the natural and man-made landscape features that give a particular environment its visual characteristics (see Photograph 5-1). The project corridor consists mostly of open areas with steep rolling hills and deep dissecting valleys covered by native grasses and other vegetation. Background vistas outside of the city consist of distant views of the surrounding mountains. The ROI and the entire southern Arizona region are known for tranquil dark skies and scenic mountain ranges. However, trails, trash, and wildfires caused by

Photograph 5-1. A Typical View along the Eastern Portion of the Project Corridor

illegal traffic have degraded many areas. In addition, overgrazing has resulted in a diminished visual quality in several locations along the border.

5.2 ENVIRONMENTAL CONSEQUENCES

5.2.1 Land Use

The Planned Action will have a minor direct impact on land use, as 11 acres of private range land will be converted to TI and law enforcement zone. An additional 5 acres will be converted from public rangeland on the CNF to an access road. There will be a temporary direct impact on 26 acres of land used for equipment staging, but the land will return to its original functions following the construction period. Land will be acquired through lease, easement, or fee title to the government. Landowners will be compensated at fair market values.

Construction and operation of TI will increase border security in the project corridors and may result in a change to illegal traffic patterns. However, changes to illegal alien traffic patterns result from a myriad of factors in addition to USBP operations and therefore are considered unpredictable and beyond the scope of this ESP. Indirect beneficial impacts are expected as a result of decreased illegal traffic north of the project corridor. By reducing illegal traffic within and adjacent to the project corridor, damage to grazing lands north of the corridor is also expected to be reduced or possibly eliminated.

5.2.2 Aesthetics

The primary pedestrian fence will have a minor adverse impact on the visual qualities of the specific location where it is installed. Exhibit 5-1 provides a simple visual representation of what the project corridor may look like with primary fence constructed.

Exhibit 5-1. Digitally Enhanced Photo Representation of the Project Corridor at the Same Location as Photograph 5-1

While the addition of TI will have an adverse impact, the reduction or elimination of illegal foot traffic, which causes long-term changes to the environment, will benefit the region's appearance. A reduction of trash (as identified in Photograph 5-2) and wildfires set by IAs, will also be a benefit to the region's aesthetic values.

Photograph 5-2. Trash left behind by IAs, typical of the ROI

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SECTION 6.0
SOILS

6.0 SOILS

6.1 AFFECTED ENVIRONMENT

Eight soil associations are present within the project corridor, as described below. None of these soils are considered prime or unique farmland soil.

Chiricahua-Lampshire association. Chiricahua soils are on the smoother side slopes and saddles of granitic mountains. Slopes are 5 percent to about 15 percent. Lampshire soils are on the steeper, rockier parts. Slopes are short and as much as 45 percent. The surface is 35 to 50 percent gravel, 10 to 35 percent cobbles, and 0 to 5 percent stones.

Comoro-Pima association. The Comoro-Pima soil association consists of deep sandy loams and clay loams found on the Santa Cruz River floodplain; they comprise only 1 percent of the entire county and account for 10 percent of the project corridor. These soils formed in recent alluvium and tend to be more than 60 inches deep. They exhibit only a slight erosion potential, likely due to the low-lying areas in which they exist.

Graham soils, 5 to 20 percent slopes. The soils in this undifferentiated group are at the foot of basic igneous and tuffaceous mountains. Slopes are dominantly 5 to 20 percent. The surface layer of other Graham soils in this unit is gravelly or cobbly loam. The surface is 15 to 50 percent gravel, 0 to 25 percent cobbles, and a few stones.

Lampshire-Chiricahua association. The soils in this association are on granitic hills and low mountain uplands. They are about 60 percent Lampshire soils and 25 percent Chiricahua soils, although the percentage of each varies from place to place. Slopes range from 15 to 50 percent. Generally Lampshire soils are on steeper, rockier positions and have slopes of 30 to 50 percent. Chiricahua soils have slopes of 15 to 30 percent. The soils in this complex have profiles similar to those described as representative of their respective series, but the surface layer is cobbly or very cobbly sandy loam or gravelly or very gravelly sandy loam in places. Bedrock is granite, quartzite, or tuff-conglomerate. The surface is 35 to 60 percent gravel and 0 to 20 percent cobbles and stones.

Some areas exhibit as much as 50 percent Rock outcrop but averages about 10 percent. Small areas of gravelly alluvium occur in drainages; and small areas of shallow and very shallow soils that are similar to Lampshire soils are also included in this association.

Lampshire-Graham-Rock outcrop association. This association is about 35 percent Lampshire soils, 30 percent Graham soils and 30 percent Rock outcrop, but the percentage of each varies from place to place. Some areas consist mostly of one soil, or the other, and of 10 to 50 percent Rock outcrop. Slopes range from 20 to 60 percent. Lampshire soils are generally on the steeper, rockier positions and have slopes of 30 to

60 percent. Graham soils have slopes of 20 to 30 percent. Rock outcrop occurs at ledges and pinnacles and is dominantly of basic igneous composition. The surface is 10 to 25 percent gravel, to 20 to 50 percent cobbles, and 0 to 20 percent stones.

Rock outcrop. This miscellaneous land type consists mainly of areas of bare bedrock that commonly are nearly vertical rock ledges and pinnacles near mountaintops. Rock types are limestone, quartzite, quartz monzonite, rhyolite-tuff, andesite, and others. As much as 10 percent of the mapped area has shallow and very shallow soils between outcrops of rock. Slopes are dominantly more than 60 percent.

White House-Caralampi complex, 10 to 35 percent slopes. This complex consists of about 45 percent each White House and Caralampi soils. The soils are on long, narrow, roughly parallel, convex ridge remnants formed by deep dissection of old piedmont surfaces. White House soils are generally on the less sloping ridgetops and shoulders that have slopes of 10 to 20 percent. Caralampi soils are generally on the steeper portions that have slopes of 20 to 35 percent. The White House soils have a surface layer of gravelly, cobbly, very gravelly or very cobbly sandy loam or sandy clay loam and cobbly, very gravelly, or very cobbly loam. Gravelly sandy loam is most common. The surface is covered by 15 to 50 percent gravel and 0 to 20 percent cobbles.

White House-Hathaway association, steep. The soils in this association are on ridge remnants of severely dissected old piedmont surfaces. White House soils make up about 45 percent of the association, and Hathaway soils about 30 percent. White House soils commonly have slopes of 5 to 15 percent. Hathaway soils are commonly steeper, having slopes of 20 to 45 percent. The surface is covered by 15 to 50 percent gravel, 0 to 15 percent cobbles, and a few stones.

6.2 ENVIRONMENTAL CONSEQUENCES

Soil disturbance required under the Planned Action will permanently remove 116 acres from biological production, primarily from three associations: (1) White House-Hathaway (36 acres), (2) White House-Caralampi (24 acres) and (3) Lampshire-Graham-Rock outcrop (23 acres). These three associations comprise 72 percent of the project footprint. The Lampshire-Chiricahua association will incur a loss of 11 acres, but less than 8 acres of each of the remaining soil associations will be impacted.

An additional 26 acres of Caralampi-White House-Hathaway soils located within temporary staging areas will likely be scraped and bladed to accommodate material staging. Upon completion of construction activities, the soils will be stabilized and allowed to re-vegetate, resulting in only minor temporary impact. These soil associations comprise a small percentage of soils existing within Santa Cruz County and none are considered prime farmland soils; thus, there will be only a negligible adverse impact to the region's soils.

A SWPPP will be prepared and implemented by the construction contractor, which will identify BMPs to minimize or prevent erosion and downstream sedimentation during and after construction.

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SECTION 7.0
HYDROLOGY AND GROUNDWATER

7.0 HYDROLOGY AND GROUNDWATER

7.1 AFFECTED ENVIRONMENT

7.1.1 Groundwater

The groundwater resources of Santa Cruz County were discussed in detail in the 2004 TVB EA; the discussion is incorporated herein by reference (CBP 2004a). Groundwater resources affected in the project corridor are located in the Santa Cruz Active Management Area (AMA) (Arizona Department of Water Resources [ADWR] 2007). This AMA consists of 716 square miles located in the Basin and Range physiographic province and includes groundwater and surface water resources in the Santa Cruz River Valley. Water quality assessments for the affected region indicate that the major causes of surface water non-attainment include heavy metals, ammonia, low dissolved oxygen, turbidity, total dissolved solids, and fecal coliform bacteria. Groundwater resources in the Upper Santa Cruz River Valley form three aquifer units: the Nogales formation, older alluvium, and younger alluvium (ADWR 2007). According to the ADWR Third Management Plan (1999), the average total recharge within the Upper Santa Cruz AMA was approximately 98,800 acre-feet per year. In 1995, the total use of groundwater within the AMA by the municipal, agricultural, and industrial sectors totaled approximately 21,000 acre-feet. The projected withdrawal of groundwater from the Santa Cruz AMA for year 2010 is 56,100 acre-feet (ADWR 2007); thus, the recharge in the Upper Santa Cruz AMA exceeds the withdrawal from the aquifer. Sustained yield management of water resources within the AMA includes plans for greater use of effluent as recharge so the reserve of good-quality water is preserved.

7.1.2 Surface Waters and WUS

The Santa Cruz River is the primary surface waterway influencing the project corridor and ROI. The Santa Cruz River is characterized as an intermittent stream that contains perennial and effluent dominated reaches. Within the project corridor and ROI, it is considered a perennial stream. The river flows south into Mexico from its head waters in the San Rafael Valley, located approximately 15 miles east of the project corridor. From Mexico, it meanders back northward and re-enters Arizona 5 miles east of Nogales, within the project corridor, at which point the river continues northward toward Tucson, Arizona.

Water supply and quality issues for this river system were described in detail in the 2004 TVB EA; that discussion is incorporated herein by reference (CBP 2004a). In summary, elevated levels of turbidity, copper, and cadmium have been documented as issues of concern between the U.S./Mexico border and the Nogales Waste Water Treatment Facility in Nogales, Arizona (USEPA 2004a). The river typically supports most uses within the ROI; however, aquatic ecosystems and warm water fisheries are only partially supported (USEPA 2004a and 2004b).

Recent pedestrian surveys of the project corridor, conducted February 14 through 17 and April 23 and 24, 2008, identified 27 potential surface water crossings, that bisect

the project corridor. Figure 7-1 identifies all of the potential surface water crossings located within the project corridor. All of these streams would likely to be classified as jurisdictional WUS under the CWA. Appendix D is the Biological Field Report which discusses the results of the field surveys and identifies these stream crossings.

7.1.3 Floodplains

Construction activities that occur within the 100-year floodplain are typically regulated by the National Flood Insurance Act of 1968, as amended (42 USC 4001 et seq.), and the Flood Disaster Protection Act of 1973 (P.L. 93-234, 87 Stat. 975) and Executive Order (EO) 11988. These regulations are designed to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and preserve the beneficial values which floodplains serve. While issuance of the waiver eliminated the requirement for CBP to comply with these regulations, these standards have been used to evaluate the potential impacts to floodplains associated with the fencing projects in Arizona and to develop BMPs, if necessary, to minimize those impacts.

According to the Federal Emergency Management Agency (FEMA) floodplain maps (FEMA 1981), approximately 1,510 linear feet of the project corridor, specifically the Santa Cruz River floodplain, are bisected by a jurisdictional floodplain (Figure 7-2).

7.2 ENVIRONMENTAL CONSEQUENCES

Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the CWA and EO 11988, for the TI segments addressed in this ESP, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP supports this objective and has applied the appropriate standards and guidelines associated with these regulations, as the basis for evaluating potential environmental impacts and appropriate mitigations.

Water required for construction purposes (e.g., fugitive dust control and concrete pours) will be obtained from the City of Nogales municipal water supply and trucked to the project corridor. Depending on the method employed for fence construction, construction activities could require as little as 10,000 gallons of water per mile (dust suppression only) or up to 325,000 gallons per mile (equivalent of 1 acre-foot) for concrete footing, dust suppression, and limited soil compaction. These amounts will have a negligible to minor impact on the availability of water in the region. Since no more than 7.6 acre-feet of water will be required for construction (worst-case scenario), no major impact on regional groundwater supplies or quality is anticipated.

7.2.1 Surface Water and WUS

The Planned Action will have a minor, temporary impact on surface water resources in the form of sedimentation and erosion caused by construction. However, this impact will be minimized through the use of pre- and post-construction BMPs as specified in the SWPPP.

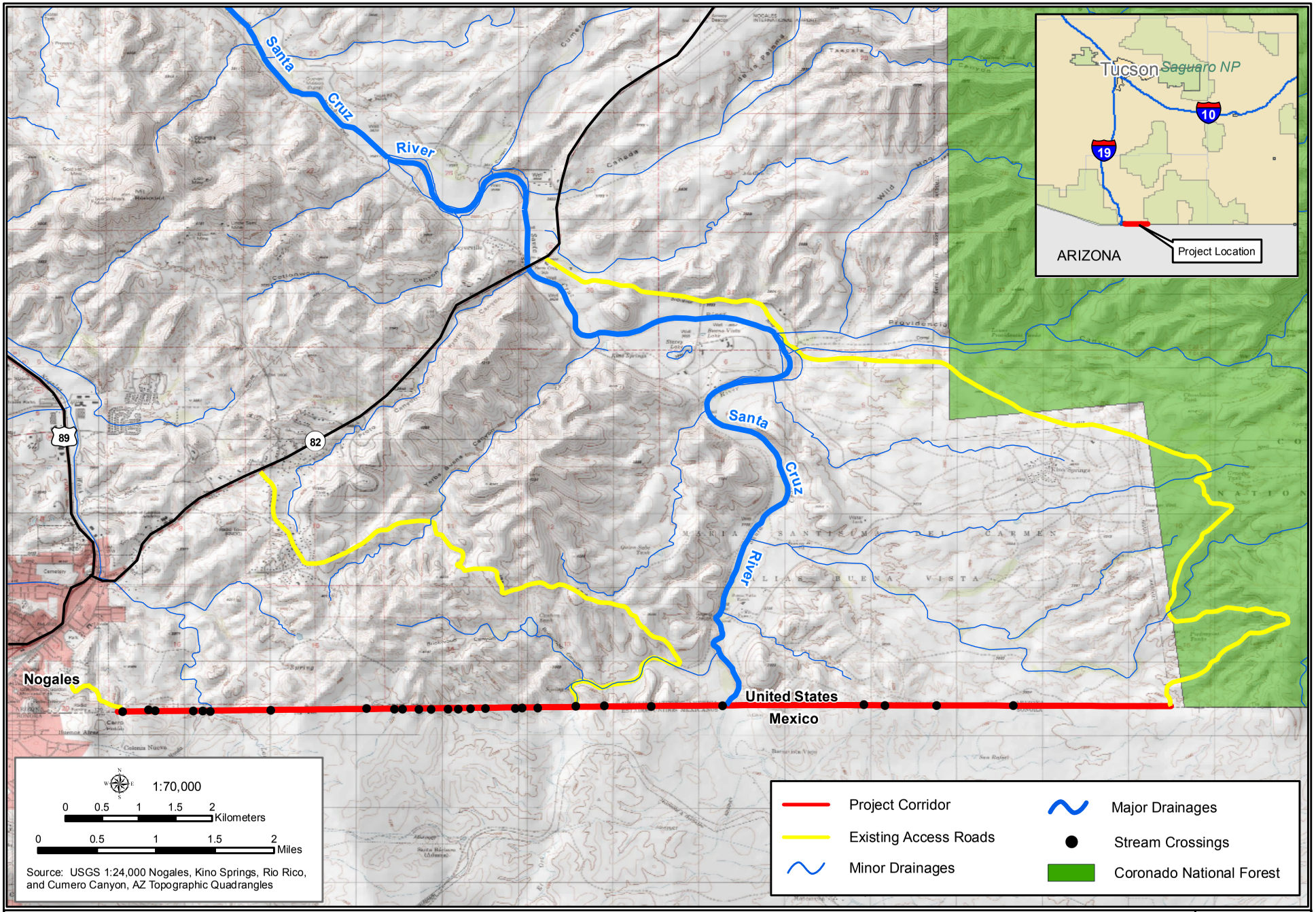

Figure 7-1: Surface Waters and Waters of the U.S.

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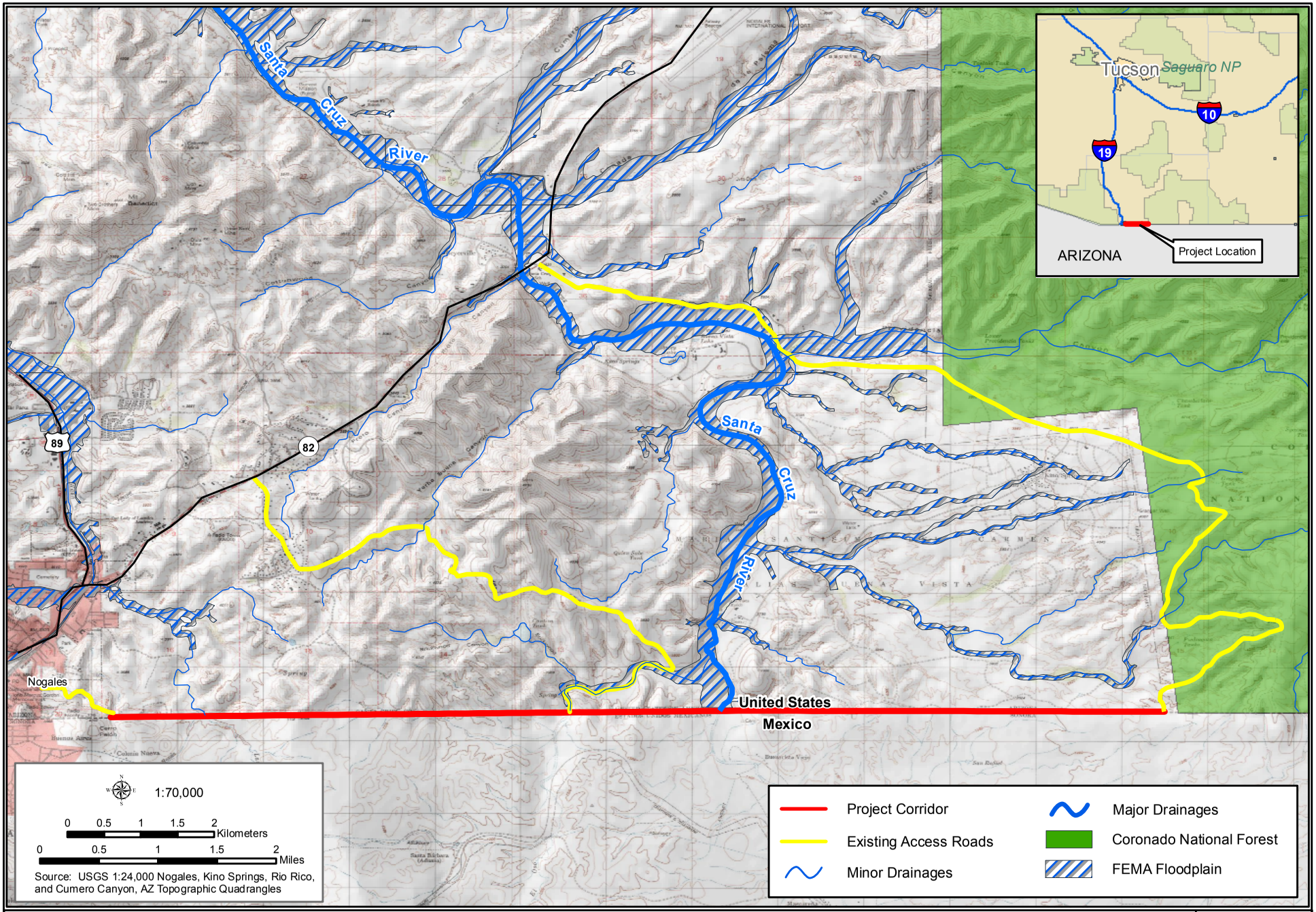

Figure 7-2: FEMA Floodplain Map

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The construction of 7.6 miles of fence and patrol/maintenance road will impact 26 potentially jurisdictional WUS. The anticipated area of impact at each crossing is presented in Table 7-1, below.

Table 7-1. Anticipated Area of Impact at each Crossing

Segment	Surface Water Crossing	Width (ft)	Length (ft)	Area of Impact (acre)	Comment
D-5b	Stream 1	6	125	0.02	
D-5b	Wash 6	1	125	0.00	
D-5b	Wash 7	10	271	0.06	drainage parallel to border
D-5b	Wash 13a,b,d	7	885	0.14	drainage parallel to border
D-5b	Wash 13c	3	135	0.01	drainage parallel to border
D-5b	Wash 13e	2	14	0.00	small drainage that connects to 13c
D-5b	Wash 16	4	125	0.01	
D-5b	Wash 17	10	125	0.03	
D-5b	Wash 20	10	125	0.03	
D-5b	Wash 22	6	125	0.02	
D-5b	Wash 23	20	452	0.21	drainage parallel to border
D-5b	Wash 25	6	125	0.02	
D-5b	Wash 26	4	125	0.01	
D-5b	Wash 31	4	125	0.01	
D-5b	Wash 32	4	125	0.01	centerline was corrected
D-5b	Stream 2	20	125	0.06	
D-5b	Wash 34	2	70	0.00	
D-5b	Wash 36a	3	140	0.01	
D-5b	Wash 36b	3	158	0.01	
D-5b	Wash 36c	6	125	0.02	
D-5b	Wash 37b	6	258	0.04	drainage parallel to border
D-5b	Wash 38	6	125	0.02	
D-5b	Santa Cruz River	150	60	0.21	
D-5b	**subtotal**			**0.94**	
D-6	Wash 44b	10	265	0.06	drainage parallel to border
D-6	**subtotal**			**0.06**	
D-5b/D-6	**Grand Total**			**1.00**	

In areas where primary pedestrian fencing must cross a wash, fences will be designed to ensure that the normal flow of water is not impeded. Regular maintenance of the fence will occur to remove any debris or snags that could block normal flows. Energy dissipation measures, as prescribed by the SWPPP, will be installed at each wash crossing to prevent long-term erosion and sedimentation.

To prevent any contamination from the accidental spill of petroleum, oils, and lubricants (POL) into surface waters, equipment and maintenance activities will not be staged within 100 feet of any surface water resources. In addition, a SPCCP will be implemented prior to the start of construction, and all personnel will be briefed on the implementation and responsibilities of this plan. The bid/build contractor will be required to prepare and implement the SPCCP.

7.2.2 Floodplains

Due to the general north/south orientation of floodplains within the project corridor and the need to place infrastructure parallel to the U.S./Mexico border, the Planned Action will result in the unavoidable direct impact on approximately 3 acres of jurisdictional floodplains, primarily due to road construction. To minimize impacts to the floodplain, however, CBP elected to install vehicle fence rather than primary pedestrian fence. The vehicle fence will be removed prior to each monsoon season to avoid impediments to floodwater conveyance and damage to the fence. Consequently, negligible impacts to the floodplain will occur. In accordance with the wishes of the DHS Secretary, CBP will continue to coordinate with USIBWC and Santa Cruz County regarding floodplain issues associated with the fence and road construction within the Santa Cruz River floodplain. Fences installed at other stream crossings will be bollard-style fences that will be designed to avoid increases of flood duration, elevations, velocities and frequencies.

SECTION 8.0
BIOLOGICAL RESOURCES

8.0 BIOLOGICAL RESOURCES

8.1 AFFECTED ENVIRONMENT

8.1.1 Vegetation

Past biological and reconnaissance surveys within and near the project corridor have identified three Chihuahuan desert communities that exist in and near the project corridor. The classification of these communities follows Brown (1994) and utilizes variation in general species composition and appearance. The following discussions are summaries of the communities described in the 2004 TVB EA (CBP 2004a).

Interior Southwestern, Cottonwood–Willow Series

Dominated by Fremont cottonwood (*Populus fremontii*) and narrow-leaf cottonwood (*P. angustifolia*), this series is typically found in open riparian canyons or on bajadas. Vegetation communities of the Cottonwood–Willow series are exposed to full sunlight and warm, dry air. The typical forest structure in this series is an open crowned forest with lower shrub and forb layers. Within the project corridor, this series is limited to a thin ribbon within the Santa Cruz floodplain and one of its major tributaries.

Madrean Evergreen Woodland

The Madrean Evergreen Woodland community occurs in a small isolated pocket west of the Santa Cruz River. In this community, Emory oak (*Quercus emoryi*) and Mexican blue oak (*Q. oblongifolia*) formed an open canopy, with trees to 40 feet high, and contained shrub layer of indigobushes (*Dalea* spp.), buckwheat (*Eriogonum* spp.), and bricklebush (*Brickellia* spp.). Alligator bark juniper (*Juniperus deppeana*) was the only coniferous species that occurred in this community. The sparse herbaceous layer beneath typically consisted of grasses and did not support leaf succulents or cacti. As with the majority of areas within the project corridor; heavy cattle grazing was evident in this community.

Scrub-Grassland (Semidesert), Mixed Grass Series

Found on a variety of soils at elevations, this community is the most important grassland series in Arizona and is quite diverse. Native bunch-grasses and fire-tolerant species of this series have suffered from cattle grazing and fire suppression, thus permitting the proliferation of invasive shrubs and cacti. The community is typically made up of shrubs and succulents scattered among mixed stands of perennial bunch-grasses and annual grasses of uniform height. It is the most widely distributed community within the project corridor, and is composed of grassy landscapes broken up by widely scattered scrub trees. This community comprises the vast majority of the project corridor and 100 percent of the temporary staging areas. Along washes within the scrub-grassland communities were narrow bands of Riparian Deciduous Forest that contained similar canopy and understory species of the Madrean Evergreen Woodlands.

8.1.2 Wildlife and Aquatic Resources

The native faunal components of southeastern Arizona include 370 species of birds, 109 mammal species (Lowe 1964, Hoffmeister 1986), 23 amphibian species (Lowe 1964, Lowe and Holm 1992), and 72 species of reptiles (Lowe 1964, U.S. Department of Interior [USDOI] 1989, USACE 1990). Fish diversity in the major river basins and springs of the study area is relatively low and many species are not native (Minckley 1973; Rinne and Minckley 1991; Robbins et al. 1991). The Santa Cruz River system is known to support 12 fish species.

Numerous wildlife and aquatic species have been documented within and near the project corridor and its ROI as a result of past biological surveys. In-depth discussions of the wildlife and aquatic resources that occur within the ROI and project corridor are provided in the 2004 TVB EA and the 2007 Fence EA (CBP 2004a and 2007); those discussions are incorporated herein by reference. In summary, some of the more common birds observed include: white-winged dove (*Zenaida asiatica*), Chihuahuan raven (*Corvus cryptoleucus*), Mexican jay (*Aphelocoma ultramarine*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), Gambel's quail (*Callipepla gambelii*), scaled quail (*Callipepla squamata*), ash-throated flycatcher (*Myiarchus cinerascens*), western kingbird (*Tyrannus verticalis*), black-throated sparrow (*Amphispiza bilineata*), and lark sparrow (*Chondestes grammacus*), Mammals observed include: desert cottontail (*Sylvilagus audubonii*), antelope jackrabbit (*Lepus alleni*), and mule deer (*Odocoileus hemionus*). The Sonoran spotted whiptail (*Aspidoscelis sonorae*) is the only reptile species observed during recent surveys.

The results of recent pedestrian surveys performed February and April 2008 are presented in Appendix D. Additional bird species observed during the surveys included morning dove (*Zenaida macroura*), great horned owl (*Bubo virginianus*), gila woodpecker (*Melanerpes uropygialis*), Northern flicker (iColaptes auratus), California quail (*Callipepla californica*), Montezuma quail (*Cyrtonyx montezumae*), killdeer (*Charadius vociferus*), loggerhead shrike (*Lanius ludovicianus*), savannah sparrow (*Passerculus sandwichensis*), verdin (*Auriparus flaviceps*), cactus wren (*Campylorhynchus brunneicapillus*), Northern cardinal (*Cardinalis cardinalis*), and greater roadrunner (*Geococcyx californianus*). Black-tailed jackrabbit (*Lepus californicus*) and coyote (*Canis latrans*) were the only two mammals observed.

Among the habitats found in the vegetation types described in the previous subsection, those occurring in riparian areas (cottonwood–willow riparian woodlands) are the most important for supporting wildlife. These riparian-associated communities are particularly important to vertebrates, whose density and diversity within these communities are two to three times greater than in the surrounding habitats (CBP 2004a).

8.1.3 Protected Species and Critical Habitat

A total of 16 Federally protected species and three candidate species (Table 8-1) have the potential to occur within Santa Cruz County (USFWS 2007). Of these, 10 are

potentially found within or near the project corridor. A brief description of these 10 species and their habitat requirements are presented in the following paragraphs.

Table 8-1. Federally-listed and Proposed Species Potentially Occurring within Santa Cruz County, Arizona

Common/Scientific Name	Federal Status	Habitat	Potential to Occur within the Project Region
PLANTS			
Canelo Hills ladies'-tresses (*Spiranthes delitescens*)	E	Finely grained, highly organic, saturated soils of cienegas.	No – No saturated soils located in the project corridor.
Huachuca water umbel (*Lilaeopsis schaffneriana* spp. *recurva*)	E	Cienegas, perennial low gradient streams, wetlands	**Yes** –known populations in the Santa Cruz River; however, none were noted within the project corridor during recent surveys.
Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*)	E	Sonoran desertscrub or semi-desert grassland communities.	**Yes** – Nogales represents the southernmost portion of its range; however, none were observed within the project corridor footprint
INVERTEBRATES			
Stephan's riffle beetle (*Hetrelmis stephani*)	C	Free-flowing springs and seeps.	No –The project corridor is not located in known habitat.
Huachuca springsnail (*Pyrgulopsis thomsoni*)	C	Aquatic areas, small springs with vegetation and slow moderate flow.	No – No suitable habitat present.
BIRDS			
Yellow-billed cuckoo (*Coccyzus americanus*)	C	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries).	No – No suitable habitat is present.
California brown pelican (*Pelecanus occidentalis californicus*)	E	Feed in shallow estuarine waters; nest on small coastal islands.	No – No suitable habitat present.
Mexican spotted owl (*Strix occidentalis lucida*)	T	Nests in canyons and dense forests with multi-layered foliage structure.	**Yes** – Critical habitat designated east of project corridor; however, no coniferous forests exist within or adjacent to the project corridor.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	E	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	**Yes** – Potential foraging and nesting habitat may be present within the Santa Cruz River system; however, within the project corridor there is no suitable habitat.

