United States Department of the Interior

Fish and Wildlife Service
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In reply refer to:
AESO/SE

In Reply Refer to:
AESO/SE
22410-2005-F-0120-R003

January 11, 2021

Memorandum

To: Edward J. Kender, Field Office Manager, Lower Sonoran Field Office, Bureau of Land Management

From: Jeffrey Humphrey, Field Supervisor, Arizona Ecological Service Field Office, Phoenix, Arizona

Subject: Reinitiation of Formal Consultation and Conference for the Renewal of 10-year Grazing Permits in the Ajo/Sentinel Complex on Bureau of Land Management Lands, Maricopa and Pima Counties, Arizona

This document transmits our biological and conference opinion based on our review of the effects of the proposed renewal of 10-year grazing permits in the Ajo/Sentinel Complex on Sonoran pronghorn (*Antilocapra americana sonoriensis*) and acuña cactus (*Echinomastus erectocentrus var. acunensis*) and its designated critical habitat, pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (Act or ESA), as amended (16 U.S.C. 1531 *et seq.*). Your request for reinitiation of formal consultation and conference was received on August 14, 2020. We initiated consultation and conference on that same date.

The Bureau of Land Management (BLM) has an extensive consultation history on livestock grazing in the action area (see Consultation History below for information). The BLM requested this consultation to address their action of renewing 10-year grazing permits and to update and consolidate past biological opinions on this matter. Additionally, since we issued the last biological opinion on BLM's action, acuña cactus has been listed as an endangered species and critical habitat designated within the action area. Consequently, acuña cactus and its critical habitat will be addressed in this consultation. Furthermore, there is now a nonessential experimental population of Sonoran pronghorn in the action area and it will also be addressed in this consultation/conference, as explained below.

The Ajo/Sentinel Complex on BLM lands is located partially within the range of the endangered Sonoran pronghorn and partially within the nonessential experimental population (NEP) (or 10(j)) range of the Sonoran pronghorn (Figure 1). For section 7 consultation purposes, the population of Sonoran pronghorn within nonessential experimental population area is treated as a species proposed to be listed. Accordingly, you requested reinitiation of formal consultation for effects to Sonoran pronghorn within the range of the endangered Sonoran pronghorn and formal conference for effects to Sonoran pronghorn within the NEP area. Federal agencies are required to confer (rather than consult) with the U.S. Fish and Wildlife Service (FWS, Service) on actions that are likely to jeopardize the continued existence of a species proposed to be listed[1]. Because the nonessential experimental population is, by definition, not essential to the continued existence of the species then the effects of proposed actions on the NEP will generally not rise to the level of jeopardizing the continued existence of the species. As a result, a formal conference will likely never be required for Sonoran pronghorn established within the NEP area. Nonetheless, some agencies voluntarily confer with the Service on actions that may affect a proposed species. In the case of the proposed action, BLM's *Manual 6840 – Special Status Species Management* states that "the BLM shall treat essential experimental populations as threatened species and nonessential experimental populations as proposed species for purposes of Section 7". Therefore, we are providing a brief conference opinion on the nonessential experimental population of Sonoran pronghorn in the action area, along with our biological opinion on the endangered population in the action area.

This biological and conference opinion is based on information provided in the August 2020 Biological Assessment for the Ajo/Sentinel Complex Grazing Renewal (BLM 2020), telephone conversations, field investigations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, grazing and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

The BLM has an extensive consultation history on livestock grazing in the action area. Below is a brief summary of past biological opinions that address these actions. For a full consultation history, refer to each biological opinion listed below at the Arizona Ecological Services Office website.

[1] From USFWS 2011 (Final rule for the establishment of a nonessential experimental population of Sonoran Pronghorn in southwestern Arizona): "When nonessential experimental populations (NEP) are located outside a NWR or National Park Service unit, for the purposes of section 7 we treat the population as proposed for listing and only two provisions of section 7 apply—section 7(a)(1) and section 7(a)(4). In these instances, NEPs provide additional flexibility because Federal agencies are not required to consult with us under section 7(a)(2). Section 7(a)(4) requires Federal agencies to confer (rather than consult) with the USFWS on actions that are likely to jeopardize the continued existence of a species proposed to be listed. The results of a conference are in the form of conservation recommendations that are optional as the agencies carry out, fund, or authorize activities. Because the nonessential experimental population is, by definition, not essential to the continued existence of the species then the effects of proposed actions on the NEP will generally not rise to the level of jeopardizing the continued existence of the species. As a result, a formal conference will likely never be required for Sonoran pronghorn established within the nonessential experimental population area. Nonetheless, some agencies voluntarily confer with the Service on actions that may affect a proposed species."

