



# United States Department of the Interior



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In Reply Refer To:

AESO/SE

22410-2009-F-0089-R3

224101989-F-0078-R7

September 16, 2011

Mr. Loren Flossman, Director  
U.S. Customs and Border Protection  
Border Patrol Facilities and Tactical Infrastructure  
Program Management Office  
1300 Pennsylvania Avenue NW  
Washington, DC 20229

RE: Reinitiation of Formal Consultation on the *SBI*net Ajo-1 Tower Project, Ajo Area of Responsibility, U.S. Border Patrol, Tucson Sector, Arizona; Proposed Construction, Operation, and Maintenance of a Forward Operating Base, Organ Pipe Cactus National Monument, Pima County, Arizona

Dear Mr. Flossman:

Thank you for your request for reinitiation of formal consultation on the *SBI*net Ajo-1 Tower Project, Ajo Area of Responsibility, U.S. Border Patrol, Tucson Sector, Arizona. Your request was received by us on August 31, 2011, and was made pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). At issue are the possible effects of the proposed construction, operation, and maintenance of a forward operating base (FOB) located north of El Camino Del Diablo on Organ Pipe Cactus National Monument (OPCNM) in Pima County, Arizona.

The U.S. Customs and Border Protection (CBP) found that only the endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*) and endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) may be affected by the proposed construction, operation, and maintenance of the FOB; hence, our previous analyses and conclusions stand regarding other listed species (see the *SBI*net Ajo-1 Tower Project Biological Opinion issued December 10, 2009 (file number 22410-F-2009-0089; U.S. Fish and Wildlife Service 2009) for effects analyses and conclusions regarding other listed species). CBP determined that the proposed action may adversely affect the Sonoran pronghorn and this species is the subject of this Biological Opinion (BO). CBP also determined that the proposed action may affect, but is not likely to adversely affect the endangered lesser long-nosed bat. We concur with this determination and our rationale is provided in Appendix A.

Additionally, you requested reinitiation of consultation on the General Management Plan (GMP) for OPCNM (consultation number 22410-1989-F-0078), on behalf of the Superintendent of OPCNM. At issue are the impacts to the endangered Sonoran pronghorn. You found that only the Sonoran pronghorn would be affected by the proposed change in the GMP; hence our previous analyses and conclusions stand for those species (see the GMP BO for effects analyses and conclusions regarding other listed species). One of the conservation measures in our November 16, 2001 BO on the GMP and all subsequent reinitiations is: "Limiting future development to the area south of the North Puerto Blanco Drive and east of the Senita Basin Road/Baker Mine Trail/Dripping Springs Trail and limiting timing of construction to occur outside the pronghorn fawning period (March 15 to July 15)". The original *SBInet* Ajo-1 Tower Project consultation requested a one-time deviation from the first part of this conservation measure in order to allow DHS to construct towers TCA-AJO-170, 302, and 003 and associated access roads outside of the aforementioned area. This consultation requests a second deviation from this conservation measure to allow OPCNM to issue a Special Use Permit for the construction of the proposed Ajo FOB (as described in the proposed action below) on OPCNM lands; however as the lead action agency, CBP is consulting on the entire action. Herein we revise the proposed action for the GMP to reflect this second deviation from the limitation on future development, and furthermore revise the effects of the action and conclusion for the Sonoran pronghorn in OPCNM's GMP biological opinion to reflect this change in the proposed action. Sections not addressed or revised herein remain as presented in the OPCNM GMP BO and its reinitiations.

We have agreed to expedite this reinitiation of the *SBInet* Ajo-1 Tower Project BO, understanding the constraints CBP has with regard to funding and implementation of this proposed FOB. However, we do so based on CBP's commitment and agreement to expeditiously address non-compliance issues associated with the *SBInet* Ajo-1 Tower Project BO in a parallel reinitiation effort. We recommend that we move forward with that process as soon as possible to address issues that are currently preventing the effective implementation of that BO.

This BO is based on information provided in the August 2011 Biological Assessment (BA), conversations and electronic correspondence with CBP staff, and other sources of information. Literature cited in this BO is not a complete bibliography of all literature available on the species addressed or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

## **CONSULTATION HISTORY**

See the December 10, 2009, the March 15, 2010, and the April 29, 2011 BOs on *SBInet* Ajo-1 Tower Project for consultation history prior to March 31, 2011.

- March 31, 2011: We received a request from CBP for input regarding protected species, designated critical habitat, descriptions of sensitive resources, and unique or environmentally sensitive areas that we believe may be affected by the proposed CBP activities.

- May 9, 2011: We provided a response that directed CBP to the requested species information, as well as other information regarding indentifying and avoiding impacts to listed and sensitive species in the proposed project area.
- June 29, 2011: CBP submitted a preliminary draft biological assessment (BA) to us.
- July 15, 2011: We provided comments to CBP on the preliminary draft BA.
- July 19, 2011: We met with CBP, OPCMN, and CPNWR personnel to discuss comments on the draft BA.
- August 9, 2011: CBP submitted a draft BA to us.
- August 19, 2011: We provided comments to CBP on the draft BA.
- August 23, 2011: We met with CBP to discuss outstanding issues related to the draft BA.
- August 31, 2011: CBP provided a final BA and requested reinitiation of formal section 7 consultation for the proposed project.
- September 9, 2011: We provided a draft BO to CBP for review and comment.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE PROPOSED ACTION**

CBP proposes to expand the existing 1-acre U.S. Border Patrol (USBP) tactical camp (described as a Forward Operating Base (FOB) in the original *SBI*net Ajo-I Tower Project Biological Opinion (BO) into a 3-acre FOB within the USBP Tucson Sector, Ajo Station Area of Responsibility (AOR) in southwestern Pima County, Arizona (Figure 1). The Ajo Station operates the existing tactical camp on a 1-acre site located on the OPCNM at the intersection of Bates Well Road and the western boundary of the OPCNM (Figure 2) under Special Use Permit number IMR ORPI 9500 10-04. The following description of the Proposed Action represents those actions that exceed the activities analyzed and evaluated under the original *SBI*net Ajo-I Tower Project and OPCNM GMP BOs and their subsequent reinitiations.

Additionally, as described above, this consultation addresses the issuance of a Special Use Permit by OPCNM to CBP for the proposed FOB and reinitiation of the section 7 consultation on the OPCNM GMP to allow for a deviation from the first part of a conservation measure ("Limiting future development to the area south of the North Puerto Blanco Drive and east of the Senita Basin Road/Baker Mine Trail/Dripping Springs Trail and limiting timing of construction to occur outside the pronghorn fawning period [March 15 to July 15]") included in the November 16, 2001 GMP BO. For the purposes of this reinitiation, the effects of the issuance of the Special Use Permit by OPCNM are tied to and will be the same as described below for the proposed FOB.

The Proposed Action will expand the Ajo Station tactical camp on the northeast corner of the intersection of Bates Well Road and the western boundary of the OPCNM. The existing tactical camp has a 1-acre footprint within the non-wilderness corridor which parallels Bates Well Road. The Ajo FOB will be expanded to a total of 3 acres within the non-wilderness corridor. Based upon potential site designs, it has been determined that a 3-acre project site is sufficient in size to accommodate FOB facilities supporting up to 32 personnel. The FOB will be designed with modular buildings for more efficient construction and reduced costs. Figure 3 is a conceptual layout of the proposed FOB. Efforts will be made when designing the FOB to meet the Leadership in Energy and Environmental Design (LEED) Silver certification by the U.S. Green Building Council. The proposed FOB will include the following components:

- Agent living quarters
- Support/maintenance building
- Detention Building
- Fuel stations
- Dining facility
- Water well and water storage
- Generator(s)
- Horse stalls and hay storage
- Vehicle parking
- All-terrain vehicle (ATV) storage
- Administration building
- Secure storage
- Security lighting
- 8-foot chain-link security fencing

CBP anticipates solar panels, that will ultimately meet all FOB power needs, would be installed by the fifth year following initiation of construction. Until year 5, the FOB would rely on generators for full-time power.

A 6,400-square-foot solar array including batteries and switching/converting equipment will be installed to provide power for the FOB. The system will be backed up by a diesel generator that will provide power to the site and will charge the battery bank, if needed. It is estimated that two 200 kilowatt generators would be needed to power the FOB. Only one generator would be in operation at any one time. The generators would run on a weekly schedule, alternating operation and maintenance. Generators would be baffled to limit noise emissions to 35 A-weighted decibels (dBA) at 492 feet from the emission source. The solar panels will be attached to the rooftops of the FOB's modular buildings.

A fuel facility with aboveground storage tanks (ASTs) or portable ASTs for vehicle and generator fuel would be included. Fuel requirements for vehicles and full time generator use would be approximately 7,300 gallons per week. Both diesel and gasoline would be stored on site. Fuel deliveries would be required once weekly, assuming an 8,600-gallon tanker truck would be used.

The agent living quarters and dining facility would support a force of up to 32 agents. CBP estimates that deployment of agents to the FOB would be as follows: October to December: 8 to 16 agents, January to March: 16 to 24 agents, and April to September 24 to 32 agents. The number of agents assigned to the FOB would vary in the future based on border security requirements, but would not exceed the design capacity. Additional modular facilities would support office space, an

armory, and a detention center capable of holding up to 40 detainees. All food and other supplies would be delivered weekly during shift change.

Water requirements may potentially be met at the FOB by developing a well. If the well does not provide adequate quality or quantity of water for both potable and fire suppression requirements, water will continue to be trucked in from Ajo Station. The estimates for potable water requirements are approximately 32 gallons per agent per day and approximately 5 gallons per detainee. Therefore, 1,224 gallons of potable water per day would be required at the FOB during peak occupancy.

Included in the FOB layout would be parking spaces for government-owned vehicles (GOV) and specialized vehicles. An equestrian support facility for up to eight horses at the FOB is included in the conceptual design.

### Construction

The additional 2-acres of the FOB footprint will be mechanically cleared of vegetation and graded. Cement foundations for the facilities will be cast on-site. All materials and construction equipment will be staged in this area during construction activities. During construction the number of vehicles driven to the FOB site will be minimized. CBP will provide FWS-Arizona Ecological Services Office (AESO) and OPCNM with copies of the construction plans for the FOB site as well as the Stormwater Pollution Prevention Plan (SWPPP).

The following is a list of heavy equipment and vehicles expected to be used during construction and maintenance: front-end loader or equivalent, excavator, water trucks, crane, cement truck, bulldozer, drill rig, and semi-trailer dump trucks and flatbed delivery trucks.

The proposed FOB construction activities are projected for the fall of 2011 through the spring of 2012. Full build-out of all proposed components, including full solar power capabilities, may be constructed in phases which could occur over 5 years.

### Operation and Maintenance

The power supply for the Ajo FOB will come from diesel generators or hybrid diesel generator/solar energy systems for up to 5 years. Over time, and as the construction budget allows, the FOB will be transitioned away from fossil fuel generators to rely completely on solar panels for power generation with diesel generators serving as backup power systems. Initially, the diesel generators are expected to operate continuously, and as alternative fuel components are implemented, the diesel generator operation time will decrease to approximately 2 to 4 hours per month for maintenance and to charge the backup system's batteries.

Up to 32 USBP agents could be stationed at the FOB. However, only 8 to 10 agents per 8-hour shift would be deployed from the FOB into the area of operations (i.e., portions of the OPCNM and Cabeza Prieta National Wildlife Refuge [CPNWR]). The intensity of deployment from the Ajo

Station into the AOR would not change from the levels currently used with the existing tactical camp. The operation of the proposed FOB may occur 365 days per year and as long as illegal activities persist that require its continued operation. When CBP determines that the FOB is no longer needed, it will be dismantled and removed within 1 year of CBP's determination. The site will be restored to previously existing conditions in coordination with the land manager and the FWS-AESO.

Maintenance at the FOB would include refilling fuel ASTs, delivery of food, equipment, and supplies, and if necessary, water. The number of maintenance trips and refueling trips will vary depending on the number of agents stationed at the FOB and rate of fuel usage. It is anticipated that four vehicle trips to and from the FOB per month will be required for maintenance. Tanker trucks with dual rear tires and/or rear dual axles with a gross vehicle weight of (GVW) 30,000 pounds will be used to deliver fuel. A total of approximately 48 vehicle trips per year will occur for maintenance activities.

The continued maintenance as well as potential renovations of or minor additions to the FOB would be expected. Such activities could include, but are not limited to, minor renovations and additions to buildings such as realigning interior spaces of an existing building, adding a small storage shed to an existing building. Other maintenance activities could include routine upgrade, repair, and maintenance of the FOB buildings, roofs, parking area, grounds, or other facilities which would not result in a change in its functional use (e.g., replacing door locks or windows, painting interior or exterior walls, culvert maintenance, grounds maintenance, or replacing essential components such as an air conditioning unit).

### Conservation Measures

Avoidance, minimization, and conservation measures will be implemented during the expansion and operation of the FOB and associated access and approach roads.

#### *Avoidance and Minimization Measures*

Avoidance and minimization measures (AMMs) have been compiled based on measures identified in the biological opinion on SBInet Ajo-1 Tower Project (U.S. Fish and Wildlife Service 2009) and subsequent reinitiations. These measures will be implemented by CBP as part of the proposed action and are listed below.

- AMM-1 Minimize impacts to Sonoran pronghorn and lesser long-nosed bats and their habitats by using flagging or temporary fencing to clearly demarcate project construction area perimeters. Do not disturb soil or vegetation outside of 2-acre expansion site perimeter.
- AMM-2 Minimize the number of construction and maintenance vehicles travelling to and from the project site and the number of trips per day. Special emphasis will be placed on this approach during the pronghorn fawning season.

- AMM-3 Minimize potential animal collisions, particularly with Sonoran pronghorn, by not exceeding construction and maintenance speed limits of 25 mph on all unpaved roads.
- AMM-4 CBP will establish communication channels which will enable the environmental monitor the capability to delay or stop work if a Sonoran pronghorn is observed within one mile of the FOB construction site.
- AMM-5 Minimize the duration of construction noise exposure for projects in Sonoran pronghorn habitat.
- AMM-6 During the construction phase, temporary noise impacts are possible. All applicable Occupational Safety and Health Administration regulations and requirements will be followed. Construction equipment will possess properly working mufflers and will be kept properly tuned to reduce backfires. Implementation of these measures will reduce the potential temporary noise impacts to an insignificant level in and around the construction site.
- AMM-7 Significantly minimize noise levels for the FOB facility's operations within Sonoran pronghorn and lesser long-nosed bat habitat by using either baffle boxes (a sound-resistant box that is placed over or around a generator, air-conditioning unit, or any other sound producing equipment) or other noise-abatement methods for all generators, air-conditioning units, or any other sound producing equipment. Specifically, limit noise emissions so as not to exceed 35 dBA (measured ambient noise) at 492 feet distance from the noise source. Use an acoustical professional to ensure that building and/or sound barrier design details are sufficient to achieve the aforementioned criteria. Provide acoustic findings to FWS and National Park Service (NPS).
- AMM-8 Avoid nighttime lighting impacts by conducting construction and maintenance activities during daylight hours only. If night lighting is unavoidable: 1) minimize the number of lights used; 2) place lights on poles pointed down toward the ground, with shields on lights to prevent light from going up into sky, or out laterally into landscape; and 3) selectively place lights so they are directed away from all native vegetative communities.
- AMM-9 Minimize security and other operations-related lighting impacts at FOB to the greatest extent practicable by minimizing the number of lights used and selectively placing and pointing lights down toward the ground, with shields on lights to prevent light from going up into sky, or out laterally beyond the FOB footprint.
- AMM-10 Provide for an on-site biological monitor to be present during work activities for all construction activities. At a time interval (i.e., daily, weekly) determined by the land management agency, the monitor will check in and out of the land management unit (with the land manager or his/her representative). The biological monitor will have the following duties: ensure and document that agreed upon measures to minimize and avoid impacts to listed species and BMPs are properly implemented, send a weekly summary

report via electronic mail to the U.S. Department of the Interior (DOI) land managers and FWS-AESO following CBP review, and notify the construction manager (who has the authority to temporarily suspend activities) when construction activities are not in compliance with all agreed upon BMPs.

AMM-11 The on-site biological monitor shall be a qualified Sonoran pronghorn monitor as defined by FWS and NPS. The monitor shall report all detections of Sonoran pronghorn via electronic mail to FWS-AESO and the OPCNM within 48 hours of any detection. The electronic mail will include the following details: a) if known, the coordinates and a description of the locations where the pronghorn was detected, b) the date and time of the detection, c) the method use to make the detection, and d) as available, other pertinent details, such as the behavior of the Sonoran pronghorn (i.e. was it standing, foraging or running). The monitor shall also coordinate with CBP personnel monitoring tower number 302 to determine whether antelope have been observed in the vicinity of the FOB and with AGFD and DOI land managers regarding any observations of antelope within the project vicinity.

AMM-12 All vehicular traffic associated with construction and maintenance will use designated/authorized roads to access the sites, and avoiding off-road vehicle activity outside of the project footprint.

AMM-13 All construction or maintenance personnel will report detections of Sonoran pronghorn to the biological monitor.

AMM-14 CBP will develop and implement a training program focusing on Trust Resources for contractors/construction personnel. Training will be provided to all personnel associated with the project before project construction begins and before any new personnel begin work on the project. Information presented in the training program will include occurrence of sensitive species in the project area, their general ecology, and sensitivity to human activities; legal protection afforded the species and the penalties for violation of state or Federal laws; implementation of included conservation actions/BMPs; and reporting requirements. Color photos of the listed species and maps of federally-listed species' habitats will also be included in this training program.