Table 8-1. continued

Common/Scientific Name	Federal Status	Habitat	Potential to Occur within the Project Region
AMPHIBIANS			
Chiricahua leopard frog (*Rana chiricahuensis*)	T	Streams, rivers, backwaters, ponds, and stock tanks.	**Yes** – Potentially suitable habitat may exist in perennial pools of the Santa Cruz River floodplain and its tributaries as well as nearby stock tanks.
Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*)	E	Stock tanks and impounded cienegas in San Rafael Valley, Huachuca Mountains.	No – The project corridor is not located in known habitat.
MAMMALS			
Jaguar (*Panthera onca*)	E	Found in tropical rainforests, arid scrub, and wet grasslands and prefer dense forests or swamps with a ready supply of water	**Yes** – Sightings have been documented west of the project corridor within the CNF.
Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)	E	Desertscrub habitat with agave and columnar cacti present as food plants.	**Yes** – Potential foraging habitat but no suitable roosting habitat present.
Ocelot (*Leopardus pardalis*)	E	Humid tropical and sub-tropical forests, savannahs, and semi-arid thornscrub.	**Yes** – Potentially suitable habitat exists in densely vegetated areas of the Santa Cruz River floodplain and its tributaries.
FISHES			
Desert pupfish (*Cyprinodon macularius*)	E	Shallow springs, small streams, and marshes.	No – Native Arizona populations located on Organ Pipe Cactus National Monument and additional refugia populations north of project corridor.
Gila chub (*Gila intermedia*)	E	Pools, springs, cienegas, and streams.	**Yes** – Potentially suitable habitat exists in the Santa Cruz River system.
Gila topminnow (*Poeciliopsis occidentalis occidentalis*)	E	Small streams, springs, cienegas and vegetated shallows.	**Yes** – Potentially suitable habitat exists in the Santa Cruz River system.
Sonora chub (*Gila ditaenia*)	T	Perennial and intermittent shallow to moderate streams with boulders and cliffs.	No – The project corridor is not located in known habitat.

Legend: E – Endangered T – Threatened C – Candidate
Source: USFWS 2007

Jaguar

The jaguar is the largest and most robust of the North American cats. The southwestern U.S. and Sonora, Mexico, are the extreme northern limits of the jaguar's range, which primarily extends from central Mexico, south through Central and South America to northern Argentina (Hatten et al. 2002). The jaguar is found near water in the warm tropical climate of savannahs and forests. Information on jaguar ecology and

behavior, especially at the northern edge of the species' range, is very limited. Habitat studies in the core part of their range indicate a close association with water, dense cover, and sufficient prey, and an avoidance of highly disturbed areas (Hatten et al. 2002). Jaguar distribution patterns over the last 50 years and recent observations of individuals suggest that southeast Arizona is the most likely area for future jaguar occurrence in the U.S. (Hatten et al. 2002).

Ocelot

The ocelot inhabits desertscrub communities in Arizona (AZGFD 2004). The critical component in suitable habitat for the ocelot is dense cover. 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 1990). The historic range of the ocelot includes southern Texas and Arizona to northern Argentina (USFWS 1990). Virtually nothing is known of the ocelot in Arizona, but reports of ocelots in southeastern Arizona warrant further investigation of its status in Arizona and northern Sonora.

Lesser long-nosed bat

The lesser long-nosed bat was listed as endangered on September 30, 1988 (53 FR 38456*).* Lesser long-nosed bats are a nectar-, pollen-, and fruit-eating species that migrate into southern New Mexico and Arizona seasonally from Mexico. Scattered small agave plants have to potential to occur within the project corridor and could provide potential foraging habitat.

Pima pineapple cactus

The Pima pineapple cactus was designated as endangered on September 23, 1993 (58 CFR 49875). The Pima pineapple cactus is found at elevations between 2,300 and 4,500 feet in Pima and Santa Cruz Counties. Pima pineapple cacti are 4 to 18 inches tall, dome-shaped, with silky yellow flowers that bloom in early July with summer rains (58 CFR 49875). They are found in alluvial basins or on hillsides in semi-desert grassland and Sonoran desertscrub. The project corridor lies in the southernmost portion of the Pima pineapple cacti known range. The species occupies habitats that are flat and sparsely vegetated. Suitable habitat for the Pima pineapple cactus exists throughout the project area; however, recent surveys of the project corridor indicated that no Pima pineapple cactus specimens were observed within the project footprint.

Huachuca water umbel

The Huachuca water umbel, a member of the parsley family, is a herbaceous semi-aquatic perennial (AZGFD 2003). Flowering has been observed from March through October, with fruit forming in late fall. However, the Huachuca water umbel is thought to reproduce primarily through rhizomes. The rhizomes of the Huachuca water umbel branch freely, forming large mats, but require an intermediate level of flooding frequency. The plant does not compete well with larger, semi-aquatic species such as sedges and bulrushes, but populations can be destroyed when floods are too frequent. 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 an extended seed dormancy period (AZGFD 2003).

Huachuca water umbel inhabits southwestern New Mexico, southeastern Arizona, and Sonora, Mexico (AZGFD 2003). In Arizona, Huachuca water umbel has been found in three counties. In Cochise County, it has been found in the San Bernadino National Wildlife Refuge, Leslie Canyon National Wildlife Refuge, the Huachuca Mountains, the Babocomari River, the San Pedro River area, and at Saint David. In Santa Cruz County, it has been found near Sonoita Creek, Papago Springs, Canelo Hills/Turkey Creek, on the Audubon Research Ranch, and San Rafael Valley. However, no Huachuca water umbels were observed within the project corridor during recent surveys.

Mexican spotted owl

Mexican spotted owls (MSO) are mostly solitary outside of the breeding season (AZGFD 2005). They roost during the day and hunt at dusk or at night. MSOs nest, roost, and forage in a diverse array of biotic communities. The mixed-conifer forest type is the most common habitat used for these activities throughout most of its range (USFWS 1995). In southern Arizona, Madrean pine-oak forests are also commonly used for habitat (USFWS 1995). 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 to 9,000 ft above mean sea level (amsl). Foraging and juvenile dispersal corridors are often open, oak-dominated habitats. Sites with cool microclimates appear to be of importance or are preferred for nesting (USFWS 1995).

The MSO's historic range is southern Utah and Colorado south through Arizona and New Mexico to the Mexican Plateau (states of Michoacan and Guanajuato). It currently occupies most of its historic range; however, it does not occur uniformly throughout its range (USFWS 1995). The MSO has not recently been reported along major riparian corridors in Arizona and New Mexico, nor in historically documented areas of southern Mexico (USFWS 1995). In Arizona, the MSO is patchily distributed in forested mountains statewide (AZGFD 2005). There are no coniferous forests within or adjacent to the project corridor that would support MSO.

Southwestern willow flycatcher

Southwestern willow flycatchers migrate to breeding territories by late April to early May and leave for wintering grounds in August and September (AZGFD 2002b). The southwestern willow flycatcher occurs in riparian habitats associated with dense growths of willows, mulefat (*Baccharis salicifolia*), arrowweed (*Pluchea sericea*), buttonbush (*Cephalanthus occidentalis*), tamarisk (*Tamarix* sp.), Russian olive (*Eleagnus angustifolia*), often with a scattered overstory of cottonwood (AZGFD 2002b). These habitats tend to be rare, widely separated, small, and usually separated by vast expanses of arid lands. Preferred habitats tend to be classified as forested wetlands or scrub-shrub wetlands.

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. In

Arizona, the southwestern willow flycatcher breeds in large numbers along the lower San Pedro River and the Gila River (U.S. Geological Survey [USGS] 2003). Although the Santa Cruz River system does support southwestern willow flycatcher populations, the riparian corridor within and adjacent to the project corridor does not contain the structural or species diversity or width to provide suitable habitat for breeding or nesting birds.

Gila chub

Gila chubs are normally found in the smaller headwater streams, cienegas, and springs or marshes of the Gila River basin in Arizona and New Mexico and in the Santa Cruz and San Pedro rivers in Arizona and Mexico (AZGFD 2002a). Adults prefer habitats that consist of deep pools with heavily vegetated margins and undercut banks. Juveniles prefer habitats with riffles, pools, or undercut banks of runs. The associated plant community is a broadleaf riparian habitat consisting of cottonwood (*Populus* sp.), willow (*Salix* sp.), ash (*Fraxinus* sp.), alder (*Alnus* sp.), sycamore (*Platanus* sp.), walnut (*Juglans* sp.), and desert broom (*Baccharis* sp.) in association with submerged aquatic vegetation typical of cienega and marsh habitats. Gila chubs are usually found in association with Gila topminnow, desert and Sonora sucker, and longfin and speckled dace (AZGFD 2002a).

Historically, Gila chubs were found in headwater streams of the Gila River drainage in Arizona and New Mexico, and likely in the San Pedro and Santa Cruz River systems in Sonora, Mexico (AZGFD 2002a). In Arizona, Gila chubs are found in the following drainages: Cienega Creek, Sabino Canyon, and Sheehy Spring of the Santa Cruz River; Eagle, Bonita, Harden, and 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 basin and Fish and Cave creeks of the Salt River basin. There is no suitable habitat for Gila chub within the project corridor.

Gila Topminnow

The Gila topminnow is one of two subspecies of the Sonoran topminnow (*Poeciliopsis occidentalis*) (AZGFD 2001a). This species prefers lower-elevation (below 5,000 ft amsl) shallow, warm, fairly quiet waters with dense aquatic vegetation and algal mats, usually along stream margins or below riffles, with sandy substrates sometimes covered with organic mud and debris (Weedman 1998). Topminnows usually occupy pools, glides, and backwaters more frequently than marshes or areas of fast flow. They can withstand water temperatures from near freezing up to 90 to 100 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 parts per million, and salinity ranging from fresh water (near zero parts per thousand) to sea water (32 parts per thousand) (Weedman 1998).

Historically, the Gila topminnow was widespread in the Gila River drainage below 5,000 ft amsl in New Mexico, and Arizona (AZGFD 2001a). 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 (AZGFD 2001a). The Gila topminnow is known to have occurred in the San Francisco River at Frisco Springs, New Mexico and in Arizona along the main stem of the Gila River, Salt River, Tonto Creek, San Pedro River, Santa Cruz River, Sonoita Creek, Cienega Creek, and Sabino Canyon. They likely were once abundant in the Lower Colorado River, Verde River, and San Simon River in Arizona. They are also known to occur throughout the Rios de la Concepcion and Sonora in northern Sonora, Mexico (Weedman 1998). Although Gila topminnow could be found within the Santa Cruz River basin, the topminnow is not expected to occur within the project corridor. No recent records of its presence has been documented in this region and recent observations at the Santa Cruz River within the project corridor indicated an absence of this species.

Chircahua leopard frog

The Chiricahua leopard frog is one of seven known leopard frogs found in Arizona (AZGFD 2001b). This species lives in a variety of water sources including rocky streams with deep rock-bound ponds, river overflow pools, oxbows, permanent springs, stock tanks, and ponds (AZGFD 2001b). 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.

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 (AZGFD 2001b). 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). Stock tanks and other intermittent pools could occur in the project region, although no suitable habitat to support the Chiricahua leopard frog occurs within the project corridor.

State

The Arizona Natural Heritage Program (ANHP) maintains a list of species with special status in Arizona. The ANHP list includes flora and fauna whose occurrence in Arizona is or may be in jeopardy, or has known or perceived threats or population declines (AZGFD 2006). The ANHP list is provided in Appendix E. These species are not necessarily the same as those protected under the ESA of 1973, as amended.

The project corridor could be considered suitable habitat for various state sensitive bird, mammal, and plant species; however, no state sensitive species where observed during the February and April 2008 pedestrian surveys.

8.2 ENVIRONMENTAL CONSEQUENCES

The Planned Action will result in the permanent loss of 116 acres of vegetation, which includes 106 acres of Scrub-Grassland, 8 acres of Madrean Evergreen Woodlands, and less than 2 acres of Cottonwood-Willow. Scrub-Grassland is dominated by herbaceous species and, therefore, would be the most resistant to disturbance. While not as abundant, due to its affinity for washes, the Cottonwood-Willow Woodland is common both locally and regionally; thus, degradation or loss of a small portion of this community will be a moderate impact within a local or regional context. Cottonwood-Willow is rather unique to major washes and southwestern river systems. This community is important habitat to many riparian wildlife and aquatic species; therefore, the loss of any such community, regardless of size, is undesirable. However, the loss of 2 acres of such habitat will be offset by the indirect benefits to this community from preventing the impacts continued of illegal traffic.

Storage of equipment and materials at the temporary staging areas will result in the temporary disturbance of 26 acres of the common Scrub-Grassland community. Upon completion of construction activities, natural vegetation will be allowed to regenerate from the existing seed bank, undamaged root stocks of shrubs, and stem segments of cacti, or undergo active rehabilitation if deemed necessary. Therefore, there will be only negligible impacts within staging areas.

Operation of temporary lighting will result in negligible indirect impact on vegetation adjacent to the project corridor. The impact on vegetation communities from temporary lighting will not inhibit ecological processes, population size, or individual fecundity of any plant species adjacent to the project corridor.

8.2.1 Wildlife

The Planned Action will have a direct impact on wildlife, with a loss of 116 acres of habitat from construction of the primary pedestrian fence and maintenance road. This impact will be negligible due to existing disturbances and the vast areas of similar habitat north of the project corridor. Additionally, some displacement of wildlife will occur due to construction-related disturbances (e.g., noises and temporary nighttime lighting). However, these effects will be considered minor due to the similar habitat adjacent to the project corridor and because of the short duration of construction activities.

There will be a moderate impact associated with restriction of transboundary movement of wildlife. While a primary pedestrian fence will serve as a physical barrier to many wildlife species, particularly large mammals such as mule deer that migrate north and south of the U.S./Mexico border, corridors for wildlife movement will still exist. By design, the bollard-style fence will contain openings that are large enough to allow transboundary migration of small mammals, reptiles, and amphibians. Thus, the primary pedestrian fence will not affect the genetic variability of such species, especially since they are regionally common.

There will be a temporary impact on wildlife species from increased noise during construction. Physiological responses from noise range from minor responses, such as an increase in heart rate, to more damaging effects on metabolism and hormone balance. Long-term exposure to noise can cause excessive stimulation to the nervous system and chronic stress that is harmful to the health of wildlife species and their reproductive fitness (Fletcher 1990). Behavioral responses vary among species of animals and even among individuals of a particular species. Variations in response may be due to temperament, sex, age, or prior experience. Minor responses include head-raising and body-shifting, and more disturbed mammals will usually travel short distances. Panic and escape behavior results from more severe disturbances, causing the animal to leave the area (Busnel and Fletcher 1978). Since the most active period of movement for most wildlife species is during nighttime or low daylight hours, and construction activities are expected to be conducted during daylight hours to the maximum extent practicable, temporary impacts of noise on wildlife species are expected to be negligible.

Construction and operation of TI will increase border security in the project corridors and may result in a change to illegal traffic patterns. However, changes to illegal alien traffic patterns result from a myriad of factors in addition to USBP operations and therefore are considered unpredictable and beyond the scope of this ESP. Beneficial impacts on wildlife populations and habitats located north of the project corridor are also anticipated from the reduction of illegal pedestrian traffic and consequent USBP enforcement actions.

Since construction is expected to begin sometime at summer of 2008, avoidance of migratory bird nesting season (March through September) is not likely possible. Therefore, preconstruction surveys to identify nesting activity will be conducted, and USFWS and AZGFD will be notified of the results. Any active nests occupied by migratory bird species will be avoided to the extent practicable.

8.2.2 Protected Species

Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the ESA, for the TI segments addressed in this ESP, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP supports this objective and has applied the appropriate standards and guidelines associated with the ESA as the basis for evaluating potential environmental impacts and appropriate mitigations.

Suitable habitat conditions for the jaguar, lesser long-nosed bat, Gila topminnow, Pima pineapple cactus, and Huachuca water umbel occur within the project region. However, none of these species were observed during the February and April 2008 surveys or previous surveys conducted as part of other EAs. The Planned Action may affect, but is not likely to adversely impact the jaguar and lesser long-nosed bat. Disturbances of habitat and travel corridors and loss of forage species would be minimal compared to the surrounding available habitat.

While avoidance will be the primary conservation measure, it can not always be achieved; thus, CBP has prepared a list of appropriate BMPs (see Appendix B) for the protected species. This list of BMPs was developed in close coordination with USFWS and is specific to CBP's planned TI construction and operation activities. The decision to install Normandy Style vehicle fence within the Santa Cruz River floodplains, rather than primary pedestrian fence, avoids potential impacts to Huachuca water umbel and Gila topminnow, even though neither species was observed within the project corridor. BMPs for these and other species are summarized below:

- CBP will develop (in coordination with USFWS) a training plan regarding Trust Resources for construction and maintenance personnel. The program will include the following topics: occurrence of the listed and sensitive species in the area, their general ecology, sensitivity of the species to human activities, legal protection afforded these species, reporting requirements, and project features designed to reduce the impacts to these species and promote continued successful occupation of the project area environs.
- Individual animals found in the project area should be relocated by a qualified specialist (an individual or agency personnel with permits to handle the species) to a nearby safe location in accordance with accepted species handling protocols. This is particular to Chiricahua leopard frogs.
- All construction and maintenance projects in habitats that support Federally protected species should have a designated biological monitor on site during the work. The biological monitor should be in charge of implementing and documenting construction-related BMPs as designed for the project to reduce the potential for adverse effects to the species or their habitats. Reports from the biological monitor should be used for development of the post-construction report.
- Consideration will be given to proper design and locating roads such that the potential for entrapment of surface flows within the roadbed due to grading should be avoided or minimized. Depth of any pits created will be minimized so animals do not become trapped.
- Materials such as gravel or topsoil will be obtained from existing developed or previously used sources, not from undisturbed areas adjacent to the project area.
- Areas already disturbed by past activities or those that will be used later in the construction period will be used for staging, parking, and equipment storage, to the maximum extent practicable.
- Surface water from untreated sources, including water used for irrigation purposes, will not be used for construction or maintenance projects located within 1 mile of aquatic habitat for protected aquatic species. Groundwater or surface water from a treated municipal source will be used when close to such habitats.
- Construction will avoid areas containing columnar cacti (saguaro, organ pipe) or agaves that provide the forage base for the lesser long-nosed bat, to the maximum extent practicable.

- Salvage of individual Pima pineapple cacti, if any undiscovered specimens are found, will be considered only when on-site or off-site habitat conservation is not possible and death of the cacti is unavoidable.
- Maintenance activities in Pima pineapple cactus habitat should not increase the existing disturbed areas, subsequent to the construction of the project.
- Use of existing roads and trails should be maximized in areas of suitable habitat for the Pima pineapple cactus. Maps of suitable habitat areas should be available and protection of the Pima pineapple cactus stressed in environmental education for CBP personnel and contractors involved in construction or maintenance of facilities.
- To prevent entrapment of wildlife species during emplacement of vertical posts/bollards, all vertical fence posts/bollards that are hollow (i.e., those that will be filled with a reinforcing material such as concrete), shall be covered so as to prevent wildlife from entrapment. Covers will be deployed from the time the posts or hollow bollards are erected to the time they are filled with reinforcing material.

SECTION 9.0
CULTURAL RESOURCES

9.0 CULTURAL RESOURCES

9.1 AFFECTED ENVIRONMENT

9.1.1 Cultural Resources Overview

A cultural resources overview of the project region is incorporated herein by reference from the 2003 EA (CBP 2003). In summary, the cultural setting of the project area is generally divided into six different periods: Pre-Clovis, Paleoindian, Archaic, Formative, Late Prehistory and Protohistory, and Spanish Exploration and Settlement. These periods are commonly subdivided into smaller temporal phases based on particular characteristics of the artifact assemblages encountered in each of three archaeological regions within southern Arizona.

9.1.2 Previous Investigations

Past cultural investigations for the project corridor are described in the 2003 EA and the descriptions are incorporated herein by reference (CBP 2003). In summary, a literature review was conducted at the Arizona State Museum, Arizona SHPO office, and CNF. A total of 38 recorded cultural resources surveys were previously conducted within 1 mile of the project corridor.

9.1.3 Current Investigations

Pedestrian surveys were conducted along the project corridor in February, June and July 2008 (Moore and Carpenter 2008). Five newly recorded sites, twenty-five isolated artifact occurrences and five previously identified sites were relocated within the current investigations. Two of the previously recorded sites AR 03-05-03-368 and AR 03-05-03-369 were combined and assigned one ASM number (AZ EE:9:257{ASM}) bringing the total number of cultural resources sites documented in the current investigation to nine. Of the nine cultural resources documented in the current investigations six are recommended eligible for NRHP listing. Five of these eligible sites are International Border Monuments. One of the eligible cultural resource sites is a prehistoric lithic scatter that straddles the project APE.

Three of the sites relocated in the current investigation were found to be heavily deflated and do not meet the Arizona State Museum standards for sites. These sites were recommended ineligible for NRHP.

9.2 ENVIRONMENTAL CONSEQUENCES

Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the NHPA, for the TI segments addressed in this ESP, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP supports this objective and has applied the appropriate standards and guidelines associated with the NHPA as the basis for evaluating potential environmental impacts and appropriate mitigations.

Based on the records search and current surveys, five Border Monuments (117, 117A, 118, 118A and 119) are the only known historic properties within the project corridor and are eligible for listing on the NRHP. The monuments will be avoided by construction activities. A temporary barrier will be placed around the monuments during construction activities as a mitigation measure, and all construction and earthwork in the proximity will be monitored by a qualified archaeologist.

Site AZ EE:9:257 is recommended eligible for NRHP listing and falls in the direct path of the APE. This site is recommended to be avoided and if avoidance is not possible a testing program should be implemented to mitigate adverse effects.

Construction and operation of TI will increase border security in the project corridors and may result in a change to illegal traffic patterns. However, changes to illegal alien traffic patterns result from a myriad of factors in addition to USBP operations and therefore are considered unpredictable and beyond the scope of this ESP.

SECTION 10.0
SOCIOECONOMICS

10.0 SOCIOECONIMICS

10.1 AFFECTED ENVIRONMENT

The socioeconomic environment of the project region is described in detail in the 2003 CBP Nogales Infrastructure Improvements EA, the 2004 TVB EA, the 2007 Road EA, and the 2007 Fence EA; the descriptions are incorporated herein by reference (CBP 2003, CBP 2004a, CBP 2007a-c). In summary, the previous EAs examined population structure, housing, and environmental justice and protection of children.

The ROI for the Planned Action is Santa Cruz County. The estimated 2005 population of Santa Cruz County was 44,055. The City of Nogales accounts for almost half (21,830) of the total residents of Santa Cruz County (Arizona Department of Commerce 2007). The racial mix of Santa Cruz County consists predominantly of Caucasians (76 percent) and people claiming to be of some race other than Caucasian, African-American, Native American, Asian, Native Hawaiian, and other Pacific Islander (21 percent). About 81 percent of the total Caucasian population of Santa Cruz County claim to be of Hispanic origin (Arizona Department of Commerce 2007).

The total number of jobs in the study area in 2005 was 15,956, an increase of 18 percent over the number of jobs in 1990 (13,491) (U.S. Bureau of Economic Analysis 2003). The service industry provided the most jobs, followed by the retail trade industry and the government sector. The 2000 annual average unemployment rate for Santa Cruz County was 13.9 percent.

10.2 ENVIRONMENTAL CONSEQUENCES

Although the Secretary's waiver means that CBP no longer has any specific legal obligations under EO 12898 or EO 13045 for the TI segments addressed in this ESP, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP supports this objective and has applied the appropriate standards and guildelines associated with these EOs, as the basis for evaluating potential environmental impacts and appropriate mitigations.

While some residential areas and businesses (e.g., a golf course community) are located north of the project corridor along construction access routes, no housing units or businesses are located within the project corridor or adjacent to it, so no displacement of people, houses, or businesses will occur under the Planned Action. Land acquired through fee title will result in a loss of property taxes, as 111 acres of land will be transferred to the government, resulting in a minor, yet long-term adverse economic impact on the Santa Cruz County tax base.

During construction of the fence and road, there will be temporary, minor increases in population from the addition of construction crews in the area. Construction crews will likely stay at nearby hotels in Nogales. As a result, no additional demand for housing

will be anticipated during construction. The construction of the fences and roads will not require any additional demands on public services during or after construction.

The Planned Action will have a direct beneficial impact on the income of the local area resulting from the rental of construction equipment and purchase of materials, such as fuel and cement, during the construction period. While the exact amount of raw material expenditures is not known, these expenditures are expected to have a moderate, short-term beneficial impact on income.

Construction and operation of TI will increase border security in the project corridors and may result in a change to illegal traffic patterns. However, changes to illegal alien traffic patterns result from a myriad of factors in addition to USBP operations and therefore are considered unpredictable and beyond the scope of this ESP.

SECTION 11.0
UTILITIES AND INFRASTRUCTURE

11.0 UTILITIES AND INFRASTRUCTURE

11.1 AFFECTED ENVIRONMENT

The project is located within a remote and undeveloped area east of Nogales, Arizona, where no public roadways exist near the project corridor. The nearest roadways are rural all-weather aggregate roads connecting to Arizona State Highway (State Hwy) 80 (Patagonia Hwy). As identified in Figure 2-1, these roadways include David Drive, Royal Road, Kino Springs Drive, and El Camino Real. Access to the project corridor is provided via connections between these public roadways, USFS Road 4903 and the three privately-owned access roads. There are two sparsely developed residential areas located between the project corridor and State Hwy 80. David Road and North Royal Road provide access to State Hwy 80 through a rural residential area approximately 1 mile north of the project corridor on the western portion of the corridor, while the El Camino Real and Kino Drive provide access through a small developed golf course community located almost 3 miles north of the project corridor.

11.2 ENVIRONMENTAL CONSEQUENCES

The Planned Action will have only minor and temporary impacts on public roadways and traffic, as construction activities are expected to last less than 6 months. During construction, traffic from over-sized vehicles and material transport through residential areas will likely impose some minimal delays. The contractor will be required to coordinate and comply with transportation requirements and safety measures identified by the Santa Cruz County Public Works Department-Transportation Division to provide safe and efficient movement of equipment and materials to the project corridor. The potential for delays and disruption of traffic will not occur on a daily basis, as the heavy equipment transport will occur intermittently, and the equipment will be stockpiled at one of the temporary staging areas. Therefore, local and regional impacts on public roadways and traffic will be minimal and will return to near-normal conditions following the construction period.

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SECTION 12.0
HAZARDOUS MATERIALS

12.0 HAZARDOUS MATERIALS

12.1 AFFECTED ENVIRONMENT

Hazardous materials were discussed in the 2004 TVB EA and the discussion is incorporated herein by reference (CBP 2004a). Unregulated solid waste due to the increase of IA vehicle and foot traffic along the U.S./Mexico border has become a severe problem in recent years. BLM estimates that approximately 4 million pounds of trash was deposited by IAs in southern Arizona in 2004 and 2005 (Davis 2006). Clothing, water bottles, food, and other debris have been the most common waste materials observed during past surveys of the project corridor.

A Phase I environmental site assessment or visual inspection will be completed within the project corridor to make a determination of the location of any *recognized environmental conditions*. However, preliminary searches of data and maps on the USEPA's *Envirofacts Data Warehouse* web site revealed no known hazardous waste sites located within the project corridor. In addition, during cultural and biological surveys that were conducted along the project corridor, no visible evidence of potential environmental liabilities was observed.

12.2 ENVIRONMENTAL CONSEQUENCES

Although the Secretary's waiver means that CBP no longer has any specific legal obligations under the Comprehensive Environmental Response, Compensation and Liability Act, for the TI segments addressed in this ESP, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP supports this objective and has applied the appropriate standards and guidelines associated with the CERCLA as the basis for evaluating potential environmental impacts and appropriate mitigations.

Although no hazardous waste is anticipated to be stored within the project corridor, POL will be stored at the temporary staging areas in order to maintain and refuel construction equipment. However, these activities will include primary and secondary containment measures. Clean-up materials (e.g., oil mops) will also be maintained at the site to allow an immediate response in case an accidental spill occurs. Drip pans will be provided for the power generators and other stationary equipment to capture any POL that is accidentally spilled during maintenance activities or from equipment leaks.

Sanitation facilities will be provided during construction activities, and waste will be collected and disposed of by licensed contractors. No gray water will be discharged to the ground. Disposal contractors will use only established roads to transport equipment and supplies, and all waste will be disposed of in strict compliance with Federal, state, and local regulations, in accordance with the contractor's permits.

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SECTION 13.0
RELATED PROJECTS AND POTENTIAL EFFECTS

13.0 RELATED PROJECTS AND POTENTIAL EFFECTS

This section of the ESP addresses the potential cumulative impacts associated with the implementation of the Planned Action and other projects/programs that are planned for the region. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

USBP has been conducting law enforcement actions along the border since its inception in 1924, and has continually transformed its methods as new missions, IA modes of operations, agent needs, and national enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, and roads and fences have affected thousands of acres with synergistic and cumulative impacts on soil, wildlife habitats, water quality, and noise. Beneficial effects have resulted from the construction and use of these roads and fences, including but not limited to: increased employment and income for border regions and surrounding communities, protection and enhancement of sensitive resources north of the border; reduction in crime within urban areas near the border; increased land value in areas where border security has increased; and increased knowledge of the biological communities and pre-history of the region through numerous biological and cultural resources surveys and studies.

With continued funding and implementation of CBP's environmental conservation measures, including environmental education of its agents, use of biological and archaeological monitors, wildlife water systems, and restoration activities, adverse impacts of future and ongoing projects would be prevented or minimized. However, recent, ongoing, and reasonably foreseeable proposed projects will result in cumulative impacts. General descriptions of these types of activities are discussed in the following paragraphs.

Cumulative Fencing along Southwestern Border. There are currently 62 miles of landing mat fence at various locations along the U.S./Mexico international border (CRS 2006); 14 miles of single, double, and triple fence in San Diego, California; 70 miles of new primary pedestrian fence at various locations along the U.S./Mexico international border; and fences at POE facilities throughout the southern border. In addition, 225 miles of fence (including the 14 miles planned in the USBP Yuma Sector) are currently being planned for Texas, New Mexico, Arizona, and California.

***Past Actions*.** Past actions are those within the cumulative effects analysis areas that have occurred prior to the development of this ESP. The effects of these past actions are generally described throughout the previous sections.

***Present Actions*.** Present actions include current or funded construction projects, USBP or other agency actions in close proximity to the planned fence locations, and current resource management programs and land use activities within the cumulative effects analysis areas. Ongoing actions considered in the cumulative effects analysis include the following:

- Secure Border Initiative (SBI*net*) Projects – SBI*net* is a comprehensive program focused on transforming border control through technology and infrastructure. The goal of the program is to field the ideal combination of technology, infrastructure, and staffing, and integrate them into a single comprehensive border security suite for DHS. It is the goal of SBI*net* to have operational control of both the northern and southern borders within 5 years.

***Reasonably Foreseeable Future Actions*.** Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with respect to their effects. The following activities are reasonably foreseeable future actions:

- SBI*net* Projects - Potential future SBI*net* projects include deployment of sensor technology, communications equipment, command and control equipment, fencing, barriers capable of stopping a vehicle, and any required road or components such as lighting and all-weather access roads. SBI*net* is planning to construct and retrofit a total of approximately 57 towers within the western portion of the Tucson Sector in FY 2008.

Other CBP Projects:

- Construction of Primary Fence. The FY 2007 DHS Appropriations Act provided $1.2 billion for the installation of fencing, infrastructure, and technology along the border (CRS 2006). CBP is proposing to construct up to 225 miles of primary fence in the Rio Grande Valley, Marfa, Del Rio, and El Paso, Texas; Tucson and Yuma, Arizona; El Centro and San Diego, California, sectors. In addition, up to 200 miles of vehicle barriers are also currently being planned in the El Centro, Yuma, Tucson, El Paso and Marfa sectors.

In addition, USBP might be required to implement other activities and operations that are currently not foreseen or mentioned in this document. These actions could be in response to national emergencies or security events like the terrorist attacks on September 11, 2001, or to changes in the mode of operations of cross border violators.

Plans by other agencies that would also affect the region's natural and human environment include various road improvements by Arizona Department of Transportation (ADOT) and/or Santa Cruz County. The majority of these projects would be expected to occur along existing corridors and/or within previously disturbed sites. The magnitude of the impacts would depend upon the length and width of the road right of way (ROW) and the extant conditions within and adjacent to the ROW.

The 2007 Road EA documented several ADOT projects planned in the next 5 years (CBP 2007b). The details of these projects are incorporated herein by reference. Following is a summary of the types of ADOT projects currently in the planning stage:

- Country Club Road-Ruby Road – design of frontage roads
- U.S./Mexico border – Business I-19 roadway improvements
- Junction of State Route-189 and I-19 – roadway improvements
- Doe Street to Baffert Drive – retrofit, sidewalks, landscaping
- Patagonia Lake/Sonoita Creek – design planning
- State Route-82 between Mileposts 38 and 39.5 – slope flattening
- State Route-189 at Milepost 0.095 – drainage improvements
- Mariposa POE – parking lot and road improvements

Other agencies, such as BLM, U.S. Air Force, U.S. Marine Corps, NPS, and USFS, routinely prepare or update Resource Management Plans for the resources they manage. USFS has the responsibility of managing approximately half of all lands within Santa Cruz County. In addition to general range land management, the types of projects conducted by USFS include:

- lake maintenance projects;
- pasture divisions and grazing allotment management plans;
- fuelwood/hazardous fuel reduction plans;
- specific habitat improvement projects;
- facility planning;
- invasive exotic plant management programs;
- land exchanges;
- pipeline/transmission ROWs; and
- mechanical brush control plans.

The City of Nogales is the designated gateway from and to Mexico on the CANAMEX Trade Corridor. The name “CANAMEX” is derived from the country names of Canada, America, and Mexico, where a western trade corridor of 1,700 miles of existing highway and interstate systems connects the three countries. The CANAMEX corridor would likely become one of the most important north/south trade corridors in North America. The state governments of Arizona and Nevada are committed to obtaining funds to construct a four-lane divided highway in anticipation of the CANAMEX Trade Corridor. The completion of these projects would create an uninterrupted north/south highway system down the spine of the CANAMEX Trade Corridor. This project is in the planning stage, and potential impacts are unknown at this time.

A summary of the anticipated cumulative impacts of the Planned Action (i.e., construction of 7.6 miles of TI east of the DeConcini POE) is presented in the following sections. Discussions are presented for each of the resources described previously.

13.1 AIR QUALITY

The emissions generated during and after the construction of the fence will be short-term and minor; thus, no long-term or cumulative major impacts are expected. Although maintenance of the fence and construction/access road will result in cumulative impacts on the region's airshed, these impacts will be minimal, even when combined with the other proposed developments in the border region. No air quality standards will be exceeded, and no obstruction of air quality plans, or exposure of sensitive receptors will occur. BMPs designed to reduce fugitive dust have been and will continue to be standard operating procedure for CBP construction projects. Deterrence of and improved response time to cross border violators, due to the construction of the fence and road, will be expected to reduce the need for future off-road enforcement actions by USBP agents.

13.2 NOISE

Most of the noise generated by the Planned Action will occur during construction and thus will not contribute to cumulative impacts on ambient noise levels. Routine maintenance of the fence and road will result in slight temporary and sporadic increases in noise levels that will continue to occur over the long-term. Potential sources of noise from other projects in combination with routine maintenance are not enough (temporally or spatially) to increase ambient noise levels above the 65 dBA range in the ROI. Thus, the noise generated by the construction and maintenance of the fence and road, when considered with the other existing and proposed projects in the region, will be a minor adverse cumulative impact.

13.3 LAND USE AND AESTHETICS

The Planned Action will affect 116 acres permanently. While an additional 26 acres of equipment staging areas will be temporarily affected, these areas will return to the current use upon completion of construction. Land that is primarily used for cattle grazing and USBP patrol activities will be acquired through lease, easement, or fee title to the government and will become part of the TI system (i.e., road and fence footprint) that provides improved border enforcement. Therefore, this action will have a minor cumulative adverse impact.

There will be no major impact on visual resources from implementing the Planned Action, due in part to the surrounding development and the existing border TI. Construction and maintenance of the primary pedestrian fence, when considered with existing and proposed developments in the surrounding area, including other USBP-proposed TI components (e.g., relocation of 55 permanent lights adjacent to the project corridor [CBP 2007a]), will not have a major cumulative adverse impact on the visual quality of the region. Areas north of the border will experience beneficial, indirect cumulative impacts from the reduction of trash, soil erosion, and wildfires produced by IAs.

13.4 SOILS

The Planned Action and other USBP actions in the area have not reduced prime farmland soils or agricultural production. Pre- and post-construction SWPPP measures will be implemented to control erosion. No inappropriate soil types are located at the project site that will present a safety risk. The impact on 116 acres of permanently altered and 26 acres of temporarily disturbed soils, when combined with past and proposed projects in the region, will be minor to moderate cumulative adverse impact.

13.5 WATER RESOURCES

Coordination with the USACE-Los Angeles District will occur prior to construction within potential jurisdictional WUS to discuss mitigation measures that could be implemented to provide no net loss of the functions of these sensitive resources. The required SWPPP measures will reduce erosion and sedimentation during construction to negligible levels and will eliminate post-construction erosion and sedimentation from the site. The same measures will be implemented for other construction projects; therefore, the cumulative impact of the Planned Action will be minor to moderate.

The Planned Action will have no major impact on floodplains. Fences and roads will be designed to so that floodwater conveyance is not impeded and that flood elevations, frequencies, and durations are not be increased. Therefore, when combined with other existing and proposed projects in the region, any cumulative adverse impacts on floodplains will be negligible.

There will be minor impact on groundwater resources as a result of the withdrawal of 7.6 acre-feet of water for the construction and maintenance of the fence and road. When combined with past and proposed projects in the region, the Planned Action is not considered to have a major cumulative adverse impact.

13.6 VEGETATION COMMUNITIES

Removal of Scrub-Grassland and Riparian Deciduous Forest and Woodland communities (as identified in the Planned Action), will not have a major cumulative impact on vegetation, due to the vast amount of similar habitat contained within and surrounding the project corridor and the juxtaposition of the project corridor with other disturbed and developed areas. Without mitigation to offset potential impacts, the loss of 2 acres of Cottonwood–Willow community will be considered a moderate cumulative impact, due to its importance to many riparian wildlife and aquatic species. However, prior to construction of any proposed project, mitigation measures, as deemed appropriate, will be implemented to offset potential impacts.

Other USBP projects, including vegetation clearing and additional lighting, will have cumulative adverse impacts. The extent of these impacts is not known, since the actions are not planned or defined to date. However, the long-term viability of vegetation communities in the ROI will not be threatened. This loss of vegetative

habitat, when combined with other ground-disturbing or development projects in the ROI, will not have a major cumulative impact on the region's vegetation communities.

13.7 WILDLIFE

Removal of wildlife habitat will have minor cumulative impacts due to the vast amount of similar habitat contained within and surrounding the project corridor.

As a result of past and planned projects within the Tucson Sector, cumulative impacts due to fragmentation of habitat are considered moderate to substantial. Most all of the border within the Tucson Sector will have physical barriers installed once all proposed and planned projects are completed. Many segments of these barriers will be vehicle fence rather than primary pedestrian fence. In addition, even future primary pedestrian fence that is constructed within arroyos or washes would be likely designed and constructed to allow conveyance of flood flows, which would require some small gaps in the fence panels. Thus, there will still be opportunities for transboundary migration.

Due to the vast amount of similar habitat contained within and surrounding the project corridor, the juxtaposition of the project corridor with other disturbed and developed areas, and the fact that there will be gaps in the barriers, the long-term viability of species and communities in the project region will not be threatened. Thus, when combined with other ground-disturbing or development projects in the project region, the Planned Action will not have a major cumulative negative impact on the region's biological resources.

As part of the coordination with USFWS, conservation measures have been developed, as appropriate, to minimize cumulative impacts on protected species. Therefore, this action, when combined with other existing and proposed projects in the ROI, will not jeopardize the continued existence of any species.

13.8 CULTURAL RESOURCES

Six NRHP-eligible sites are within the project corridor. Five of these sites are border monuments and can be avoided by the proposed action. One archaeological site AZ EE:9:257 is recommended to be avoided. If avoidance is not possible testing is recommended to mitigate adverse effects. As a result cultural resources will be affected by the planned action.

13.9 SOCIOECONOMICS

Construction under the Planned Action will result in a temporary, minor and beneficial impact on the region's economy. There will be no long-term or cumulative adverse impact on residential areas, populations, or minority or low-income families.

13.10 HAZARDOUS MATERIALS

Only minor increases in the use of hazardous substances (e.g., POL) could occur as a result of the construction and maintenance of the fence and road. No health or safety risks will be created by the Planned Action. Therefore, the Planned Action, when combined with other ongoing and proposed projects in the region, is not expected to have a major cumulative impact.

13.11 ROADWAYS AND TRAFFIC

The potential for delays and disruption of traffic will not occur on a daily basis, as heavy equipment transport will occur intermittently and equipment will be stockpiled at one of the temporary staging areas. Traffic levels and patterns will return to normal conditions following the construction period. Therefore, the Planned Action, when combined with other currently proposed or ongoing projects within the region, will not have a major cumulative impact.

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SECTION 14.0
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14.0 REFERENCES

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APPENDIX A
Copy of 2008 DHS Border Waiver

FOR FURTHER INFORMATION CONTACT: Ken Hunt, Executive Director, 245 Murray Lane, Mail Stop 0550, Washington, DC 20528, 703–235–0780 and 703–235–0442, *privacycommittee@dhs.gov*.

Purpose and Objective: Under the authority of 6 U.S.C. section 451, this charter establishes the Data Privacy and Integrity Advisory Committee, which shall operate in accordance with the provisions of the Federal Advisory Committee Act (FACA) (5 U.S.C. App).

The Committee will provide advice at the request of the Secretary of DHS and the Chief Privacy Officer of DHS on programmatic, policy, operational, administrative, and technological issues within the DHS that relate to personally identifiable information (PII), as well as data integrity and other privacy-related matters.

Duration: The committee's charter is effective March 25, 2008, and expires March 25, 2010.

Responsible DHS Officials: Hugo Teufel III, Chief Privacy Officer and Ken Hunt, Executive Director, 245 Murray Drive, Mail Stop 0550, Washington, DC 20528, *privacycommittee@dhs.gov*, 703–235–0780.

Dated: April 1, 2008.

Hugo Teufel III,

Chief Privacy Officer.

[FR Doc. E8–7277 Filed 4–7–08; 8:45 am]

BILLING CODE 4410–10–P

DEPARTMENT OF HOMELAND SECURITY

Office of the Secretary

Determination Pursuant to Section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as Amended

AGENCY: Office of the Secretary, Department of Homeland Security.

ACTION: Notice of determination; correction.

SUMMARY: The Secretary of Homeland Security has determined, pursuant to law, that it is necessary to waive certain laws, regulations and other legal requirements in order to ensure the expeditious construction of barriers and roads in the vicinity of the international land border of the United States. The notice of determination was published in the **Federal Register** on April 3, 2008. Due to a publication error, the Project Area description was inadvertently omitted from the April 3 publication. For clarification purposes, this document is a republication of the April 3 document including the omitted Project Area description.

DATES: This Notice is effective on April 8, 2008.

Determination and Waiver

The Department of Homeland Security has a mandate to achieve and maintain operational control of the borders of the United States. Public Law 109–367, 2, 120 Stat. 2638, 8 U.S.C. 1701 note. Congress has provided the Secretary of Homeland Security with a number of authorities necessary to accomplish this mandate. One of these authorities is found at section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (''IIRIRA''). Public Law 104–208, Div. C, 110 Stat. 3009–546, 3009–554 (Sept. 30, 1996) (8 U.S.C 1103 note), as amended by the REAL ID Act of 2005, Public Law 109–13, Div. B, 119 Stat. 231, 302, 306 (May 11, 2005) (8 U.S.C. 1103 note), as amended by the Secure Fence Act of 2006, Public Law 109–367, 3, 120 Stat. 2638 (Oct. 26, 2006) (8 U.S.C. 1103 note), as amended by the Department of Homeland Security Appropriations Act, 2008, Public Law 110–161, Div. E, Title V, 564, 121 Stat. 2090 (Dec. 26, 2007). In Section 102(a) of the IIRIRA, Congress provided that the Secretary of Homeland Security shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the United States border to deter illegal crossings in areas of high illegal entry into the United States. In Section 102(b) of the IIRIRA, Congress has called for the installation of fencing, barriers, roads, lighting, cameras, and sensors on not less than 700 miles of the southwest border, including priority miles of fencing that must be completed by December of 2008. Finally, in section 102(c) of the IIRIRA, Congress granted to me the authority to waive all legal requirements that I, in my sole discretion, determine necessary to ensure the expeditious construction of barriers and roads authorized by section 102 of the IIRIRA.

I determine that the following area of Hidalgo County, Texas, in the vicinity of the United States border, hereinafter the Project Area, is an area of high illegal entry:

- Starting approximately at the intersection of Military Road and an unnamed road (i.e. beginning at the western end of the International Boundary Waters Commission (IBWC) levee in Hidalgo County) and runs east in proximity to the IBWC levee for approximately 4.5 miles.
- Starting approximately at the intersection of Levee Road and 5494 Wing Road and runs east in proximity to the IBWC levee for approximately 1.8 miles.
- Starting approximately 0.2 mile north from the intersection of S. Depot Road and 23rd Street and runs south in proximity to the IBWC levee to the Hidalgo POE and then east in proximity to the new proposed IBWC levee and the existing IBWC levee to approximately South 15th Street for a total length of approximately 4.0 miles.
- Starting adjacent to Levee Road and approximately 0.1 miles east of the intersection of Levee Road and Valley View Road and runs east in proximity to the IBWC levee for approximately 1.0 mile then crosses the Irrigation District Hidalgo County #1 Canal and will tie into the future New Donna POE fence.
- Starting approximately 0.1 mile east of the intersection of County Road 556 and County Road 1554 and runs east in proximity to the IBWC levee for approximately 3.4 miles.
- Starting approximately 0.1 mile east of the Bensten Groves road and runs east in proximity to the IBWC levee to the Progresso POE for approximately 3.4 miles.
- Starting approximately at the Progresso POE and runs east in proximity to the IBWC levee for approximately 2.5 miles.

In order to deter illegal crossings in the Project Area, there is presently a need to construct fixed and mobile barriers and roads in conjunction with improvements to an existing levee system in the vicinity of the border of the United States as a joint effort with Hidalgo County, Texas. In order to ensure the expeditious construction of the barriers and roads that Congress prescribed in the IIRIRA in the Project Area, which is an area of high illegal entry into the United States, I have determined that it is necessary that I exercise the authority that is vested in me by section 102(c) of the IIRIRA as amended. Accordingly, I hereby waive in their entirety, with respect to the construction of roads and fixed and mobile barriers (including, but not limited to, accessing the project area, creating and using staging areas, the conduct of earthwork, excavation, fill, and site preparation, and installation and upkeep of fences, roads, supporting elements, drainage, erosion controls, safety features, surveillance, communication, and detection equipment of all types, radar and radio towers, and lighting) in the Project Area, all federal, state, or other laws, regulations and legal requirements of, deriving from, or related to the subject of, the following laws, as amended: The National Environmental Policy Act (Pub. L. 91–190, 83 Stat. 852 (Jan. 1,

1970) (42 U.S.C. 4321 *et seq.*)), the Endangered Species Act (Pub. L. 93–205, 87 Stat. 884) (Dec. 28, 1973) (16 U.S.C. 1531 *et seq.*)), the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act) (33 U.S.C. 1251 *et seq.*), the National Historic Preservation Act (Pub. L. 89–665, 80 Stat. 915 (Oct. 15, 1966) (16 U.S.C. 470 *et seq.*)), the Migratory Bird Treaty Act (16 U.S.C. 703 *et seq.*), the Clean Air Act (42 U.S.C. 7401 *et seq.*), the Archeological Resources Protection Act (Pub. L. 96–95, 16 U.S.C. 470aa *et seq.*), the Safe Drinking Water Act (42 U.S.C. 300f *et seq.*), the Noise Control Act (42 U.S.C. 4901 *et seq.*), the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*), the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 *et seq.*), the Archaeological and Historic Preservation Act (Pub. L. 86–523, 16 U.S.C. 469 *et seq.*), the Antiquities Act (16 U.S.C. 431 *et seq.*), the Historic Sites, Buildings, and Antiquities Act (16 U.S.C. 461 *et seq.*), the Farmland Protection Policy Act (7 U.S.C. 4201 *et seq.*), the Coastal Zone Management Act (Pub. L. 92–583, 16 U.S.C. 1451 *et seq.*), the Federal Land Policy and Management Act (Pub L. 94–579, 43 U.S.C. 1701 *et seq.*), the National Wildlife Refuge System Administration Act (Pub. L. 89–669, 16 U.S.C. 668dd-668ee), the Fish and Wildlife Act of 1956 (Pub. L. 84–1024, 16 U.S.C. 742a, *et seq.*), the Fish and Wildlife Coordination Act (Pub. L. 73–121, 16 U.S.C. 661 *et seq.*), the Administrative Procedure Act (5 U.S.C. 551 *et seq.*), the Rivers and Harbors Act of 1899 (33 U.S.C. 403), the Eagle Protection Act (16 U.S.C. 668 *et seq.*), the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 *et seq.*), the American Indian Religious Freedom Act (42 U.S.C. 1996), the Religious Freedom Restoration Act (42 U.S.C. 2000bb), and the Federal Grant and Cooperative Agreement Act of 1977 (31 U.S.C. 6303–05).

I reserve the authority to make further waivers from time to time as I may determine to be necessary to accomplish the provisions of section 102 of the IIRIRA, as amended.

Michael Chertoff,

Secretary.

[FR Doc. E8–7450 Filed 4–7–08; 8:45 am]

BILLING CODE 4410–10–P

DEPARTMENT OF HOMELAND SECURITY

Office of the Secretary

Determination Pursuant to Section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, as Amended

AGENCY: Office of the Secretary, Department of Homeland Security.

ACTION: Notice of determination; correction.

SUMMARY: The Secretary of Homeland Security has determined, pursuant to law, that it is necessary to waive certain laws, regulations and other legal requirements in order to ensure the expeditious construction of barriers and roads in the vicinity of the international land border of the United States. The notice of determination was published in the **Federal Register** on April 3, 2008. Due to a publication error, the description of the Project Areas was inadvertently omitted from the April 3 publication. For clarification purposes, this document is a republication of the April 3 document including the omitted description of the Project Areas.

DATES: This Notice is effective on April 8, 2008.

Determination and Waiver

I have a mandate to achieve and maintain operational control of the borders of the United States. Public Law 109–367, 2, 120 Stat. 2638, 8 U.S.C. 1701 note. Congress has provided me with a number of authorities necessary to accomplish this mandate. One of these authorities is found at section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (''IIRIRA''). Public Law 104–208, Div. C, 110 Stat. 3009–546, 3009–554 (Sept. 30, 1996) (8 U.S.C 1103 note), as amended by the REAL ID Act of 2005, Public Law 109–13, Div. B, 119 Stat. 231, 302, 306 (May 11, 2005) (8 U.S.C. 1103 note), as amended by the Secure Fence Act of 2006, Public Law 109–367, 3, 120 Stat. 2638 (Oct. 26, 2006) (8 U.S.C. 1103 note), as amended by the Department of Homeland Security Appropriations Act, 2008, Public Law 110–161, Div. E, Title V, 564, 121 Stat. 2090 (Dec. 26, 2007). In Section 102(a) of IIRIRA, Congress provided that the Secretary of Homeland Security shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the United States border to deter illegal crossings in areas of high illegal entry into the United States. In Section 102(b) of IIRIRA, Congress has called for the installation of fencing, barriers, roads, lighting, cameras, and sensors on not less than 700 miles of the southwest border, including priority miles of fencing that must be completed by December 2008. Finally, in section 102(c) of the IIRIRA, Congress granted to me the authority to waive all legal requirements that I, in my sole discretion, determine necessary to ensure the expeditious construction of barriers and roads authorized by section 102 of IIRIRA.

I determine that the following areas in the vicinity of the United States border, located in the States of California, Arizona, New Mexico, and Texas are areas of high illegal entry (collectively ''Project Areas''):

California

- Starting approximately 1.5 mile east of Border Monument (BM) 251 and ends approximately at BM 250.
- Starting approximately 1.1 miles west of BM 245 and runs east for approximately 0.8 mile.
- Starting approximately 0.2 mile west of BM 243 and runs east along the border for approximately 0.5 mile.
- Starting approximately 0.7 mile east of BM 243 and runs east along the border for approximately 0.9 mile.
- Starting approximately 1.0 mile east of BM 243 and runs east along the border for approximately 0.9 mile.
- Starting approximately 0.7 mile west of BM 242 and stops approximately 0.4 mile west of BM 242.
- Starting approximately 0.8 mile east of BM 242 and runs east along the border for approximately 1.1 miles.
- Starting approximately 0.4 mile east of BM 239 and runs east for approximately 0.4 mile along the border.
- Starting approximately 1.2 miles east of BM 239 and runs east for approximately 0.2 mile along the border.
- Starting approximately 0.5 mile west of BM 235 and runs east along the border for approximately 1.1 miles.
- Starting approximately 0.8 mile east of BM 235 and runs east along the border for approximately 0.1 mile.
- Starting approximately 0.6 mile east of BM 234 and runs east for approximately 1.7 miles along the border.
- Starting approximately 0.4 mile east of BM 233 and runs east for approximately 2.1 miles along the border.
- Starting approximately 0.05 mile west of BM 232 and runs east for approximately 0.1 mile along the border.

• Starting approximately 0.2 mile east of BM 232 and runs east for approximately 1.5 miles along the border.

• Starting 0.6 mile east of Border Monument 229 heading east along the border for approximately 11.3 miles to BM 225.

• Starting approximately 0.1 mile east of BM 224 and runs east along the border for approximately 2.5 miles.

• Starting approximately 2.3 miles east of BM 220 and runs east along the border to BM 207.

Arizona

• Starting approximately 1.0 mile south of BM 206 and runs south along the Colorado River for approximately 13.3 miles.

• Starting approximately 0.1 mile north of County 18th Street running south along the border for approximately 3.8 miles.

• Starting at the Eastern edge of BMGR and runs east along the border to approximately 1.3 miles west of BM 174.

• Starting approximately 0.5 mile west of BM 168 and runs east along the border for approximately 5.3 miles.

• Starting approximately 1 mile east of BM 160 and runs east for approximately 1.6 miles.

• Starting approximately 1.3 miles east of BM 159 and runs east along the border to approximately 0.3 mile east of BM 140.

• Starting approximately 2.2 miles west of BM 138 and runs east along the border for approximately 2.5 miles.

• Starting approximately 0.2 miles east of BM 136 and runs east along the border to approximately 0.2 mile west of BM 102.

• Starting approximately 3 miles west of BM 99 and runs east along the border approximately 6.5 miles.

• Starting approximately at BM 97 and runs east along the border approximately 6.9 miles.

• Starting approximately at BM 91 and runs east along the border to approximately 0.7 miles east of BM 89.

• Starting approximately 1.7 miles west of BM 86 and runs east along the border to approximately 0.7 mile west of BM 86.

• Starting approximately 0.2 mile west of BM 83 and runs east along the border to approximately 0.2 mile east of BM 73.

New Mexico

• Starting approximately 0.8 mile west of BM 69 and runs east along the border to approximately 1.5 miles west of BM 65.

• Starting approximately 2.3 miles east of BM 65 and runs east along the border for approximately 6.0 miles.

• Starting approximately 0.5 mile east of BM 61 and runs east along the border until approximately 1.0 mile west of BM 59.

• Starting approximately 0.1 miles east of BM 39 and runs east along the border to approximately 0.3 mile east of BM 33.

• Starting approximately 0.25 mile east of BM 31 and runs east along the border for approximately 14.2 miles.

• Starting approximately at BM 22 and runs east along the border to approximately 1.0 mile west BM 16.

• Starting at approximately 1.0 mile west of BM 16 and runs east along the border to approximately BM 3.

Texas

• Starting approximately 0.4 miles southeast of BM 1 and runs southeast along the border for approximately 3.0 miles.

• Starting approximately 1 Mi E of the intersection of Interstate 54 and Border Highway and runs southeast approximately 57 miles in proximity to the IBWC levee to 3.7 miles east of the Ft Hancock POE.

• Starting approximately 1.6 miles west of the intersection of Esperanza and Quitman Pass Roads and runs along the IBWC levee east for approximately 4.6 miles.

• Starting at the Presidio POE and runs west along the border to approximately 3.2 miles west of the POE.

• Starting at the Presidio POE and runs east along the border to approximately 3.4 miles east of the POE.

• Starting approximately 1.8 miles west of Del Rio POE and runs east along the border for approximately 2.5 miles.

• Starting approximately 1.3 Mi north of the Eagle Pass POE and runs south approximately 0.8 miles south of the POE.

• Starting approximately 2.1 miles west of Roma POE and runs east approximately 1.8 miles east of the Roma POE.

• Starting approximately 3.5 miles west of Rio Grande City POE and runs east in proximity to the Rio Grande river for approximately 9 miles.

• Starting approximately 0.9 miles west of County Road 41 and runs east approximately 1.2 miles and then north for approximately 0.8 miles.

• Starting approximately 0.5 mile west of the end of River Dr and runs east in proximity to the IBWC levee for approximately 2.5 miles.

• Starting approximately 0.6 miles east of the intersection of Benson Rd and Cannon Rd and runs east in proximity to the IBWC levee for approximately 1 mile.

• Starting at the Los Indios POE and runs west in proximity to the IBWC levee for approximately 1.7 miles.

• Starting at the Los Indios POE and runs east in proximity to the IBWC levee for approximately 3.6 miles.

• Starting approximately 0.5 mile west of Main St and J Padilla St intersection and runs east in proximity to the IBWC levee for approximately 2.0 miles.

• Starting approximately 1.2 miles west of the Intersection of U.S. HWY 281 and Los Ranchitos Rd and runs east in proximity to the IBWC levee for approximately 2.4 miles.

• Starting approx 0.5 miles southwest of the intersection of U.S. 281 and San Pedro Rd and runs east in proximity to the IBWC levee for approximately 1.8 miles.

• Starting approximately 0.1 miles southwest of the Intersection of Villanueva St and Torres Rd and runs east in proximity to the IBWC levee for approximately 3.6 miles.

• Starting approximately south of Palm Blvd and runs east in proximity to the City of Brownsville's levee to approximately the Gateway-Brownsville POE where it continues south and then east in proximity to the IBWC levee for a total length of approximately 3.5 miles.

• Starting at the North Eastern Edge of Ft Brown Golf Course and runs east in proximity to the IBWC levee for approximately 1 mile.

• Starting approximately 0.3 miles east of Los Tomates-Brownsville POE and runs east and then north in proximity to the IBWC levee for approximately 13 miles.

In order to deter illegal crossings in the Project Areas, there is presently a need to construct fixed and mobile barriers (such as fencing, vehicle barriers, towers, sensors, cameras, and other surveillance, communication, and detection equipment) and roads in the vicinity of the border of the United States. In order to ensure the expeditious construction of the barriers and roads that Congress prescribed in the IIRIRA in the Project Areas, which are areas of high illegal entry into the United States, I have determined that it is necessary that I exercise the authority that is vested in me by section 102(c) of the IIRIRA as amended.