AMM-15 Vehicle operators will be trained to recognize pronghorn. If pronghorn are sighted within one mile of the project site or the Bates Well access road to the site by the biological monitor or vehicle operators, the vehicle involved would initially stop to allow pronghorn to move away and to reduce disturbance to the extent possible. Once the pronghorn has moved away from line of sight or greater than one mile from the vehicle or project site, vehicles would proceed at 15 mph for the first mile and then resume normal speed (25 mph).

AMM-16 Fill material (gravel and topsoil) brought in from outside the project area will be identified by its source location. Sources will be used that are clean and weed-free.

- AMM-17 Certified weed/seed-free natural materials (e.g., straw) will be used for on-site erosion control to avoid the spread of non-native plants.
- AMM-18 Removal of invasive plants that appear on the site will be done in ways that eliminate the entire plant and remove all plant parts to a disposal area. Herbicides not toxic to listed species that may be in the area can be used for non-native vegetation control. Application of herbicides will follow Federal guidelines and in accordance with label directions. A NPS Pesticide Use Permit will be obtained prior to herbicide application on NPS lands.
- AMM-19 CBP will include a configuration to support fire management operations in the design of facilities that require land clearing.
- AMM-20 CBP will undertake all reasonable efforts to complete construction of the FOB before the beginning of pronghorn fawning season on March 15. If the construction is not complete, CBP agrees there will be no earth moving or heavy construction equipment used after March 15.
- AMM-21 CBP will avoid effects to bats in bat roosts by not implementing construction related activities within 4 miles of the roost between May 1 and September 30.
- AMM-22 NPS and FWS will be notified two weeks before any project construction activities begin and within one week after project construction activities are completed.
- AMM-23 Provide a report including a complete description of the action (construction component) implemented (including photographs; total acres impacted; total acres of Sonoran pronghorn habitat impacted; total number of lesser long-nosed bat food plants impacted; length of time to complete the project; all environmental design [i.e., BMPs] and conservation measures implemented, including all Sonoran pronghorn daily and other biological monitoring reports; etc.) to FWS and DOI land management agencies within 90 days of project construction completion. As implementation of some measures will continue after project construction is completed, the report will also identify environmental design and conservation measures still under implementation or proposed for implementation and a timeframe for completing the measures.
- AMM-24 Standard construction procedures will be implemented to minimize the potential for erosion and sedimentation during construction. All exterior work shall cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material.
- AMM-25 A Construction Stormwater General Permit will be obtained prior to construction, and this would require approval of a site-specific SWPPP and Notice of Intent. A site specific SPCCP will also be in place prior to the start of construction. Other

environmental design measures will be implemented, such as silt fencing, aggregate materials, and wetting compounds to decrease erosion and sedimentation.

AMM-26 Do not, for any length of time, permit any pets inside the project area or adjacent native habitats. This BMP does not pertain to law enforcement animals.

AMM-27 Minimize site disturbance and avoid attracting predators by promptly removing waste materials, wrappers, and debris from the site. Any waste that must remain more than 12 hours will be properly stored until disposal.

AMM-28 All BMPs to be implemented by the project contractor will be included in the contract.

AMM-29 The FOB will be removed within 12 months of cessation of use if CBP determines it is no longer needed, and site will be restored to natural habitat conditions.

AMM-30 The spread of non-native plants will be reduced by providing weed-free feed to horses that are corralled at the FOB.

AMM-31 Animal waste will be removed from the corral and deposited at an appropriate waste facility to avoid water contamination.

AMM-32 Any collisions with Sonoran pronghorn will be reported to FWS-AESO and OPCNM via telephone and electronic mail as soon as practicable, but no later than 12 hours after the collision. Information to be relayed will include: a) location of the collision, b) date and time of the collision, c) type of vehicle, and d) a description of the collision to include the outcome and a photograph of the Sonoran pronghorn (if available).

### *Conservation Measures*

Conservation measures are defined by FWS as actions to benefit or promote the recovery of species that are included by a Federal agency as an integral part of the proposed action (U.S. Fish and Wildlife Service 1998a). The following conservation measures are proposed for this project:

1. If there is surplus water from the well, NPS and FWS can use surplus water to replenish Sonoran pronghorn waters.
2. CBP will assign a supervisor for the FOB who will have oversight of FOB operations. One of the duties of this individual will be working with the NPS and FWS to ensure impacts of USBP operations on lands administered by these agencies are minimized.
3. Provide enhanced environmental training for all persons assigned to the FOB via internet.
4. Provide environmental education for agents via kiosk/information display at Ajo FOB and Ajo Station.

## STATUS OF THE SPECIES

### Description, Legal Status, and Recovery Planning

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

### Life History and Habitat

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

### Distribution and Abundance

A map of the historical range of Sonoran pronghorn in the United States and Mexico is included as Figure 4.

#### *United States*

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089), but the following updates are applicable:

Figure 5 provides the geographical distribution of Sonoran pronghorn identified by FWS and AGFD on radio telemetry surveys from 1994 through 2011 and using Global Positioning Systems to collect locations when observations were made from 2008 through 2011. The December 2004, 2006, 2008, and 2010 aerial surveys resulted in an estimated 58, 58, 68, and 85 (this 2010 estimate does not include the 17 pronghorn released from the pen in December 2010, see below), respectively, pronghorn in the U.S. sub-population, a substantial increase brought on by the implementation of ongoing recovery measures and improved range conditions since 2002. The 2006 to 2010 estimates included a number of captive-born individuals that were released into the wild (see below). During the 2008 and 2010 surveys, observers noted a skewed sex ratio (approximately 2: 1) with more males than females; this affects the rate at which the population may increase.

Data collected and maintained by AGFD from radio-collared individual pronghorn are used to obtain location, distribution, and habitat use information that are considered in the BA and this BO. Unfortunately, the currently radio-collared subset of the U.S. population of Sonoran pronghorn under-represents OPCNM. Most of the current radio collars were put on animals released from the captive breeding facility on CPNWR, and most of those animals have stayed in that general region. Wild pronghorn with radio collars are usually captured on CPNWR or Barry M. Goldwater Air Force Range (BMGR), because the landscape is safer for both the pronghorn and the capture helicopter, than in OPCNM. While wild Sonoran pronghorn collared outside of OPCNM have often moved into OPCNM in the past, this has not been the case in recent years.

*Semi-captive Breeding Facility*

As part of a comprehensive emergency recovery program, a total of 11 adult pronghorn (10 females and one male) were initially captured (from Sonora and Arizona) and placed into a semi-captive breeding pen at CPNWR in 2004. The breeding program has been very successful and as of April 2011, there are 78 pronghorn (52 adults and 26 fawns) in the enclosure. Since establishing the program, 16 pronghorn older than current year have died in the pen due to various causes, including one confirmed case of epizootic hemorrhagic disease, two from malnutrition prior to the introduction of alfalfa hay in the pen, two from bobcat predation, one from entanglement in the fence, and two from capture operations. Eight deaths were from unknown causes and although disease was suspected, it could not be confirmed. Sonoran pronghorn have been released from the pen every year since 2006; as of April 2011, a total of 62 individuals (44 males, 18 females) have been released, 37 of which are known to still be alive.

The objective is to produce at least 20 fawns each year to be released into the U.S. sub-population, and to establish a second U.S. sub-population at Kofa National Wildlife Refuge (NWR) in Arizona. Planning for the second herd is underway; the final rule to establish two nonessential experimental populations of the endangered Sonoran pronghorn under section 10(j) of the Act became effective on June 6, 2011 (76 FR 25593). This final rule will set in motion the reintroduction of Sonoran pronghorns to establish up to two new populations as envisioned by the recovery plan. The final rule includes provisions to construct a captive breeding and release facility in King Valley on the Kofa NWR and to establish the second U.S. sub-population of endangered Sonoran pronghorn. A core population of 11 breeding-age pronghorn will be moved to the enclosure next winter. By late 2013, up to 20 two-year old offspring are expected to be released from the facility into suitable adjacent habitat.

An additional future sub-population has also been approved for BMGR-East, a property managed by Luke Air Force Base. Arizona Game and Fish Department (AGFD), working in coordination with FWS, will take the on-the-ground lead in implementing construction of the new captive breeding and release facility, and eventual monitoring of pronghorn at these two new sites located in the southwest portion of the state. Offspring reared at the CPNWR captive-breeding facility will be initially moved to a holding pen to be constructed on BMGR-East for acclimation of the animals prior to release on the site. FWS does not expect that this action will impede border security efforts in any way and is committed to coordinating closely with CBP and other partners before implementing release of Sonoran pronghorns into BMGR-East.

*Mexico*

No changes from the original *SBInet* Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

*Population Viability Analysis*

No changes from the original SBI*net* Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

Threats*Barriers that Limit Distribution and Movement*

Highways, fences, railroads, developed areas, and irrigation canals can block access to essential forage or water resources. deVos and Miller (2005) reported that Sonoran pronghorn used areas within 0.6 miles of roads less than those greater than 0.6 miles from roads. Brown and Ockenfels (2007) report that numerous railroad and highways bisect what was former contiguous pronghorn habitat, often dividing these rangelands into parcels too small to support, viable, long-term populations of pronghorn in Arizona. Furthermore, they state railroads and paved highways are especially restrictive, as in addition to acting as intimidating barriers in their own right, they are often fenced on both sides of the right-of-way. Highways 2 and 8 in Sonora, and SR 85 between Gila Bend and Lukeville, Arizona support a considerable amount of fast-moving vehicular traffic, are fenced in some areas, and are likely a substantial barrier to Sonoran pronghorn (one pen-raised radio-collared male crossed SR 85 and Mexican Highway 2 recently; however, this is considered highly unusual). NPS records include a Sonoran pronghorn found dead just east of SR 85 along Ajo Mountain Drive in 1972. It was suspected to have been struck and killed by a vehicle (electronic mail from Tim Tibbitts, OPCNM, September 1, 2011). More recently, in 2003/2004 John Hervert (AGFD) investigated a Sonoran pronghorn mortality found a few hundred feet from Interstate 8. It had a broken leg, and so vehicle collision was suspected. Interstate 8, the Wellton-Mohawk and Palomas Canals, agriculture, a railroad, and associated fences and human disturbance near the Gila River act as barriers for northward movement of pronghorn. Canals have been the cause of four pronghorn deaths since 2008. Three pen-raised pronghorn drowned in the Palomas Canal in 2008 and one pen-raised pronghorn drowned in the Wellton Canal in 2010. De-watering of reaches of the Río Sonoyta and lower Gila River have also caused significant loss of habitat and loss of access to water (Wright and deVos 1986). Agricultural, urban, and commercial development at Sonoyta, Puerto Peñasco, and San Luis Río Colorado, Sonora; in the Mexicali Valley, Baja California; and at Ajo, Yuma, and along the Gila River, Arizona, have further removed habitat and created barriers to movement.

*Human-caused Disturbance*

A variety of human activities occur throughout the range of the pronghorn that have the potential to disturb pronghorn or its habitat, including livestock grazing in the U.S. and Mexico; military activities; recreation; poaching and hunting; clearing of desert scrub and planting of buffelgrass (*Pennisetum ciliare*) in Sonora; gold mining southeast of Sonoyta, dewatering and development along the Gila River and Río Sonoyta; cross border violator (CBV) activity across the international border and associated required law enforcement response; and roads, fences, canals, and other artificial barriers.

Of the aforementioned human activities, in the U.S. range of the pronghorn, CBV activity and required law enforcement response is the most significant current source of disturbance to Sonoran pronghorn and its habitat. As a result of increased presence of the USBP in the Douglas, Arizona area, and in San Diego (Operation Gatekeeper) and southeastern California, CBV traffic has shifted into remote desert areas, such as CPNWR, OPCNM, and BMGR (Klein 2000). In 2001, estimates of CBVs reached 1,000 per night in OPCNM alone (Organ Pipe Cactus National Monument 2001), and an estimated 150,000 people entered the monument illegally from Mexico (Milstead and Barns 2002). Apprehensions of CBVs in the USBP Ajo Station, Tucson Sector increased from 21,300 in 1999 to 22,504 in 2006. The numbers of CBV apprehensions from fiscal year (FY) 2007 to FY 2011 are shown by location in Table 1. The number of apprehensions and drive-throughs in the Ajo Station’s overall AOR declined after the construction of the border vehicle fences on OPCNM in 2006 and CPNWR in 2009, but has increased since the implementation of the *SBI*net towers and infrastructure became operational in 2010. In the approximately one year since the *SBI*net towers have been operational, the number of apprehensions of CBVs have increased by 85% within OPCNM and 183% in CPNWR. This increase is believed to be attributable to increased CBV activity, as well as increased USBP effort, tactical infrastructure, and technology in the area which have improved USBP’s ability to detect and apprehend CBVs (personal communication with USBP, September 1, 2011).

**Table 1. CBV Apprehensions by Location.**

| Location            | FY2009 | FY2010 | FY2011* |
|---------------------|--------|--------|---------|
| Ajo Station AOR     | 15,456 | 20,448 | 17,385  |
| Wellton Station AOR | 1,889  | 1,758  | 1,678   |
| OPCNM and CPNWR     | N/A    | 3,265  | 7,266   |

\*Data as of September 3, 2011

In fiscal year 2005, the Yuma Sector of USBP apprehended record numbers of CBVs, and from October 1, 2005 to May 2006, 96,000 arrests were made, which was a 13% increase over the same time period in 2005 (Gerstenzang 2006). The Wellton Station of the Yuma USBP Sector made 2,080 apprehensions in fiscal year 2005 and 3,339 apprehensions from October 2005 to February 2006 (personal communication with USBP, February 10, 2006). Apprehensions in recent years have declined in the Wellton Station AOR (see Table 1). Overall, a dramatic decline in apprehensions in the Yuma Sector, particularly in the western portions of the sector, is attributed to USBP presence at Camp Grip, increased numbers of agents, and recently completed tactical infrastructure.

As USBP has been able to successfully gain control of more urban areas, CBV activity has shifted to more remote areas, such as CPNWR and OPCNM. Both CBV and USBP activities have resulted in increased human presence in and widespread degradation of Sonoran pronghorn habitat. Much of the CBV traffic travels through the southern passes of the Growler Mountains that lead either through or by all of the forage enhancements and the captive rearing pen in the Child’s Valley, with potential to impact these recovery projects and use of the area by pronghorn (personal

communication with Curtis McCasland, CPNWR, 2007). There is strong anecdotal evidence that pronghorn are avoiding areas of high CBV traffic and law enforcement activities (personal communication with Curtis McCasland, CPNWR, 2007). According to CBP records, a drag road adjacent to the current Granite Forage Enhancement Plot (FEP) in the Wellton Station AOR was created in 1996 and has been in use since before the FEP was installed. Wellton Station has confirmed that USBP use of this drag road has increased recently in response to an increase in illegal activities in the area. In spring of 2009, it was thought that three does with fawns abandoned the Granite Forage Enhancement Plot (FEP) due to the high amount of USBP activity at the site (electronic mail from John Hervert, AGFD, September 16, 2009). The does were later observed at OPCNM; however, the fawns died (electronic mail from John Hervert, AGFD, September 16, 2009).

The Camp Grip FOB is located approximately 10 miles west of the proposed Ajo FOB site and was established in 2005. In 2011, FWS completed an analysis of whether the Camp Grip FOB resulted in impacts on Sonoran pronghorn movement patterns. FWS analyzed available AGFD Sonoran pronghorn location data from radio-collared animals and results of this analysis were inconclusive as to whether Camp Grip had any impact on Sonoran pronghorn movement; however, as described above under “Distribution and Abundance” there are very few radio-collared animals and documenting pronghorn movement can be difficult. These inconclusive results were also in part due to the many complex factors involving Sonoran pronghorn movement, including artificial feeding and watering of the animals across the species’ range (Cindi Holt, personnel communication as cited in the BA). Other preliminary data from radio-collared pronghorn locations indicate a potential reduction in use of areas in the vicinity of Camp Grip (electronic mail from Mark Sturm, OPCNM, August 31, 2011). Data also indicate a northerly shift in habitat use since Ajo-1 *SBI*net implementation, which coincides with a documented increase in impacts. This result is despite the presence of abundant and good habitat conditions in areas nearer the border during 2011.

Prior to 2002, Sonoran pronghorn used the 90,000 acre Valley of the Ajo extensively during the fawning period (March 15-July 31); they primarily entered the Valley through an extremely critical and narrow mountain pass located near Bates Well. During the winter of 2001-2002, NPS stationed a ranger at Bates Well in a small (about 18-foot) temporary Federal Emergency Management Agency trailer, with no outdoor lighting or generators, to provide visitor security in the north part of OPCNM during the park’s peak visitation period, which occurs prior to the Sonoran pronghorn fawning period. Beginning in 2002, USBP began to use the Bates Well site (i.e., the former Bates Well FOB) seasonally during the summer months. The NPS continued to use Bates Well for short periods during the late fall and winter in support of coordinated law enforcement efforts until ultimately discontinuing its use entirely in 2005. Because pronghorn traditionally used the Bates Well and Valley of the Ajo areas during the spring and summer months, it is unlikely that the NPS fall and winter presence at Bates Well between 2001 and 2005 had a significant effect on pronghorn use of the area. From 2005 to 2010, USBP was the sole occupant at Bates Well. Over time, USBP occupancy of this site increased (the site could accommodate eight people); ultimately this site was occupied nearly year round. Furthermore, USBP brought in generators that ran continuously and lights that operated throughout the night.

As part of the December 10, 2009 SBI *net* Ajo-1 biological opinion, the Bates Well FOB was moved in early 2011 to the current Ajo Station tactical camp site. Since the establishment of the FOB at Bates Well and its subsequent relocation, no pronghorn have been documented entering the Valley of the Ajo through the Bates Well migration corridor. The establishment of the Bates Well FOB coincided with a drastic decline in pronghorn numbers (attributable to drought and an increase in border activity). Documenting pronghorn movement in this area is difficult because radio-collared individuals generally do not occur in the northwestern OPCNM (see “Distribution and Abundance” section under “Status of the Species” for Sonoran pronghorn). Changes in use of the Bates Well area by pronghorn may be in part due to decreased population size; however, the increased human presence at Bates Well, particularly during the fawning period, may have acted to prevent Sonoran pronghorn movements through the area and into the Valley of the Ajo. Since 2002, the population has increased and pronghorn continue to avoid the Bates Well migration corridor. Soundscape data show traffic levels have doubled on Bates Well Road over the past two years (electronic mail from Mark Sturm, OPCNM, August 31, 2011). Considering the sensitivity of pronghorn to human activity and the ongoing use of the area, it is likely that pronghorn avoided use of the Bates Well area due to the high level of human activity associated with the site. Pronghorn entered the southern end of the Valley of the Ajo briefly in 2010 before returning west. They migrated to/from the valley via a southern pathway, but are not known to have used the Bates Well pass (electronic mail from Mark Sturm, OPCNM, August 31, 2011). These data apply to small group of Sonoran pronghorn documented during a visual hilltop survey conducted by NPS.

Physiological effects of noise on wildlife can include stresses to neural, endocrine, digestive, cardiovascular, and immune systems as well as reproductive function, causing changes such as increased blood pressure, available glucose, and blood levels of corticosteroids (Manci *et al.* 1988, Kaseloo and Tyson 2004, Keay *et al.* 2006). However, available research evaluating physiological impacts of human stressors on wild animal populations also indicates that the responses of species are variable (Manci *et al.* 1988, Larkin 1996, Radle 1998, Krausman *et al.* 1998, Kaseloo and Tyson 2004, Stankowich 2008). It is possible that Sonoran pronghorn could have a pronounced physiological stress response to disturbance without showing an overt behavioral response. To have a population effect, behavioral and physiological responses to disturbance must ultimately affect survival and productivity, and to date, no research efforts have supported or refuted population level impacts on pronghorn from physiological stress. At some point, increased energetic costs resulting from a stress-related increase in metabolic rate, reduced foraging efficiency due to interrupted feeding, and alarm and flight responses could jeopardize survival and productivity if the disturbance is stressful enough and chronic.

As stated above, it has been well documented that human presence in wildlands can disturb animals, causing them to unnecessarily expend energy avoiding people, thereby potentially reducing reproductive success (e.g., Manville 1983, van Dyke *et al.* 1986, Goodrich and Berger 1994, Primm 1996; as cited by Kerley *et al.* 2002) or increasing the likelihood of fatal encounters with humans (Kasworm and Manley 1990, Saberwal *et al.* 1994, Khramtsov 1995, Mattson *et al.* 1996; as cited by Kerley *et al.* 2002). Range abandonment has been documented in response to human disturbance (Jorgenson 1988), and investigators have shown that heart rate increases in wildlife in

response to auditory or visual disturbance in the absence of overt behavioral changes (Thompson *et al.* 1968, Cherkovich and Tatoyan 1973, Moen *et al.* 1978). Studies of captive pronghorn, other than the Sonoran subspecies, have shown that they are sensitive to disturbance such as human presence and vehicular noise. Human traffic, such as a person walking or running past pronghorn in an enclosed pen, a motorcycle driving past, a truck driving past, a truck blowing its horn while driving past, or a person entering a holding pen, caused an increased heart-rate response in American pronghorn in half-acre holding pens (Workman *et al.* 1992). The highest heart rates occurred in female pronghorn in response to a person entering a holding pen, or a truck driving past while sounding the horn. The lowest heart rates occurred when a motorcycle or truck was driven past their pen. Pronghorn were more sensitive to helicopters, particularly those flying at low levels or hovering, than fixed wing aircraft. Luz and Smith (1976) observed pronghorn reactions to overhead helicopter flights which suggested mild disturbance (muscle tensing and interruption of grazing) by helicopter noise levels at approximately 60 dBA and strong reaction (running) at approximately 77 dBA.

During times of drought, disturbances that cause pronghorns to startle and run would energetically have a more significant effect. Such energetic expenditures, particularly during times of stress, may lead to lower reproductive output and/or survival of individual animals (Geist 1971). Landon *et al.* (2003) evaluated whether Sonoran pronghorn used areas, as defined by noise levels produced by military aircraft, in proportion to their availability on the BMGR. Using 15% of the Arizona pronghorn population, Landon *et al.* studied pronghorn use of areas with varying sound pressure (ambient sound) levels and found that pronghorns did not use the areas with different ambient sound levels in proportion to their availability (2003). In general, they found that Sonoran pronghorn select areas with the lower noise levels and avoid areas with the higher noise levels; however, they did not consider habitat in their analysis. Whether pronghorn avoid these areas because of the noise or because of some other human-related factor is unknown; however, the various potential factors (i.e. noise levels, human presence, reduced vegetation or cover, disturbance) are interrelated. Hughes and Smith (1990) found that pronghorn immediately ran 1,310- 1,650 feet from a vehicle, and that military low-level flights (less than 500 feet above the ground) over three pronghorn caused them to move about 330 feet from their original location. Krausman *et al.* (2001, 2004, 2005a) examined effects of military aircraft and ground-based activities on Sonoran pronghorn at the North and South tactical ranges (TACs) on the BMGR and concluded that military activities, both ground-based and aerial, were associated with some changes in behavior (e.g., from standing to trotting or running, or bedded to standing). In response to stimuli, on days without stimuli, pronghorn foraged more and bedded less than on days with stimuli; the opposite was true for fawns (Krausman *et al.* 2001). Krausman *et al.* (2001) only considered a change in behavior to trotting or running in response to stimuli as biologically significant. Eighty-seven (4.1%) of the 2,128 events with ground-based stimuli resulted in pronghorn changing their behavior to trotting or running. The authors concluded that these changes were not likely to be detrimental to the animals; however, sightings of Sonoran pronghorn were biased towards disturbed habitats on the TACs and other areas of military activities, which also corresponded to areas of favorable ephemeral forage production (Krausman *et al.* 2005a). No specific conclusions could be drawn about effects of military activities on fawns during the Krausman *et al.* study, but the data suggests that fawns and their mothers may be more sensitive to

anthropogenic stimuli than other pronghorn (Krausman *et al.* 2004). In general, the study did not detect differences in the behavior of pronghorn with and without anthropogenic stimuli; however, Krausman *et al.* (2004) recommends that all ground stimuli and activities that alerts or startles females and their fawns should terminate.

### *Habitat Disturbance*

Livestock grazing has the potential to significantly alter pronghorn habitat and behavior (Leftwich and Simpson 1978, Kindschy *et al.* 1982, Yoakum *et al.* 1996). Overgrazing well into the 19th century by Spaniards and their descendants caused widespread habitat changes throughout much of the Sonoran Desert, particularly in more settled areas such as central Sonora, Mexico (Sheridan 2000). The effects of cattle grazing are largely historical; cattle were removed from OPCNM, CPNWR, and the BMGR in 1979, 1983, and 1986, respectively (U.S. Fish and Wildlife Service 1998b, Rutman 1997). While grazing activities across the range of the pronghorn have been largely eliminated, it is likely that long term impacts of this past activity are persistent across the species range. In 2004, the U.S. Bureau of Land Management (BLM) closed the Cameron Allotment on the borders of CPNWR and OPCNM, but grazing still occurs in the nearby Childs and Coyote Flat allotments near Ajo. In Sonora, livestock grazing occurs at Pozo Nuevo and at Ejido Puerto Peñasco, but cattle typically stay close to feed and water except in seasons with abundant annual growth when cattle range widely in the Pinacate region.

Mining occurred historically throughout much of the U.S. range of the pronghorn, but it is currently not a significant threat to Sonoran pronghorn in the U.S. During previous pronghorn surveys in Mexico, increasing effects from gold mining activities were noted in habitats used by the sub-population located southeast of Highway 8.

As discussed above, CBV activities and required USBP response have resulted in increased human presence in remote areas and widespread habitat degradation. For instance, all the valleys at CPNWR are now criss-crossed with a network of illegal north-south roads and trails, even though those areas are designated as Wilderness. Segee and Neely (2006) report about 180 miles of illegal routes were created in wilderness areas of CPNWR from 2002 to 2006; however, this figure may be grossly underestimated. FWS reported 8,000 miles of off-road impacts in CPNWR as of 2008. Similar levels of impacts are expected to exist at OPCNM, and a report summarizing existing impacts throughout the SBInet Ajo-1 project area is being produced (electronic mail from Mark Sturm, OPCNM, August 31, 2011). OPCNM has mapped thousands of miles of unauthorized off-road impacts to date. Based on this preliminary estimate, hundreds of miles of unauthorized vehicle routes may exist within the vicinity of the proposed Ajo FOB project buffer and thousands may exist within the proposed Ajo FOB AOR. Many of these routes were likely created both by CBVs and USBP, and are likely currently used by USBP.

Prior to the completion of the vehicle border fences on OPCNM and CPNWR (construction was started on these fences in late 2003 and 2007 and completed 2006 and 2009, respectively), CBVs frequently crossed the border in vehicles and created countless illegal routes, many of which were continuously used both by CBVs and responding USBP agents. Subsequent to the construction of

the vehicle fences on OPCNM and CPNWR, CBV vehicular traffic was significantly reduced (there are occasional breaches in the fence; however, this CBV vehicular activity represents a fraction of that prior to the presence of the fences). NPS notes that CBV vehicle activity has decreased at OPCNM since about 2004 (electronic mail, Tim Tibbitts, OPCNM, 2009 and 2011); however, the number of off-road tracks, and new roads ("unauthorized vehicle routes") in OPCNM continues to increase (electronic mail, Tim Tibbitts, OPCNM, September 1, 2011). Vehicle activity, particularly in remote areas utilized by Sonoran pronghorn, has increased since 2004 by more than 700% (electronic mail from Mark Sturm, OPCNM, August 31, 2011), presumably from USBP response activities. This is causing unprecedented levels of impacts to Sonoran pronghorn habitat. Decreased CBV vehicle traffic in pronghorn habitat as a result of the fences significantly alleviated the adverse effects of illegal (smuggling and migration) vehicle traffic on pronghorn and their habitat. USBP, however, continues to respond (by vehicle, horseback, foot, and aircraft) to ongoing CBV activity (mostly foot traffic) in these areas. Frequently, this required response necessitates driving off of authorized roads. Off-road driving conducted in pronghorn habitat results in significant degradation of this habitat and disturbance to pronghorn as discussed above. Because of concern over the dramatic increase in disturbance since 2005/2006, NPS has collected data over time to document the trend. The proliferation of unauthorized roads is a major impact on multiple resources, and provides an index of the level of human activity currently taking place in pronghorn habitat.

#### *Fire*

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

#### *Drought and Climate Change*

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

#### *Small Population Size and Random Changes in Demographics*

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

#### *Disease*

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

### **ENVIRONMENTAL BASELINE**

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions in the action area; the anticipated

impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation; and the impact of state and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform from which to assess the effects of the action now under consultation.

### Action Area

No changes from the original SBInet Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089). The action area for this biological opinion is defined as the current range of the pronghorn within the U.S. (Figure 6).

### Terrain, Vegetation Communities, and Climate in the Action Area

No changes from the original SBInet Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

### **Status of the Sonoran Pronghorn in the Action Area**

#### *Distribution, Abundance, and Life History*

The distribution and abundance of the Sonoran pronghorn in the action area is the same as that described above under “Status of the Species” for the U.S. sub-population. Life history, including demographics, chronology of breeding and movements, diet, and other factors are also described above for the U.S. population.

#### *Drought*

As discussed under “Status of the Species”, climate change in the Southwest and the Sonoran Desert is predicted to result in warming trends and drier conditions, with accompanying changes in vegetation communities (Weiss and Overpeck 2005, Seager *et al.* 2007). Rowlands (2000) examined trends in precipitation for southwestern Arizona and OPCNM from 1895-1999. For southwestern Arizona, no trend in precipitation was found for the period, but low precipitation occurred around 1895 and during the 1950s. Periods of high precipitation occurred in 1915-1920 and in the 1980s. The trend for OPCNM was a slightly increasing monthly and annual precipitation over the period 1895-1999, a strong drought occurred in the 1950s, and a lesser drought occurred in the 1970s. No discernable trend in precipitation in southwestern Arizona or OPCNM was found in the 1990s, which is when the current decline in the U.S. pronghorn sub-population began.

Since Rowland’s analysis, there was one year characterized by above-average rainfall and abundant ephemeral forage (2001) followed by a year with virtually no precipitation or ephemeral forage (2002). Recruitment and survival were high in 2001 and very low in 2002 (Bright and Hervert 2005). Based on the lack of forage and water, and the condition of pronghorn observed, drought is considered the proximate cause of the 79% decline in the U.S. pronghorn sub-population from 2000

to 2002. From 2003 to 2011, rainfall and Sonoran pronghorn range conditions have varied, but improved overall when compared to 2002. Current range conditions are below average and of the previous four years, only 2010 was a wetter than average year. Although last winter was quite wet, the southeastern Arizona watersheds have not been able to recover from the previous dry years. The April 2011 long-term (48-months) drought status report (<http://www.azwater.gov/AzDWR/StatewidePlanning/Drought/documents/April2011DroughtStatusReport.pdf>) indicates that southwestern Arizona is experiencing conditions of normal (no drought) to moderate drought<sup>1</sup>. Currently, the southern and eastern portions of the Sonoran pronghorn U.S. range is experiencing moderate drought. Since the current La Niña is waning, there is no strong atmospheric signal to indicate whether this year's monsoon will be wetter or drier than average.

Historically, pronghorn populations must have weathered severe droughts in the Sonoran Desert, including many that were more severe and longer term than what has occurred recently. Given that pronghorn populations survived the droughts of the 1890s, 1950s, 1970s, and others before those, it is unreasonable to solely attribute recent declines in the U.S. pronghorn population to drought. OPCNM (2001) concluded, "If (individual) recent dry years have had an impact on Sonoran pronghorn, it is most likely because in recent decades Sonoran pronghorn have much more limited options for coping with even brief moderate drought. Because of restrictions on their movements and range, and increasing human presence within their range, pronghorn are less able to employ their nomadic strategy in search of relief. It is not that drought itself is an impact, but possibly that drought has *become* an impact, due to other factors confounding the species' normal ecological strategy."

#### *Recent Recovery Actions*

A number of critically important recovery projects have been recently initiated in an attempt to reverse the decline of the U.S. sub-population of the Sonoran pronghorn (Krausman *et al.* 2005b). These projects are designed to increase availability of green forage and water during dry periods and seasons to offset to some extent the effects of drought and barriers that prevent pronghorn from accessing greenbelts and water, such as the Gila River and Río Sonoyta. Many developed water sources and 10 emergency water sources (7 on CPNWR, one on OPCNM, and two on BMGR-West) have been constructed in recent years throughout the range of the U.S. subpopulation. In March 2009, three temporary, experimental feed and water stations were placed on the South TAC on the BMGR-East and in May 2010, two new temporary water stations were placed on OPCNM. Four forage enhancement plots within pronghorn habitat, each consisting of a well, pump, pipelines and irrigation lines, have been developed to irrigate the desert and produce forage for pronghorn. One plot is currently being constructed and two additional plots will be installed over the next five years. Plots and waters located in areas with little human activity and better range conditions

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<sup>1</sup> The State Drought Monitoring Technical Committee has changed the percentiles of precipitation and streamflow represented by the drought categories. Previously, drought categories began below the 40th percentile. Since Arizona is an arid state, we are frequently between the 30th and 40th percentiles for precipitation and streamflow, and beginning drought in that range has caused some watersheds to bounce in and out of "drought", while conditions on the ground have not supported the "drought" condition. As of January 2011, the drought categories begin below the 30th percentile. As a result, areas previously considered to be in a more severe drought category may have been downgraded.

appear to be more effective (i.e., contribute to fawn and adult survival to a greater degree) than those located in areas of high human activity and poor range condition (i.e., experiencing drought) (personal communication with John Hervert, AGFD, September 16, 2009). Therefore, to ensure the success of these measures, it is critical that human activity be avoided or significantly minimized near the plots and waters.

A semi-captive breeding facility at CPNWR was first stocked with pronghorn in 2004; as of April 2011 it contains 78 animals (52 adults and 26 fawns). As described above, this facility will be used to augment the current U.S. sub-population, and to establish a second herd at Kofa NWR. These crucial projects, which we hope will pull the U.S. population back from the brink of extinction, have been cooperative efforts among many agencies and organizations, including FWS, AGFD, Marine Corps Air Station (MCAS)-Yuma, Luke Air Force Base, OPCNM, CBP, Arizona Desert Bighorn Sheep Society, Arizona Antelope Foundation, the Yuma Rod and Gun Club, the University of Arizona, the Los Angeles and Phoenix Zoos, and others.