Accordingly, I hereby waive in their entirety, with respect to the construction of roads and fixed and mobile barriers (including, but not limited to, accessing the project area, creating and using staging areas, the

conduct of earthwork, excavation, fill, and site preparation, and installation and upkeep of fences, roads, supporting elements, drainage, erosion controls, safety features, surveillance, communication, and detection equipment of all types, radar and radio towers, and lighting) in the Project Areas, all federal, state, or other laws, regulations and legal requirements of, deriving from, or related to the subject of, the following laws, as amended: The National Environmental Policy Act (Pub. L. 91–190, 83 Stat. 852 (Jan. 1, 1970) (42 U.S.C. 4321 *et seq.*)), the Endangered Species Act (Pub. L. 93–205, 87 Stat. 884 (Dec. 28, 1973) (16 U.S.C. 1531 *et seq.*)), the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act) (33 U.S.C. 1251 *et seq.*)), the National Historic Preservation Act (Pub. L. 89–665, 80 Stat. 915 (Oct. 15, 1966) (16 U.S.C. 470 *et seq.*)), the Migratory Bird Treaty Act (16 U.S.C. 703 *et seq.*), the Clean Air Act (42 U.S.C. 7401 *et seq.*), the Archeological Resources Protection Act (Pub. L. 96–95, 16 U.S.C. 470aa *et seq.*), the Safe Drinking Water Act (42 U.S.C. 300f *et seq.*), the Noise Control Act (42 U.S.C. 4901 *et seq.*), the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*), the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601 *et seq.*), the Archaeological and Historic Preservation Act (Pub. L. 86–523, 16 U.S.C. 469 *et seq.*), the Antiquities Act (16 U.S.C. 431 *et seq.*), the Historic Sites, Buildings, and Antiquities Act (16 U.S.C. 461 *et seq.*), the Wild and Scenic Rivers Act (Pub. L. 90–542, 16 U.S.C. 1281 *et seq.*), the Farmland Protection Policy Act (7 U.S.C. 4201 *et seq.*), the Coastal Zone Management Act (Pub. L. 92–583, 16 U.S.C. 1451 *et seq.*), the Wilderness Act (Pub. L. 88–577, 16 U.S.C. 1131 *et seq.*), the Federal Land Policy and Management Act (Pub L. 94–579, 43 U.S.C. 1701 *et seq.*), the National Wildlife Refuge System Administration Act (Pub. L. 89–669, 16 U.S.C. 668dd–668ee), the Fish and Wildlife Act of 1956 (Pub. L. 84–1024, 16 U.S.C. 742a, *et seq.*), the Fish and Wildlife Coordination Act (Pub. L. 73–121, 16 U.S.C. 661 *et seq.*), the Administrative Procedure Act (5 U.S.C. 551 *et seq.*), the Otay Mountain Wilderness Act of 1999 (Pub. L. 106–145), Sections 102(29) and 103 of Title I of the California Desert Protection Act (Pub. L. 103–433), 50 Stat. 1827, the National Park Service Organic Act (Pub. L. 64–235, 16 U.S.C. 1, 2–4), the National Park Service General Authorities Act (Pub. L. 91–383, 16 U.S.C. 1a–1 *et seq.*), Sections 401(7), 403, and 404 of the National Parks and Recreation Act of 1978 (Pub. L. 95–625), Sections 301(a)–(f) of the Arizona Desert Wilderness Act (Pub. L. 101–628), the Rivers and Harbors Act of 1899 (33 U.S.C. 403), the Eagle Protection Act (16 U.S.C. 668 *et seq.*), the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 *et seq.*), the American Indian Religious Freedom Act (42 U.S.C. 1996), the Religious Freedom Restoration Act (42 U.S.C. 2000bb), the National Forest Management Act of 1976 (16 U.S.C. 1600 *et seq.*), and the Multiple Use and Sustained Yield Act of 1960 (16 U.S.C. 528–531).

This waiver does not supersede, supplement, or in any way modify the previous waivers published in the **Federal Register** on September 22, 2005 (70 FR 55622), January 19, 2007 (72 FR 2535), and October 26, 2007 (72 FR 60870).

I reserve the authority to make further waivers from time to time as I may determine to be necessary to accomplish the provisions of section 102 of the IIRIRA, as amended.

Michael Chertoff,

Secretary.

[FR Doc. E8–7451 Filed 4–7–08; 8:45 am]

BILLING CODE 4410–10–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

[USCG–2008–0202]

Information Collection Request to Office of Management and Budget; OMB Control Numbers: 1625–0044, 1625–0045, and 1625–0060

AGENCY: Coast Guard, DHS.

ACTION: Sixty-day notice requesting comments.

SUMMARY: In compliance with the Paperwork Reduction Act of 1995, the U.S. Coast Guard intends to submit Information Collection Requests (ICRs) and Analyses to the Office of Management and Budget (OMB) requesting an extension of their approval for the following collections of information: (1) 1625–0044, Outer Continental Shelf Activities—Title 33 CFR Subchapter N; (2) 1625–0045, Adequacy Certification for Reception Facilities and Advance Notice—33 CFR part 158; and (3) 1625–0060, Vapor Control Systems for Facilities and Tank Vessels. Before submitting these ICRs to OMB, the Coast Guard is inviting comments as described below.

DATES: Comments must reach the Coast Guard on or before June 9, 2008.

ADDRESSES: To avoid duplicate submissions to the docket [USCG–2008–0202], please submit them by only one of the following means:

(1) *Online: http://www.regulations.gov.*

(2) *Mail:* Docket Management Facility (DMF) (M–30), U.S. Department of Transportation, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590–0001.

(3) *Hand delivery:* DMF between the hours of 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The telephone number is 202–366–9329.

(4) *Fax:* 202–493–2251.

The DMF maintains the public docket for this notice. Comments and material received from the public, as well as documents mentioned in this notice as being available in the docket, will become part of this docket and will be available for inspection or copying at room W12–140 on the West Building Ground Floor, 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. You may also find this docket on the Internet at *http://www.regulations.gov.*

A copy of the complete ICR is available through this docket on the Internet at *http://www.regulations.gov.* Additionally, copies are available from Commandant (CG–611), U.S. Coast Guard Headquarters (Attn: Mr. Arthur Requina), 2100 2nd Street, SW., Washington, DC 20593–0001. The telephone number is 202–475–3523.

FOR FURTHER INFORMATION CONTACT: Mr. Arthur Requina, Office of Information Management, telephone 202–475–3523, or fax 202–475–3929, for questions on these documents. Contact Ms. Renee V. Wright, Program Manager, Docket Operations, 202–366–9826, for questions on the docket.

SUPPLEMENTARY INFORMATION:

Public Participation and Request for Comments

The Coast Guard invites comments on whether this information collection request should be granted based on it being necessary for the proper performance of Departmental functions. In particular, the Coast Guard would appreciate comments addressing: (1) The practical utility of the collections; (2) the accuracy of the estimated burden of the collections; (3) ways to enhance the quality, utility, and clarity of information subject to the collections; and (4) ways to minimize the burden of

APPENDIX B
Biological Resources Plan

BIOLOGICAL RESOURCES PLAN

FOR

CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE

FOR

TUCSON SECTOR, ARIZONA

NOGALES STATION

U.S. DEPARTMENT OF HOMELAND SECURITY
U.S. CUSTOMS AND BORDER PROTECTION
U.S. BORDER PATROL TUCSON SECTOR

Prepared by

Solutions Today for a Sustainable Tomorrow

AUGUST 2008

ABBREVIATIONS AND ACRONYMS

BMP	Best Management Practice
BRP	Biological Resources Plan
CBP	U.S. Customs and Border Protection
CITES	Convention of International Trade in Endangered Species
cm	centimeters
dBA	A-weighted decibels
DHS	U.S. Department of Homeland Security
ESA	Endangered Species Act
FR	Federal Register
GIS	Geographic Information System
GPS	Global Positioning System
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
km	kilometers
mm	millimeters
mph	miles per hour
PAC	Protected Activity Center
PCE	Primary Constituent Element
POE	Port of Entry
PV-1	Personnel-Vehicle Fence Type-1
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VF-2	Vehicle Fence Type-2

EXECUTIVE SUMMARY

The U.S. Department of Homeland Security (DHS), Customs and Border Protection (CBP), U.S. Border Patrol (USBP) plans to construct, operate, and maintain tactical infrastructure consisting of primary pedestrian and vehicle fencing, and supporting patrol and access roads and other infrastructure in two sections along the U.S./Mexico international border in Santa Cruz County, Arizona.

Table ES-1 outlines federally listed species and federally designated critical habitats known to occur or to potentially occur within or adjacent to the Project area and the determination of effects resulting from the Project.

Of the species listed in **Table ES-1**, the Project may affect the jaguar (*Panthera onca*) and lesser long-nosed bat (*Leptonycteris curasonae*) in areas associated with Sections D-5B and D-6.

The Project may affect, but is not likely to adversely affect, the Huachuca water-umbel (*Lilaeopsis schaffneriana ssp. Recurva),* Pima pineapple cactus (*Coryphantha scheeri var. robustispina),* Gila topminnow (*Poeciliopsis occidentalis occidentalis),* Chiricahua leopard frog (*Rana chiricahuensis*), and ocelot *(Leopardus pardalis)* in areas associated with Sections D-5B and D-6.

The remaining federally listed species, the Canelo Hills ladies' tresses (*Spiranthes delitescens*), Stephan's riffle beetle (*Hetrelmis stephani*), Huachuca springsnail (*Pyrgulopsis thomsoni*), desert pupfish (*Cyprinodon macularius*), Gila chub (*Gila intermedia*), Sonora chub (*Gila ditaenia*), Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*), Mexican spotted owl (*Strix occidentalis lucida*), southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow-billed cuckoo (*Coccyzus americanus*) will not be affected by the Project; and therefore, will not be discussed in this Biological Resources Plan (BRP).

On April 1, 2008, the Secretary of DHS, pursuant to his authority under Section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA), exercised his authority to waive certain environmental and other laws in order to ensure expeditious construction of tactical infrastructure along the U.S./Mexico international border. Although the Secretary's waiver means that CBP no longer has any specific legal obligations under these laws, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP strongly supports this objective and remains committed to being a good steward of the environment. To that end, CBP has prepared the following BRP, which analyzes the potential impacts on threatened and endangered species associated with construction of tactical infrastructure in the USBP's Tucson Sector. The BRP also discusses CBP's plans as to how potential impacts on threatened and endangered species can be mitigated. The BRP will help to guide CBP's efforts going forward.

Table ES-1. Determination of Effects on Federally Listed and Candidate Species within Sections D-5B and D-6

Species	Listing Status	Determination
PLANTS		
Canelo Hills ladies'-tresses, *Spiranthes delitescens*	Endangered	No effect
Huachuca water-umbel, *Lilaeopsis schaffneriana ssp. Recurva*	Endangered	Not likely to adversely affect
Pima pineapple cactus, *Coryphantha scheeri var. robustispina*	Endangered	Not likely to adversely affect
INVERTEBRATES		
Stephan's riffle beetle, *Hetrelmis stephani*	Candidate	No effect
Huachuca springsnail, *Pyrgulopsis thomsoni*	Candidate	No effect
FISH		
Desert pupfish, *Cyprinodon macularius*	Endangered	No effect
Gila chub, *Gila intermedia*	Endangered	No effect
Gila topminnow, *Poeciliopsis occidentalis occidentalis*	Endangered	Not likely to adversely affect
Sonora chub, *Gila ditaenia*	Threatened	No effect
AMPHIBIANS		
Chiricahua leopard frog, *Rana chiricahuensis*	Threatened	Not likely to adversely affect
Sonora tiger salamander, *Ambystoma tigrinum stebbinsi*	Endangered	No effect
BIRDS		
Mexican spotted owl, *Strix occidentalis lucida*	Threatened, with critical habitat designated east of the project corridor	No effect
Southwestern willow flycatcher, *Empidonax traillii extimus*	Endangered	No effect
Yellow-billed cuckoo, *Coccyzus americanus*	Candidate	No effect

Species	Listing Status	Determination
MAMMALS		
Jaguar, *Panthera onca*	Endangered	May affect
Lesser long-nosed bat, *Leptonycteris curasonae*	Endangered	May affect
Ocelot, *Leopardus pardalis*	Endangered	Not likely to adversely affect

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BIOLOGICAL RESOURCES PLAN
USBP TUCSON SECTOR, NOGALES STATION

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1. PROJECT DESCRIPTION

The U.S. Department of Homeland Security (DHS), Customs and Border Protection (CBP), U.S. Border Patrol (USBP) plans to construct, operate, and maintain approximately 7.6 miles of tactical infrastructure along the U.S./Mexico international border. Tactical infrastructure will include primary pedestrian fence, vehicle fence, four temporary staging areas, and a new construction/maintenance road. Construction is expected to be completed by December 2008.

On April 1, 2008, the Secretary of DHS, pursuant to his authority under Section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA), exercised his authority to waive certain environmental and other laws in order to ensure expeditious construction of tactical infrastructure along the U.S./Mexico international border. Although the Secretary's waiver means that CBP no longer has any specific legal obligations under these laws, the Secretary committed the Department to responsible environmental stewardship of our valuable natural and cultural resources. CBP strongly supports this objective and remains committed to being a good steward of the environment. To that end, CBP has prepared this Biological Resources Plan (BRP), which analyzes the potential impacts on threatened and endangered species associated with construction of tactical infrastructure in the USBP's Tucson Sector. The BRP also discusses CBP's plans as to how potential impacts on threatened and endangered species can be mitigated. The BRP will help to guide CBP's efforts going forward.

1.1 LOCATION

CBP plans to construct, operate, and maintain tactical infrastructure consisting of primary pedestrian and vehicle fence, construction staging areas, and new maintenance and construction access roads in two discrete sections (Sections D-5B and D-6) in the Tucson Sector in Santa Cruz County, Arizona (see **Figure 1-1**). The Project includes the construction, operation, and maintenance of tactical infrastructure along approximately 7.6 miles of the U.S./Mexico international border in Santa Cruz County, Arizona. The fence will be installed approximately 3 to 6 feet north of the U.S./Mexico international border. Segment D-5B will start approximately 1 mile east of the DeConcini Port of Entry (POE) and extend 5.2 miles eastward. Segment D-6 will extend another 2.4 miles eastward and include both primary pedestrian and vehicle fence. A new access road will be constructed through the U.S. Forest Service (USFS) Coronado National Forest.

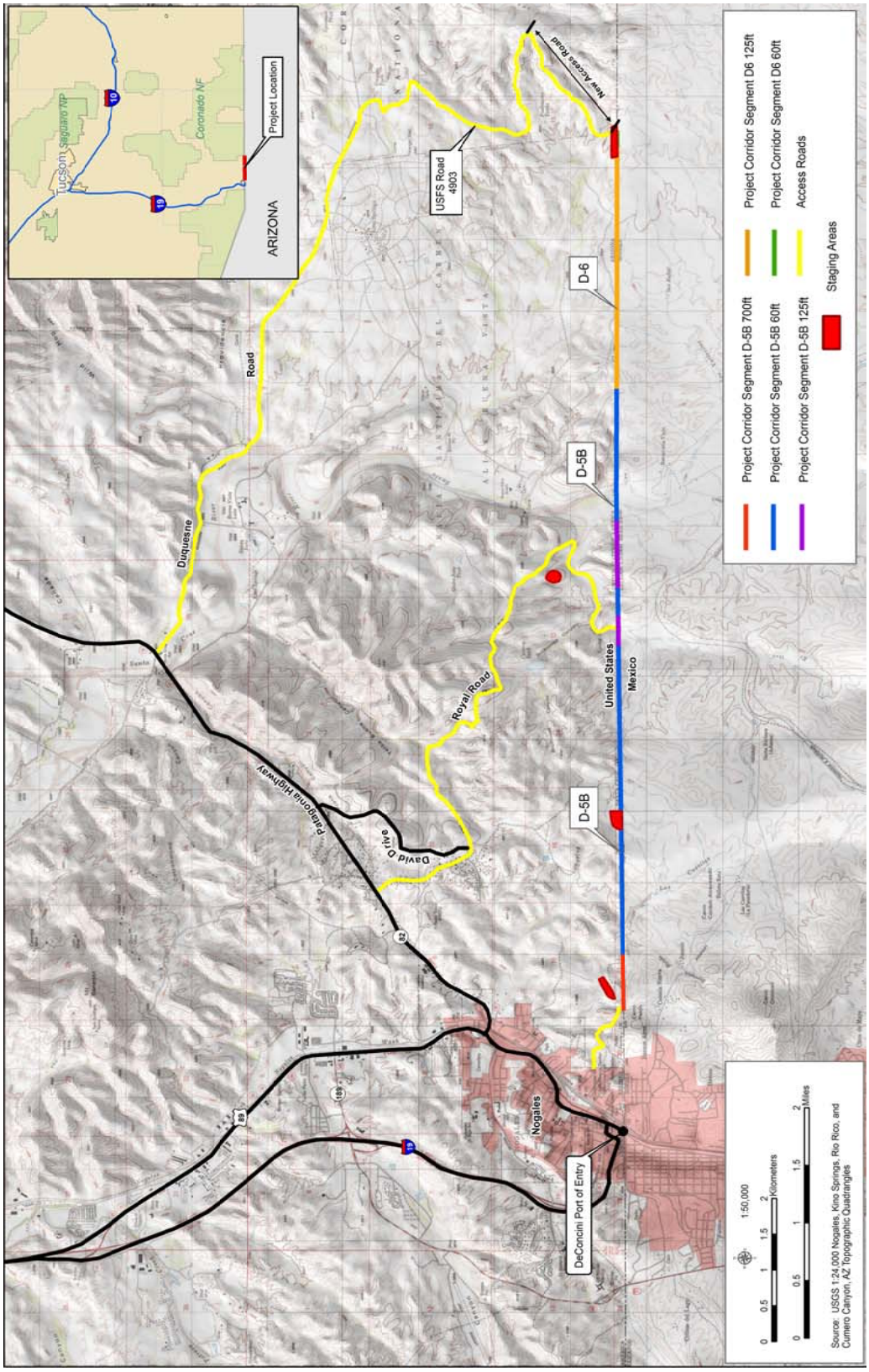

Figure 1-1. Map of Project Area (Sections D-5B and D-6) in Santa Cruz County, Arizona

1.2 CONSTRUCTION, OPERATION, AND MAINTENANCE

The Project consists of the following components: (1) the construction, operation, and maintenance of primary pedestrian and vehicle barrier fence along the U.S./Mexico international border; (2) the construction of a new access road through USFS Coronado National Forest; and (3) the development of four temporary construction staging areas.

A road will be constructed along the border in a manner that will allow installation and maintenance of the fence. Due to steep terrain, the construction footprint will be up to 125 feet wide. This area constitutes the project corridor in which all construction, operation, and maintenance activities will be conducted. Routine maintenance will occur, as needed, to preserve the integrity of the new and existing barrier fence. The barrier fence will be repaired, as needed, using welders and other equipment, and vegetation and debris within the project corridor will be removed, as needed, to maintain visibility and mobility.

Nighttime construction activities will occur only when absolutely necessary for adequate concrete pours or in the case of an accelerated construction schedule to meet Federal mandates. Therefore, to account for heat restrictions for adequate concrete drying and curing processes, most concrete pours for low-water crossings, other drainage structures, and fencing will need to take place during the pre-dawn hours of summer months. However, the possibility exists that work will have to occur on a 24-hour basis to maintain the schedule depending on weather or other unforeseen situations. In order to facilitate construction activities during these work hours, portable lights will be used. It is estimated that no more than 10 lights will be in operation at any one time at each project site. A 6-kilowatt self-contained diesel generator will power these. Each unit typically has four 400- to 1,000-watt lamps. The portable light systems can be towed to the desired construction location, as needed. Upon completion of construction activities, all portable lights will be removed from the Project corridor. Lights will be oriented to illuminate the work area, but the areas affected by illumination will be limited to 200 feet from the light source. Also, because they will not be deployed specifically for providing lighting for enforcement purposes, the lights could have shields placed over the lamps to reduce or eliminate the effects of backlighting.

1.2.1 Fence

Tactical infrastructure includes the construction of approximately 7.6 miles of new primary pedestrian and vehicle barrier fence, with 5.2 miles in Section D-5B and 2.4 miles in Section D-6. Two fence types are planned: Personnel-Vehicle Fence Type 1 (PV-1) and Vehicle Fence Type 2 (VF-2). See **Figures 1-2** and **1-3** for visual representations of the two fence types.

Figure 1-2. Personnel-Vehicle Fence Type-1 (PV-1)

Figure 1-3. Photograph of Vehicle Fence Type-2 (VF-2)

The PV-1 fence is an anchored, 18-foot (aboveground) grout-filled steel bollard-style fence designed to prevent passage by both people and vehicles. Panels of PV-1 fence will be welded together off site and transported to the site by small trucks with lowboy trailers. Using a crane, fence panels will be positioned to be anchored in concrete. Construction of new fence will be completed using equipment such as a trencher or auger, a cement mixer, and a crane. A road will be constructed adjacent to the border to allow installation of the fence. Construction would require a 60-foot- to 125-foot-wide impact corridor (due to steep terrain), starting at the U.S./Mexican international border and extending northward. No pile driving will be required for construction of PV-1 fence.

The VF-2 fence is Normandy-style barrier fence designed to prevent vehicle passage in the floodplain of the Santa Cruz River, while allowing for fence removal during the monsoon season to avoid impeding water flow during high water events. Sections of VF-2 fence will be transported to the site by small trucks with lowboy trailers. The vehicle fence will be put into place using forklifts. A construction/ maintenance road will be constructed in order to install the vehicle fence. No roads or primary pedestrian fence will be constructed across the Santa Cruz River; the existing unimproved low water crossing will be used to cross the river. Construction will require a 60-foot impact corridor. No pile driving will be required for construction of VF-2 fence.

The vehicle fence will be removed by CBP prior to each monsoon season and replaced when flood conditions are no longer imminent. Additionally, in other washes and arroyos, the fence will be designed and constructed as appropriate to ensure proper conveyance of floodwater and to eliminate potential ponding on either side of the fence.

The Project will result in the permanent loss of 116 acres of vegetation, which includes 101 acres of scrub-grassland, 8 acres of madrean evergreen woodlands, 5 acres of riparian deciduous forest and woodland, and less than 2 acres of cottonwood-willow. Scrub-grassland is dominated by herbaceous species, therefore would be the most resistant to disturbance. While not as abundant, due to its affinity for washes, riparian deciduous forest and woodland is common both locally and regionally; thus, degradation or loss of a small portion of this community will be a moderate impact within a local or regional context. Cottonwood-willow is rather unique to major washes and southwestern river systems. This community is important habitat to many riparian wildlife and aquatic species (DHS 2008).

1.2.2 Roads

As stated above, construction/maintenance roads will be constructed adjacent to the north side of the border in both sections. Three existing construction access roads have been also been identified along the Project corridor (see **Figure 1-1**). No improvements to existing access roads are anticipated. These roads are maintained through use agreements between USBP and landowners. One new

access road will be constructed in Section D-6, through the USFS Coronado National Forest, to connect USFS Road 4903 to the border. The new road will be 20 to 30 feet wide (including parallel ditches and shoulders) and 1.34 miles long.

1.2.3 Staging Areas

The Project includes the establishment of four temporary staging areas. Storage of equipment and materials at the temporary staging areas will result in the temporary disturbance of 26 acres of the common scrub-grassland community. Upon completion of construction activities, natural vegetation will be allowed to regenerate from the existing seed bank, undamaged root stocks of shrubs, and stem segments of cacti, or undergo active rehabilitation if deemed necessary.

1.2.4 Fence Maintenance Operations

There will be no change in overall USBP Sector operations resulting from the Project. The pedestrian and vehicle fences will be made from nonreflective steel and will not require any painting. Fence maintenance will include removing any accumulated debris on the fence after a rain event to avoid potential future flooding. Sand that builds up against the fence and brush will also be removed, as needed. Brush removal could include mowing, removal of small trees, and application of herbicide, if needed. The Normandy-style vehicle fence will be installed within the floodplain of the Santa Cruz River, so that it could be removed prior to each monsoon season and replaced shortly after floodflows subside. During normal patrols, sector personnel will observe the condition of the fence. Any destruction or breaches of the fence will be repaired, as needed.

1.3 BEST MANAGEMENT PRACTICES

1.3.1 General Best Management Practices

The following best management practices (BMPs) should be implemented to avoid or minimize impacts associated with the Project during construction. These represent project objectives for implementation to the extent possible and will be incorporated into construction and monitoring contracts.

1. The perimeter of all areas to be disturbed during construction or maintenance activities in Sections D-5B and D-6 will be clearly demarcated using flagging or temporary construction fence, and no disturbance outside that perimeter will be authorized.
2. CBP will develop (in coordination with U.S. Fish & Wildlife Service [USFWS]) a training plan regarding Trust Resources for construction personnel. At a minimum, the program will include the occurrence of the listed and sensitive species in the area, their general ecology, sensitivity of the species to human activities, protection afforded these species, and project features designed to reduce the impacts to these species and

promote continued successful occupation of the project area environments by the species.

Included in this program will be color photos of the listed species, which will be shown to the employees. Following the education program, the photos will be posted in the office of the contractor and resident engineer, where they will remain through the duration of the project. The selected construction contractor will be responsible for ensuring that employees are aware of the listed species.

3. Project Reports. For construction and maintenance projects (e.g., fences, towers, stations, facilities) within 3 months of project completion, a Project Report will be developed that details the BMPs that were implemented, identifies how well the BMPs worked, discusses ways that BMPs could be improved for either protection of species and habitats or implementation efficiency, and reports on any federally listed species observed at or near the project site. If site restoration was included as part of the project, the implementation of that restoration and any follow-up monitoring will be included. Annual reports could be required for some longer-term projects. The project and any annual reports will be made available to the USFWS.

4. Biological Surveys for each Project. CBP will either assume presence of a federally listed species based on suitable habitat or known presence, and implement appropriate measures or will, as part of project design and planning, perform reconnaissance-level preconstruction surveys to validate presence of suitable habitat.

5. Relocation of individuals of federally listed plants found in the project area is generally not a suitable activity. Relocation of aquatic species such as the water umbel and ladies'-tresses is not appropriate. Relocation of small cacti has not been very successful, and is not recommended. A salvage plan will be developed and approved by the government prior to the action. The CBP biological monitor will identify a location for storing any salvaged cactus and/or agaves. For particular actions, the USFWS will advise CBP regarding the relocation of plants.

6. Individual federally listed animals found in the project area will be relocated by a qualified biologist to a nearby safe location in accordance with accepted species-handling protocols to the extent practicable.

7. All construction projects in habitats of federally listed species will have a qualified designated biological monitor on site during the work. The biological monitor will document implementation of construction-related BMPs designed for the project to reduce the potential for adverse effects on the species or their habitats. Weekly reports from the biological monitor should be used for developing the Project Report.

8. Where, based on species location maps or results of surveys, individuals of a federally listed species could be present on or near the project site, a designated biological monitor will be present during construction activities

to protect individuals of the species from harm. Duties of the biological monitor will include ensuring that activities stay within designated project areas, evaluating the response of individuals that come near the project site, and implementing the appropriate BMP. The designated biological monitor will notify the construction manager of any activities that might harm or harass an individual of a federally listed species. Upon such notification, the construction manager may temporarily suspend all activities in question and notify the Contracting Officer, the Administrative Contracting Officer, and the Contracting Officer's Representative of the suspense so that the key U.S. Army Corps of Engineers (USACE) personnel can be notified and apprised of the situation and the potential situation can be resolved.

9. Where a construction project could be located within 1 mile of occupied species habitats but the individuals of the species are not likely to move into the project area, a biological monitor is not needed. However, the construction monitor will be aware of the species-specific BMPs and ensure that BMPs designed to minimize habitat impacts are implemented and maintained as planned. This category includes the lesser long-nosed bat and all aquatic species.
10. Particular importance is given to proper design and location of roads so that the potential for road bed erosion into federally listed species habitat will be avoided or minimized.
11. Particular importance is given to proper design and location of roads so that the potential for entrapment of surface flows within the roadbed due to grading will be avoided or minimized. Depth of any pits created will be minimized so animals do not become trapped.
12. Particular importance is given to proper design and location of roads so that the widening of existing or created roadbed beyond the design parameters due to improper maintenance and use will be avoided or minimized.
13. Particular importance is given to proper design and location of roads so that excessive use of unimproved roads for construction purposes that results in their deterioration that affects the surrounding federally listed species habitat areas will be minimized. Road construction and use for construction will be monitored and documented in the Project Report.
14. Particular importance is given to proper design and location of roads so that the fewest roads needed for construction will be developed and that these are maintained to proper standards. Roads no longer needed by the government should be closed and restored to natural surface and topography using appropriate techniques. The Global Positioning System (GPS) coordinates of roads that are thus closed should be recorded and integrated into the USBP Geographic Information System (GIS) database. A record of acreage or miles of roads taken out of use, restored, and revegetated will be maintained.

15. The width of all roads that are created or maintained by CBP for construction purposes will be measured and recorded using GPS coordinates and integrated into the USBP GIS database. Maintenance actions should not increase the width of the road bed or the amount of disturbed area beyond the roadbed.
16. Construction equipment will be cleaned using BMPs prior to entering and departing the project corridor to minimize the spread and establishment of non-native invasive plant species.
17. Surface water from untreated sources, including water used for irrigation purposes, will not be used for construction or maintenance projects located within 1 mile of aquatic habitat for federally listed aquatic species. Groundwater or surface water from a treated municipal source will be used when close to such habitats. This is to prevent the transfer of invasive animals or disease pathogens between habitats if water on the construction site was to reach the federally listed species habitats.
18. Materials such as gravel or topsoil will be obtained from existing developed or previously used sources, not from undisturbed areas adjacent to the project area.
19. If new access is needed or existing access requires improvements to be usable for the Project, related road construction and maintenance BMPs will be incorporated into the access design and implementation.
20. When available, areas already disturbed by past activities or those that will be used later in the construction period will be used for staging, parking, and equipment storage, where practicable.
21. Within the designated disturbance area, grading or topsoil removal will be limited to areas where this activity is needed to provide the ground conditions needed for construction or maintenance activities. Minimizing disturbance to soils will enhance the ability to restore the disturbed area after the project is complete.
22. Removal of trees and brush in habitats of federally listed species will be limited to the smallest amount needed to meet the objectives of the project. This type of clearing is likely to be a permanent impact on habitat.
23. Water for construction use will be from wells or irrigation water sources at the discretion of the landowner (depending on water rights). If local groundwater pumping creates an adverse effect on aquatic-, marsh-, or riparian-dwelling federally listed species, treated water from outside the immediate area will be utilized.
24. Surface water from aquatic or marsh habitats will not be used for construction purposes if that site supports aquatic federally listed species or if it contains nonnative invasive species or disease vectors and there is any opportunity to contaminate a federally listed species habitat through use of the water at the project site.