#### **Past and Ongoing Non-Federal Actions in the Action Area**

No changes from the original *SBI*net Ajo-1 Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

#### **Past and Ongoing Federal Actions in the Action Area**

Because of the extent of Federal lands in the action area, with the exception of CBV activities, most activities that currently, or have recently, affected the U.S. sub-population or their habitat are Federal actions. The primary Federal agencies involved in activities in the action area include the MCAS-Yuma, Luke Air Force Base, FWS, BLM, OPCNM, and CBP. In the following discussion, we have categorized Federal actions affecting the pronghorn as: 1) those actions that have not yet undergone section 7 consultation (although in some cases consultation has been completed on components of the Federal activity), and 2) Federal actions that have undergone consultation.

##### *Federal Actions for Which Consultation Has Not Been Completed*

CBP is proposing an expansion of both Integrated Fixed Towers (IFT) and Remote Video Surveillance Towers (RVSS) within the Action Area for this project. These projects will involve the construction or placement of new towers to compliment the Ajo-1 tower project. Access roads, construction, and operation of these towers have the potential for increased impacts to the Sonoran pronghorn in the Action Area. Close coordination between DOI agencies and CBP will be necessary to regarding the siting and operation of these towers to avoid exacerbating impacts to Sonoran pronghorn already associated with existing and proposed activities in the Action Area.

##### *Federal Actions Addressed in Section 7 Consultations*

As part of our comprehensive discussion of all past and present actions affecting pronghorn within the action area, we describe below all BOs issued to date on actions that may affect the pronghorn.

Several opinions addressed projects with minor effects to the pronghorn (capture and collaring of pronghorn for research purposes, consultation numbers 02-21-83-F-0026 and 02-21-88-F-0006; installation of a water source in the Mohawk Valley for pronghorn, consultation number 02-21-88-F-0081; implementation of the CPNWR Comprehensive Conservation Plan, consultation number 22410-2006-F-0416; change in aircraft type from the F-15A/B to the F-15E on BMGR-East [F-15E Beddown Project], consultation number 02-21-89-F-0008; and the following projects at OPCNM: widening of North Puerto Blanco Road, consultation number 02-21-01-F-0109; improvements to SR 85 roadway and drainages, consultation 02-21-01-F-0546; and construction of a vehicle barrier, consultation number 02-21-02-F-237). Incidental take was anticipated only for the Beddown Project in the form of harassment as a result of aircraft overflights. This project was later incorporated into the BO on Luke Air Force Base's activities on the BMGR, discussed below. All of these formal consultations can be viewed on our website at <http://www.fws.gov/southwest/es/arizona/Biological.htm>.

The *SBI*net Ajo-1 Tower Project BO is the latest of eleven BOs that have evaluated major projects with ongoing effects to pronghorn. The previous ten BOs are evaluated in the original *SBI*net Ajo-1 Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089), and, since then, three have been reinitiated. The following major projects have been updated since the original *SBI*net Ajo-1 Tower Project evaluation:

#### Organ Pipe Cactus National Monument General Management Plan

The original biological opinion (consultation number 02-21-89-F-0078), issued June 26, 1997, addressed implementation of OPCNM's GMP. This opinion was reinitiated six times, resulting in revised biological opinions dated November 16, 2001, April 7, 2003, March 10 and August 23, 2005, March 8, 2007, and December 10, 2009. GMP plan elements included: 1) continuing travel and commerce on SR 85 while enhancing resource protection, 2) seeking designation of OPCNM as the Sonoran Desert National Park, 3) establishment of partnerships, 4) increased wilderness and an interagency wilderness and backcountry management plan, 5) changes in trails, facilities, and primitive camping, and 6) implementation of a Cultural Resources Management Plan. Included were a number of conservation measures to minimize impacts to pronghorn, including "Limiting future development to the area north of the North Puerto Blanco Drive and east of the Senita Basin Road/Baker Mine Trail/Dripping Springs Trail . . .". Effects of the action included human disturbance to pronghorn and habitat due to recreation and management activities. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. In the latest versions of the opinion, no incidental take of pronghorn was anticipated. No incidental take is known to have occurred. The original opinion was the subject of a lawsuit (*Defenders of Wildlife, et al. v. Bruce Babbitt, et al.*) and was remanded by the court due to our failure to adequately address the impact of proposed activities on pronghorn. The sixth reinitiation addressed a one-time deviation from the aforementioned conservation measure to allow DHS to construct *SBI*net towers TCA-AJO-170, 302, and 003 and associated access roads outside the area referenced in the conservation measure. OPCNM issued a Special Use Permit for the construction of these towers on OPCNM lands; however as the lead action agency, DHS consulted on the entire action and incidental take associated with the action was attributed to DHS rather than OPCNM.

Therefore, incidental take is addressed in the biological opinions on the *SBI*net Ajo-1 Tower Project, discussed below.

Marine Corps Air Station-Yuma in the Arizona Portion of the Yuma Training Range Complex

The original biological opinion (consultation number 02-21-95-F-0114), was issued on April 17, 1996. That opinion was reinitiated and revised opinions were issued November 16, 2001, August 6, 2003, October 21, 2009, and September 17, 2010 (current consultation number is 22410-1995-F-0114 and its reinitiations). These opinions addressed all proposed and authorized actions on the BMGR by MCAS-Yuma, including ongoing and proposed changes to military flights over CPNWR and the BMGR, operation of various training facilities such as landing strips, a rifle range, targets, a parachute drop zone, a transmitter/telemetry system, ground support areas, and Weapons Tactics Instructor courses, conducted twice a year (March-April and October-November) that involve overflights, ground-based activities, and ordnance delivery at targets in BMGR-East. Ground-based activities, such as those of troops and vehicles at ground-support areas, were determined to adversely affect pronghorn habitat use. In areas where helicopters fly particularly low and create noise and visual stimuli, disturbance of pronghorn was anticipated. Ordnance delivery at North and South TACs could disturb pronghorn, and ordnance, live fire, and shrapnel could potentially strike and kill or injure a pronghorn. MCAS-Yuma proposed measures to reduce the direct and indirect impacts of the proposed action, including measures to reduce or eliminate incidental take of Sonoran pronghorn and to minimize destruction and degradation of habitat. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. In the 2003, 2009, and 2010 versions of the biological opinion, no incidental take of pronghorn was anticipated and none is known to have occurred.

Luke Air Force Base Use of Ground-Surface and Airspace for Military Training on the BMGR

The original biological opinion (consultation number 02-21-96-F-0094), issued August 27, 1997, addressed military use of the airspace above and the ground space on BMGR-East and CPNWR by Luke Air Force Base. Military activities within the area of overlap with the CPNWR were limited to use of airspace and operation of four Air Combat Maneuvering Instrumentation sites. Military activities occurring within BMGR-East included: airspace use, four manned air-to-ground ranges, three tactical air-to-ground target areas, four auxiliary airfields, Stoval Airfield, and explosive ordnance disposal/burn areas. Primary potential effects of the action included habitat loss due to ground-based activities, harassment and possible mortality of pronghorn at target areas, and disturbance of pronghorn due to military overflights. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. This opinion was reinitiated in 2001, 2003, and 2010, resulting in revised opinions dated November 16, 2001, August 6, 2003, and May 4, 2010. In the latest (2010) opinion, we anticipated take of one wild Sonoran pronghorn every 10 years, one pen-raised (free ranging) female pronghorn every 10 years, and four pen-raised (free ranging) male pronghorn every 10 years in the form of direct mortality or injury; and one wild Sonoran pronghorn of either sex, one pen raised (free ranging female) every 10 years, and two pen-raised (free ranging) male pronghorn every 10 years in the form of harassment. The following reasonable and prudent measure was provided: monitor incidental take resulting from the proposed action and report to the FWS the findings of that monitoring. We are not aware of any take of pronghorn confirmed attributable to Luke Air Force Base use of the ground-surface and airspace on

the BMGR. A pronghorn found dead near a target may have been strafed (hit with bullets from a low-flying aircraft), but it may also have died from other causes. Because the animal had been heavily scavenged by the time it was found, the cause of death was impossible to determine. It is possible that it was killed by strafing near North TAC or it may have died during combat with another animal.

During the development of these opinions, Luke Air Force Base made substantial commitments to minimize the effects of their activities on the Sonoran pronghorn, and additionally committed to implementing a variety of recovery projects recommended by the Sonoran Pronghorn Recovery Team.

SBI*net* Ajo-1 Tower Project, Ajo Area of Responsibility, USBP Tucson Sector, Arizona

This biological opinion (consultation number 22410-F-2009-0089), issued December 10, 2009, addressed the DHS's implementation of the SBI*net* Ajo-1 Tower Project in the Ajo Station's AOR of USBP Tucson Sector, Arizona. The project included the following components: construction, operation, and maintenance of communication and sensor towers; construction, use, and maintenance of new associated access roads; repair, improvement, use, and maintenance of associated approach roads; USBP operations, including relocating and operating a FOB; and implementation of conservation measures for endangered species. The opinion was reinitiated in 2010 and 2011, resulting in revised opinions dated March 15, 2010 and April 29, 2011. Adverse effects to pronghorn included: 1) disturbance of Sonoran pronghorn from noise and lights associated with tower, road, and FOB construction, operation, and maintenance; 2) loss of foraging habitat from tower and road construction; 3) increased risk of collision with project construction and maintenance vehicles; 4) continued degradation of habitat from USBP operations; and 5) disturbance of pronghorn from USBP operations, potential shifts in cross-border violator traffic to important pronghorn areas, better access for the public provided by new or improved roads, and the presence of towers in Sonoran pronghorn habitat. Long-term reduction of impacts to Sonoran pronghorn were anticipated if the project results in greater effective control of the border leading to eventual decreased cross-border violator and USBP activity in the project area. Included were a number of BMPs and offsetting measures to avoid, minimize, and offset effects to Sonoran pronghorn resulting from the project, including the contribution of funds to implement Sonoran pronghorn recovery actions. We determined that the proposed action was not likely to jeopardize the continued existence of the pronghorn. We anticipated incidental take of three Sonoran pronghorn due to harassment within the first year of towers becoming operational and two every five years thereafter; and one due to direct mortality over the life of the project. The following reasonable and prudent measures were stipulated: 1) monitor incidental take resulting from the proposed action and report to the FWS the findings of that monitoring; and 2) minimize harassment of Sonoran pronghorn resulting from the proposed action. To date, we are not aware of any incidental take attributable to the project.

In the approximately one year since the SBI*net* towers became operational, the number of apprehensions of CBVs have increased by 85% within OPCNM and 183% in CPNWR (see Table 1). Additionally, CBV traffic has appeared to have shifted west of the area of coverage of the SBI*net* towers. However, operational control of the area has not been accomplished as anticipated

under the original *SBInet Ajo-I Tower Project BO*. Impacts to Sonoran pronghorn that were anticipated to have been reduced by now are continuing. The CBP 2009 Environmental Assessment states "...when the proposed towers become functional as a result of the enhanced detection capabilities, ... interdiction efforts would be more focused and off-road interdiction activities would not be expected to increase overall and would decrease over time." The original *SBInet Ajo-I Tower Project BO* states "both on and off-road vehicle travel in pronghorn habitat is likely to result in significant disturbance to pronghorn. Off-road vehicle travel is especially problematic because it intrudes into areas that should act as refuges from human disturbance, and creates new routes that then facilitate increased CBV and USBP travel into pronghorn habitat." The BO goes on to predict that "interdiction along authorized roads should generally increase, and off-road incursions should decrease as compared to current practices. As a consequence, impacts to Sonoran pronghorn from USBP activities will also decrease over time."

Contrary to this statement, OPCNM monitoring data reveal that impacts from off-road vehicle activity doubled in the Growler Valley, where the proposed action would occur, between 2009 and 2011. 2011 levels of off-road impacts are four times higher than 2007 levels, which represent the levels of impacts that were understood when the original *SBInet Ajo-I Tower Project BO* was actually produced. Regardless, impacts have increased significantly. The effects of the existing levels of activity are profound. Unfortunately, it has been difficult to evaluate the overall effect of such ongoing impacts because conservation measures outlined in the original *SBInet Ajo-I Tower Project BO* are not being effectively implemented. There is ongoing confusion over requirements under the BO to document and track off-road incursions by CBP. Data may not be collected or reported appropriately and, subsequently, the database information may be incomplete. Such incursions affect Sonoran pronghorn directly through disturbance and habitat effects. Consequently, they need to be acknowledged as part of the baseline conditions to be evaluated in this reinitiation, and will be the subject of our agreement to reinitiate the original *SBInet Ajo-I Tower Project BO* on a parallel track to this reinitiation in order to address non-compliance issues.

### **Summary of Activities Affecting Sonoran Pronghorn in the Action Area**

Historically, livestock grazing, hunting or poaching, and development along the Gila River and Río Sonoyta were all probably important factors in the well-documented Sonoran pronghorn range reduction and apparent population decline that occurred early in the 20th century. Historical accounts and population estimates suggest pronghorn were never abundant in the 20th century, but recently, the estimated size of the wild population in the action area declined from 179 (1992) to 21 (December 2002). Although the proximate cause of the decline during 2002 was drought, human activities limit habitat use options by pronghorn and increase the effects of drought on the sub-population. The U.S. pronghorn sub-population is isolated from other sub-populations in Sonora by a highway and the U.S./Mexico boundary fence, and access to the greenbelts of the Gila River and Río Sonoyta, which likely were important sources of water and forage during drought periods, has been severed. Since 2002, due to improved drought status and implementation of emergency recovery actions, the wild population increased to 85 in 2010. At 85, however, the wild sub-population is still in grave danger of extirpation due to, among other factors, human-caused impacts, drought, loss of genetic diversity, and predation.

Within its remaining range, the pronghorn is subjected to a variety of human activities that disturb the pronghorn and its habitat, including military training, increasing recreational activities, grazing, significant presence of CBV and subsequent required law enforcement activities. OPCNM (2001) identified 165 human activities in the range of the pronghorn, of which 112 were adverse, 27 were beneficial, 26 had both adverse and beneficial effects, and four had unknown effects. OPCNM (2001) concluded that in regard to the pronghorn, “while many projects have negligible impacts on their own, the sheer number of these actions is likely to have major adverse impacts in aggregate.” MCAS-Yuma (2001) quantified the extent of the current pronghorn range that is affected by select activities and found the following: recreation covers 69.6% of the range, military training on North and South TACs covers 9.8%, active air-to-air firing range covers 5.8%, proposed EOD five-year clearance areas at North and South TACs and Manned Range 1 cover 1.0%, and MCAS-Yuma proposed ground support areas and zones cover 0.29%.

CBV traffic and responding USBP enforcement activities occur throughout the range of the pronghorn, and evidence suggests pronghorn are avoiding areas of high CBV and enforcement activities. Historically, pronghorn tended to migrate to the southeastern section of their range (southeastern CPNWR, such as south of El Camino del Diablo, and OPCNM, such as the Valley of the Ajo) during drought and in the summer. Within the last several years, very few pronghorn have been observed south of El Camino del Diablo on CPNWR. This suggests CBV and the interdiction of these illegal activities have resulted in pronghorn avoiding areas south of El Camino del Diablo; these areas are considered important summer habitat for pronghorn and may have long-term management and recovery implications (personal communication with Curtis McCasland, CPNWR, 2007). Sonoran pronghorn have historically used the Valley of the Ajo extensively during the fawning period (they primarily entered the Valley through Bates Pass, an extremely critical and narrow Sonoran pronghorn movement corridor). After the establishment of a FOB at Bates Well, which was located in the middle of Bates Pass on OPCNM, few pronghorn have been documented using the Valley of the Ajo, and no pronghorn have been documented entering the Valley of the Ajo through the Bates Pass area. As part of the *SBI*net Ajo-1 biological opinion, the Bates Well FOB was moved in early 2011 to the current Ajo Station tactical camp (currently proposed Ajo FOB project site). The valleys at CPNWR and OPCNM, which were once nearly pristine wilderness Sonoran Desert, now have many braided, unauthorized routes through them and significant vehicle use by USBP pursuing CBVs. These areas have also been affected by trash and other waste left by CBVs. Our ability to track and evaluate effects to Sonoran pronghorn from CBV and CBP activities has been hindered by confusion regarding, and lack of compliance related to, measures outlined in the original *SBI*net Ajo-1 Tower Project BO.

Although major obstacles to recovery remain, since 2002, numerous crucial recovery actions have been implemented in the U.S. range of the species, including 10 emergency waters and four forage enhancement plots, with additional waters and forage plots planned. The projects tend to offset the effects of drought and barriers that prevent movement of pronghorn to greenbelts such as the Gila River and Río Sonoyta. A semi-captive breeding facility, built on CPNWR, currently holds 78 pronghorn. This facility will provide pronghorn to augment the existing sub-population and to establish the second U.S. sub-population at Kofa NWR. Additionally, vehicle barriers on the

international border on CPNWR and OPCNM are facilitating recovery of pronghorn by drastically reducing the amount of CBV vehicle traffic in pronghorn habitat.

The current range of the pronghorn in the U.S. is almost entirely comprised of lands under Federal jurisdiction; thus authorized activities that currently affect the pronghorn in the action area are almost all Federal actions. However, CBV foot traffic and off-road vehicle activity and required Federal law enforcement response have been and continue to be significant threats to the pronghorn and its habitat. Prior to November 2001, in seven of 11 biological opinions issued by FWS that analyzed impacts to the pronghorn, we anticipated that take would occur. In total, we anticipated take of five pronghorn in the form of direct mortality every 10-15 years, and an undetermined amount of take in the form of harassment. Given the small and declining population of pronghorn in the U.S. at the time the opinions were written, take at the levels anticipated in the biological opinions would constitute a substantial impact to the population.