25. Water tankers that convey untreated surface water will not discard unused water where it has the potential to enter any aquatic or marsh habitat.
26. Water storage on the project area should be in closed on-ground containers located on upland areas, not in washes.
27. Pumps, hoses, tanks, and other water storage devices will be cleaned and disinfected with a 10 percent bleach solution at an appropriate facility before use at another site. If untreated surface water was used (this water is not to enter any surface water area). If a new water source is used that is not from a treated or groundwater source, the equipment will require additional cleaning. This is important to kill any residual disease organisms or early life stages of invasive species that could affect local populations of federally listed species.
28. CBP will develop and implement storm water management plans for every project.
29. All construction will follow DHS management directive 5100 for waste management.
30. A CBP-approved spill protection plan will be developed and implemented at construction and maintenance sites to ensure that any toxic substances are properly handled and that escape into the environment is prevented. Agency standard protocols will be used. Drip pans underneath equipment, containment zones used when refueling vehicles or equipment, and other measures are to be included.
31. Nonhazardous waste materials and other discarded materials, such as construction waste, will be contained until removed from the construction site. This will assist in keeping the project area and surroundings free of litter and reduce the amount of disturbed area needed for waste storage.
32. To eliminate attracting predators of protected animals, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site.
33. Waste water is water used for project purposes that is contaminated with construction materials, or was used for cleaning equipment and thus carries oils or other toxic materials or other contaminants in accordance with state regulations. Waste water will be stored in closed containers on site until removed for disposal. Concrete wash water will not be dumped on the ground, but is to be collected and moved offsite for disposal. This wash water is toxic to aquatic life.
34. If an individual of a federally listed species is found in the designated project area, work will cease in the area of the species until either a qualified biological monitor can safely remove the individual, or it moves away on its own, to the extent practicable, construction schedule permitting.

35. Construction speed limits will not exceed 35 miles per hour (mph) on major unpaved roads (graded with ditches on both sides) and 25 mph on all other unpaved roads. Nighttime travel speeds will not exceed 25 mph, and might be less based on visibility and other safety considerations. Construction at night will be minimized.
36. No pets owned or under the care of the construction contractor or any and all construction workers will be permitted inside the project's construction boundaries, adjacent native habitats, or other associated work areas. This BMP does not apply to any animals under service to the USBP (such as canine and horse patrols).
37. If construction or maintenance activities continue at night, all lights will be shielded to direct light only onto the area required for worker safety and productivity. The minimum wattage needed will be used and the number of lights will be minimized.
38. Light poles and other pole-like structures will be designed to discourage roosting by birds, particularly ravens or raptors that may use the poles for hunting perches.
39. Noise levels for day or night construction and maintenance will be minimized. All generators will be in baffle boxes (a sound-resistant box that is placed over or around a generator), have an attached muffler, or use other noise-abatement methods in accordance with industry standards.
40. Transmission of disease vectors and invasive nonnative aquatic species can occur if vehicles cross infected or infested streams or other waters and water or mud remains on the vehicle. If these vehicles subsequently cross or enter uninfected or noninfested waters, the disease or invasive species could be introduced to the new area. To prevent this, crossing of streams or marsh areas with flowing or standing water will be avoided by construction vehicles and equipment, and, if not avoidable, the construction vehicle/equipment will be sprayed with a 10 percent bleach solution.
41. Materials used for onsite erosion control in uninfested native habitats will be free of nonnative plant seeds and other plant parts to limit potential for infestation. Since natural materials cannot be certified as completely weed-free, if such materials are used, there will be follow-up monitoring to document establishment of nonnative plants, and appropriate control measures will be implemented for a period of time to be determined in the site restoration plan.
42. Fill material brought in from outside the project area will be identified as to source location and will be weed-free to the extent practicable.
43. For purpose of construction, infrastructure sites will only be accessed using designated roads. Parking will be in designated areas. This will limit the development of multiple trails to such sites and reduce the effects to federally listed habitats in the vicinity.

44. Appropriate techniques to restore the original grade, replace soils, and restore proper drainage will be implemented for areas to be restored (e.g., temporary staging areas).

45. A site restoration plan for federally listed species and habitat will be developed during project planning and provide an achievement goal to be met by the restoration activity. If seeding with native plants is identified as appropriate, seeding will take place at the proper season and with seeds from nearby stocks, to the extent practicable. It is understood that some sites cannot be restored, and the project planning documents should acknowledge this.

46. During follow-up monitoring and during maintenance activities, invasive plants that appear on the site will be removed. Mechanical removal will be done in ways that eliminate the entire plant and remove all plant parts to a disposal area. All chemical applications on refuges must be used in coordination with the NPS Integrated Pest Management Coordinator to ensure accurate reporting. Herbicides can be used according to label directions. The monitoring period will be defined in the site restoration plan. Training to identify non-native invasives will be provided for CBP contractor personnel, as necessary.

47. Maintenance activities in cactus and agave habitat will not increase the existing disturbed areas. Use of existing roads and trails will be maximized in areas of suitable habitat for cactus and agaves. Protection of the cactus will be stressed in environmental education for contractors involved in construction or maintenance of facilities.

48. To prevent entrapment of wildlife species during emplacement of vertical posts/bollards, all vertical fence posts/bollards that are hollow (i.e., those that will be filled with a reinforcing material such as concrete), will be covered so as to prevent wildlife from entrapment. Covers will be deployed from the time the posts or hollow bollards are erected to the time they are filled with reinforcing material.

49. To prevent entrapment of wildlife species during the construction of the project, all excavated, steep-walled holes or trenches will either be covered at the close of each working day by plywood or provided with one or more escape ramps constructed of earth fill or wooden planks. The ramps will be located at no greater than 1,000-foot intervals and will be sloped less than 45 degrees. Each morning before the start of construction and before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. Any animals so discovered will be allowed to escape voluntarily (by escape ramps or temporary structures), without harassment, before construction activities resume, or removed from the trench or hole by the biological monitor and allowed to escape unimpeded.

1.3.2 BMPs for Temporary Impacts

The following apply as offsetting conservation measures for temporary impacts.

1. Site restoration of temporarily disturbed areas such as staging areas and construction access routes will be monitored as appropriate.
2. During follow-up monitoring of any restoration areas, invasive plants that appear on the site will be removed. Mechanical removal will be done in ways that eliminate the entire plant and remove all plant parts to a disposal area. All chemical applications on refuges must be used in coordination with the NPS Integrated Pest Management Coordinator to ensure accurate reporting. Herbicides can be used according to label directions. The monitoring period will be defined in the site restoration plan. Training to identify nonnative invasive plants will be provided for CBP contractor personnel, as necessary.

1.3.3 Species-Specific BMPs

Pima Pineapple Cactus

1. Maintenance activities in Pima pineapple cactus habitat should not increase the existing disturbed areas, subsequent to the construction of the project.
2. Use of existing roads and trails should be maximized in areas of suitable habitat for the Pima pineapple cactus. Maps of suitable habitat areas should be available and protection of the Pima pineapple cactus stressed in environmental education for CBP personnel and contractors involved in construction or maintenance of facilities.
3. Salvage of individual Pima pineapple cacti, if any undiscovered specimens are found, will be considered only when on-site or off-site habitat conservation is not possible and death of the individual is unavoidable.

Huachuca Water Umbel

1. Because loss of habitat is a significant risk to the water umbel, no roads, fences, structures, or other on-ground facilities will be placed within 0.5 miles of occupied or potentially suitable habitat areas. If these areas cannot be avoided, minimization and mitigation will be included in the project design.
2. If facilities must be located within 0.5 miles of known or potential habitat, vegetation clearing will be limited, and erosion-control measures put in place to reduce sediment runoff potential. Monitoring of effects on aquatic habitat during construction could be required.

3. Preconstruction surveys are not required as long as projects are located at least 0.5 miles from occupied habitat areas so that watershed effects will not reach the water-umbel habitat.
4. Whenever practicable, road construction and maintenance will not improve or create new available access to water-umbel habitats.
5. Use of existing roads and trails in or adjacent to water-umbel habitat will be maximized. Educational briefing materials on the presence of the species will be provided as part of training. Maps can be helpful for this purpose.

Gila Topminnow

1. Preconstruction surveys are not required since all topminnow populations are documented. Locations of populations will be obtained during early planning.
2. In planning for roads and fences that would require land clearing in the watershed of habitat, the minimum amount of vegetation will be cleared, and measures to control erosion off the construction site will be put into place. Roads and fences that would require land clearing will be designed to avoid areas within 0.5 miles of sites containing habitat to the extent practicable.
3. If facilities must be located within 0.5 miles of sites, vegetation clearing will be limited, and erosion-control measures put in place concurrent to construction to reduce sediment runoff potential. Monitoring of effects on aquatic habitat during construction could be required.
4. Removal of riparian vegetation within 100 feet of streams will be avoided to the extent practicable to provide a buffer area to protect stream banks.

Chiricahua Leopard Frog

1. Roads will be designed to minimize animal collisions and fragmentation of federally listed populations. Exclusion fencing might be appropriate where road kill is likely or to direct species to underpasses or other passageways. Specific protocols are available for Chiricahua leopard frog.
2. Monitoring of effects on the frog's terrestrial and aquatic habitat during construction could be required. Disease prevention protocols will be employed if the project is in areas known or likely to harbor chytridiomycosis (consult with the USFWS to identify these areas). In such cases, if vehicles/equipment use will occur in more than one frog habitat, ensure that all equipment is clean and dry or disinfected before it moves to another habitat.

3. To the extent practicable, removal of riparian vegetation within 100 feet of aquatic habitats will be avoided to provide a buffer area to protect the habitat from sedimentation.

Jaguar and Ocelot

1. If construction or maintenance activities continue at night, all lights will be shielded to direct light only onto the work site and the area necessary to ensure the safety of the workers.
2. Roads will be designed to minimize animal collisions and fragmentation of T&E populations to the extent practicable.

Lesser Long-Nosed Bat

1. When planning activities, avoid, to the extent practicable, areas containing columnar cacti (e.g., saguaro and organ pipe) or agaves that provide the forage base for the bat.
2. Maintenance activities for facilities can occur at any time; however, for major work on roads or fences where significant amounts of equipment will be required, the October to April period is the preferred period for such activities
3. If construction or maintenance activities continue at night, all lights will be shielded to direct light only onto the work site and the area necessary to ensure the safety of the workers.

1.3.4 Compensation Measures

It is CBP's policy to reduce impacts through the sequence of avoidance, minimization, and mitigation. Current estimates of impacts for jaguar and lesser-long nosed bat habitat are presented in **Table 1-1**. CBP will mitigate for these impacts as appropriate. Additionally, the Project may affect, but is not likely to adversely affect Pima pineapple cactus, Huachuca water umbel, gila topminnow, and Chiricahua leopard frog. If the Project results in adverse impacts on these species, CBP will mitigate as appropriate. Actual impacts to habitats will be documented during construction by the environmental monitors and included in the Project Report which will be made available to USFWS.

Using funds contributed to the compensation pool by CBP, USFWS may offset permanent direct and indirect impacts on habitat used by Federal listed species. USFWS may use these monies to fund conservation actions benefitting these species.

Jaguar

1. Using funds from the mitigation pool established by CBP, USFWS may support Jaguar Conservation Team activities or support the monitoring program, such as funding for additional trip cameras at potential jaguar locations and radio telemetry.

Table 1-1. Summary of Permanent Impacts of the Project on Habitat

Habitat Type	Estimated Acres of Permanent Impact
Scrub-Grassland (habitat for jaguar and lesser long-nosed bat)	101
Madrean Evergreen Woodlands (habitat for jaguar)	8
Cottonwood Willow (habitat for jaguart)	2
Riparian Deciduous Forest and Woodland, Mixed Broadleaf Series (habitat for jaguar)	5
Totals	**116**

Lesser Long-Nosed Bat

1. Using funds from the mitigation pool established by CBP, USFWS may continue monitoring of maternity and summer roost sites to assist in documenting the status of the species. Infra-red cameras could also be purchased to document bats at roosts.
2. Using funds from the mitigation pool established by CBP, USFWS may support telemetry monitoring of foraging bats to determine the degree to which roads, fences, and other operations facilities act as barriers or increase habitat fragmentation to provide useful information for determining the effect on bat foraging and movement of future projects.

2. DESCRIPTION OF SPECIES AND THEIR HABITAT

This section summarizes information regarding some of the key species and habitats addressed in this document. Some listed species are not included here because the implementation of the agreed upon BMPs and conservation measures are anticipated to provide conditions that avoid adverse effect. For more complete information and supporting citations regarding species' descriptions, distribution and abundance, habitat needs, life history, and population ecology, the local USFWS office can be contacted.

2.1 HUACHUCA WATER UMBEL

The Huachuca water umbel (*Lilaeopsis schaffneriana* ssp. *recurva*) was listed as Endangered on January 6, 1997 (62 Federal Register [FR] 3) with critical habitat (64 FR 37441, July 12, 1999).

Land management/ownership for this species includes areas associated with the Coronado National Forest, San Bernardino National Wildlife Refuge, Bureau of Land Management, Fort Huachuca Military Reservation, and private land holdings (USFWS 2001a).

Critical habitat includes 83.2 kilometers (km) (51.7 miles) of streams or rivers in Cochise and Santa Cruz counties, Arizona. The following general areas are included in the critical habitat: Sonoita Creek, Santa Cruz River, Scotia Canyon, Sunnyside Canyon, Garden Canyon, Lone Mountain Canyon, Rattlesnake Canyon, Bear Canyon, and 54.2 km (33.7 miles) of the Upper San Pedro River (USFWS 2001a).

2.1.1 Species Description

The species is a slender, erect terrestrial perennial orchid found on slopes adjacent to marshy wetlands or cienegas intermixed with tall grasses and sedges. The water umbel is an herbaceous semi-aquatic perennial in the parsley family (Umbelliferae) with slender erect leaves that grow from the nodes of creeping rhizomes. The leaves are segmented, hollow cylinders, and are 1–3 millimeters (mm) (0.04–0.12 inches) in diameter, but their length can vary from 2.5–22.9 centimeters (cm) (1–9 inches), depending on the depth of the water. Tiny 3- to 10-flowered umbels arise from root nodes. The inflorescence is 1.25–5.0 cm (0.5–2.0 inches) long and is always shorter than the stems (USFWS 2001a).

2.1.2 Distribution and Abundance

The current range includes a number of disjunct localities in Santa Cruz, Cochise, and Pima counties, Arizona; and Sonora, Mexico. Potential range for the species could be wherever habitat conditions are met in southeastern Arizona or northern Mexico (USFWS 2001a).

2.1.3 Habitat

Typical habitat includes cienegas and associated vegetation within Sonoran desertscrub, grassland or oak woodland, and conifer forest between 1,210–1,970 meters (4,000–6,500 feet). *L. schaffneriana* ssp. *recurva* seems to require an intermediate level of flooding frequency to keep competition manageable, but populations can be destroyed when floods are too frequent and intense. Plants are found in unshaded or shaded sites. They require perennial water, gentle stream gradients, small- to medium-sized drainage areas, and (apparently) mild winters. Usually found in water depth from 5–25 cm (2–10 inches) (USFWS 2001a).

2.1.4 Threats

Wetland habitats for the species are rare and declining in the Southwest. Threats include watershed degradation due to livestock grazing and development, trampling by livestock, diversion of water and dewatering of habitats, and flash flooding (USFWS 2001a).

2.2 PIMA PINEAPPLE CACTUS

The pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) was listed as Endangered on September 23, 1993 (58 FR 49875) without critical habitat.

Land management/ownership for this species includes areas associated with Bureau of Land Management, Coronado National Forest, Buenos Aires National Wildlife Refuge, State Land Department, possibly Bureau of Reclamation, and the Tohono O'Odham and Pascua Yaqui Tribes (USFWS 2000a).

Protected from international trade, Pima pineapple cactus is covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The species is also known as Scheer's strong-spined cory cactus. *Mammillaria robustispina* is a synonym for *Coryphantha scheeri* var. *robustispina.* This species can be confused with juvenile barrel cactus (*Ferocactus*) (USFWS 2000a).

2.2.1 Species Description

The Pima pineapple cactus is a low-growing cactus species that can be found as single- or multi-stemmed plants. The species grows in the transition zone between the semi-desert grasslands and Sonoran desertscrub on alluvial bajadas and slopes of less than 10 percent at elevations between 2,300–4,600 feet (USFWS 2000a).

The Pima pineapple cactus is an attractive hemispherical plant; the adults measure 10–46 cm (4–18 inches) tall and 7.5–18 cm (3–7 inches) in diameter. The spines appear in clusters with one strong, usually hooked central spine and 6–15 straight radial spines. The spines are very stout, usually straw-colored, but

become black with age. The plants can be single-stemmed, multiheaded, or can appear in clusters. The flowers are silky yellow (rarely white) in color and appear in early July with the summer rains. Flowering continues until August. The fruit is green, ellipsoid, succulent, and sweet (USFWS 2000a).

2.2.2 Distribution and Abundance

Currently, Pima pineapple cactus is found at elevations from 700–1,400 meters (2,300–4,500 feet) in Pima and Santa Cruz counties, Arizona; and northern Sonora, Mexico. The range extends east from the Baboquivari Mountains to the western foothills of the Santa Rita Mountains. The northernmost boundary is near Tucson. Potential habitat for this species is difficult to estimate due to its habitat requirements and the topographic complexity within its range (USFWS 2000a).

2.2.3 Habitat

This cactus grows in alluvial basins or on hillsides in semi-desert grassland and Sonoran desertscrub in southern Arizona and northern Mexico. Soils range from shallow to deep, and silty to rocky, with a preference for silty to gravely deep alluvial soils. The plant occurs most commonly in open areas on flat ridge tops or areas with less than 10–15 percent slope (USFWS 2000a).

2.2.4 Threats

Threats to this species include illegal collection; habitat degradation due to recreation and historical and present overuse of the habitat by livestock; habitat loss due to mining, agriculture, road construction, urbanization, aggressive non-native grasses, and range management practices to increase livestock forage (USFWS 2000a).

2.3 GILA TOPMINNOW

The Gila topminnow (*Poeciliopsis occidentalis occidentalis*) was listed as Endangered on March 11, 1967 (32 FR 4001) without critical habitat.

Land management/ownership for this species includes areas associated with USFS, Bureau of Land Management, the States of Arizona and New Mexico, Tribal lands, and private land holdings (USFWS 2008a).

The species is currently being reared at more than 100 locations for reestablishment into numerous sites in Arizona. The Gila topminnow has been released at almost 200 locations in efforts to reestablish populations (USFWS 2008a).

2.3.1 Species Description

The Gila topminnow is native to the Gila River basin in Arizona and New Mexico. This small minnow was abundant in spring pools, cienegas, marshes, and small streams in the Sonoran desert. The species is a small (2.5–5 cm [1–2 inches] long), guppy-like, live-bearing fish (which lacks dark spots on its fins). Breeding males are jet black with yellow fins (USFWS 2008a).

2.3.2 Distribution and Abundance

The species was historically one of the most common fish found throughout the Gila River drainage in Arizona, whose range also extended into Mexico and New Mexico (USFWS 2008a).

The species currently occurs in Mexico and Arizona. In Arizona, most of the remaining native populations are in the Santa Cruz River system. Species occurs in small streams, springs, and cienegas in Gila, Pinal, Graham, Yavapai, Santa Cruz, Pima, Maricopa, and La Paz counties (USFWS 2008a).

2.3.3 Habitat

The species occurs in small streams, springs, and cienegas below an elevation of 1,350 meters (4,500 feet), primarily in shallow areas with aquatic vegetation and debris for cover. Gila topminnow can tolerate relatively high water temperatures and low dissolved oxygen (USFWS 2008a).

2.3.4 Threats

Impacts include the introduction and spread of nonindigenous predatory and competitive fish, water impoundment and diversion, water pollution, groundwater pumping, stream channelization, and habitat modification (USFWS 2008a).

2.4 CHIRICAHUA LEOPARD FROG

The Chiricahua leopard frog (*Lithobates* [*Rana*] *chiricahuensi*s) was listed as Threatened on June 13, 2002 (67 FR 40790) without critical habitat.

At listing, a special rule was finalized that exempts from the Section 9 take prohibitions of the Endangered Species Act (ESA) incidental take of frogs due to operation and maintenance of livestock tanks on non-Federal lands. A recovery plan was completed in April 2007. Safe Harbor agreements are in place throughout the range of the species in Arizona and southwestern New Mexico (USFWS 2008b).

Land management/ownership for this species includes areas associated with the San Bernardino and Buenos Aires National Wildlife Refuges; Coconino, Coronado, Gila, Tonto, Apache-Sitgreaves National Forests; Bureau of Land Management; and private land holdings (USFWS 2008b).

2.4.1 Species Description

The leopard frog has a distinctive pattern on the rear of the thigh consisting of small, raised, cream-colored spots or tubercles on a dark background; dorsolateral folds that are interrupted and deflected medially; stocky body proportions; relatively rough skin on the back and sides; and often green coloration on the head and back. The species also has a distinctive call consisting of a relatively long snore of 1 to 2 seconds in duration. Snout-vent lengths of adults range from approximately 54 to 120 mm (2.1 to 4.7 inches) (USFWS 2008b).

Leopard frogs from the eastern slope of the Huachuca Mountains in Cochise County, Arizona, were described as the Ramsey Canyon leopard frog (*Rana subaquavocalis*), but consensus in the herpetological community is that it is actually a population of the Chiricahua leopard frog. However, until such time that the listing is revised; the Ramsey Canyon leopard frog is not considered listed under the ESA. Populations of the Chiricahua leopard frog in central and east-central Arizona and west-central New Mexico (Mogollon Rim form) are disjunct from those in southeastern Arizona, southwestern New Mexico, and Mexico, and might represent a distinct species (USFWS 2008b).

2.4.2 Distribution and Abundance

A total of 298 and 182 historical localities are known for the species in Arizona and New Mexico, respectively. An additional 34 localities are known from Sonora and Chihuahua, Mexico (USFWS 2008b).

The species' current range is similar to its historical range, but the frog is not well-represented in many areas now, and has apparently disappeared from some drainages and mountain ranges. At the time of listing (2002) the frog was likely extant at an estimated 87 and 31–41 localities in Arizona and New Mexico, respectively. The most recent reports, from February 2008, estimate the frog is extant at 49 and 30–35 localities in Arizona and New Mexico, respectively; which represents extirpation from 82–84 percent of historical U.S. localities. The status of the 34 collection localities in Mexico is not well known (USFWS 2008b).

2.4.3 Habitat

The Chiricahua leopard frog was historically an inhabitant of cienegas, pools, livestock tanks, lakes, reservoirs, streams, and rivers at elevations of 1,000 to 2,710 meters (3,281 to 8,890 feet) in central, east-central, and southeastern Arizona (i.e., Santa Cruz, Apache, Gila, Pima, Cochise, Greenlee, Graham, Yavapai, Coconino, and Navajo counties); west-central and southwestern New Mexico; and in Mexico, northeastern Sonora, and the Sierra Madre Occidental of northwestern Chihuahua. The Chiricahua leopard frog is now often restricted to springs, livestock tanks, and streams in the upper portions of watersheds where nonnative predators either have yet to invade or habitats are marginal.

Distribution and habitat use of the Chiricahua leopard frog in Mexico are not well known (USFWS 2008b).

2.4.4 Threats

The most serious threats to this species include predation by nonnative organisms, especially bullfrogs, fishes, and crayfish; and an apparently introduced fungal skin disease (chytridomycosis or "Bd") that is killing frogs and toads around the globe. Other threats include drought, floods, wildfires, degradation and destruction of habitat, water diversions and groundwater pumping, disruption of metapopulation dynamics (relationships among populations of frogs), increased chance of extirpation or extinction resulting from small numbers of populations and individuals, and environmental contamination (USFWS 2008b).

2.5 JAGUAR

The U.S. population of jaguar (*Panthera onca*) was listed as Endangered on July 22, 1997 (62 FR 39147) without critical habitat. Non-U.S. population was listed as Endangered on March 30, 1972 (37 FR 6476).

Land management/ownership for this species includes areas associated with National Park Service, USFS, Bureau of Land Management, various Native American nations, the State of Arizona, and private land holdings (USFWS 2000b).

The species is protected from international trade by the CITES.

2.5.1 Species Description

The species is a large, heavy-bodied, big-headed cat. Yellowish to tawny, spotted with black rosettes or rings in horizontal rows along the back and sides; most rings are tan inside, with one or two black spots. Legs, head, and tail have smaller, solid spots, usually giving way to incomplete bands near the end of the tail (USFWS 2000b).

The jaguar is the largest species of cat native to the Western Hemisphere. The species is muscular, with relatively short, massive limbs, a deep-chested body, cinnamon-buff in color with many black spots. Weight ranges widely from 40–135 kilograms (90–300 pounds). Length is 2.4 meters (7.8 feet) from head to tail tip (USFWS 2000b).

2.5.2 Distribution and Abundance

The historic range included California, Arizona, New Mexico, Louisiana, south through Texas and into central South America. In Arizona the species was found in mountainous parts of eastern Arizona to the Grand Canyon (USFWS 2000b).

The current range includes central Mexico and into central South America as far south as northern Argentina. There are no known breeding populations in the United States (USFWS 2000b).

In Arizona, the general distribution of past sightings and the habitats associated with these sightings include areas of forest, woodland, and grassland vegetation types in the Baboquivari Mountains, the southern portion of the Altar Valley, a portion of the southern Santa Cruz River basin, and the San Pedro River basin south of Arivapa Creek. Recent (2001–2007) jaguar observations in south-central Arizona near the Mexican border have primarily occurred in Madrean oak woodland communities; however, jaguars were also documented in open mesquite grasslands and desert scrub/grasslands on the desert valley floor (USFWS 2007b).

2.5.3 Habitat

The species is found near water in the warm tropical climate of savannah and forest. Rarely found in extensive arid areas. Individuals in Arizona have been found in Sonoran desertscrub up through subalpine conifer forest (USFWS 2000b). Most jaguar detections occurred in Madrean oak woodland communities; however, jaguars were also documented in open mesquite grasslands and desert scrub/grasslands on the desert valley floor.

2.5.4 Threats

A number of threats contributed to or continue to affect the status of northern jaguar populations, including illegal shooting; overhunting of jaguar prey species; and habitat loss, fragmentation, and modification (USFWS 2000b). Changes in jaguar habitat have affected not only habitat for breeding and foraging, but also movement corridors.

2.6 LESSER LONG-NOSED BAT

The lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*) was listed as Endangered on September 30, 1988 (53 FR 38456) without critical habitat.

Land management/ownership for this species includes lands owned by or managed by U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management, National Park Service, USFS, Department of Defense, several Tribes, the State of Arizona, and private land holdings (USFWS 2001b).

2.6.1 Species Description

The lesser long-nosed bat is a yellow-brown or cinnamon gray bat, with a total head and body measurement of approximately 7.62 cm (3 inches). The tongue measures approximately the same length as the body. This species also has a small noseleaf. The wingspan of *L. curasoae* is approximately 25 cm (10 inches) and the mass is roughly 23 grams. Previously known as Sanborn's long-nosed

bat (*Leptonycteris sanborni)*, the species is a medium-sized bat slightly smaller than the Mexican long-nosed bat (USFWS 2001b).

2.6.2 Distribution and Abundance

The species historically ranged from central Arizona and southwestern New Mexico through much of Mexico to El Salvador. Records exist for occurrences in the southern Peloncillo Mountains of New Mexico (USFWS 2001b).

The current range is similar to historic; however, the number of occupied roost sites and the number of individuals per colony have recently declined drastically. These bats are seasonal (April to September) residents of southeastern Arizona, and possibly extreme western Arizona (i.e., Cochise, Pima, Santa Cruz, Graham, Pinal and Maricopa counties, Arizona) (USFWS 2001b).

2.6.3 Habitat

Habitat for the species includes mainly desert scrub habitat in the U.S. portion of its range. In Mexico, the species occurs up into high elevation pine-oak and ponderosa pine forests. Altitudinal range is from 480–3,450 meters (1,600–11,500 feet). Roosting is in caves, abandoned mines, and unoccupied buildings at the base of mountains where agave, saguaro, and organ pipe cacti are present. The species forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti (USFWS 2001b).

2.6.4 Threats

Considerable evidence exists for the interdependence of *Leptonycteris* bat species and certain agaves and cacti. Excess harvest of agaves in Mexico; the collection of cacti in the United States; and the conversion of habitat for agricultural uses, livestock grazing, wood-cutting, and other development might contribute to the decline of long-nosed bat populations. These bats are particularly vulnerable due to many individuals using only a small number of communal roosts (USFWS 2001b).

2.7 OCELOT

The ocelot (*Leopardus pardalis*) was listed as endangered on March 28, 1972.

2.7.1 Species Description

Ground colors of the short fur of the ocelot, varies from creamy, or tawny yellow, to reddish grey and grey. The underside of the body, tail, and insides of the limbs is whitish. Rather more blotched than spotted, the chain-like spots are bordered with black. Ocelots have both solid and open dark spots which sometimes run in lines along the body. The back of the ears is black with a central yellowy/white band. Solid black spots mark the head and limbs. There

are two black stripes on the cheeks and one or two transverse bars on the insides of the forelegs. The tail is either ringed or marked with dark bars on its upper surface. The eye sockets or orbits are incomplete at the back, and the anterior upper premolars are present.

2.7.2 Distribution and Abundance

The historic range of the ocelot includes southern Texas and Arizona to northern Argentina (USFWS 1990). Virtually nothing is known of the ocelot in Arizona but reports of ocelots in southeastern Arizona warrant further investigation of its status in Arizona and northern Sonora.

2.7.3 Habitat

The ocelot inhabits desert-scrub communities in Arizona (AGFD 2004). The critical component in suitable habitat for the ocelot is dense cover. 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 1990).

2.7.4 Threats

Threats to ocelot include habitat alteration and loss (primarily due to brush clearing), and predator control activities (AESFO 2002).