Changes made in proposed actions and reinitiated biological opinions, plus the findings in other opinions from 2001 to the present, reduced the amount or extent of incidental take anticipated to occur from Federal actions. There are three current opinions that anticipate a total incidental take of 15 pronghorn every 10 years, plus three additional pronghorn:

- 1) Yuma Sector opinion, in which we anticipated take in the form of harassment that is likely to injure up to one pronghorn in 10 years.
- 2) Luke Air Force Base Military Training on BMGR reinitiation, in which we anticipated take in the form of direct mortality or injury to one wild Sonoran pronghorn every 10 years, one pen-raised (free ranging) female pronghorn every 10 years, and four pen-raised (free ranging) male pronghorn every 10 years; and take in the form of harassment to one wild Sonoran pronghorn of either sex, one pen raised (free ranging female) every 10 years, and two pen-raised (free ranging) male pronghorn every 10 years.
- 3) CBP *SBI*net Ajo-1 tower project opinion, in which we anticipated take in the form of harassment to three Sonoran pronghorn within the first year of towers becoming operational and two every five years thereafter; and take the form of direct mortality to one pronghorn over the life of the project.

With the exception of likely capture-related deaths during telemetry studies (which were addressed in 10(a)(1)(A) recovery permits), we are unaware of any confirmed incidental take resulting from the Federal actions described here (although a pronghorn may have been strafed near one of the targets on BMGR-East). Though anticipated incidental take has increased recently, action agencies have worked with us to modify proposed actions and to include significant conservation measures that reduce adverse effects to the pronghorn and its habitat.

We believe the aggregate effects of limitations on or barriers to movement of pronghorn and continuing stressors, including habitat degradation and disturbance within the pronghorn's current range resulting from a myriad of human activities, exacerbated by periodic dry seasons or years, are responsible for the present precarious status of the Sonoran pronghorn in the action area. However,

collaborative, multi agency and multi-party efforts to develop forage enhancement plots and emergency waters, reduce human disturbance of pronghorn and their habitat, combined with the success of the semi-captive breeding facility, plus planned future recovery actions, including establishment of a second U.S. sub-population, provide hope that recovery of the Sonoran pronghorn in the U.S. is achievable. Key to achieving recovery will be a drastic reduction in human disturbance to pronghorn and their habitat caused by CBV and corresponding enforcement activities.

## **EFFECTS OF THE ACTION**

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the proposed action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and, are later in time, but are still reasonably certain to occur.

The Sonoran pronghorn is expected to be affected both directly and indirectly by the proposed action. Short and long-term, direct adverse effects include 1) disturbance of Sonoran pronghorn from noise and lights associated with FOB construction, operation, and maintenance; 2) loss of foraging habitat from FOB construction; and 3) increased risk of collision with project construction and maintenance vehicles. Long-term, indirect adverse effects to Sonoran pronghorn may include 1) continued degradation of habitat from USBP operations; and 2) disturbance of pronghorn from USBP operations. Implementation of avoidance, minimization, and conservation measures will help minimize adverse effects to Sonoran pronghorn resulting from the project. The proposed action may have a long-term reduction of some existing impacts on Sonoran pronghorn if, in addition to avoidance, minimization, and conservation measures, it results in fewer commuting trips by USBP personnel between Ajo Station and the FOB.

Disturbance to Sonoran pronghorn and degradation of their habitat as a result of the project will occur within OPCNM, a key area to the survival and recovery of the U.S. population of pronghorn. OPCNM is an essential area for pronghorn, particularly during the fawning period and annual spring warming-drying trend (i.e., pronghorn use OPCNM under conditions of greatest thermal and hydration stress). Because the Sonoran pronghorn is endangered and the population has failed to increase to a sustainable number in over 40 years, any potential affect on the species is significant. As the Act is interpreted, discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur (U.S. Fish and Wildlife Service 1998a). If the nature of the effects cannot be determined, benefit of the doubt is given to the species.

As described under “Status of the Species”, Sonoran pronghorn are sensitive to human disturbance. Vehicle traffic is disturbing to pronghorn and will often cause flight or startle responses with associated adverse physiological changes. Ground-based activities can destroy or degrade forage

and cover, and result in behavioral or physiological changes that may be detrimental (Geist 1971, Freddy *et al.* 1986, Workman *et al.* 1992), and in a previous biological opinion (consultation number 02-21-95-F-0114) ground-based activities, such as those of troops and vehicles at ground-support areas, were determined to adversely affect pronghorn habitat use. Hughes and Smith (1990) found that a Sonoran pronghorn immediately ran 1,310-1,650 feet from a vehicle. Krausman *et al.* (2001 and 2004) found that Sonoran pronghorn reacted to human ground-based stimuli (vehicles and foot traffic) with a change in behavior, including occasionally running or trotting away. The study documented 44,375 observations (1 observation/30 second) of pronghorn behavior on BMGR. Of the 7.3% of behavior observations associated with stimuli that could be classified, 4.7% were related to human ground-based stimuli (Krausman *et al.* 2004). In other words, 64.4% of the observed changes in behavior that were associated with identifiable stimuli were caused by human ground-based disturbance. The study noted that pronghorn often moved over 10 meters when ground stimuli were present. Wright and deVos (1986) noted that Sonoran pronghorn exhibit “a heightened response to human traffic” as compared to other subspecies of pronghorn. As another example of disturbance to an ungulate species, bighorn sheep have been documented to abandon their range in response to human disturbance, including human activity (Jorgenson 1988).

Evaluating noise effects on pronghorn from anthropogenic factors is difficult. Non-standardized methods of observations and analysis make a comparison of the results found in the literature almost impossible. Comparability among studies is complicated by terms lacking generally-accepted definitions (e.g. “disturbance”) and by species differences (Larkin 1996). Additionally, human caused noise is difficult to assess separately from its visual appearance. Pronghorn exhibit a predator response to human disturbance, but appear to habituate to chronic human disturbance in some instances (Kitchen 1974, Berger *et al.* 1983, Krausman *et al.* 1998). This may be due, at least in part, to a lack of available options away from anthropogenic disturbance. Evidence across studies indicates that ungulate populations in areas with higher levels of human traffic showed reduced wariness, but a lack of alternative sites to move to may explain some of this effect (Stankowich 2008). Behavioral responses such as interrupted activity, vigilance, alert distance, flight distance, and displacement have been used to assess reactions of bighorn sheep to disturbance (Papouchis *et al.* 2001, Jansen *et al.* 2006). When compared to physiological stress responses, such as increased heart rate, increased serum cortisol levels, and fecal and urinary corticosteroid levels (MacArthur *et al.* 1979, Miller *et al.* 1991, MacArthur *et al.* 1982, Stemp 1983, Harlow *et al.* 1987, Hayes *et al.* 1994, and Keay *et al.* 2006), bighorn sheep have been shown to have a pronounced physiological stress response to disturbance without showing an overt behavioral response (MacArthur *et al.* 1982, Stemp 1983).

Landon *et al.* (2003) found that, in areas with noise produced by military aircraft, Sonoran pronghorn used the lowest noise level area more than the higher noise level areas. Anecdotal evidence suggests that Sonoran pronghorn avoid and may abandon areas of high human activity and that this behavior has led to fawn mortality, as is thought to be the case with pronghorn abandonment of the Granite FEP (see Status of the Species, Human-caused Disturbance above). Evidence across studies suggests that ungulates have greater perceptions of risk when disturbed in open habitats (such as those where Sonoran pronghorn occur), and females or groups with young offspring show greater flight responses than adult groups (Stankowich 2008). Disturbance and

flight of ungulates are known to result in a variety of physiological effects that are adverse, including elevated metabolism, lowered body weight, reduced fetus survival, and withdrawal from suitable habitat (Geist 1971, Harlow *et al.* 1987), which may be exacerbated in harsh environments, such as those occupied by Sonoran pronghorn. Disturbance may also lead to increased risk of predator attack, susceptibility to heat stress and malnutrition, and abandonment of fawns.

Though the U.S. Sonoran pronghorn population has increased significantly since 2002, the increase is not as great as the Sonoran Pronghorn Recovery Team had predicted given the adequate to favorable range conditions since 2002, as well as tremendous multi-agency recovery efforts. Seasonal restrictions on public access to pronghorn habitat during the critical fawning season have been implemented, 62 pronghorn have been released from the semi-captive breeding pen into the wild population as of April 2011, and forage and water have been provided via several artificial water sources and forage enhancement plots. Nonetheless, the population stayed fairly static during this period (58 pronghorn in 2004, 68 in 2006, 68 in 2008, and 85 in 2011). At 85 animals, this is still a precariously small population. For this population to increase and ultimately recover, other stressors need to be addressed. The Recovery Team asserts that this slow pronghorn population growth (caused by low fawn recruitment) is likely correlated with high CBV and USBP activity within the pronghorn range. If periodic drought and human caused disturbance and habitat degradation within the Sonoran pronghorn range in Arizona continue at their current level, Sonoran pronghorn in Arizona may only continue to survive as a result of captive breeding efforts and providing supplemental feed and water for the wild pronghorn population. A significant reduction in disturbance to pronghorn and their habitat is critical to the continued survival and recovery of this species.

## **Effects from FOB Construction, Operation, and Maintenance**

### Disturbance to Sonoran pronghorn – Direct Effects

Noise, lights, human presence, and vehicles associated with construction (or improvement/repair), operation, and maintenance of the FOB may cause short-term and long-term disturbance to Sonoran pronghorn. The direct effects of these activities could include stress, injury, or death to Sonoran pronghorn. Currently, the proposed FOB construction activities are projected for fall of 2011 through the spring of 2012. Full build-out of all proposed components, including full solar power capabilities, may be constructed in phases which could occur over five years.

Human and vehicle activity and noise associated with construction may result in disturbance to Sonoran pronghorn. This disturbance can cause pronghorn to startle and/or flee, travel further distances to find suitable foraging, watering, and resting areas, and result in stress and short-term denial of access to habitat, all of which can result in adverse physiological effects or injury to pronghorn. Fleeing behavior can cause fawns to be abandoned or separated from their mothers, which can leave them vulnerable to predator attack or cause physiological stress that results in death. We anticipate construction of the FOB may adversely affect Sonoran pronghorn due its location in important and frequently used pronghorn habitat. Additionally, access to the site requires driving on a road (i.e., Bates Well Road) that traverses historically important and potentially occupied pronghorn habitat. We cannot conclude that increases in noise along Bates

Well Road will not affect pronghorn fawn and adult survival. CBP and other activities already occur in this area; thus, it is not possible to tease out the effects of increased noise on Bates Well Road or other increases in stimuli from other factors that may affect survival. Since the nature of the effects cannot be determined, benefit of the doubt is given to the species. However, because of the significant amount of human activity associated with the existing Ajo Station tactical camp and adjacent *SBI*net tower, Sonoran pronghorn infrequently use the area in the immediate vicinity of the FOB and are therefore less likely to be affected by construction of the proposed project.

Human disturbances can be particularly detrimental during certain critical periods of a pronghorn's life or during the year when animals are in poor condition or more vulnerable to injury. Sonoran pronghorn are particularly susceptible to stress caused by disturbance during the fawning season due to increased energetic demands during this period. Disturbance may result in fawn and adult mortality due to the low availability of forage and water resources and consequent decreased fitness of adults and fawns, particularly during drought years. Furthermore, as noted above, disturbance during the fawning season may cause fawns to be separated from their mothers which can also result in death. CBP will undertake all reasonable efforts to complete construction of the FOB before the beginning of pronghorn fawning season on March 15. If the construction is not complete, CBP agrees there will be no earth moving or heavy construction equipment used after March 15. Despite these measures, project activities may occur during the Sonoran pronghorn fawning season. Therefore, we anticipate these activities, when compared to the other activities that will occur during the non-fawning season, may adversely affect pronghorn to a greater degree. Data provided by AGFD reflects there has been no recorded use of the habitat within 2 miles of the proposed FOB during fawning season by radio-collared animals over the last 4 years (see Figure 7); however there are very few radio-collared animals<sup>2</sup>. However, information from recent surveys provided by NPS and AGFD indicated that, as recently as this week (September 5, 2011), two different groups of Sonoran pronghorn were using the vicinity of the proposed Ajo FOB (E-mail communications from Tim Tibbitts (NPS) and Jill Bright (AGFD) on September 8, 2011). The current occupancy of the area by Sonoran pronghorn underscores the importance of the proposed conservation measures related to the proposed construction of this FOB. Sonoran pronghorn avoidance and conservation measures will be implemented to avoid and minimize adverse effects to Sonoran pronghorn to the extent possible. These measures include: AMM-1 (flagging or temporary fencing the project construction area); AMM-2 (minimizing the number of vehicles travelling to and from the project site); AMM-3 (maintaining a 25 mph speed limit); AMM-4, AMM-10, and AMM-11 (providing an on-site Sonoran pronghorn biological monitor who will coordinate with agencies to detect and report pronghorn in the vicinity, and has authority to delay or stop work if a Sonoran pronghorn is observed within one mile of the FOB construction site); AMM-5, AMM-6 and AMM-7 (noise minimization); AMM-8 and AMM-9 (lighting avoidance and minimization); AMM-12 (prohibiting off-road activity); AMM-13 and AMM-14 (training project personnel to recognize and report Sonoran pronghorn); AMM-15 (training vehicle operators to recognize

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<sup>2</sup> Data from radio-collared pronghorn may not accurately represent all pronghorn movement in the area because there are so few radio-collared animals. Additionally, documenting pronghorn movement in this area is difficult because radio-collared individuals generally do not occur in the northwestern OPCNM (see "Distribution and Abundance" section under "Status of the Species" for Sonoran pronghorn).

Sonoran pronghorn and stop if they are in the area); and AMM-20 (completing or reducing construction activities prior to the fawning season).

The Bates Well FOB was formerly located in the middle of an extremely critical and narrow Sonoran pronghorn movement corridor, and the human activity (including lights, noise, vehicle use, etc.) associated with it likely limited or created a barrier to movement of pronghorn from CPNWR, BLM lands, or the northwestern portion of OPCNM into the Valley of the Ajo on OPCNM. DOI recommended to CBP that they move the FOB from Bates Well to the current Ajo Station tactical camp site (proposed Ajo FOB project site), which CBP agreed to do to offset effects of SBI<sup>net</sup> Ajo-1 Tower Project on pronghorn. Relocating the Bates Well FOB earlier in 2011 reduced adverse effects on pronghorn in the Bates Well area and should facilitate the movement of Sonoran pronghorn into the Valley of the Ajo. The 1-acre Ajo Station tactical camp and an additional 2-acres will be occupied by the new FOB site within the range of the pronghorn. Operation of the new Ajo FOB will adversely affect pronghorn as it will be located in important pronghorn habitat (it was an area of high use prior to 2003); however, in comparison to the previous location of the FOB, impacts to pronghorn have been reduced. From a pronghorn perspective; however, the area of effect of the FOB will be larger than the physical footprint, as pronghorn will likely avoid areas near the FOB due to high levels of human activity and noise. Effects are not limited to disturbance and direct removal of forage, but also to the fragmentation of habitat and loss of habitat connectivity that may result from the placement of this FOB in an area utilized by Sonoran pronghorn as they move throughout the area to use seasonally available forage resources.

Construction of the Ajo FOB will likely result in disturbance to Sonoran pronghorn due to human and vehicular activity and noise at the site and the access roads. There is no research on the physiological impacts of human activities on Sonoran pronghorn, and baseline levels of stress for this species are not currently known. Most researchers agree, however, that noise can affect an animal's physiology and behavior, and if it becomes a chronic stress, noise can be injurious to an animal's energy budget, reproductive success and long-term survival (Radle 1998, Kaseloo and Tyson 2004). Disturbance associated with the construction will be short-term and, as stated above, Sonoran pronghorn use the area in the immediate vicinity of the FOB is expected to be low due to existing infrastructure and human activity. Sonoran pronghorn have been found to use areas with lower levels of noise (less than 45 dBA) more than expected and areas with higher levels (greater than 55 dBA) less than expected (Landon *et al.* 2003). Construction noise is anticipated to be audible at a level of 57 dBA or higher over an estimated 39 acres. Pronghorn may be exposed to noise arising from construction activities at the FOB site; however, the duration of construction noise will be minimized per AMM-5, and the level of construction noise will be reduced through AMM-6. CBP estimates that 13,752 trips are currently made on the Bates Well Road annually to provide patrol in the western portion of the Ajo Station AOR (Appendix B). Other vehicles using the Bates Well Road include NPS, FWS, and BLM administrative use, as well as permitted visitor use. The total number of trips necessary by construction vehicles is estimated to be several hundred during the FOB expansion and therefore would constitute a minor increase in current road use levels. Potential direct effects along the Bates Well Road and the FOB expansion site arise from construction traffic noise. Implementation of AMM-2, AMM-3, AMM-12, AMM-15, and AMM-20 will reduce the likelihood of disturbing pronghorn in the area. Additionally, AMM-32 requires

any collisions with pronghorn to be documented and reported to FWS and OPCNM. In the longer term, constructing the FOB will reduce impacts to the Sonoran pronghorn by reducing the number of commuting trips by USBP personnel on Bates Well Road between Ajo Station and the FOB. Fully developing the FOB to include solar power and a water well will result in reduced impacts in the long term by requiring fewer water and fuel vehicle supply trips between Ajo Station and the FOB and by reducing generator noise on site.

Maintenance and operation of the FOB is anticipated to result in similar effects to Sonoran pronghorn as construction; however, operation and maintenance related disturbance will be long-term and intermittent. Maintenance and operation of the FOB is anticipated to result in disturbance to pronghorn from activities including: noise impacts, impacts from water and diesel fuel deliveries, and expansion of the area of artificial lighting. However, due to reduced generator use following conversion to solar power, development of a water well, and a substantial reduction in the number of commuting trips by USBP agents travelling between the Ajo Station and the FOB, adverse effects from operation and maintenance are anticipated to be minimized. Based on the analysis below, operation and maintenance impacts of the Ajo FOB is expected to reduce some existing impacts on Sonoran pronghorn.

CBP estimates approximately 10,500 trips will be eliminated annually (Appendix B); therefore, reduction of traffic along the corridor is anticipated to reduce adverse effects on pronghorn movement into the area. Following installation of the solar panel array, impacts from generator noise would be less in both duration and magnitude than those currently experienced from the diesel generators in continuous use at the tactical camp site. Noise associated with the transitional use of generators at the FOB will be continual and long-term for up to five years, whereas noise associated with the ongoing use of generators at the current tactical camp will be continual and long-term indefinitely. Noise from the transitional operation of two generators for up to five years at the FOB is expected to result in some auditory disturbance of pronghorn. This noise disturbance will be baffled to limit noise emissions and to meet the sound thresholds established in the original *SBI*net BO; therefore, it is expected to be a reduction from the current noise emission from operation of an unbaffled generator at the existing tactical camp. These impacts to Sonoran pronghorn would diminish within 5 years if the FOB converts to solar power as outlined in the project description.

Since the conversion to solar power from diesel generated power is a major consideration in our effects analysis, in the event that the FOB is not converted primarily to solar power, then CBP will revisit this consultation with FWS. For noise produced by generators and other sound producing equipment at the FOB, noise disturbance will be minimized by the implementation of AMM-7 that requires noise be limited to less than 35 dBA at 492 feet (from the source), and through the eventual conversion to solar power by year 5.

Lights associated with FOB operation or maintenance may disturb Sonoran pronghorn. Disturbance associated with the lighting will be minimized by implementation of AMM-9 that requires lighting impacts at the FOB to be minimized by selective placing of the light, pointing it down toward the ground, and shielding it to prevent light from going up into sky or out laterally beyond the FOB site footprint.

### Disturbance to Sonoran pronghorn – Indirect Effects

CBP does not anticipate any change in activity patterns of USBP agents within the Ajo Station AOR as a result of the proposed project. The proposed FOB will allow CBP will reduce the number of agents needed to cover the Ajo FOB; therefore, the number of patrol hours does not change despite the increase of hours available for agent patrol from elimination of a daily commute between the FOB and Ajo Station. Because no change in operational activities outside the FOB construction footprint should occur as a result of this project, and because measures will be implemented to avoid disturbance of Sonoran pronghorn, there will be no indirect effects from disturbance on Sonoran pronghorn.

### Habitat Loss and Degradation-Direct Effects

The FOB will have a 3-acre footprint and will result in permanent removal of two additional acres of Sonoran Desert habitat. The expansion site could potentially provide seasonal forage for Sonoran pronghorn. Construction impacts will decrease the amount of cover and forage available to pronghorn, the effects of which are accentuated in drought situations when less forage is already available. Although the amount of habitat loss is very small within the context of potentially suitable habitat available to the U.S. population of Sonoran pronghorn, it is still extremely important that impacts to cover and forage resources be minimized, and that Sonoran pronghorn movements are not impacted so that seasonally available forage can be accessed by the pronghorn. Effects to habitat connectivity can be significant to the pronghorn population if survival and reproduction are affected by lack of available forage resources. Implementation of AMM-1 and AMM-12 will minimize disturbance pronghorn habitat outside of the construction footprint.

### Habitat Loss and Degradation – Indirect Effects

Non-native plants often thrive in disturbed areas (Tellman 2002); hence, construction activities could encourage the spread and establishment of these plants. Specifically, the two acres of disturbed ground will be susceptible to colonization by invasive non-native plants such as buffelgrass, Sahara mustard, and rocketsalad (*Eruca vesicaria*). Non-native species may outcompete native species upon which pronghorn rely, and many are known to carry fire, which could impact pronghorn habitat. Many non-native plants carry fire better and often burn hotter than the native plants (Bock and Bock 2002, Esque and Schwalbe 2002); most Sonoran Desert trees, shrubs, and cacti are very fire intolerant. For example, fires at Saguaro National Park resulted in greater than 20% mortality of mature saguaros (Schwalbe *et al.* 2000). Loss of fire-intolerant cacti, especially chain-fruit cholla, from the landscape is significant because they provide important seasonal forage for the Sonoran pronghorn. The amount of habitat loss due to potential fire cannot be predicted; however, fire could impact a significant amount of pronghorn habitat. The colonization and spread of non-native plants and the risk of fire will be minimized by the implementation of a number of measures. The potential for spread of non-native plants will be reduced through implementation of AMM-16, AMM-17, AMM-18, and AMM 30. Fire risk will be reduced through implementation of AMM-19.

Limited erosion is expected during and immediately following construction activities. We anticipate some unquantifiable amount of Sonoran pronghorn habitat will be affected by altered hydrology and increased erosion at the FOB. However, erosion and changes to natural hydrology will be minimized through implementing standard construction procedures to minimize potential for erosion and sedimentation (AMM-24), and by the implementation of a SWPPP to control stormwater erosion and sedimentation during construction (AMM-25). Additionally, CBP will implement BMPs related to project area water sources and site restoration into project planning and implementation for construction and maintenance; BMPs would also be implemented, as described in the SWPPP, during construction activities to avoid significant soil loss. Expanding the FOB would not directly impact wetlands, waters of the United States, surface waters, or floodplains because none occur at the proposed FOB location.

#### Injury or Mortality from Collisions with Construction and Maintenance Vehicles

Vehicles associated with project construction and maintenance can collide with pronghorn causing injury and/or death. The risk of construction and maintenance vehicle related collisions will be minimized by the implementation of AMM-1 (flagging or temporary fencing the project construction area); AMM-2 (minimizing the number of vehicles travelling to and from the project site); AMM-3 (maintaining a 25 mph speed limit); AMM-4, AMM-10, and AMM-11 (providing an on-site Sonoran pronghorn biological monitor who will coordinate with agencies to detect and report pronghorn in the vicinity, and has authority to delay or stop work if a Sonoran pronghorn is observed within one mile of the FOB construction site); AMM-12 (prohibiting off-road activity); AMM-15 (training vehicle operators to recognize Sonoran pronghorn and stop if they are in the area); and AMM-20 (completing or reducing construction activities prior to the fawning season). Additionally, AMM-32 requires any collisions with pronghorn to be documented and reported to FWS and OPCNM. Although incidental take of pronghorn is possible due to collision with construction and maintenance vehicles, there is no documentation of Sonoran pronghorn confirmed to have been struck and killed on any roads in Arizona<sup>3</sup>, and given the level of such construction and maintenance activities, the likelihood of this occurring is relatively low. As previously stated, the total number of trips necessary by construction vehicles is estimated to be several hundred during the FOB expansion and would constitute a minor increase in current road use levels; in the longer term, constructing the FOB will reduce impacts to the Sonoran pronghorn by reducing the number of commuting trips by USBP personnel on Bates Well Road between Ajo Station and the FOB.

#### **Effects from USBP Operations**

##### Disturbance of Sonoran Pronghorn, and Habitat Loss and Degradation from USBP Operations

Disturbance of Sonoran pronghorn, and habitat loss and degradation from USBP operations in the Ajo Station AOR are addressed in the original *SBInet* Ajo-I Tower Project BO. According to CBP,

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<sup>3</sup> Potential vehicle strikes are described under the “Barriers that Limit Distribution and Movement” portions of the “Threats” section under “Status of the Species” for Sonoran pronghorn.

activity patterns of USBP agents within the Ajo Station AOR as a result of the proposed project will not change; therefore, there is no anticipated change in disturbance, habitat loss, or degradation from USBP operations. However, as described in our original *SBI*net Ajo-1 Tower Project BO, USBP operations will result in noise and disturbance effects to Sonoran Pronghorn. For example, as discussed in the “Habitat Disturbance” portion of the “Threats” section under “Status of the Species” for Sonoran pronghorn, CBV activities and required USBP response have resulted in increased human presence in remote areas and widespread habitat degradation. Extensive off-road impacts attributed to USBP operations have been documented in CPNWR and OPCNM. Ongoing USBP activity in pronghorn habitat could be linked to significant adverse effects from disturbance. Aside from a measurable loss of habitat, additional effects from chronic human disturbance, including noise and visual stimuli, could result in pronounced physiological stress to Sonoran pronghorn and range abandonment, which could result in increased mortality. It is critical for the BMPs and conservation measures outlined in the original *SBI*net Ajo-1 Tower Project BO related to ongoing USBP operations to continue to be implemented appropriately, including operations originating from the proposed FOB, and that DOI and CBP reach an agreement on an approach for resolving ongoing non-compliance issues related to that BO

#### Injury or Direct Mortality from Collisions with USBP Vehicles

Vehicles associated with USBP operations responding to CBVs can collide with Sonoran pronghorn causing injury and/or death. We anticipate the risk of collisions will decrease due to fewer commuting trips by USBP personnel between Ajo Station and the FOB (as discussed above; Appendix B). We are unaware of any documented, confirmed incidences of Sonoran pronghorn being hit by a vehicle on or off roads in Arizona; thus we believe the likelihood of this occurring in any one year is relatively low. However, USBP maintains a significant, constant presence in the action area in regard to motor vehicles, and based on observations of vehicles and high levels of off-road incursions, the current level of vehicle use is unprecedented. Given that the life of the FOB has no definite end point, there is some likelihood of an USBP vehicle colliding at some point with pronghorn. This is particularly anticipated if, consistent with recovery goals, the pronghorn population grows.

#### Long-term Reduction of Effects

As described above, the proposed action is anticipated to have direct and indirect adverse effects to Sonoran pronghorn and their habitat. However, we expect that the proposed FOB will enable USBP to reduce travel on Bates Well Road and that the number of vehicle trips on that road will decrease. All other factors remaining the same, impacts to Sonoran pronghorn from USBP activities should also decrease over time. Based on the information provided, we anticipate that USBP will reduce travel on Bates Well Road as soon as the FOB is operational. As a consequence, we anticipate impacts to Sonoran pronghorn and their habitat will also begin to diminish once the FOB is operational. Should the combined effect of the Ajo-1 towers and the proposed FOB result in increased CBV apprehensions within the action area, this should reduce potential effects to pronghorn and pronghorn habitat from CBV activities and lead to operational control of the area and an associated reduction in impacts to natural resources.

### Effects of Avoidance, Minimization, and Conservation Measures and Best Management Practices

Avoidance, minimization, and conservation measures, and BMPs incorporated into the project, such as those mentioned above, will significantly help minimize project impacts to Sonoran pronghorn and their habitat. Presence of a biological monitor during project construction and reporting requirements will help ensure that BMPs and AMMs are implemented as designed. Because however, many significant adverse effects cannot be avoided or minimized and because Sonoran pronghorn remain critically endangered, it is imperative that adverse effects be offset by actions to benefit or promote the recovery of the species. Accordingly, CBP has made commitments to fund and implement conservation measures as an integral part of the proposed action. Allowing NPS and FWS to use surplus water from the FOB water well to replenish Sonoran pronghorn waters will help improve pronghorn fitness, which should help them better withstand the effects of drought and human disturbance. CBP's pledge to work with the NPS and FWS to ensure impacts of USBP operations on lands administered by these agencies are minimized, and to provide enhanced environmental training to FOB personnel will help further avoid and minimize impacts to pronghorn from operational activities.

### Changes in Pronghorn Status with the Project

The U.S. Sonoran pronghorn population increased from about 21 in 2002 to about 85 or 90 in 2011 and pronghorn use of OPCNM has increased. As the population increases, it is more likely that a pronghorn will be adversely affected by construction and maintenance activities, particularly during times when they are stressed by lack of forage and water. Proposed project activities that elicit pronghorn response (such as fleeing behavior) or that lead to reduced use of preferred habitat could contribute to decreased physical condition of individual animals or abandonment of fawns, both of which could result in increased mortality, particularly during times of drought.

Three populations of Sonoran pronghorn exist throughout their range, including two in Mexico and one in Arizona. The two smallest populations occur primarily within federally protected lands (in Sonoran and Arizona). The largest population occurs primarily outside of protected lands in Mexico and consequently, is at greatest risk (i.e., authorities have much less of an ability to control activities that may harm pronghorn outside of Federally protected lands). The survival of all three of these populations is critical to the survival of this species. However, because the largest population occurs outside of a protected area, ensuring the survival of the two populations within Federally protected areas, including the one in Arizona, is even more imperative.

Of these two populations, the one in Arizona, which comprises 17% of the total number of estimated wild pronghorn, is the only one over which we have management authority. Additionally, critical recovery projects, including the captive breeding pen, forage enhancement plots, and pronghorn waters, are all located in Arizona. Therefore, although the majority (83%) of Sonoran pronghorn occur outside of the U.S. and will not be affected by the proposed action, because of the importance of the U.S. population, it is critical that project impacts be minimized and offset to the greatest degree possible. Accordingly, as part of its proposed action, CBP will

implement or fund the implementation of conservation measures that will minimize and offset the impacts of the proposed project and will help to ensure that these impacts do not significantly affect the reproduction, numbers, and distribution of Sonoran pronghorn in the wild in Arizona.

As mentioned above, providing surplus water from the FOB water well for pronghorn waters will reduce water hauling trips by DOI agencies and help improve pronghorn fitness, which should help them better withstand the effects of drought and human disturbance. CBP has committed to work with the NPS and FWS to minimize impacts of USBP operations on lands administered by these agencies. Reducing the number of commuting trips on Bates Well Road, and providing enhanced environmental training and education to agents will help further avoid and minimize impacts to pronghorn from operational activities. Relocation of the Bates Well FOB to the current tactical camp has reduced disturbance and range curtailment (i.e., expanded distribution) of pronghorn in the Bates Well area, which we anticipate will improve adult survival and fawn recruitment (i.e., improve numbers and reproduction). Even though it will likely be listed as an experimental, non-essential population, establishment of a second population outside of the current distribution of Sonoran pronghorn will contribute to meeting the downlisting criteria (a population size of 300 animals within the current U.S. range and establishing a second, separate population) and will improve the distribution (e.g., two populations in separate geographical ranges in the U.S. in contrast to the one that currently exists), numbers (e.g., a new captive breeding population will be established at the second site using animals from the captive breeding pen at CPNWR; captive bred individuals at the new site will then be released into the wild, thus increasing the overall number of Sonoran pronghorn in the wild); and reproduction (e.g., as mentioned, a new captive breeding population will be established at the new site, which will increase overall reproduction of the species).

#### Effects from DOI's Actions

The effects to Sonoran pronghorn from OPCNM's issuance of a Special Use Permit are the same as previously described for the expansion of the FOB in "*Effects from FOB Construction, Operation, and Maintenance*" above. Additionally, the effects from a deviation from the first part of a conservation measure ("Limiting future development to the area south of the North Puerto Blanco Drive and east of the Senita Basin Road/Baker Mine Trail/Dripping Springs Trail and limiting timing of construction to occur outside the pronghorn fawning period [March 15 to July 15]") included in the November 16, 2001 OPCNM GMP biological opinion are the same as previously described for the expansion of the FOB in "*Effects from FOB Construction, Operation, and Maintenance*" above.

In conclusion, although some aspects of the proposed action will result in ongoing impacts to Sonoran pronghorn in the U.S., these impacts do not significantly affect the reproduction, numbers, and distribution of Sonoran pronghorn. The long-term reduction in effects provided by reduced use of Bates Well Road, the ultimate reduction in generator noise at the FOB, and CBP's commitment to implement or fund BMPs and avoidance, minimization, and conservation measures will help to ensure that these impacts do not significantly affect the reproduction, numbers, and distribution of

Sonoran pronghorn, and thus not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

## **CUMULATIVE EFFECTS**

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Most lands within the action area (current range of the pronghorn within Arizona) are managed by Federal agencies; thus, most activities that could potentially affect pronghorn are Federal activities that are subject to section 7 consultation. The effects of these Federal activities are not considered cumulative effects. Relatively small parcels of private and State lands occur within the currently occupied range of the pronghorn near Ajo and Why, north of the BMGR from Dateland to SR 85, and from the Mohawk Mountains to Tacna. State inholdings in the BMGR were acquired by the USAF. Continuing rural and agricultural development, recreation, vehicle use, grazing, and other activities on private and State lands adversely affect pronghorn and their habitat. MCAS-Yuma (2001) reports that 2,884 acres have been converted to agriculture near Sentinel and Tacna. These activities on State and private lands and the effects of these activities are expected to continue into the foreseeable future. Historical habitat and potential recovery areas currently outside of the current range are also expected to be affected by these same activities on lands in and near the action area in the vicinity of Ajo, Why, and Yuma.