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3. ACTION AREA

The action area consists of those lands that will be directly and indirectly impacted by the Project and are known to be occupied or potentially occupied by six federally listed species: Huachuca water umbel, Gila topminnow, Chiricahua leopard frog, jaguar, lesser long-nosed bat, and ocelot. The action area is defined by a corridor that extends approximately 300 feet from construction access routes, staging areas, and construction sites. This is the area directly affected by the Project. The extension of 300 feet represents the approximate distance that Project-related noise is estimated to attenuate from approximately 80 A-weighted decibels (dBA) to approximate ambient noise levels of around 55 dBA. The action area includes areas directly and indirectly impacted by the primary pedestrian fence and access roads, the access road construction activities, and the construction staging areas (see **Figure 1-1** for a map of the action area). Tactical infrastructure would begin approximately 1 mile east of the DeConcini POE and extend 7.6 miles eastward across the Santa Cruz River and end near the western boundary of the Coronado National Forest.

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4. EFFECTS OF THE PROJECT

The following is an analysis of the effects of the Project. Implementation of the Project is likely to adversely affect the jaguar (*Panthera onca*) and lesser long-nosed bat (*Leptonycteris curasonae*) in Sections D-5B and D-6. The Project may affect, but is not likely to adversely affect: Huachuca water umbel (*Lilaeopsis schaffneriana ssp. Recurva),* Pima pineapple cactus (*Coryphantha scheeri var. robustispina),* Gila topminnow (*Poeciliopsis occidentalis occidentalis),* Chiricahua leopard frog (*Rana chiricahuensis*), and ocelot (*Leopardus pardalis*). Potentially suitable habitat exists within the Project corridor for the species listed above. However, none of these species were observed during the February and April 2008 surveys. Based on survey results and the implementation of BMPs, the Project is not likely to directly adversely affect individuals or populations of federally listed plants, but could directly affect potential habitat for these species. Implementing general and species-specific BMPs will help to avoid impacts on these species and their habitats (see **Section 1.3.2**).

4.1 JAGUAR

The Project may affect jaguar in Sections D-5B and D-6. Sightings have been documented west of the Project corridor within Coronado National Forest (DHS 2008). There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Project-related loss of habitat may affect this species. However, it is unknown to what extent jaguars are present in the area. Most jaguar detections occurred in Madrean oak woodland communities; however, jaguars were also documented in open mesquite grasslands and desert scrub/grasslands on the desert valley floor (USFWS 2007b). The permanent loss of 116 acres of vegetation includes 101 acres of scrub-grassland, 8 acres of madrean evergreen woodlands, less than 2 acres of cottonwood-willow, and 5 acres of riparian deciduous forest woodland. These habitat types represent suitable habitat for jaguar. However, the loss of 101 acres of desert scrub/grasslands, represents a relatively small percentage of this habitat type available in the area.

Tactical infrastructure associated with the Project could impede movements of jaguars across the border. Because jaguars in Arizona are believed to be part of a population in northern Mexico, preventing jaguar movement and exchange between the U.S. and Mexico would result in fragmentation of jaguar habitat. However, jaguar would be able to pass through Normandy-style vehicle fence that will be installed within the floodplain of the Santa Cruz River.

Human activity and elevated noise levels during construction would disturb any jaguar in the immediate area and possibly hinder or impede jaguar movements into the United States. Nighttime construction can temporarily affect foraging activity; however, construction activities are expected to be conducted during daylight hours to the maximum extent practicable.

Vehicle traffic, foot traffic, and the presence of cross-border violators can affect habitat by altering composition, structure, and function of habitat; however, changes in cross-border violator traffic patterns result from a variety of factors in addition to border patrol operations and, therefore, are considered unpredictable and beyond the scope of this BRP.

4.2 HUACHUCA WATER UMBEL

The Project may affect, but is not likely to adversely affect Huachuca water umbel in Sections D-5B and D-6. The species was not found during surveys (DHS 2008) and there are no known occurrences of this species within or immediately adjacent to the project corridor (NatureServe 2008).

Potential habitat exists within the Santa Cruz River system and in the Project corridor (GSRC 2008). However, placement of the temporary fence would not increase sedimentation or alter hydrology. The decision to install Normandy-style vehicle fence within the Santa Cruz River floodplain, rather than primary pedestrian fence, minimizes potential impacts on Huachuca water umbel. If the Project results in impacts on Huachuca water umbel habitat, CBP would mitigate, as appropriate.

There is also the potential for introduction of exotic plant species through construction activities and use of new and existing roads. Implementing general and species-specific BMPs will help to avoid impacts on Huachuca water umbel in Sections D-5B and D-6.

Vehicle traffic, foot traffic, and the presence of cross-border violators can affect habitat by altering composition, structure, and function of habitat; however, changes in cross-border violator traffic patterns result from a variety of factors in addition to border patrol operations and, therefore, are considered unpredictable and beyond the scope of this BRP.

4.3 PIMA PINEAPPLE CACTUS

The Project may affect, but is not likely to adversely affect Pima pineapple cactus in Sections D-5B and D-6. The species has the potential to occur within or near the Project corridor. NatureServe data indicate that Pima pineapple cactus occurs within a mile of the corridor at the eastern end and within 3 miles at the western end of the Project corridor (NatureServe 2008). Suitable habitat for the Pima pineapple cactus exists throughout the project area; however, recent surveys of the project corridor indicate that no Pima pineapple cactus specimens were observed within the project footprint (GSRC 2008).

Project-related loss of habitat is not likely to adversely affect this species because no specimens were located within the project footprint. However, the species grows in the transition zone between the semi-desert grasslands and Sonoran desertscrub, which comprises most of the Project area. There is also the potential for introduction of invasive plant species through construction

activities and use of new and existing roads. Implementing general and species-specific BMPs will help to avoid direct and indirect impacts on Pima pineapple cactus associated with invasive plant species in Sections D-5B and D-6.

Vehicle traffic, foot traffic, and the presence of cross-border violators can affect habitat by altering composition, structure, and function of habitat; however, changes in cross-border violator traffic patterns result from a variety of factors in addition to border patrol operations and, therefore, are considered unpredictable and beyond the scope of this BRP.

4.4 GILA TOPMINNOW

The Project is not likely to adversely affect the Gila topminnow in Sections D-5B and D-6. There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Potentially suitable habitat exists in the Santa Cruz River system; however, placement of the temporary fence would not increase sedimentation or alter hydrology. The decision to install Normandy-style vehicle fence within the Santa Cruz River floodplain, rather than primary pedestrian fence, minimizes potential impacts on the Gila topminnow. If the Project results in impacts on Gila topminnow habitat, CBP would mitigate, as appropriate.

4.5 CHIRICAHUA LEOPARD FROG

The Project is not likely to adversely affect the Chiricahua leopard frog in Sections D–5B and D-6. There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Potentially suitable habitat exists in perennial pools of the Santa Cruz River floodplain and its tributaries; however, placement of the temporary fence would not increase sedimentation or alter hydrology. The decision to install Normandy-style vehicle fence within the Santa Cruz River floodplain, rather than primary pedestrian fence, avoids and minimizes potential impacts on Chiricahua leopard frog. If the Project results in impacts on Chiricahua leopard frog, CBP would mitigate, as appropriate.

Management areas are identified in each Chrichaua leopard frog recovery unit where the potential for successful recovery actions is greatest. The eastern end of the proposed project corridor falls within the Chiricahua leopard frog Recovery Unit 2. However, it does not occur within a management area within this Recovery Unit. Management areas contain extant populations or sites where habitats will be restored or created, and populations of frogs established or re-established (USFWS 2007a). Because placement of temporary fence would not increase sediment or hydrology and because the fence corridor does not occur within a management areas, adverse impacts are not likely.

4.6 LESSER LONG-NOSED BAT

The Project may affect the lesser long-nosed bat in Sections D-5B and D-6. Potential foraging habitat exists within or near the Project corridor but no suitable roosting habitat is present (DHS 2008). However, these plants are not present in the Project corridor in dense aggregations. Additionally, there are no known occurrences of the lesser longer-nosed bats within or immediately adjacent to the Project corridor (NatureServe 2008).

The removal or damage of foraging plants for road and fence construction might adversely affect the species. Scattered small agave plants were identified within the Project corridor. Although the potential foraging habitat was found in the Project corridor, the potential for this species to occur is likely limited to an infrequent transit corridor to more suitable habitat. Additionally, the potential forage habitat in the Project corridor represents a relatively small percentage of the habitat in the area.

Impacts on potential foraging habitat could result from (1) introduction of non-native plant species through the construction process that could prevent the recruitment of plant forage species and could also carry fire that could further reduce number of forage plants, and (2) nighttime construction that could temporarily affect foraging activity. Construction of new tactical infrastructure has effects related to ground or surface disturbance for the infrastructure and the construction operations. The direct footprint for the infrastructure results in ground disturbances, vegetation removal, and soil compaction. Implementing general and species-specific BMPs will help to avoid impacts on the lesser long-nosed bat in Sections D-5B and D-6.

Nighttime construction can temporarily affect foraging activity; however, construction activities are expected to be conducted during daylight hours to the maximum extent practicable.

4.7 OCELOT

The Project may affect, but is not likely to adversely affect the ocelot in Sections D-5B and D-6. Recent sightings of ocelots have been reported in Mexico, about 30 miles south of Sections D-5B and D-6 (SIA 2008). There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Tactical infrastructure associated with the Project can impede movement of ocelots across the border and could result in fragmentation of ocelot habitat. However, ocelots would be able to pass through Normandy-style vehicle fence that will be installed within the floodplain of the Santa Cruz River.

Project-related loss of habitat is not likely to adversely affect this species because of the lack of occurrences in the area and the lack of dense cover. The critical component in suitable habitat for the ocelot is dense cover. The

permanent loss of 116acres of vegetation associated with the Project includes 101 acres of scrub-grassland, 8 acres of madrean evergreen woodlands, less than 2 acres of cottonwood-willow, and 5 acres of riparian deciduous forest woodland. Suitable ocelot habitat exists within densely vegetated areas within the Project corridor. Cottonwood-willow is unique to major washes and southwestern river systems and is potentially suitable ocelot habitat. 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 1990).

Human activity and elevated noise levels during construction would disturb any jaguar in the immediate area and possibly hinder or impede ocelot movements into the United States. Nighttime construction can temporarily affect foraging activity; however, construction activities are expected to be conducted during daylight hours to the maximum extent practicable.

Vehicle traffic, foot traffic, and the presence of cross-border violators can affect habitat by altering composition, structure, and function of habitat; however, changes in cross-border violator traffic patterns result from a variety of factors in addition to border patrol operations and, therefore, are considered unpredictable and beyond the scope of this BRP.

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5. DETERMINATION OF EFFECT

Seventeen federally listed species are known to occur or potentially occur within 25 miles of the Project in Santa Cruz County, Arizona. **Table 5-1** outlines federally listed species and federally designated critical habitats known to occur or to potentially occur within or adjacent to the Project area and the determination of effects resulting from the Project. The Project may affect the jaguar (*Panthera onca*) and lesser long-nosed bat (*Leptonycteris curasonae*) in Sections D-5B and D-6. The Project may affect, but is not likely to adversely affect, the Huachuca water-umbel (*Lilaeopsis schaffneriana ssp. Recurva),* Pima pineapple cactus (*Coryphantha scheeri var. robustispina),* Gila topminnow (*Poeciliopsis occidentalis occidentalis),* Chiricahua leopard frog (*Rana chiricahuensis*), and ocelot *(Leopardus pardalis)* in Sections D-5B and D-6. The remaining species, the Canelo Hills ladies' tresses (*Spiranthes delitescens*), Stephan's riffle beetle (*Hetrelmis stephani*), Huachuca springsnail (*Pyrgulopsis thomsoni*), desert pupfish (*Cyprinodon macularius*), Gila chub (*Gila intermedia*), Sonora chub (*Gila ditaenia*), Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*), Mexican spotted owl (*Strix occidentalis lucida*), southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow-billed cuckoo (*Coccyzus americanus*) will not be affected by the Project.

The determination of no effect for impacts on the Canelo Hills ladies' tresses, Huachuca springsnail, Stephan's riffle beetle, desert pupfish, Gila chub, Sonora chub, Sonora tiger salamander, Mexican spotted owl, southwestern willow flycatcher, and yellow-billed cuckoo was based on the absence of known occurrences or suitable habitat in any sections of the Project. The determination of no effect for impacts on critical habitat for the Mexican spotted owl, southwestern willow flycatcher, and Huachuca water umbel is based on the fact that construction or maintenance activities will not occur within these critical habitat areas.

Vehicle traffic, foot traffic, and the presence of cross-border violators can affect habitat by altering composition, structure, and function of habitat; however, changes in cross-border violator traffic patterns result from a variety of factors in addition to border patrol operations and, therefore, are considered unpredictable and beyond the scope of this BRP.

Canelo Hills ladies' tresses. Habitat for this species includes finely grained, highly organic, saturated soils of cienegas. No suitable habitat is present within the Project corridor. Additionally, this species is found in the San Pedro watershed (USFWS 2008c). There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Table 5-1. Determination of Effects on Federally Listed Species and Critical Habitats within Sections D-5B and D-6

Species	Listing Status	Determination
PLANTS		
Canelo Hills ladies'-tresses, *Spiranthes delitescens*	Endangered	No effect
Huachuca water-umbel, *Lilaeopsis schaffneriana ssp. Recurva*	Endangered	Not likely to adversely affect
Pima pineapple cactus, *Coryphantha scheeri var. robustispina*	Endangered	Not likely to adversely affect
INVERTEBRATES		
Stephan's riffle beetle, *Hetrelmis stephani*	Candidate	No effect
Huachuca springsnail, *Pyrgulopsis thomsoni*	Candidate	No effect
FISH		
Desert pupfish, *Cyprinodon macularius*	Endangered	No effect
Gila chub, *Gila intermedia*	Endangered	No effect
Gila topminnow, *Poeciliopsis occidentalis occidentalis*	Endangered	Not likely to adversely affect
Sonora chub, *Gila ditaenia*	Threatened	No effect
AMPHIBIANS		
Chiricahua leopard frog, *Rana chiricahuensis*	Threatened	Not likely to adversely affect
Sonora tiger salamander, *Ambystoma tigrinum stebbinsi*	Endangered	No effect
BIRDS		
Mexican spotted owl, *Strix occidentalis lucida*	Threatened, with critical habitat designated east of the project corridor	No effect
Southwestern willow flycatcher, *Empidonax traillii extimus*	Endangered	No effect
Yellow-billed cuckoo, *Coccyzus americanus*	Candidate	No effect

Species	Listing Status	Determination
MAMMALS		
Jaguar, *Panthera onca*	Endangered	May affect
Lesser long-nosed bat, *Leptonycteris curasonae*	Endangered	May affect
Ocelot, *Leopardus pardalis*	Endangered	Not likely to adversely affect

Huachuca springsnail. Habitat for this species includes aquatic areas, small springs with vegetation and slow moderate flow (USFWS 2008c). No suitable habitat is present within the Project corridor. Additionally, the Project corridor is not located in known range for this species (USFWS/AESFO 2004a). There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Stephan's riffle beetle. Habitat for this species includes free-flowing springs and seeps (USFWS 2008c). No suitable habitat is present within the Project corridor. There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Desert pupfish. Habitat for this species includes shallow springs, small streams, and marshes. Native Arizona populations are located on Organ Pipe Cactus National Monument and additional refugia populations are north of the Project corridor (USFWS 2008c). There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Gila chub. Habitat for this species includes pools, springs, cienegas, and streams. The Project corridor is not located in known range for this species (USFWS/AESFO 2004b). There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Sonora chub. Habitat for this species includes perennial and intermittent shallow to moderate streams with boulders and cliffs (USFWS 2008c). No suitable habitat is present within the Project corridor. The Project corridor is not located in known range for this species (USFWS/AESFO 2004c). There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Sonora tiger salamander. Habitat for this species includes stock tanks and impounded cienegas in San Rafael Valley, Huachuca Mountains (USFWS 2008c). No suitable habitat is present within the Project corridor. The Project corridor is not located in known range for this species (USFWS/AESFO 2004d).

There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008).

Mexican spotted owl. The determination of no effect on Mexican spotted owl is based on the fact that there are no known owl sites (Protected Activity Centers [PACs]) or Natureserve identified occurrences within or near the project corridor. PACs are delineated around known owl sites and include a minimum of 600 acres of the best nesting and roosting habitat. Mexican spotted owl habitat occurs in varied habitat, consisting of mature montane forest and woodland, shady wooded canyons, and steep canyons. Forested habitat, uneven-aged stands with a high canopy closure, high tree density, and a sloped terrain appear to be key habitat components. They can also be found in mixed conifer and pine-oak vegetation types. Generally, Mexican spotted owls nest in older forests of mixed conifer or ponderosa pine/Gambel oak. Nests are found in live trees in natural platforms (e.g., dwarf mistletoe brooms), snags, and on canyon walls. Elevation ranges from 4,100 to 9,000 feet (USFWS 2008c).

Critical habitat is designated east of project corridor, within the boundaries of the Coronado National Forest, Sierra Vista District. The Primary Constituent Elements (PCEs) for Mexican spotted owl include the presence of water; abundance of canyon walls with crevices, caves, and ledges; clumps or stringers of mixed conifer, pine-oak, pinyon-juniper, or riparian vegetation; and a high percentage of ground litter and woody debris. Specifically, mixed-conifer forest habitat dominated by Douglas-fir, pine-oak, and riparian forests with high tree diversity are important to the owl (USFWS 1995, USFWS 2004).

While suitable habitat for this species occurs within the Santa Cruz River floodplain of the proposed project corridor because forested and steep sloped terrain do exist in portions of the floodplain, this species was not observed during the February or April 2008 pedestrian field survey (GSRC 2008). Because there are no PACs or Natureserve identified occurrences within or near the project corridor the project will have no effect on this species (Natureserve 2008).

Southwestern willow flycatcher. There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008). No suitable habitat is present within the Project corridor. Suitable habitat for the southwestern willow flycatcher is defined as a riparian area with all the components needed to provide conditions suitable for breeding flycatchers. These conditions are generally dense, mesic riparian shrub and tree communities 0.1 hectare or greater in size within floodplains large enough to accommodate riparian patches at least 10 meters wide (measured perpendicular to the channel). Potentially suitable habitat is defined as a riparian system that does not currently have all the components needed to provide conditions suitable for nesting flycatchers (as described above), but which could, if managed appropriately, develop these components over time (USFWS 2002). The cottonwood willow habitat that does occur does not provide the structural diversity, patch size, or density required for the southwestern willow flycatcher and is not suitable habitat. Although it is potentially suitable foraging and nesting

habitat, there are no plans to manage this habitat in this way in the reasonably foreseeable future (GSRC 2008). **Figure 5-1** provides a photograph of the cottonwood willow habitat that occurs within the Project corridor. Because this riparian corridor is not currently suitable habitat, the project would have no effect on the southwestern willow flycatcher.

Yellow-billed cuckoo. There are no known occurrences of this species within or immediately adjacent to the Project corridor (NatureServe 2008). Habitat for this species includes large blocks of riparian woodlands (e.g., cottonwood, willow, or tamarisk galleries) (USFWS 2008c). Dense understory foliage appears to be an important factor in nest site selection, while cottonwood trees are an important foraging habitat in areas where the species has been studied in California (AEFSO 2001). No suitable habitat is present within the Project corridor because the patches of cottonwood willow habitat in the project area are not large enough. Within the project area these habitat types are 2 to 3 trees wide, with no dense understory foliage, and no large cottonwood stands. See **Figures 5-1** and **5-2** for photographs of these habitat types within the Project corridor (GSRC 2008).

Source: GSRC 2008

Figure 5-1. Photograph of Cottonwood Willow Habitat

Source: GSRC 2008

Figure 5-2. Photograph of Riparian Deciduous Forest and Woodland, Broadleaf Series

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APPENDIX C
Air Emission Calculations

CALCULATION SHEET-COMBUSTABLE EMISSIONS-PROPOSED ACTION

Assumptions for Cumbustable Emissions					
Type of Construction Equipment	Num. of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Water Truck	1	300	12	150	540000
Diesel Road Compactors	0	100	12	150	0
Diesel Dump Truck	0	300	12	150	0
Diesel Excavator	0	300	12	150	0
Diesel Hole Cleaners/Trenchers	2	175	12	150	630000
Diesel Bore/Drill Rigs	2	300	12	150	1080000
Diesel Cement & Mortar Mixers	3	300	12	150	1620000
Diesel Cranes	2	175	12	150	630000
Diesel Graders	0	300	12	150	0
Diesel Tractors/Loaders/Backhoes	2	100	12	150	360000
Diesel Bull Dozers	2	300	12	150	1080000
Diesel Front End Loaders	2	300	12	150	1080000
Diesel Fork Lifts	3	100	12	150	540000
Diesel Generator Set	3	40	12	150	216000

Emission Factors							
Type of Construction Equipment	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	PM-10 g/hp-hr	PM-2.5 g/hp-hr	SO2 g/hp-hr	CO2 g/hp-hr
Water Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Road Compactors	0.370	1.480	4.900	0.340	0.330	0.740	536.200
Diesel Dump Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Excavator	0.340	1.300	4.600	0.320	0.310	0.740	536.300
Diesel Trenchers	0.510	2.440	5.810	0.460	0.440	0.740	535.800
Diesel Bore/Drill Rigs	0.600	2.290	7.150	0.500	0.490	0.730	529.700
Diesel Cement & Mortar Mixers	0.610	2.320	7.280	0.480	0.470	0.730	529.700
Diesel Cranes	0.440	1.300	5.720	0.340	0.330	0.730	530.200
Diesel Graders	0.350	1.360	4.730	0.330	0.320	0.740	536.300
Diesel Tractors/Loaders/Backhoes	1.850	8.210	7.220	1.370	1.330	0.950	691.100
Diesel Bull Dozers	0.360	1.380	4.760	0.330	0.320	0.740	536.300
Diesel Front End Loaders	0.380	1.550	5.000	0.350	0.340	0.740	536.200
Diesel Fork Lifts	1.980	7.760	8.560	1.390	1.350	0.950	690.800
Diesel Generator Set	1.210	3.760	5.970	0.730	0.710	0.810	587.300

CALCULATION SHEET-COMBUSTABLE EMISSIONS-PROPOSED ACTION

Emission factors (EF) were generated from the NONROAD2005 model for the 2006 calendar year. The VOC EFs includes exhaust and evaporative emissions. The VOC evaporative components included in the NONROAD2005 model are diurnal, hotsoak, running loss, tank permeation, hose permeation, displacement, and spillage. The construction equipment age distribution in the NONROAD2005 model is based on the population in U.S. for the 2006 calendar year.

Emission Calculations							
Type of Construction Equipment	VOC tons/yr	CO tons/yr	NOx tons/yr	PM-10 tons/yr	PM-2.5 tons/yr	SO2 tons/yr	CO2 tons/yr
Water Truck	0.262	1.232	3.267	0.244	0.238	0.440	318.963
Diesel Road Paver	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Dump Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Excavator	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Hole Cleaners\Trenchers	0.354	1.694	4.034	0.319	0.305	0.514	371.985
Diesel Bore/Drill Rigs	0.714	2.725	8.510	0.595	0.583	0.869	630.428
Diesel Cement & Mortar Mixers	1.089	4.142	12.997	0.857	0.839	1.303	945.642
Diesel Cranes	0.305	0.903	3.971	0.236	0.229	0.507	368.097
Diesel Graders	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Tractors/Loaders/Backhoes	0.734	3.257	2.864	0.544	0.528	0.377	274.173
Diesel Bull Dozers	0.428	1.642	5.665	0.393	0.381	0.881	638.283
Diesel Front End Loaders	0.452	1.845	5.951	0.417	0.405	0.881	638.164
Diesel Aerial Lifts	1.178	4.618	5.094	0.827	0.803	0.565	411.081
Diesel Generator Set	0.288	0.895	1.421	0.174	0.169	0.193	139.796
Total Emissions	**5.805**	**22.953**	**53.773**	**4.605**	**4.480**	**6.529**	**4736.611**

Conversion factors	
Grams to tons	1.102E-06

CALCULATION SHEET-SUMMARY OF EMISSIONS-PROPOSED ACTION

Proposed Action Construction Emissions for Criteria Pollutants (tons per year)						
Emission source	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Combustable Emissions	5.81	22.95	53.77	4.61	4.48	6.53
Construction Site-fugitive PM-10	NA	NA	NA	9.60	1.92	NA
Construction Workers Commuter & Trucking	0.61	5.66	0.78	0.01	0.01	NA
Total emissions	6.41	28.62	54.55	14.22	6.41	6.53
De minimis threshold	NA	NA	NA	100.00	NA	NA

CALCULATION SHEET-TRANSPORTATION COMBUSTABLE EMISSIONS-PROPOSED ACTION

Construction WorkerPersonal Vehicle Commuting to Construction Sight-Passenger and Light Duty Trucks									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile	Mile/day	Day/yr	Number of cars	Number of trucks	Total Emisssions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	1.61	120	150	10	10	0.27	0.32	0.59
CO	12.4	15.7	120	150	10	10	2.46	3.11	5.57
NOx	0.95	1.22	120	150	10	10	0.19	0.24	0.43
PM-10	0.0052	0.0065	120	150	10	10	0.00	0.00	0.00
PM 2.5	0.0049	0.006	120	150	10	10	0.00	0.00	0.00
							-		

Heavy Duty Trucks Delivery Supply Trucks to Construction Sight									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	10,000-19,500 lb Delivery Truck	33,000-60,000 lb semi trailer rig	Mile/day	Day/yr	Number of trucks	Number of trucks	Total Emisssions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	0.29	0.55	60	150	2	2	0.01	0.01	0.02
CO	1.32	3.21	60	150	2	2	0.03	0.06	0.09
NOx	4.97	12.6	60	150	2	2	0.10	0.25	0.35
PM-10	0.12	0.33	60	150	2	2	0.00	0.01	0.01
PM 2.5	0.13	0.36	60	150	2	2	0.00	0.01	0.01

OBP Commute to New Site									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile	Mile/day	Day/yr	Number of cars	Number of trucks	Total Emisssions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	1.61	60	0	0	0	-	0.00	-
CO	12.4	15.7	60	0	0	0	-	0.00	-
NOx	0.95	1.22	60	0	0	0	-	0.00	-
PM-10	0.0052	0.0065	60	0	0	0	-	0.00	-
PM 2.5	0.0049	0.006	60	0	0	0	-	0.00	-

POV Source: USEPA 2005 Emission Facts: Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks. EPA 420-F-05-022 August 2005. Emission rates were generated using MOBILE.6 highway vehicle emission factor model.
Fleet Charactorization: 20 POVs commuting to work were 50% are pick up trucks and 50% passenger cars

CALCULATION SHEET-TRANSPORTATION COMBUSTABLE EMISSIONS-PROPOSED ACTION

Conversion factor:	gms to tons
	0.000001102

CALCULATION SHEET-FUGITIVE DUST-PROPOSED ACTION

Fugitive Dust Emissions at New Construction Site.					
Construction Site	**Emission Factor tons/acre/month (1)**	**Total Area-Construction Site/month**	**Months/yr**	**Total PM-10 Emissions tns/yr**	**Total PM-2.5 (2)**
Fugitive Dust Emissions	0.11	7.27	12	9.60	1.92

1. Mid-Atlantic Regional Air Management Association (MARAMA). Fugitive Dust-Construction Calculation Sheet can be found online at: http://www.marama.org/visibility/Calculation_Sheets/. MRI= Midwest Research Institute, Inventory of Agricultural Tiling, Unpaved Roads, Airstrips and construction Sites., prepared for the U.S. EPA, PB 238-929, Contract 68-02-1437 (November 1977)

2. 20% of the total PM-10 emissions are PM-2.5 (EPA 2006).

Coastruction Site Area	**Demension (ft)**			
Proposed Prioject	**Length**	**Width**	**Units**	**Total Acres**
New Construction Area	5,280	60	1	7.27
New Construction Area	20	20	0	0.00
Total				**7.27**

Conversion Factors	**Miles to feet**	**Acres to sq ft**	**Sq ft to acres**	**Sq ft in 0.5 acres**
	5280	0.000022957	43560	21780

Assumptions	**Sections/day**	**Length of Section (ft)**	**Length/day (ft)**	**Days/Month**	**Length/Month (ft)**	**Miles/Month**
Fencing installed per day (ft)	22	10	220	24	5280	1.00
Length of fence/month (miles) (1)	1.00					

1. OBP reported that construction crew completes approximately 22 sections of fence per day and about 1 mile per month.

CALCULATION SHEET-COMBUSTABLE EMISSIONS-ALTERNATIVE 3

Assumptions for Cumbustable Emissions					
Type of Construction Equipment	Num. of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Water Truck	1	300	12	240	864000
Diesel Road Compactors	0	100	12	240	0
Diesel Dump Truck	0	300	12	240	0
Diesel Excavator	0	300	12	240	0
Diesel Hole Cleaners/Trenchers	2	175	12	240	1008000
Diesel Bore/Drill Rigs	2	300	12	240	1728000
Diesel Cement & Mortar Mixers	3	300	12	240	2592000
Diesel Cranes	2	175	12	240	1008000
Diesel Graders	0	300	12	240	0
Diesel Tractors/Loaders/Backhoes	2	100	12	240	576000
Diesel Bull Dozers	2	300	12	240	1728000
Diesel Front End Loaders	2	300	12	240	1728000
Diesel Fork Lifts	3	100	12	240	864000
Diesel Generator Set	3	40	12	240	345600

Emission Factors							
Type of Construction Equipment	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	PM-10 g/hp-hr	PM-2.5 g/hp-hr	SO2 g/hp-hr	CO2 g/hp-hr
Water Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Road Compactors	0.370	1.480	4.900	0.340	0.330	0.740	536.200
Diesel Dump Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Excavator	0.340	1.300	4.600	0.320	0.310	0.740	536.300
Diesel Trenchers	0.510	2.440	5.810	0.460	0.440	0.740	535.800
Diesel Bore/Drill Rigs	0.600	2.290	7.150	0.500	0.490	0.730	529.700
Diesel Cement & Mortar Mixers	0.610	2.320	7.280	0.480	0.470	0.730	529.700
Diesel Cranes	0.440	1.300	5.720	0.340	0.330	0.730	530.200
Diesel Graders	0.350	1.360	4.730	0.330	0.320	0.740	536.300
Diesel Tractors/Loaders/Backhoes	1.850	8.210	7.220	1.370	1.330	0.950	691.100
Diesel Bull Dozers	0.360	1.380	4.760	0.330	0.320	0.740	536.300
Diesel Front End Loaders	0.380	1.550	5.000	0.350	0.340	0.740	536.200
Diesel Fork Lifts	1.980	7.760	8.560	1.390	1.350	0.950	690.800
Diesel Generator Set	1.210	3.760	5.970	0.730	0.710	0.810	587.300

CALCULATION SHEET-COMBUSTABLE EMISSIONS-ALTERNATIVE 3

Emission factors (EF) were generated from the NONROAD2005 model for the 2006 calendar year. The VOC EFs includes exhaust and evaporative emissions. The VOC evaporative components included in the NONROAD2005 model are diurnal, hotsoak, running loss, tank permeation, hose permeation, displacement, and spillage. The construction equipment age distribution in the NONROAD2005 model is based on the population in U.S. for the 2006 calendar year.