Of most significant concern to pronghorn is the high level of CBV activity in the action area. CBV activity and its effects to pronghorn and pronghorn habitat is described under the “Human-caused Disturbance” and “Habitat Disturbance” portions of the “Threats” section under “Status of the Species” for Sonoran pronghorn. CBV activity has resulted in route proliferation, off-highway vehicle activity, increased human presence in backcountry areas, discarded trash, abandoned vehicles, cutting of firewood, illegal campfires, and increased chance of wildfire. Habitat degradation and disturbance of pronghorn have resulted from these CBV activities. Though CBV activity levels are still high, the trend in overall CBV apprehensions and drive-throughs is a decline in recent years within the action area likely due to increased law enforcement presence, the border fence, and the status of the economy in the U.S. Despite high levels of CBV activity and required law enforcement response throughout the action area, pronghorn in the U.S. have managed to increase since 2002, although their use of areas subject to high levels of CBV use and law enforcement appears to have declined. We expect CBV activities and their effects on pronghorn to continue, though they should be reduced in the vicinity of OPCNM as a result of the *SBI*net Ajo-1 Tower Project as described under the “Federal Actions Addressed in Section 7 Consultations” portion of the “Past and Ongoing Federal Actions in the Action Area” section under “Environmental Baseline” for Sonoran pronghorn. However, CBP has not yet achieved operational control of this area and the ongoing, and even increasing, effects of CBV and CBP activities must be considered as part of the baseline of effects for this reinitiation.

We believe the aggregate effects of limitations or barriers to movement of pronghorn and continuing stressors, including habitat degradation and disturbance within the pronghorn's current range resulting from a myriad of human activities, exacerbated by periodic dry seasons or years, are responsible for the present precarious status of the Sonoran pronghorn in the action area. Anticipated incidental take has increased recently, and action agencies have worked with us to modify proposed actions and to include significant conservation measures that reduce adverse effects to the pronghorn and its habitat. Collaborative, multi agency and multi-party efforts to develop forage enhancement plots and emergency waters, reduce human disturbance of pronghorn and their habitat, combined with the success of the semi-captive breeding facility, plus planned future recovery actions, including establishment of a second U.S. sub-population, provide hope that recovery of the Sonoran pronghorn in the U.S. is achievable. At the same time, the rate of recruitment in the wild population in the U.S. is not self sustaining. Population gains are being achieved through augmentation from the semi-captive breeding pen. This indicates that for a number of reasons, including persistent physiological stress of individuals, low recruitment levels persist in the wild U.S. Sonoran pronghorn population.

## CONCLUSION

After reviewing the current status of the Sonoran pronghorn; the environmental baseline for the action area, the effects of the proposed activities, including 1) DHS's *SBI*net Ajo-1 Tower Project and associated USBP operations, and 2) OPCNM's deviation from a conservation measure in their GMP biological opinion and issuance of a Special Use Permit for activities specified in the description of the proposed action; and the cumulative effects, we reaffirm our biological opinion that the proposed action is not likely to jeopardize the continued existence of the Sonoran pronghorn. No critical habitat has been designated for this species; therefore, none will be affected. Our conclusion is based on the rationale given in the original *SBI*net Ajo-1 Tower Project BO and subsequent reinitiations, our discussion in this document found in the "Effects of the Action" section above, and the following:

- 1) The project affects a relatively small amount of habitat across the overall range of the Sonoran pronghorn and within the vicinity of the project.
- 2) Measures included in the proposed action (e.g. providing surplus water to replenish pronghorn waters, coordinating actions with NPS and FWS, providing enhanced environmental education and training, etc.) will help reduce disturbance to and the risk of injury or death of Sonoran pronghorn from project-related activities.
- 3) Although we anticipate that activities associated with the proposed action will result in disturbance to pronghorn, the subsequent reduction in use of Bates Well Road, and the ultimate reduction in noise at the FOB will provide an overall reduction of adverse affects to the species.
- 4) Conservation measures included in the proposed action will help offset adverse effects to pronghorn that could result from implementation of the project. Thus, the project is not

expected to significantly affect the distribution, numbers, and reproduction of Sonoran pronghorn in the wild.

The conclusions of this biological opinion are based on full implementation of the project as described in the “Description of the Proposed Action” section of this document, including any conservation measures that were incorporated into the project design, as well as the appropriate conservation measures found in the original BO and subsequent reinitiations.

### **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). “Harass” is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3). “Incidental take” is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

### **AMOUNT OR EXTENT OF TAKE**

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

### **EFFECT OF THE TAKE**

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

### **REASONABLE AND PRUDENT MEASURES**

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

### **TERMS AND CONDITIONS**

No changes from the original *SBI*net Ajo-I Tower Project Biological Opinion issued December 10, 2009 (File Number 22410-2009-F-0089).

## **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, help implement recovery plans, or to develop information. In addition to the Conservation Recommendations in the original *SBI*net Ajo-I Tower Project BO, we recommend the following actions be conducted by the CBP:

1. CBP should support OPCNM's commitment to provide staff to develop and implement outreach and education materials related to Sonoran pronghorn and other natural resource issues affected by CBP presence and activities in OPCNM. We recommend that CBP provide dedicated staff to provide input and CBP's perspective in the outreach and educational materials. CBP should assist with the ongoing program and measures discussed in the BA and BO for this project related to the education of CBP agents and other personnel with regard to conservation of listed species and the avoidance and minimization of effects to all natural resources.

In order for us to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

## **REINITIATION NOTICE**

This concludes formal consultation on the action(s) outlined in the reinitiation request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

For further information, please contact Scott Richardson (x242) or Jean Calhoun (x223) of our Tucson Suboffice at (520) 670-6150. Please refer to the consultation number, 22410-2009-F-0089-R3 in future correspondence concerning this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Spangle", with a long horizontal flourish extending to the right.

Steven L. Spangle  
Field Supervisor

cc (hard copy):

Field Supervisor, Fish and Wildlife Service, Phoenix, AZ (2)  
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ  
Refuge Manager, Cabeza Prieta National Wildlife Refuge, Ajo, AZ  
Superintendent, Organ Pipe Cactus National Monument, Ajo, AZ  
Field Office Manager, Phoenix Field Office, Bureau of Land Management, Phoenix, AZ

cc (electronic copy):

Director, 56<sup>th</sup> Range Management Office, Luke Air Force Base, Gila Bend, AZ  
Director, Range Management Department, Marine Corp Air Station, Yuma, AZ  
Chairperson, Tohono O'odham Nation, Sells, AZ  
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ  
Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ  
Regional Supervisor, Arizona Game and Fish Department, Yuma, AZ

Filename: Ajo FOB BO Final 9\_16\_11.sr

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**APPENDIX A.****Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuena*)****Environmental Baseline**

This species is known from grasslands, arid scrublands, and oak woodlands below 5500 ft in elevation. In Arizona, lesser long-nosed bats arrive in western deserts in mid- April, roosting in caves, abandoned mine shafts, and tunnels, which are used as maternity roosts. Young are typically born in maternity colonies in mid-May. Females and young remain in maternity roosts and primarily forage on saguaro (*Carnegiea gigantea*) and organ pipe (*Stenocereus thurberi*) cacti below about 3500 feet until approximately mid-July. At this time, the range expands eastward and lesser long-nosed bats are found up to an elevation of about 5500 feet in areas of semi-desert grassland and lower oak woodland, foraging primarily on agaves. Lesser long-nosed bats typically leave southern Arizona by late September to early October. Two of the three major maternity roosts in Arizona (Bluebird and Copper Mountain Mines) and five day-roosts are located within 36 miles of the proposed Ajo Station forward operating base (FOB) site. The closest lesser long-nosed bat roost, a major maternity roost, is over eight miles from the proposed FOB and approximately 1.5 miles from Bates Well Road (used to access the FOB).

Lesser long-nosed bats are known to forage on species of agave (primarily Palmer's agave [*Agave palmeri*], Parry's agave [*A. parryi*], desert agave [*A. deserti*], and possibly amole [*A. schottii*]) and columnar cacti (saguaro, organ pipe, and senita [*Pachycereus schottii*]), as well as hummingbird feeders. Because of the proximity of known lesser long-nosed bat roosts to the proposed FOB, it is likely that lesser long-nosed bats use the project area for foraging. In this portion of the lesser long-nosed bat's range, they primarily forage on saguaro and organ pipe cacti, and desert agave. One saguaro cactus was observed approximately 875 yards from the proposed FOB site; however, the proposed project will not result in impacts to this plant or to any areas containing columnar cacti or agaves.

**Conclusion**

The U.S. Fish and Wildlife Service concurs with the U.S. Customs and Border Protection determination that the action may affect, but is not likely to adversely affect lesser long-nosed bat, based upon the following:

- Direct effects to roost sites will be discountable due to the distance of known roost sites from project activities.
- Direct effects to foraging and roosting lesser long-nosed bats will be discountable because CBP will not implement construction related activities between May 1 and September 30, the normal period of time when lesser long-nosed bats occupy roosts in the action area.
- Impacts to lesser long-nosed bat forage resources will be insignificant because no foraging resources for this species will be impacted.

- Nighttime lighting impacts will be reduced through avoidance and minimization measures.
- The project affects a relatively small area relative to the overall range of the species and the occupied area within the vicinity of the project.

**APPENDIX B.**

**CBP's Calculation of the Number of Bates Well Road Trips Saved Under Ajo FOB**

**Assumptions**

1. Current Staffing Level- 8 persons year round
2. Permanent Staff assigned to Ajo Camp/FOB works 5 day shifts
3. Current/Future Staffing Requirement
  - 8 to 16 agents Oct –Dec (assume 12 agents)
  - 16 to 24 agents Jan – March (assume 20 agents)
  - 24 to 32 agents April – Sept (assume 28 agents)
4. Currently 25% of each duty shift spent commuting from Ajo Station to Ajo FOB AOR

**October to December**

- 12 agents required daily
- 8 agents currently assigned to camp
- 5 additional agents assigned daily to AOR to meet 12 agent need (125% X 4)
- 5 agents make one round trip daily from Ajo Station to camp
- 10 trips per day times 90 days equals 900 trips by commuters Oct to Dec
- 18 shifts of 5 days in length for agents assigned to camp
- 288 trips required by agents assigned to camp (8 agents X 2 trips X 18 shifts)
- 1,188 total trips required Oct to Dec currently (900 plus 288)
- 432 trips required after FOB (12 agents X 2 trips X 18 shifts)
- 756 trips saved

**January to March**

- 20 agents required daily
- 8 agents currently assigned
- 15 additional agents assigned daily to AOR to meet 20 agent need (125% X 12)
- 15 agents make one round trip daily from Ajo Station to camp
- 30 trips per day times 90 days equals 2700 trips by commuters Jan to Mar
- 18 shifts of 5 days in length for agents assigned to camp
- 288 trips required by agents assigned to camp (8 agents X 2 trips X 18 shifts)
- 2,988 total trips required Jan to Mar currently (2700 plus 288)
- 720 trips required after FOB (20 agents X 2 trips X 18 shifts)
- 2,268 trips saved

**April to Sept**

- 28 agents required daily
- 8 agents currently assigned
- 25 additional agents assigned daily to AOR to meet 28 agent need (125% X 20)
- 25 agents make one round trip daily form Ajo Station to camp
- 50 trips per day times 180 days equals 9000 trips by commuters April to Sept
- 36 shifts of 5 days in length for agents assigned to the camp

576 trips required by agents assigned to camp (8 agents X 2 trips X 36 shifts)  
 9,576 total trips required April to Sept currently (9,000 plus 576)  
 2,016 trips required after FOB (28 agents X 2 trips X 36 shifts)  
 7,560 trips saved

|                           | <b>Currently</b> | <b>Trips Required After FOB</b> | <b>Trips Saved</b> |
|---------------------------|------------------|---------------------------------|--------------------|
| October to December       | 1,188            | 432                             | 756                |
| January to March          | 2,988            | 720                             | 2,268              |
| April to September        | 9,576            | 2,016                           | 7,560              |
| <b>Total Annual Trips</b> | <b>13,752</b>    | <b>3,168</b>                    | <b>10,584</b>      |

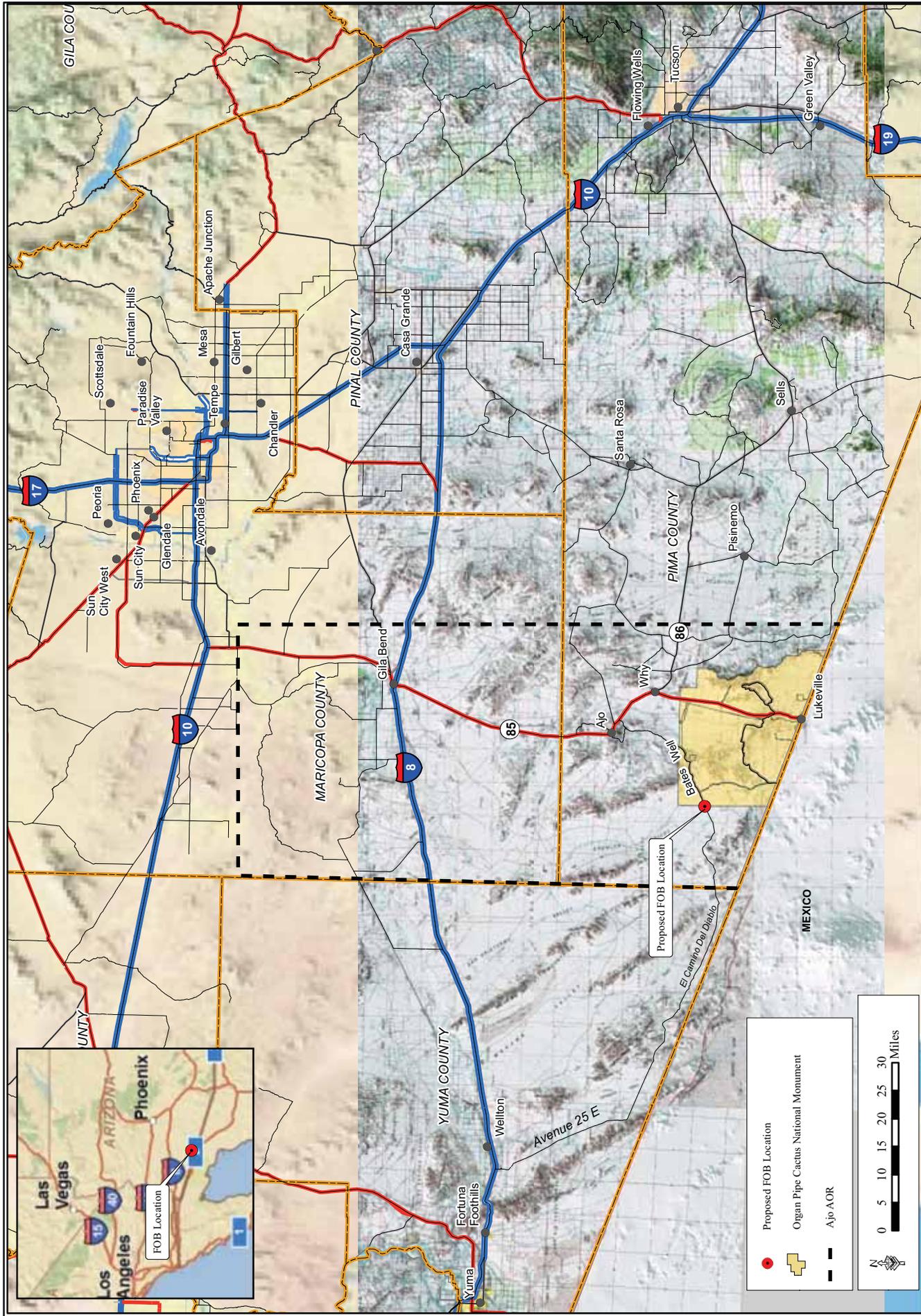


Figure 1-1: Vicinity Map

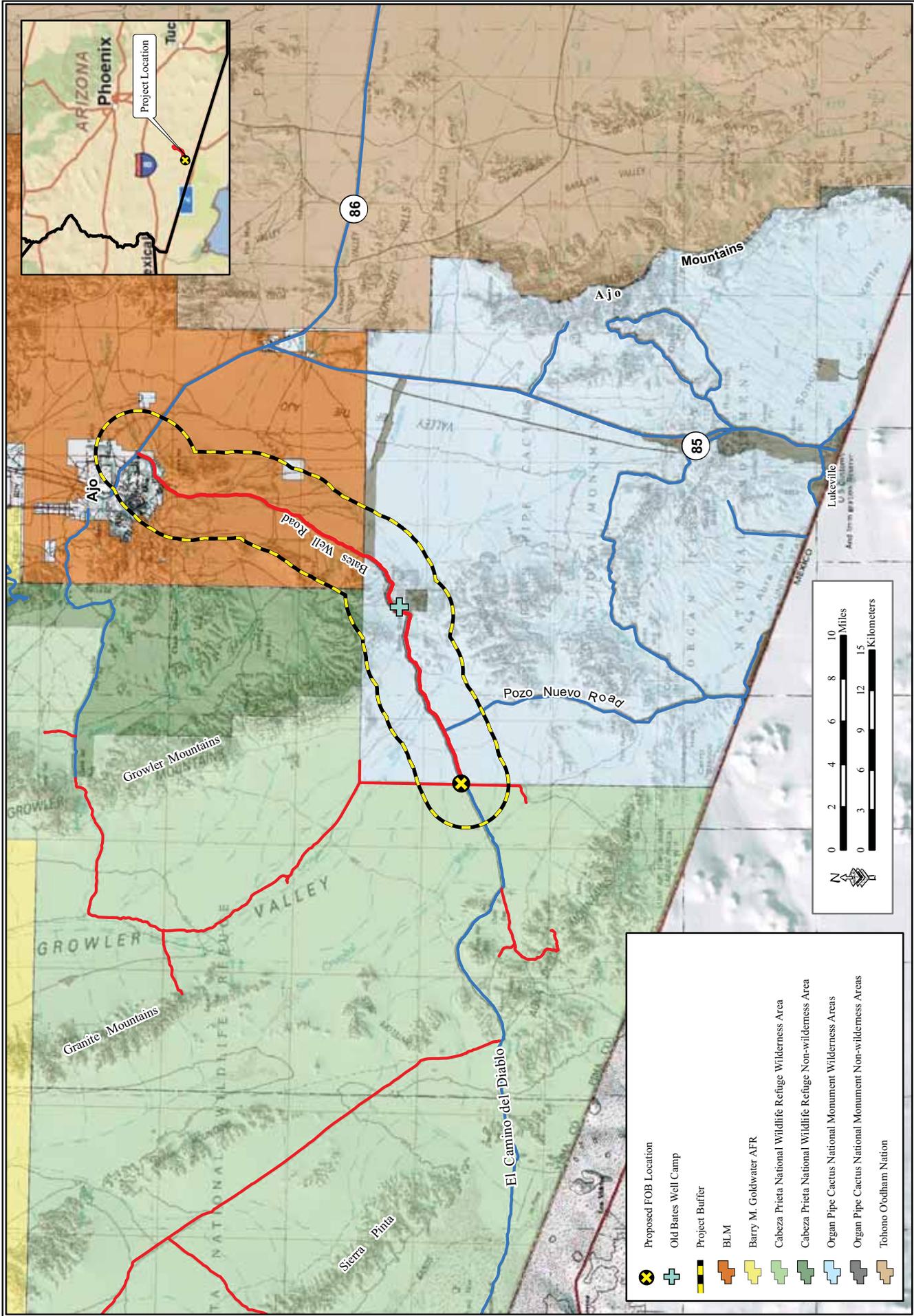


Figure 1-2: Project Location Map

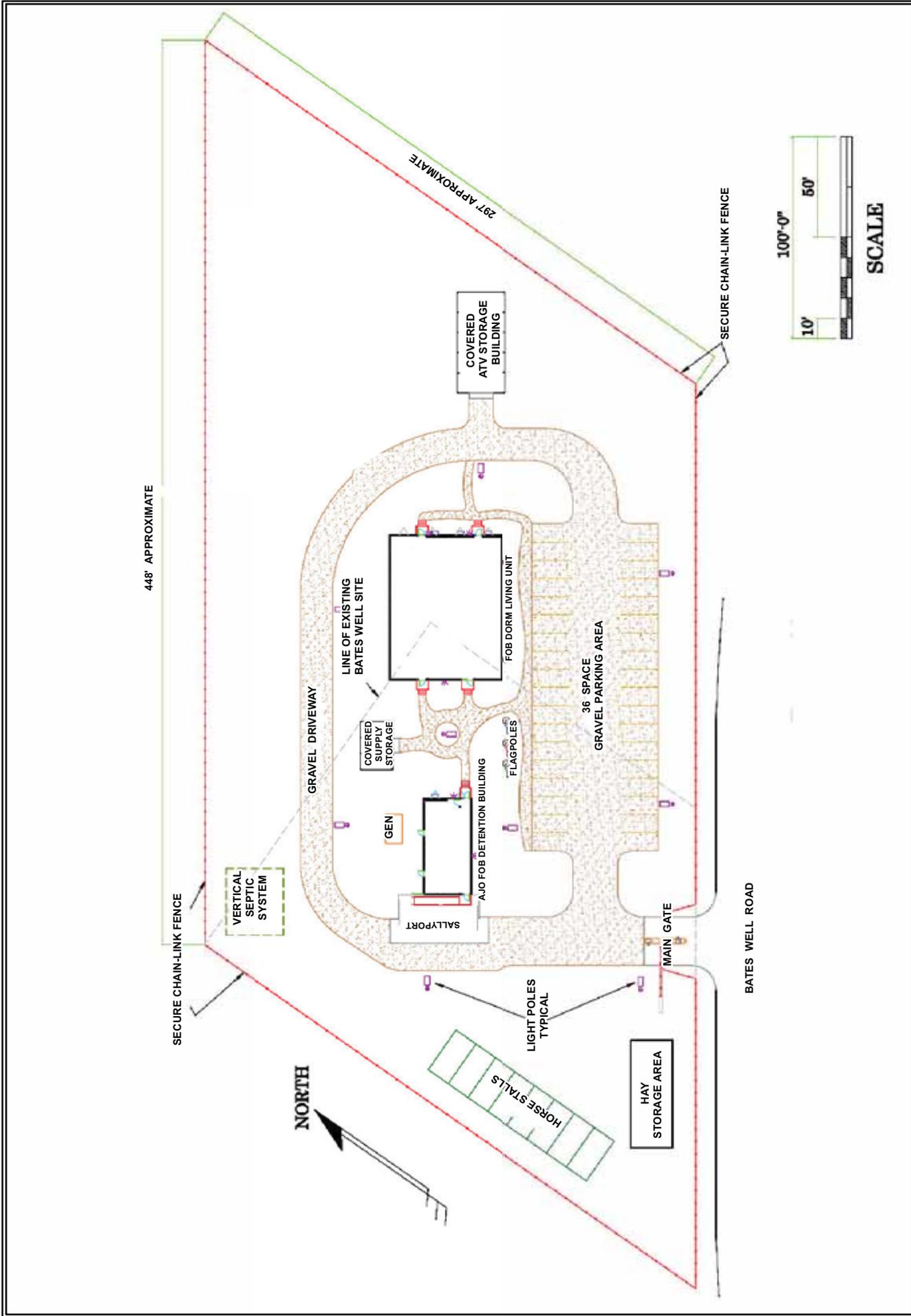


Figure 1-4: Conceptual Site Layout

Figure 4. Historical Range of Sonoran Pronghorn in the United States and Mexico.



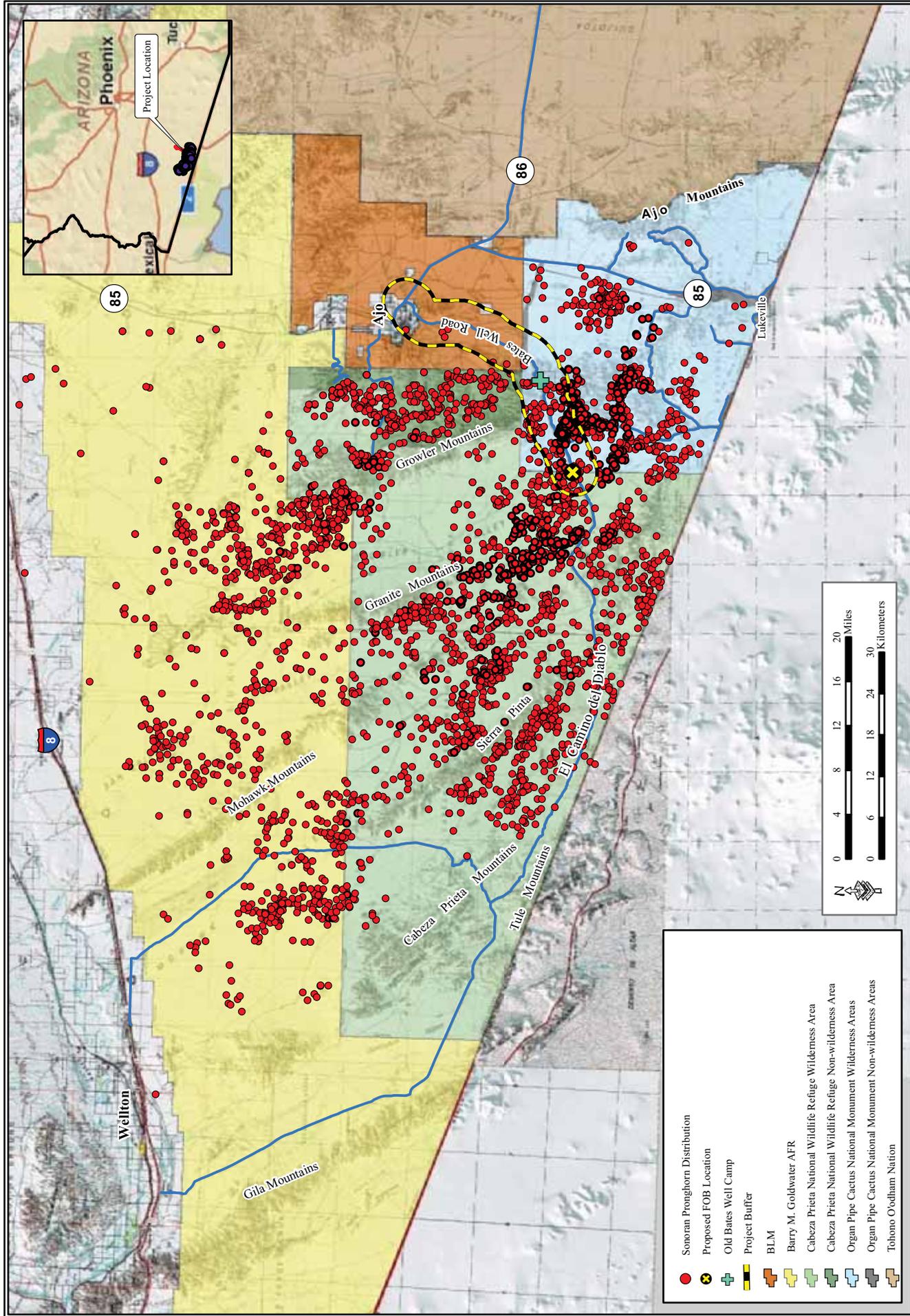


Figure 2-1: Historical Sonoran Pronghorn Location Data (1994 - 2011)

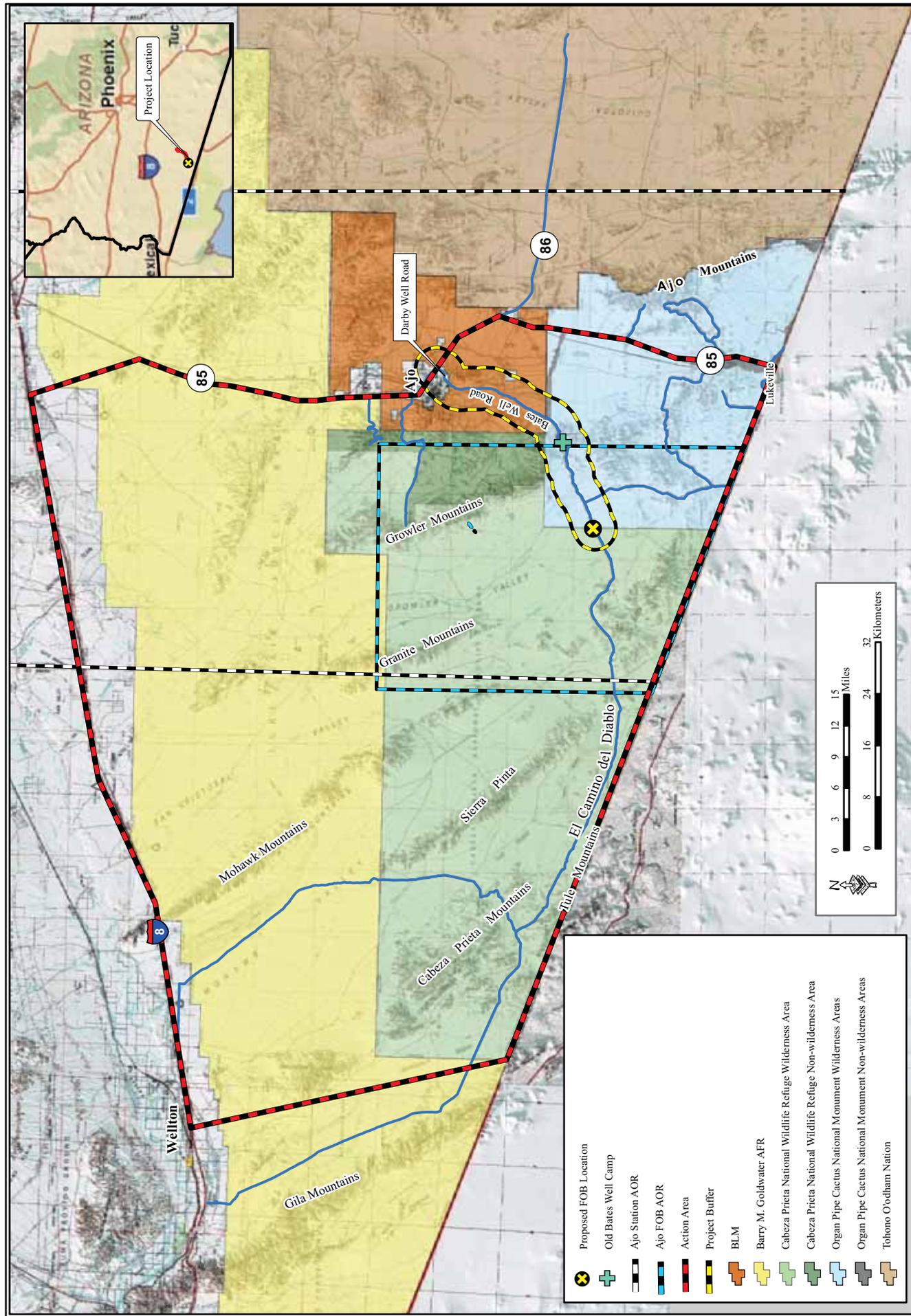


Figure 1-3: Action Area for Proposed Ajo FOB

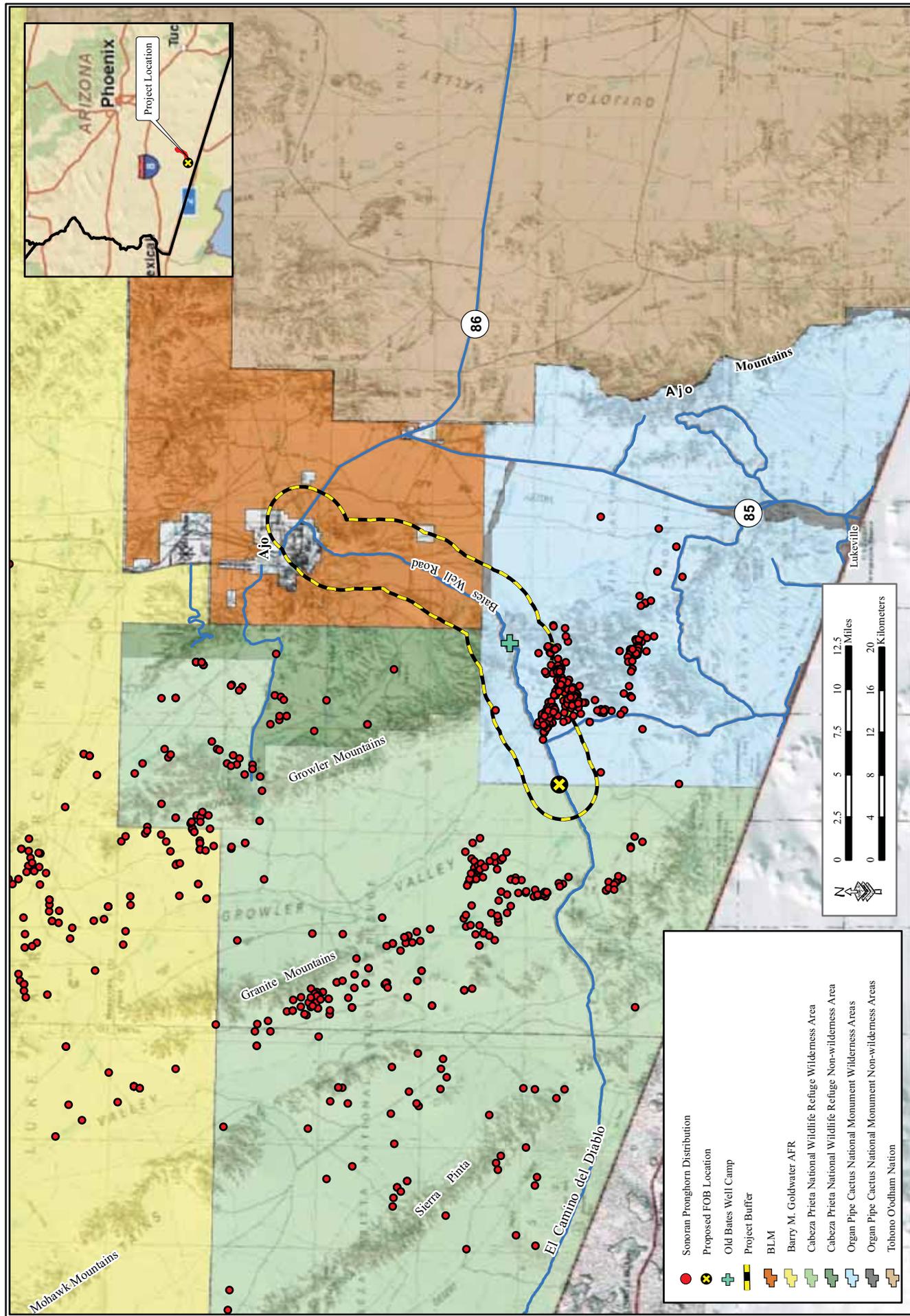


Figure 3-1: Sonoran Pronghorn Fawning Season (2006 - 2011)