Emission Calculations							
Type of Construction Equipment	VOC tons/yr	CO tons/yr	NOx tons/yr	PM-10 tons/yr	PM-2.5 tons/yr	SO2 tons/yr	CO2 tons/yr
Water Truck	0.419	1.971	5.227	0.390	0.381	0.705	510.341
Diesel Road Paver	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Dump Truck	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Excavator	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Hole Cleaners\Trenchers	0.567	2.710	6.454	0.511	0.489	0.822	595.175
Diesel Bore/Drill Rigs	1.143	4.361	13.615	0.952	0.933	1.390	1008.684
Diesel Cement & Mortar Mixers	1.742	6.627	20.794	1.371	1.343	2.085	1513.027
Diesel Cranes	0.489	1.444	6.354	0.378	0.367	0.811	588.955
Diesel Graders	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Tractors/Loaders/Backhoes	1.174	5.211	4.583	0.870	0.844	0.603	438.677
Diesel Bull Dozers	0.686	2.628	9.064	0.628	0.609	1.409	1021.252
Diesel Front End Loaders	0.724	2.952	9.521	0.666	0.647	1.409	1021.062
Diesel Aerial Lifts	1.885	7.389	8.150	1.323	1.285	0.905	657.730
Diesel Generator Set	0.461	1.432	2.274	0.278	0.270	0.308	223.674
Total Emissions	**9.289**	**36.724**	**86.037**	**7.368**	**7.169**	**10.447**	**7578.577**

Conversion factors	
Grams to tons	1.102E-06

CALCULATION SHEET-SUMMARY OF EMISSIONS-ALTERNATIVE 3

Proposed Action Construction Emissions for Criteria Pollutants (tons per year)						
Emission source	VOC	CO	NOx	PM-10	PM-2.5	SO_2
Combustable Emissions	9.29	36.72	86.04	7.37	7.17	10.45
Construction Site-fugitive PM-10	NA	NA	NA	10.40	2.08	NA
Construction Workers Commuter & Trucking	0.97	9.06	1.25	0.02	0.02	NA
Total emissions	10.26	45.79	87.28	17.79	9.27	10.45
De minimis threshold	NA	NA	NA	100.00	NA	NA

CALCULATION SHEET-TRANSPORTATION COMBUSTABLE EMISSIONS-ALTERNATIVE 3

Construction WorkerPersonal Vehicle Commuting to Construction Sight-Passenger and Light Duty Trucks									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile	Mile/day	Day/yr	Number of cars	Number of trucks	Total Emisssions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	1.61	120	240	10	10	0.43	0.51	0.94
CO	12.4	15.7	120	240	10	10	3.94	4.98	8.92
NOx	0.95	1.22	120	240	10	10	0.30	0.39	0.69
PM-10	0.0052	0.0065	120	240	10	10	0.00	0.00	0.00
PM 2.5	0.0049	0.006	120	240	10	10	0.00	0.00	0.00
							-		

Heavy Duty Trucks Delivery Supply Trucks to Construction Sight									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	10,000-19,500 lb Delivery Truck	33,000-60,000 lb semi trailer rig	Mile/day	Day/yr	Number of trucks	Number of trucks	Total Emisssions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	0.29	0.55	60	240	2	2	0.01	0.02	0.03
CO	1.32	3.21	60	240	2	2	0.04	0.10	0.14
NOx	4.97	12.6	60	240	2	2	0.16	0.40	0.56
PM-10	0.12	0.33	60	240	2	2	0.00	0.01	0.01
PM 2.5	0.13	0.36	60	240	2	2	0.00	0.01	0.02

OBP Commute to New Site									
	Emission Factors		Assumptions				Results by Pollutant		
Pollutants	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile	Mile/day	Day/yr	Number of cars	Number of trucks	Total Emisssions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	1.61	60	0	0	0	-	0.00	-
CO	12.4	15.7	60	0	0	0	-	0.00	-
NOx	0.95	1.22	60	0	0	0	-	0.00	-
PM-10	0.0052	0.0065	60	0	0	0	-	0.00	-
PM 2.5	0.0049	0.006	60	0	0	0	-	0.00	-

POV Source: USEPA 2005 Emission Facts: Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks. EPA 420-F-05-022 August 2005. Emission rates were generated using MOBILE.6 highway vehicle emission factor model.
Fleet Charactorization: 20 POVs commuting to work were 50% are pick up trucks and 50% passenger cars

CALCULATION SHEET-TRANSPORTATION COMBUSTABLE EMISSIONS-ALTERNATIVE 3

Conversion factor:	gms to tons
	0.000001102

CALCULATION SHEET-FUGITIVE DUST-ALTERNATIVE 3

Fugitive Dust Emissions at New Construction Site.					
Construction Site	**Emission Factor tons/acre/month (1)**	**Total Area-Construction Site/month**	**Months/yr**	**Total PM-10 Emissions tns/yr**	**Total PM-2.5 (2)**
Fugitive Dust Emissions	0.11	7.88	12	10.40	2.08

1. Mid-Atlantic Regional Air Management Association (MARAMA). Fugitive Dust-Construction Calculation Sheet can be found online at: http://www.marama.org/visibility/Calculation_Sheets/. MRI= Midwest Research Institute, Inventory of Agricultural Tiling, Unpaved Roads, Airstrips and construction Sites., prepared for the U.S. EPA, PB 238-929, Contract 68-02-1437 (November 1977)

2. 20% of the total PM-10 emissions are PM-2.5 (EPA 2006).

Coastruction Site Area	**Demension (ft)**			
Proposed Prioject	**Length**	**Width**	**Units**	**Total Acres**
New Construction Area	2,640	130	1	7.88
New Construction Area		20	0	0.00
Total				**7.88**

Conversion Factors	**Miles to feet**	**Acres to sq ft**	**Sq ft to acres**	**Sq ft in 0.5 acres**
	5280	0.000022957	43560	21780

Assumptions	**Sections/day**	**Length of Section (ft)**	**Length/day (ft)**	**Days/Month**	**Length/Month (ft)**	**Miles/Month**
Fencing installed per day (1)	11	10	110	24	2640	0.50
Length of fence/month (miles)	0.50					

1. OBP reported that construction crew complete 22 sections of fence per day. Alternative 3 requires 2 fences to be built per section and therefore will take twice as long to complete per section. Therefore, instead of assuming that 22 sections of fence will be completed per day, we are assuming that 11 sections of fence will be completed per day.

APPENDIX D
Biological Field Report

BIOLOGICAL FIELD SURVEY REPORT

SUPPORTING THE

ENVIRONMENTAL STEWARDSHIP PLAN FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE U.S. BORDER PATROL TUCSON SECTOR, NOGALES STATION, ARIZONA

May 2008

PREPARED BY: Gulf South Research Corporation
8081 GSRI Avenue
Baton Rouge, LA 70820
(225) 757-8088
(225) 761-8077 - fax

SEGMENTS SURVEYED: D-5B and D-6

SURVEY CONDUCTED: February 14-17, 2008
April 20-21, 2008

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1.0 SUMMARY

The United States (U.S.) Customs and Border Protection (CBP) and the U.S. Border Patrol (USBP) plan to construct, operate, and maintain approximately 7.6 miles of tactical infrastructure (TI) along the U.S./Mexico international border in Santa Cruz County, Arizona, east of the City of Nogales, Arizona. TI will consist of primary pedestrian fence, vehicle fence, construction/maintenance road, and improvements to existing roads within the USBP Tucson Sector. Gulf South Research Corporation (GSRC) was tasked to conduct a 100 percent pedestrian survey to verify the presence of sensitive biological resources present within the project corridor so that CBP can identify and implement measures to best minimize or eliminated impacts of the project to biological resources.

The purpose of this report is to provide site specific findings of biological survey of the project corridor conducted by GSRC on February 14-17 and April 24, 2008. Using the U.S. Fish and Wildlife Services' (USFWS) Information, Planning and Consultation (IPaC) System, 11 Federally listed species were identified as having the potential to occur in the vicinity of the project corridor. These species include Huachuca water umbel *(Lilaeopsis schaffneriana* spp. *recurva),* Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), Canelo Hills ladies-tresses (*Spiranthes* delitescens), Mexican spotted owl (*Strix occidentalis lucida*), southwestern willow flycatcher (*Empidonax traillii extimus*), Chiricahua leopard frog (*Rana chiricahuensis*), Sonora tiger salamander (*Ambystoma tigrinum*) jaguar (*Panthera onca*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), ocelot (*Leopardus pardalis*), Gila chub (*Gila intermedia*), Sonora chub (*Gila* ditaenia), desert pupfish (*Cyprinodon* macularrus), and Gila topminnow (*Poeciliopsis occidentalis occidentalis*). In addition, the Arizona Natural Heritage Program (ANHP) database noted a total of 68 state listed species are known to occur in Santa Cruz County (ANHP 2008). A comprehensive list of these species is provided in Appendix A.

It must be noted that surveys were not conducted for two of the Federally listed aquatic species known to inhabit the Santa Cruz River: the Gila topminnow and Gila chub. The Planned Action, as will be discussed later, will not affect the stream channel of the Santa Cruz River and, thus, specific surveys for these fishes were not warranted. Therefore, this report makes no determination on the actual occurrence of these fish species within

the project corridor. However, during the surveys, and while searching the Santa Cruz River for the Huachuca water umbel, a visual search for the occurrence of these two fishes was conducted; yet, neither species was observed.

The biological survey resulted in no verifiable occurrences of any Federally or state listed species. However, habitat conditions do exist within the project corridor for all 11 federally listed species.

2.0 INTRODUCTION

The USBP plans to construct a primary pedestrian fence starting 1 mile east of the DeConcini POE and extending eastward for a total of 7.6 miles (Figure 1). Normandy style vehicle fence will be installed within the Santa Cruz River floodplain; bollard-style pedestrian fence will be installed in the repairing portions of the project corridor. The primary pedestrian fence will be installed approximately 3 feet north of the U.S./Mexico border. The vehicle fence will be installed along the border and will be removed prior to each monsoon season. The project corridor surveyed for biological resources began at the international boundary and extended 60 feet to 125 feet north of the boundary.

3.0 METHODS AND SURVEY LIMITATIONS

Prior to the pedestrian survey, GSRC biologists reviewed the National Wetland Inventory (USFWS 2007) maps for the site to determine if wetlands may be present. Appropriate United States Geological Survey (USGS) maps (7½ minute) were reviewed to determine if drainage features, including “blue-line streams” may be present. The National List of Hydric Soils (NCRS 2007) and the Soils Survey for Imperial County were consulted to establish soils associated with the proposed site. The Arizona Ecological Field Services Field Office webpage and USFWS IPaC System was reviewed to determine the occurrence of sensitive species in the vicinity of the planned action.

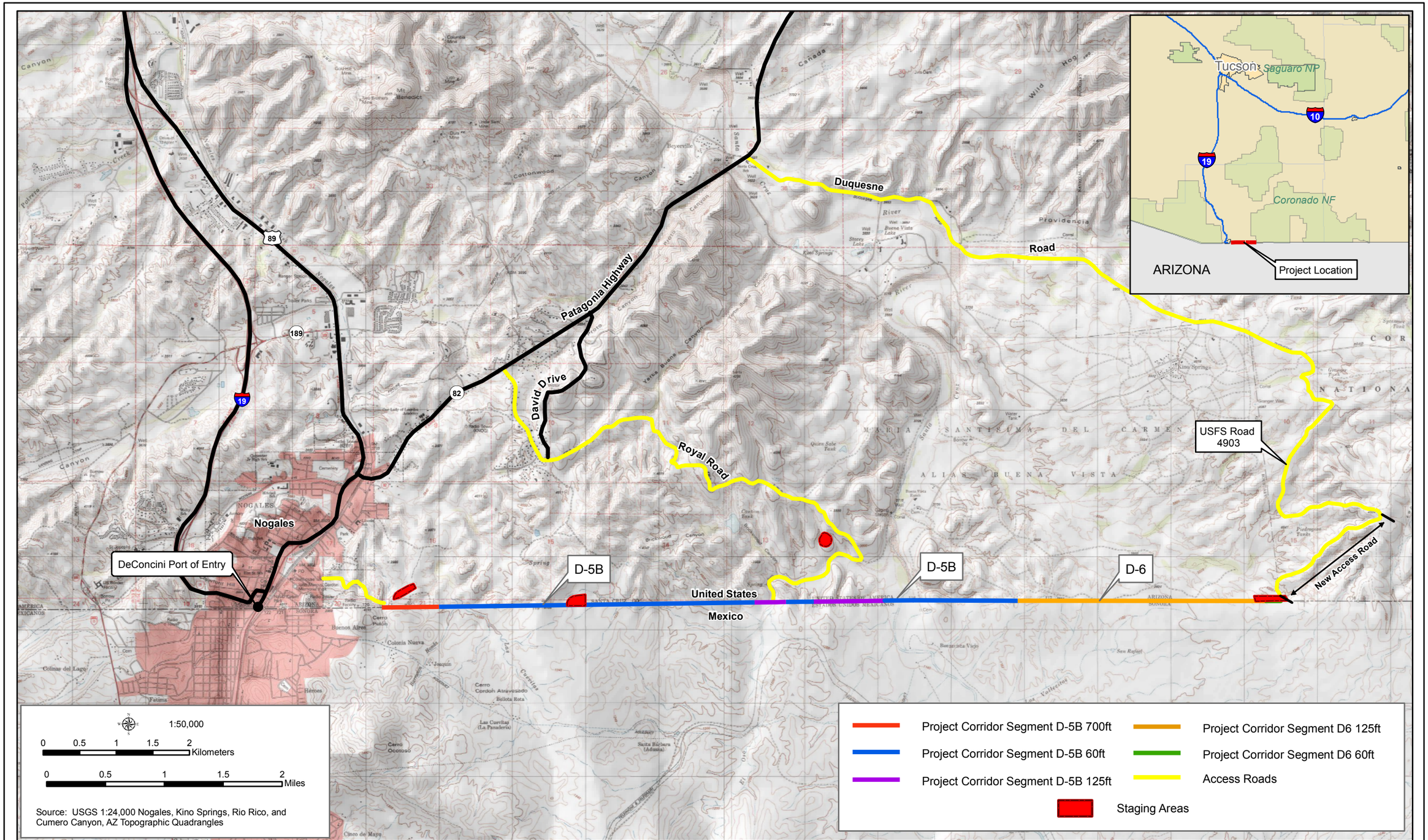

Figure 1: Project Location

GSRC

May 2008

Biological field surveys were conducted February 14-17 and April 24, 2008. The project corridor is primarily characterized by a deeply gullied terrain bisected by arroyos. The Santa Cruz River and several smaller tributarier cross the project corridor. Some of these washes contained flowing water during the February biological survey. However, water was only present in the Santa Cruz River during the April survey.

The corridor was examined on foot by slowly walking over the site in a series of transects to provide 100 percent visual coverage of the entire site to assess terrain features and habitats and to search for wildlife sign and protected species. Vegetation and wildlife species observed were recorded as field observations were made. Wildlife sign (scat, bones, feathers, tracks, dens, and burrows) were also recorded as encountered. Frequent pauses were made during the survey to watch and listen for wildlife.

4.0 BIOLOGICAL RESOURCES ASSOCIATED WITH THE PROJECT CORRIDOR

4.1 Botanical Resources

Plant communities within the project corridor consist of three Chihuahuan desert communities. The classification of these communities follows Brown (1994) and utilizes variation in general species composition and appearance. The three plant communities are: Interior Southwestern Cotton-Willow Series, and Madrean Evergreen Woodland Series and Scrub-Grassland (Semidesert), Mixed Grass Series. The Interior Southwestern Cotton-Willow Series (Photograph 1) is dominated by Fremont cottonwood (*Populus fremontii*) and narrow-leaf cottonwood (*P. angustifolia*), this series is typically found in open riparian canyons or on bajadas. Vegetation communities of the Cottonwood–Willow series are exposed to full sunlight and warm, dry air. The typical forest structure in this series is an open crowned forest with lower shrub and forb layers. Within the project corridor, this series is limited to the Santa Cruz floodplain and one of its major tributaries and comprises approximately 5 percent of the entire project corridor.

The Riparian Deciduous Forest and Woodland, Mixed Broadleaf Series (Photograph 2) are highly diverse vegetation communities typically associated with riparian canyons and washes. Forest structure consists of a canopy of deciduous broadleaf trees having broad crowns with abundant shrub and forb layers. This series is limited to narrow

bands in moist areas of other washes that bisect the project corridor, and comprises approximately 5 percent of the entire project corridor.

Photograph 1: Interior Southwestern Cotton-Willow Series

Photograph 2: Riparian Deciduous Forest and Woodland, Mixed Broadleaf Series

The Scrub-Grassland (Semidesert), Mixed Grass Series (Photograph 3) is found on a variety of soils at elevations, this community is the most important grassland series in Arizona and is quite diverse. Native bunch-grasses and fire-tolerant species of this series have suffered from cattle grazing and fire suppression, thus permitting the proliferation of invasive shrubs and cacti. The community is typically made up of shrubs and succulents scattered among mixed stands of perennial bunch-grasses and annual grasses of uniform height. It is the most widely distributed community within the project corridor, and is composed of grassy landscapes broken up by widely scattered scrub trees. This community comprises the remaining 90 percent of the project corridor and 100 percent of the temporary staging areas. The Madrean Evergreen Woodland community occurs in a small isolated pocket west of the Santa Cruz River. In this community, Emory oak (*Quercus emoryi*), Mexican blue oak (*Q. oblongifolia*), and alligator bark juniper (*Juniperus deppeana*) formed an open canopy and contained shrub layer of indigobushes (*Dalea* spp.), buckwheat (*Eriogonum* spp.), and bricklebush (*Brickellia* spp.). The sparse herbaceous layer beneath typically consisted of grasses and did not support leaf succulents or cacti. As with the majority of areas within the project corridor; heavy cattle grazing was evident in this community. Dominant plant species observed during the surveys are listed in Table 1.

Photograph 3: The Scrub Grassland (Semidesert), Mixed Grass Series

Table 1. Plant Species Observed in Project Corridor during the Pedestrian Survey

Common Name	Scientific Name
Sideoats grama	*Bouteloua curtipendula*
Arizona threeawn	*Aristida arizonica*
Slender grama	*Bouteloua filiformis*
Wooly bunchgrass	*Elionurus barbiculmis*
Deer grass	*Muhlenbergia rigens*
Trailing four o'clock	Allionia incarnata
Indigo bush	*Dalea sp.*
Primrose	*Oenothera* ssp.
Pepperweed	*Lepidium* spp.
Fringed amaranth	*Amaranthus fimbriatus*
Plantain	*Plantago ovata*
Lupine	*Lupinus* spp.
Sagebrush	*Artemisia* ssp.
Goosefoot	*Chenopodium* ssp.
Buckwheat	*Eriogonum* ssp.
Locoweed	*Astragalus* spp.
Beargrass	*Nolina microcarpa*
Bigelow noloena	*Nolina bigelovii*
Soaptree yucca	*Yucca elata*
Spanish dagger	*Yucca schottii*
Sotol	*Sasylirion wheeleri*
Parry's agave	*Agave parryi*
Ocotillo	*Fouquieria splendens*
Rainbow cactus	*Echinocereus pectinatus*
Beehive cactus	*Coryphantha* spp.
Cholla	*Opuntia* spp.
Prickly pear	*Opuntia engelmannii*
Strawberry hedgehog cactus	*Echinocereus englemannii*
Desert Mariposa lily	*Calochortus kennedyi*
Devils claw	*Proboscidea parviflora*
Silverleaf night shade	*Solanum elaeagnifolium*
Western blue flax	*Linum lewisii*
Plains flax	*Linum puberulum*
Range ratany	*Krameria parvifolia*
Mesquite	*Prosopis glandulosa*
Catclaw acacia	*Mimosa aculeaticarpa* var. *biuncifera*
Emory oak	*Quercus emoryi*
Fairy duster	*Calliandra eriophylla*
Cedar	*Juniperus communis*
Plains lovegrass	*Eragrostis intermedia*
Willow	*Salix* ssp.
Eastern cottonwood	*Populus fremontii*
Desertbroom	*Baccharis sarothroides*
Rush	*Juncus spp*
White sagebrush	*Artemisia ludoviciana*
Cane beardgrass	*Andropogon bardinodis*
Candy barrel cactus	*Ferocactus wislizeni*
California poppy	*Eschscholzia californica ssp. mexicana*

Two federally listed plant species were identified as potentially occurring in or near the project corridor (USFWS 2007). Although IPaC identified the Canelo Hills ladies'-tresses as a potential species, this plant does not occur near the project corridor. These are listed in Table 2.

Table 2. Federally Listed Plant Species with the Potential to occur in the Project Corridor

Common Name	Scientific Name	Federal Status
Huachuca water umbel	*Lilaeopsis schaffneriana* spp. *recurva*	Endangered
Pima pineapple cactus	*Coryphantha scheeri* var. *robustispina*	Endangered

(USFWS 2007)

Huachuca water umbel- Huachuca water umbel inhabits southwestern New Mexico, southeastern Arizona, and Sonora, Mexico. In Arizona, Huachuca water umbel has been found in three counties. In Cochise County, it has been found in the San Bernadino National Wildlife Refuge, Leslie Canyon National Wildlife Refuge, the Huachuca Mountains, the Babocomari River, the San Pedro River area, and at Saint David. In Santa Cruz County, it has been found near Sonoita Creek, Papago Springs, Canelo Hills/Turkey Creek, on the Audubon Research Ranch, and San Rafael Valley. The Huachuca water umbel, a member of the parsley family, is an herbaceous semi-aquatic perennial.

During the pedestrian field survey, a small population was thought to have been located in the Santa Cruz River; however, after closer examination during a site visit with the USFWS, it was identified to be a species of soft rush (*Juncus* spp.). Although potential habitat for the species does exist within the Santa Cruz River and the project corridor, none were observed during either of the field surveys.

Pima pineapple cactus- The Pima pineapple cactus is found at elevations between 2,300 and 4,500 feet in Pima and Santa Cruz Counties (58 CFR 49875). They are found in alluvial basins or on hillsides in semi-desert grassland and Sonoran desertscrub, where the habitats that are flat and sparsely vegetated. Pima pineapple cacti are 4 to 18 inches tall, dome-shaped, with silky yellow flowers that bloom in early July with summer rains (58 CFR 49875).

The project corridor lies in the southernmost portion of the Pima pineapple cacti known range. Suitable habitat for this species occurs within the project corridor, however this species was not observed during the February 14-17, 2008 pedestrian field survey.

4.2 Faunal Resources

Arizona contains an enormous diversity of environments for wildlife ranging from hot, dry deserts at low elevations through rich upland deserts, grasslands, and woodlands at mid-elevations to cold, moist montane/alpine habitats. The native faunal components of southeastern Arizona include 370 species of birds, 109 mammal species (Lowe 1964, Hoffmeister 1986), 23 amphibian species (Lowe 1964, Lowe and Holm 1992), and 72 species of reptiles (Lowe 1964, U.S. Department of Interior [USDOI] 1989, USACE 1990). Fish diversity in the major river basins and springs within the region are relatively low and many species are not native (Minckley 1973; Rinne and Minckley 1991; Robbins et al. 1991). The Santa Cruz River system is known to support 12 fish species. Wildlife species observed during the pedestrian surveys are listed in Table 3.

Nine Federally listed wildlife species were identified as having the potential to occur in or near the project corridor. These are listed in Table 4, followed by brief discussions and survey findings.

Table 3. Wildlife Species Observed in Project Corridor

Common Name	Scientific Name
Morning dove	*Zenaida macroura*
Great horned owl	*Bubo virginianus*
Gila woodpecker	*Melanerpes uropygialis*
Northern flicker	*Colaptes auratus*
California quail	*Callipepla californica*
Montezuma quail	*Cyrtonyx montezumae*
Killdeer	*Charadius vociferus*
Loggerhead shrike	*Lanius ludovicianus*
Savannah sparrow	*Passerculus sandwichensis*
Black treated sparrow	*Bamphispiza bilineata*
Red tailed hawk	*Bateo jamaicensis*
Verdin	*Auriparus flaviceps*
Cactus wren	*Campylorhynchus brunneicapillus*
Northern cardinal	*Cardinalis cardinalis*
Greater roadrunner	*Geococcyx californianus*
Black-tailed jackrabbit	*Lepus californicus*
Coyote	*Canis latrans*
Cattle	*Bos taurus*

Table 4. Federally Listed Wildlife Species with the Potential to Occur in the Project Corridor

Common Name	Scientific Name	Federal Status
Mexican spotted owl	*Strix occidentalis lucida*	Threatened
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
Chiricahua leopard frog	*Rana chiricahuensis*	Threatened
Jaguar	*Panthera onca*	Endangered
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	Endangered
Ocelot	*Leopardus pardalis*	Endangered
Gila chub	*Gila intermedia*	Endangered
Gila topminnow	*Poeciliopsis occidentalis occidentalis*	Endangered

Mexican spotted owl **-** The Mexican spotted owl is a medium-sized owl with large dark eyes and no ear tufts. They occur in varied habitat, consisting of mature montane forest and woodland, shady wooded canyons, and steep canyons. In forested habitat, uneven-aged stands with a high canopy closure, high tree density, and a sloped terrain appear to be key habitat components. Elevation ranges from 4,100 to 9,000 feet. Their present range is thought to be similar to the historical range. Populations in Arizona are patchily distributed and occur where appropriate habitat is present throughout all but the arid southwestern portion of the state. – Critical habitat is designated east of project corridor, within the boundaries of the Coronado National Forest, Sierra Vista District.

While, suitable foraging habitat for this species occurs within the Santa Cruz River watershed, 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 (USFWS 1995a). In Arizona, the Mexican spotted owl is patchily distributed in forested mountains statewide (Arizona Game and Fish Department [AGFD] 2001). This species was not observed during the February or April 2008 pedestrian field surveys and suitable habitat, including coniferous forests, are not present within or adjacent to the project corridor.

Southwestern willow flycatcher- The southwestern willow flycatcher is found on breeding territories by mid-May; nest building and egg laying typically occur in late May and early June; and fledglings can be found in early to mid-July (Muiznieks *et al*. 1994; Sogge *et al*. 1994). The southwestern willow flycatcher occurs in riparian habitats with dense growths of willows (*Salix* sp.), marsh broom *(Baccharis* sp*.)*, arrowweed (*Pluchea*

sp.), buttonbush (*Cephalanthus* sp.), tamarisk (*Tamarix* sp.), Russian olive (*Eleagnus* sp.), and often with a scattered overstory of cottonwood (*Populus* sp.). These habitats tend to be rare, widely separated, or small, and usually separated by vast expanses of arid lands.

Potential foraging habitat was noted along the Santa Cruz River system north of the project corridor. However, as can be seen from Photographs 1 and 2, the Santa Cruz River and other washes do not provide large blocks of willow-cottonwood forests with dense understory that comprise suitable habitat for this species. Instead, the riparian communities with the project corridor occur as thin bands along the stream banks. In addition, the southwestern willow flycatcher was not observed during the February and April 2008 pedestrian field surveys.

Chiricahua leopard frog- One of seven known leopard frogs found in Arizona, the Chiricahua leopard frog is greenish-brown usually with a green face. 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, stock tanks, and ponds (AGFD 2001). 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.

Potentially suitable habitat may exist in perennial pools of the Santa Cruz River floodplain and its tributaries located within the project corridor. However no frogs (of any species) were observed or heard during the February or April 2008 pedestrian field survey

Jaguar- The jaguar is the largest and most robust of the North American cats. The southwestern U.S. and Sonora, Mexico are the extreme northern limits of the jaguar's range, which primarily extends from central Mexico, then south through Central and South America to northern Argentina (Hatten *et al*. 2002). The jaguar is found near water in the warm tropical climate of savannahs and forests. Individuals have been sighted in mountainous areas in southeastern Arizona, including the Pajarito Mountains west of Nogales (AGFD 2004). Information on jaguar ecology and behavior, especially at the northern edge of the species' range, is very limited. Habitat studies in the core

part of their range indicate a close association with water, dense cover, and sufficient prey, and an avoidance of highly disturbed areas (Hatten *et al*. 2002). Jaguar distribution patterns over the last 50 years suggest that southeast Arizona is the most likely area for future jaguar occurrence in the U.S. (Hatten *et al*. 2002). According to AGFD the nearest known Mexican population occurs approximately 135 miles south of Tucson, Arizona (AGFD 1998a).

Jaguar home ranges are highly variable, depending on the topography, prey abundance, and the population density of the cats (Brown and Lopez Gonzalez 2001). While suitable habitat for this species occurs within the project corridor site, there are no known breeding populations in the U.S. Jaguars may cross into Texas, New Mexico, and Arizona from adjacent Mexico (AGFD 1998). This species was not observed during the February or April 2008 pedestrian field surveys.

Lesser long-nosed bat- The lesser long-nosed bat was listed as endangered on September 30, 1988 (53 FR 38456*).* Lesser long-nosed bats are a nectar, pollen, and fruit-eating species that migrate into southern New Mexico and Arizona seasonally from Mexico (AGFD 2003) (Photograph 3-4). Lesser long-nosed bats migrate, beginning in early April, apparently following the flowering of columnar cacti and desert agave (*Agave deserti simplex*), then returning to Mexico during September (USFWS 1995). The lesser long-nosed bat is found during the summer within desert grasslands and scrublands (AGFD 2003). Roosting occurs in caves, abandoned buildings, and mines, which are usually located at the base of mountains where food sources are present (AGFD 2003). The recovery plan for the lesser long-nosed bat was completed in March 1997. Scattered small agave plants were present within the project corridor, and could provide potential foraging habitat. Roosting areas are known to occur within the region.

Scattered small agave plants were present within the project corridor, and could provide potential foraging habitat. Roosting areas are also known to occur within the region. While foraging habitat was found in the project corridor, no suitable roosting habitats were identified for this species within the project corridor. Furthermore, limited presence of scattered agaves reduces the potential for lesser long-nosed bat to utilize the project corridor, other than as an infrequent transit corridor to more suitable habitat .

Ocelot- The ocelot is a medium-sized cat measuring 30 to 41 inches and weighing 15 to 40 pounds (AGFD 1998b). In Arizona, the ocelot is believed to inhabit Sonoran Desertscrub communities. Little is known of the ocelot in Arizona, but reports of ocelots in southeastern Arizona warrant further investigation of its status in Arizona and northern Sonora (USFWS 1990). 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 1990). Sightings have been reported in Maricopa County, Arizona, but these are probably due to escaped or released captive animals (USFWS 1990).

Potentially suitable habitat exists in densely vegetated areas of the Santa Cruz River floodplain and its tributaries within the project corridor. However no evidence (e.g. tracks or scat) of this species, nor any other cats, were observed during the February or April 2008 pedestrian field survey.

Gila chub- The Gila chub is a small-finned, deep-bodied, member of the minnow family that ranges 6 to 8 inches in length. They commonly inhabit pools in smaller streams, cienegas, and artificial impoundments ranging in elevation from 609 to 1,676 m (2,000 to 5,500 ft). Their historic range was throughout the entire Gila River basin, with the possible exception of the Salt River drainage above Roosevelt Lake. Presently they occur in tributaries of the Agua Fria, Babocomari, Gila, San Francisco, San Pedro, Santa Cruz, and upper Verde rivers in Cochise, Coconino, Gila, Graham, Greenlee, Pima, Pinal, Santa Cruz, and Yavapai counties, Arizona, and in Grant County, New Mexico.

Potentially suitable habitat exists in the Santa Cruz River system within the project corridor. However, this species was not visually observed during the February 2008 pedestrian field survey. No aquatic surveys were conducted for this species.

Gila topminnow- The Gila topminnow is a small, 1-2 in long, guppy-like, live-bearing fish that occurs in small streams, springs, and cienegas below 4,500 feet elevation. Their historic range was throughout the Gila River drainage in Arizona and also into Mexico and New Mexico. Presently they only occur in Mexico and Arizona. In Arizona, most of the remaining native populations are in the Santa Cruz River system.

Potentially suitable habitat exists in the Santa Cruz River system within the project corridor. However this species was not visually observed during the February 2008 pedestrian field survey. No aquatic surveys were conducted for this species.

4.3 Wetlands and other Jurisdictional Waters

Waters of the U.S. (WUS) are defined as, and may include, waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or impoundments of waters, tributaries of waters, and territorial seas. Jurisdictional boundaries for WUS are defined in the field as the ordinary high water marks which is that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The Santa Cruz River is the primary surface waterway influencing the project corridor. The Santa Cruz River is characterized as an intermittent stream that contains perennial and effluent dominated reaches. Within the project corridor, it is considered a perennial stream. The river flows south into Mexico from its head waters in the San Rafael Valley, located approximately 15 miles east of the project corridor. From Mexico, it meanders back northward and re-enters Arizona 5 miles east of Nogales, at which point the river continues northward toward Tucson, Arizona.

During the pedestrian survey of the project corridor, GSRC identified 27 potential surface water crossings that bisect the project corridor. The total acreage of these crossings was an estimated 1.0 total acres. Figure 2 identifies all of the potential surface water crossings located within the project corridor. All of these streams are likely to be considered as jurisdictional WUS by the USACE-Los Angeles District, Arizona/Nevada Area Office.

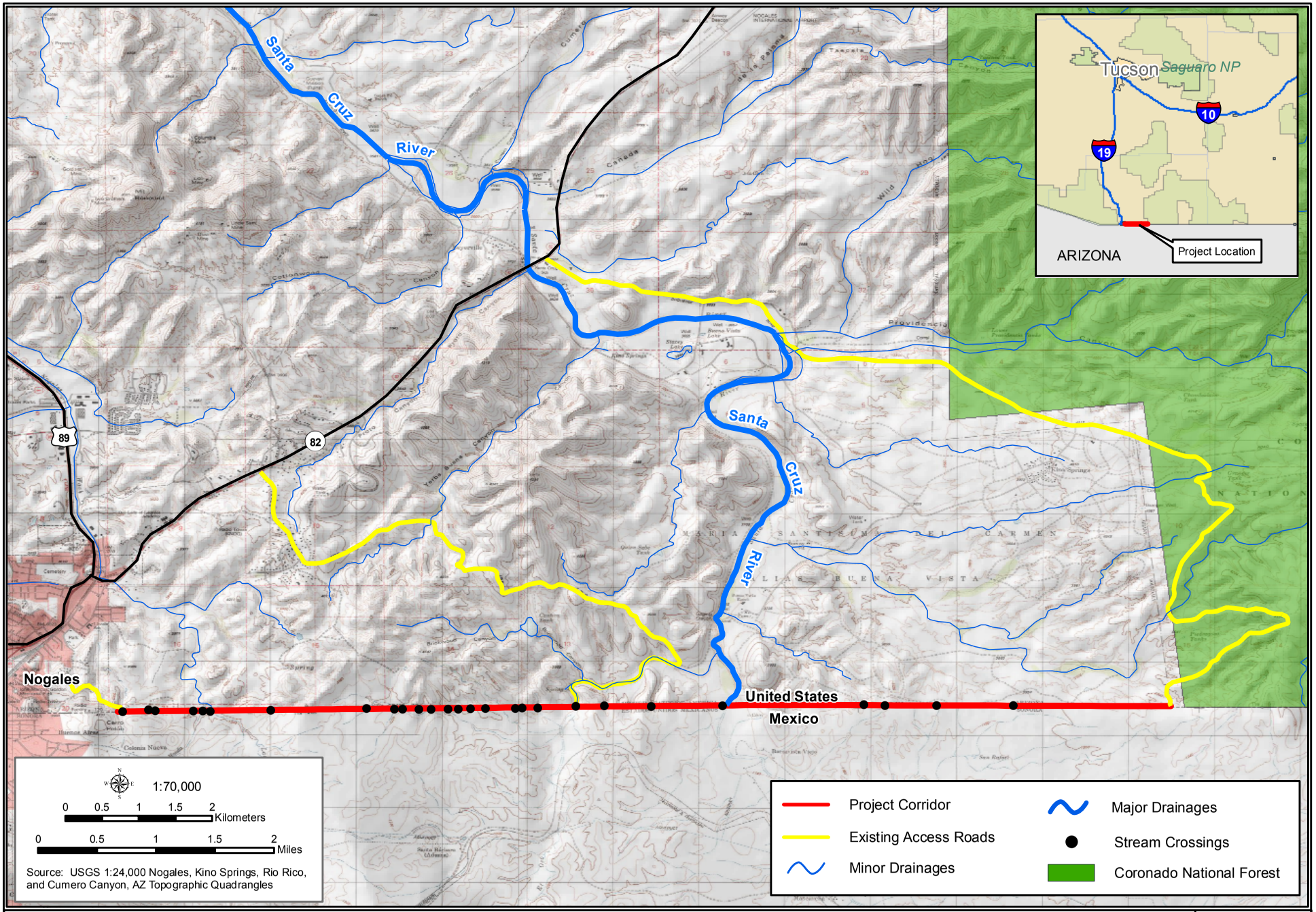

Figure 2: Surface Waters and Waters of the U.S.

GSRC

May 2008

5.0 DISCUSSION

Eleven federally listed species were initially identified as potentially occurring in the vicinity of the project. After field assessments were performed it was determined that suitable habitat is present for all of these species. However, neither of the two plant species were observed in spite of intensive field investigations. These species and the results of surveys are provided in Table 5.

Table 5. Summary of listed species potentially occurring in the project area

Common Name	Potential to occur	Basis of determination
Huachuca water umbel	NO	None observed within the project corridor
Pima pineapple cactus	NO	None observed within the project corridor
Mexican spotted owl	YES	Suitable habitat species occurs within the Santa Cruz River floodplain of the proposed project corridor as forested and steep sloped terrain do exist in portions of the floodplain.
Southwestern willow flycatcher	YES	Potential foraging and nesting habitat was noted along the Santa Cruz River system of the project corridor.
Chiricahua leopard frog	YES	Suitable habitat may exist in perennial pools of the Santa Cruz River floodplain
Jaguar	YES	Jaguar home ranges are highly variable, depending on the topography, prey abundance, and the population density of the cats
Lesser long-nosed bat	YES	Scattered small agave plants were present within Foraging habitat was found in the project corridor, yet the potential for this species to occur is likely limited to an infrequent transit corridor to more suitable habitat .
Ocelot	YES	Suitable habitat exists in densely vegetated areas of the Santa Cruz River floodplain and its tributaries within the project corridor.
Gila chub	YES	No aquatic surveys performed.
Gila topminnow	YES	No aquatic surveys performed.

NA- Not assessed potential (occurrence is assumed)

6.0 Certification:

I herby certify that the statements furnished above and in the Appendix exhibits present the data and information required for this biological survey, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field surveys were conducted by myself (James Henderson) and Sara Viernum. We certify that we have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that we have no financial interest in the project.

DATE: 27 June 2008 SIGNED: _____

PROJECT MANAGER - GSRC

FIELD SURVEYS AND REPORT WERE PREPARED BY:

JAMES HENDERSON (WILDLIFE BIOLOGIST) - GSRC

SARA VIERNUM (WILDLIFE BIOLOGIST) – GSRC

JOSH MCENANY (WILDLIFE BIOLOGIST) – GSRC

MICHAEL HODSON (WILIFE BIOLOGIST) – GSRC

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Appendix A

Appendix A. State of Arizona Wildlife Species of Concern

Common Name	Scientific Name	Status
Sonora Tiger Salamander	*Ambystoma tigrinum stebbinsi*	WSC
Western Barking Frog	*Eleutherodactylus augusti cactorum*	WSC
Great Plains Narrow-mouthed Toad	*Gastrophyne olivacea*	WSC
Chiricahua Leopard Frog	*Rana chiricahuensis*	WSC
Tarahumara Frog	*R. tarahumarae*	WSC
Lowland Leopard Frog	*R. yavapaiensis*	WSC
Northern Goshawk	*Accipiter gentilis*	WSC
Violet-crowned Hummingbird	*Amazilia violiceps*	WSC
Baird's Sparrow	*Ammodramus bairdii*	WSC
Sprague's Pipit	*Anthus spragueii*	WSC
Northern Gray Hawk	*Buteo nitidus maxima*	WSC
Common Black Hawk	*Buteogallus anthracinus*	WSC
Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	WSC
Black-bellied Whistling Duck	*Dendrocygna autumnalis*	WSC
Southwest Willow Flycatcher	*Empidonax traillii extimus*	WSC
American Peregrine Falcon	*Falco peregrinus anatum*	WSC
Cactus ferruginous Pygmy-owl	*Glaucidium brasilianum cactorum*	WSC
Bald Eagle (wintering pop.)	*Haliaeetus leucocephalus*	WSC
Rose-throated Becard	*Pachyramphus aglaiae*	WSC
Osprey	*Pandion haliaetus*	WSC
Black-capped Gnatcatcher	*Polioptila nigriceps*	WSC
Mexican Spotted Owl	*Strix occidentalis lucida*	WSC
Elegant Trogon	*Trogon elegans*	WSC
Thick-billed Kingbird	*Tyrannus crassirostris*	WSC
Tropical Kingbird	*T. melancholicus*	WSC
Desert Pupfish	*Cyprinodon macularius*	WSC
Sonora Chub	*Gila ditaenia*	WSC
Gila Chub	*G. intermedia*	WSC
Gila Topminnow	*Poeciliopsis occidentalis occidentalis*	WSC
Mexican Long-tongued Bat	*Choeronycteris mexicana*	WSC
Western Red Bat	*Lasiurus blossevillii*	WSC
Lesser Long-nosed Bat	*Leptonycteris curasoae yerbabuenae*	WSC
California Leaf-nosed Bat	*Macrotus californicus*	WSC
Jaguar	*Panthera onca*	WSC

Common Name	Scientific Name	Status
Arizona Shrew	*Sorex arizonae*	WSC
Pima Indian Mallow	*Abutilon parishii*	SR
Santa Cruz Striped Agave	*Agave parviflora spp. parviflora*	HS
Redflower Onion	*Allium rhizomatum*	SR
Saiya	*Amoreuxia gonzalezii*	HS
Huachuca Milk-vetch	*Astragalus hypoxylus*	SR
Santa Cruz Beehive Cactus	*Coryphantha recurvata*	HS
Pima Pineapple Cactus	*C. scheeri var. robustispina*	HS
Gentry Indigo Bush	*Dalea tentaculoides*	HS
Woodland Spruge	*Euphorbia macropus*	SR
Bartram Stonecrop	*Graptopetalum bartramii*	SR
Chisos Coral-root	*Hexalectris revolute*	SR
Crested Coral-root	*H. spicata*	SR
Huachuca Water Umble	*Lilaeopsis schaffneriana var. recurva*	HS
Lemmon Lily	*Lilium parryi*	SR
Leafy Lobelia	*Lobelia fenestralis*	SR
Mexican Lobelia	*L. laxiflora*	SR
Supine Bean	*Macroptilium supinum*	SR
Madrean Adder's Mouth	*Malaxis corymbosa*	SR
Purple Adder's Mouth	*M. porphyrea*	SR
Wilcox Fishhook Cactus	*Mammillaria wrightii var. wilcoxii*	SR
Stag-horn Cholla	*Opuntia versicolor*	SR
Catalina Beardtongue	*Penstemon discolor*	HS
Whisk Fern	*Psilotum nudum*	HS
Fallen Ladies'-tresses	*Schiedeella arizonica*	SR
Huachuca Groundsel	*Senecio multidentatus var. huachucanus*	HS
Madrean Ladies'-tresses	*Spiranthes delitescens*	HS
Michoacan Ladies'-tresses	*Stenorrhynchos michuacanum*	SR
Pinos Altos Flame Flower	*Talinum humile*	HS
Tepic Flame Flower	*T.marginatum*	SR
Arizona Ridge-nosed Rattlesnake	*Crotalus willardi willardi*	WSC
Sonoran Desert Tortoise (Sonoran Population)	*Gopherus agassizii*	WSC
Brown Vinesnake	*Oxybelis aeneus*	WSC
Northern Mexican Gartersnake	*Thamnophis eques megalops*	WSC

Source: ANHP 2008. Definitions: WSC: Wildlife Species of Concern; HS: Highly Safeguarded; SR: Salvage Restricted;

APPENDIX E
Arizona National Heritage Program List

Special Status Species Santa Cruz County, Arizona
Arizona Game and Fish Department, Heritage Data Management System
Updated: June 28, 2007
Accessed November 21,2007 http://www.azgfd.gov/w_c/edits/documents/ssspecies_bycounty.pdf

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	STATE	GRANK	S RANK
Santa Cruz	AMPHIBIAN	Ambystoma tigrinum stebbinsi	Sonora Tiger Salamander	WSC	G5T1T2	S1
Santa Cruz	AMPHIBIAN	Eleutherodactylus augusti cactorum	Western Barking Frog	WSC	G5T5	S2
Santa Cruz	AMPHIBIAN	Gastrophryne olivacea	Great Plains Narrow-mouthed Toad	WSC	G5	S3
Santa Cruz	AMPHIBIAN	Rana chiricahuensis	Chiricahua Leopard Frog	WSC	G3	S2
Santa Cruz	AMPHIBIAN	Rana tarahumarae	Tarahumara Frog	WSC	G3	SXS1
Santa Cruz	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	WSC	G4	S3
Santa Cruz	BIRD	Accipiter gentilis	Northern Goshawk	WSC	G5	S3
Santa Cruz	BIRD	Amazilia violiceps	Violet-crowned Hummingbird	WSC	G5	S3
Santa Cruz	BIRD	Ammodramus bairdii	Baird's Sparrow	WSC	G4	S2N
Santa Cruz	BIRD	Anthus spragueii	Sprague's Pipit	WSC	G4	S2N
Santa Cruz	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl		G4T4	S3
Santa Cruz	BIRD	Buteo nitidus maxima	Northern Gray Hawk	WSC	G5T4Q	S3
Santa Cruz	BIRD	Buteogallus anthracinus	Common Black-Hawk	WSC	G4G5	S3
Santa Cruz	BIRD	Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	WSC	G5T3Q	S3
Santa Cruz	BIRD	Dendrocygna autumnalis	Black-bellied Whistling-Duck	WSC	G5	S3
Santa Cruz	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	WSC	G5T1T2	S1
Santa Cruz	BIRD	Falco peregrinus anatum	American Peregrine Falcon	WSC	G4T4	S4
Santa Cruz	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	WSC	G5T3	S1
Santa Cruz	BIRD	Haliaeetus leucocephalus (wintering p	Bald Eagle	WSC	G5	S4N
Santa Cruz	BIRD	Pachyramphus aglaiae	Rose-throated Becard	WSC	G4G5	S1
Santa Cruz	BIRD	Pandion haliaetus	Osprey	WSC	G5	S2B,S4N
Santa Cruz	BIRD	Polioptila nigriceps	Black-capped Gnatcatcher	WSC	G5	S1
Santa Cruz	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	WSC	G3T3	S3S4
Santa Cruz	BIRD	Trogon elegans	Elegant Trogon	WSC	G5	S3
Santa Cruz	BIRD	Tyrannus crassirostris	Thick-billed Kingbird	WSC	G5	S2
Santa Cruz	BIRD	Tyrannus melancholicus	Tropical Kingbird	WSC	G5	S3
Santa Cruz	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace		G4T3T4	S3S4
Santa Cruz	FISH	Catostomus clarki	Desert Sucker		G3G4	S3S4
Santa Cruz	FISH	Catostomus insignis	Sonora Sucker		G3	S3
Santa Cruz	FISH	Cyprinodon macularius	Desert Pupfish	WSC	G1	S1
Santa Cruz	FISH	Gila ditaenia	Sonora Chub	WSC	G2	S1

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	STATE	GRANK	S RANK
Santa Cruz	FISH	Gila intermedia	Gila Chub	WSC	G2	S2
Santa Cruz	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	WSC	G3T3	S1S2
Santa Cruz	FISH	Rhinichthys osculus	Speckled Dace		G5	S3S4
Santa Cruz	INVERTEBRATE	Agathymus aryxna	Arizona Giant Skipper		G4G5	S?
Santa Cruz	INVERTEBRATE	Argia sabino	Sabino Canyon Damselfly		G1G2	S?
Santa Cruz	INVERTEBRATE	Calephelis rawsoni arizonensis	Arizona Metalmark		G3G4	S2
Santa Cruz	INVERTEBRATE	Heterelmis stephani	Stephan's Heterelmis Riffle Beetle		G1	S1
Santa Cruz	INVERTEBRATE	Limenitis archippus obsoleta	Obsolete Viceroy Butterfly		G5T3T4	S?
Santa Cruz	INVERTEBRATE	Neophasia terlooii	Chiricahua Pine White		G3G4	S2?
Santa Cruz	INVERTEBRATE	Pyrgulopsis thompsoni	Huachuca Springsnail		G2	S2
Santa Cruz	INVERTEBRATE	Stygobromus arizonensis	Arizona Cave Amphipod		G2G3	S1?
Santa Cruz	INVERTEBRATE	Sympetrum signiferum	Mexican Meadowfly		G2G3	S?
Santa Cruz	MAMMAL	Choeronycteris mexicana	Mexican Long-tongued Bat	WSC	G4	S3
Santa Cruz	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat		G4T4	S3S4
Santa Cruz	MAMMAL	Lasiurus blossevillii	Western Red Bat	WSC	G5	S3
Santa Cruz	MAMMAL	Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	WSC	G4	S2S3
Santa Cruz	MAMMAL	Macrotus californicus	California Leaf-nosed Bat	WSC	G4	S3
Santa Cruz	MAMMAL	Myotis velifer	Cave Myotis		G5	S3S4
Santa Cruz	MAMMAL	Panthera onca	Jaguar	WSC	G3	S1
Santa Cruz	MAMMAL	Sigmodon ochrognathus	Yellow-nosed Cotton Rat		G4G5	S4
Santa Cruz	MAMMAL	Sorex arizonae	Arizona Shrew	WSC	G3	S2
Santa Cruz	MAMMAL	Thomomys umbrinus intermedius	Southern Pocket Gopher		G5T3	S3
Santa Cruz	PLANT	Abutilon parishii	Pima Indian Mallow	SR	G2	S2
Santa Cruz	PLANT	Acacia farnesiana	Sweet Acacia		G5	S1S2
Santa Cruz	PLANT	Agave parviflora ssp. parviflora	Santa Cruz Striped Agave	HS	G3T3	S3
Santa Cruz	PLANT	Allium rhizomatum	Redflower Onion	SR	G3?Q	S1
Santa Cruz	PLANT	Amoreuxia gonzalezii	Saiya	HS	G1	S1
Santa Cruz	PLANT	Amsonia grandiflora	Large-flowered Blue Star		G2	S2
Santa Cruz	PLANT	Arabis tricornuta	Chiricahua Rock Cress		G1?	S1?
Santa Cruz	PLANT	Asclepias lemmonii	Lemmon Milkweed		G4?	S2
Santa Cruz	PLANT	Asclepias uncialis	Greene Milkweed		G3G4	S1?
Santa Cruz	PLANT	Astragalus hypoxylus	Huachuca Milk-vetch	SR	G1	S1
Santa Cruz	PLANT	Browallia eludens	Elusive New Browallia Species		G2?	S1
Santa Cruz	PLANT	Capsicum annuum var.glabriusculum	Chiltepin		G5T5	S2
Santa Cruz	PLANT	Carex chihuahuensis	A Sedge		G3G4	S2S3
Santa Cruz	PLANT	Carex ultra	Arizona Giant Sedge		G3?	S2

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	STATE	GRANK	S RANK
Santa Cruz	PLANT	Choisya mollis	Santa Cruz Star Leaf		G5?T2?	S2
Santa Cruz	PLANT	Conioselinum mexicanum	Mexican Hemlock Parsley		G2?	S1
Santa Cruz	PLANT	Coryphantha recurvata	Santa Cruz Beehive Cactus	HS	G3	S3
Santa Cruz	PLANT	Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	HS	G4T2	S2
Santa Cruz	PLANT	Coursetia glabella			G3?	S1
Santa Cruz	PLANT	Dalea tentaculoides	Gentry Indigo Bush	HS	G1	S1
Santa Cruz	PLANT	Erigeron arisolius			G2	S2
Santa Cruz	PLANT	Euphorbia macropus	Woodland Spurge	SR	G4	S2
Santa Cruz	PLANT	Graptopetalum bartramii	Bartram Stonecrop	SR	G3	S3
Santa Cruz	PLANT	Hedeoma dentatum	Mock-pennyroyal		G3	S3
Santa Cruz	PLANT	Heterotheca rutteri	Huachuca Golden Aster		G2	S2
Santa Cruz	PLANT	Hexalectris revoluta	Chisos Coral-root	SR	G1G2	S1
Santa Cruz	PLANT	Hexalectris spicata	Crested Coral Root	SR	G5	S3S4
Santa Cruz	PLANT	Hieracium pringlei	Pringle Hawkweed		G2Q	S1
Santa Cruz	PLANT	Ipomoea plummerae var. cuneifolia	Huachuca Morning Glory		G4T3	S3
Santa Cruz	PLANT	Ipomoea thurberi	Thurber's Morning-glory		G3	S1
Santa Cruz	PLANT	Laennecia eriophylla	Woolly Fleabane		G3	S2
Santa Cruz	PLANT	Lilaeopsis schaffneriana var. recurva	Huachuca Water Umbel	HS	G4T2	S2
Santa Cruz	PLANT	Lilium parryi	Lemmon Lily	SR	G3	S2
Santa Cruz	PLANT	Lobelia fenestralis	Leafy Lobelia	SR	G4	S1
Santa Cruz	PLANT	Lobelia laxiflora	Mexican Lobelia	SR	G4	S1
Santa Cruz	PLANT	Lotus alamosanus	Alamos Deer Vetch		G3G4	S1
Santa Cruz	PLANT	Lupinus huachucanus	Huachuca Mountain Lupine		G2	S2
Santa Cruz	PLANT	Macroptilium supinum	Supine Bean	SR	G2	S1
Santa Cruz	PLANT	Malaxis corymbosa	Madrean Adders Mouth	SR	G4	S3S4
Santa Cruz	PLANT	Malaxis porphyrea	Purple Adder's Mouth	SR	G4	S2
Santa Cruz	PLANT	Mammillaria wrightii var. wilcoxii	Wilcox Fishhook Cactus	SR	G4T4	S4
Santa Cruz	PLANT	Manihot davisiae	Arizona Manihot		G4	S2
Santa Cruz	PLANT	Marina diffusa	Escoba		G5?	S1
Santa Cruz	PLANT	Metastelma mexicanum	Wiggins Milkweed Vine		G3G4	S1S2
Santa Cruz	PLANT	Muhlenbergia dubioides	Box Canyon Muhly		G1Q	S1
Santa Cruz	PLANT	Muhlenbergia xerophila	Weeping Muhly		G3	S1
Santa Cruz	PLANT	Notholaena lemmonii	Lemmon Cloak Fern		G3?	S1S2
Santa Cruz	PLANT	Opuntia versicolor	Stag-horn Cholla	SR	G4	S2S3
Santa Cruz	PLANT	Paspalum virletii	Virlet Paspalum		G3?	S1
Santa Cruz	PLANT	Passiflora arizonica	Arizona Passionflower		G5T3T5	S2

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	STATE	GRANK	S RANK
Santa Cruz	PLANT	Pectis imberbis	Beardless Chinch Weed		G3	S1
Santa Cruz	PLANT	Penstemon discolor	Catalina Beardtongue	HS	G2	S2
Santa Cruz	PLANT	Penstemon superbus	Superb Beardtongue		G3?	S2?
Santa Cruz	PLANT	Physalis latiphysa	Broad-leaf Ground-cherry		G1	S1
Santa Cruz	PLANT	Psilotum nudum	Whisk Fern	HS	G5	S1
Santa Cruz	PLANT	Samolus vagans	Chiricahua Mountain Brookweed		G2?	S2
Santa Cruz	PLANT	Schiedeella arizonica	Fallen Ladies'-tresses	SR	GNR	S4
Santa Cruz	PLANT	Senecio carlomasonii	Seemann Groundsel		G4?Q	S2S3
Santa Cruz	PLANT	Senecio multidentatus var. huachucan	Huachuca Groundsel	HS	G2G4T2	S2
Santa Cruz	PLANT	Sisyrinchium cernuum	Nodding Blue-eyed Grass		G5	S2
Santa Cruz	PLANT	Solanum lumholtzianum	Lumholtz Nightshade		G3G4	S3
Santa Cruz	PLANT	Spiranthes delitescens	Madrean Ladies'-tresses	HS	G1	S1
Santa Cruz	PLANT	Stenorrhynchos michuacanum	Michoacan Ladies'-tresses	SR	G4	S3
Santa Cruz	PLANT	Stevia lemmonii	Lemmon's Stevia		G3G4	S2
Santa Cruz	PLANT	Talinum humile	Pinos Altos Flame Flower	SR	G2	S1
Santa Cruz	PLANT	Talinum marginatum	Tepic Flame Flower	SR	G2	S1
Santa Cruz	PLANT	Tephrosia thurberi	Thurber Hoary Pea		G4G5	S3
Santa Cruz	PLANT	Tragia laciniata	Sonoran Noseburn		G3G4	S3?
Santa Cruz	PLANT	Viola umbraticola	Shade Violet		G3G4	S2?
Santa Cruz	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail		G4T4	S2
Santa Cruz	REPTILE	Crotalus willardi willardi	Arizona Ridge-nosed Rattlesnake	WSC	G5T4	S1S2
Santa Cruz	REPTILE	Gopherus agassizii (Sonoran Populatio	Sonoran Desert Tortoise	WSC	G4T4	S4
Santa Cruz	REPTILE	Lampropeltis getula nigrita	Western Black Kingsnake		G5T3T4Q	S1S2
Santa Cruz	REPTILE	Oxybelis aeneus	Brown Vinesnake	WSC	G5	S1
Santa Cruz	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	WSC	G5T5	S1

APPENDIX F
List of Acronyms and Abbreviations

ACRONYMS AND ABBREVIATIONS

ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AMA	Active Management Area
amsl	above mean sea level
ANHP	Arizona Natural Heritage Program
AO	Area of operation
AZGFD	Arizona Game and Fish Department
BLM	U.S. Bureau of Land Management
BMP	Best Management Practice
BRP	Biological Resources Plan
CBP	U.S. Customs and Border Protection
CM&R	Construction Mitigation and Restoration
CAA	Clean Air Act
CNF	Coronado National Forest
CWA	Clean Water Act
dBA	A-weighted scale
DHS	U.S. Department of Homeland Security
DNL	Day-night average sound level
DOI	U.S. Department of the Interior
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
ESP	Environmental Stewardship Plan
°F	Fahrenheit
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FY	Fiscal Year
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
mph	Miles per hour
MSO	Mexican spotted owls
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NPS	National Park Service
P.L.	Public Law
PM-10	Particulate matter less than 10 microns
POE	Port of Entry
Reclamation	U.S. Bureau of Reclamation
ROW	Right of way
SBI*net*	Secure Border Initiative
SBNWR	San Bernardino National Wildlife Refuge
SEA	Supplemental Environmental Assessment
SPCCP	Spill Prevention Control and Countermeasures Plan

SWPPP	Storm Water Pollution Prevention Plan
TI	Tactical infrastructure
TVB	Temporary vehicle barrier
U.S.	United States
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USIBWC	U.S. Section, International Boundary and Water Commission
WUS	Waters of the U.S.