- 2-21-94-F-192 (issued December 3, 1997) - Biological Opinion for Five Grazing Allotments in the Vicinity of Ajo, Arizona. This biological opinion was remanded by the court to FWS on February 12, 2001;
- 2-21-94-F-192-R2 (issued September 30, 2002, or "2002 BO") - Biological Opinion for Five Livestock Grazing Allotments in the Vicinity of Ajo, Arizona. This is the first biological opinion after the remanded one and addressed a variety of issues on BLM lands within the Ajo block and reduced the number of animals grazing;
- 02-21-94-F-192-R3 (issued on June 21, 2004, or "2004 BO") - Reinitiation of Formal Consultations and Conference: Plan Amendment for the Lower Gila South RMP (02-21-85-F-069) and an Amended Proposed Action for the Five Livestock Grazing Allotments in the Vicinity of Ajo, Arizona (02-21-94-F-192). This opinion primarily addressed the closing of the Cameron allotment.
- 02-21-94-F-0192-R4 (issued on March 3, 2005, or "2005 BO") - Reinitiation of Formal Consultation and Conference: Amended Proposed Action for the Five Livestock Grazing Allotments in the Vicinity of Ajo, Arizona. This document addressed the combining of the Coyote and Why allotments into the Coyote Flat #2 allotment and increased the number of Animal Unit Months from 264 to 372 or from 22 animals grazing each month year-round to 31.
- 22410-2005-0120-R001 (issued on March 8, 2007) - Reinitiation of Formal Consultation on the Organ Pipe Cactus National Monument General Management Plan and the Bureau of Land Management's Five Livestock Grazing Allotments Project in the Vicinity of Ajo, Arizona. This document addressed a one-time deviation from conservation measures in the previous biological opinions (road/area closures) to allow a special event (Unity Run) to occur on both BLM and OPCNM lands; it did not address changes to grazing on BLM lands.
- 22410-2005-F-0120-R002 (issued on March 14, 2014) - Reinitiation of Formal Consultation to end seasonal restrictions on public use. This document addressed a request from Cabeza Prieta National Wildlife Refuge, Organ Pipe Cactus National Monument, Luke Air Force Base, and BLM to end seasonal restrictions on public use during the Sonoran pronghorn fawning season; these seasonal restrictions were included as conservation measures in biological opinions for the respective agency actions. The biological opinion did not address changes to grazing on BLM lands.

Below is a consultation history for the proposed action.

- October 2019 through August 2020: Our offices regularly corresponded regarding the proposed action. Your office provided multiple draft biological evaluations for our review. Our office reviewed and provided input on the drafts.
- August 14, 2020: We received your request for formal consultation.
- November 4, 2020: We sent you the preliminary draft biological opinion for review.
- November 12, 2020: You sent us your comments on the preliminary draft biological opinion.

BIOLOGICAL AND CONFERENCE OPINION

DESCRIPTION OF PROPOSED ACTON

Regulations implementing the Act (50 CFR 402.02) define "action" as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies of the United States or upon the high seas."

The following is a summary of the proposed action and a detailed description can be found in the August 2020 Biological Assessment for the Ajo/Sentinel Complex Grazing Renewal (BA; BLM 2020). BLM proposes to reissue 10-year grazing permits on three allotments, totaling 137,801 acres (ac), within the management authority of BLM's Lower Sonoran Field Office in Maricopa and Pima counties. The three allotments consist of the Childs allotment (98,845 ac), Coyote Flat #2 allotment (20,419 ac), and Sentinel allotment (18,537 ac) (Figure 1). Of these three allotments, the Sentinel allotment is completely within the range of endangered Sonoran pronghorn, whereas about 95% of the Childs allotment and 13% of the Coyote Flat #2 allotment occurs within the NEP area (Table 1). This area previously included the Cameron allotment where grazing has been discontinued and documented in the 2004 consultation 02-21-94-F-192R3.

Table 1. BLM allotment acreage within the range of endangered Sonoran pronghorn and NEP area, Arizona.

Allotment	**Acres within range of endangered Sonoran pronghorn**	**Acres within range of NEP area for Sonoran pronghorn**	**Total Acres**
Sentinel	18,537	0	18,537
Childs	4,510	94,335	98,845
Coyote Flat #2	17,795	2,624	20,419
Total	**40,842**	**96,959**	**137,801**

The allotments in the Ajo/Sentinel Complex are classified as perennial/ephemeral allotments. The permitted use for these allotments is identified in the permits' terms and conditions for each allotment (Table 2). The permitted use will remain at the same intensity (number of livestock and AUMs) as addressed in the 2002 (Childs and Sentinel Allotment) and 2005 BOs (Coyote Flat #2). Perennial/Ephemeral Use Authorizations have Mandatory Terms and Conditions that specify the allotment, pasture, number of livestock, kind of livestock, period of use, percent of forage from public land, type of use, and permitted Animal Unit Months (AUMs) defined as perennial forage from public lands that may be consumed during the period of use. It is at the discretion of the permittee as to how the AUMs are consumed and how the cattle are distributed across the allotment. Perennial/ephemeral permits allow for additional use of ephemeral (annual) forage which may be authorized after the BLM has considered rangeland conditions and determined that such use will not cause detrimental effects to the perennial forage resource and does not present conflicts with other resource uses and values. Perennial grazing allows a set number of livestock to be grazed throughout the year. Ephemeral grazing has no set number of animals and grazing can only occur by request of the rancher with approval of the BLM. Ephemeral grazing in southern Arizona may occur during years with significant precipitation resulting in a significant amount of annual plant species. This ephemeral forage is primarily available following winter rains in early to late spring. Upon approval of the application to

utilize an ephemeral crop, the BLM may issue an authorization and grazing bill that specifies the allowed number of livestock, period-of-use, the allotment and pasture as applicable, and the ephemeral forage amount, in AUMs. The ephemeral rule defines ephemeral range as areas that generally fall below the 3,200-foot contour and below the 8-inch precipitation isoline.

According to the guidelines for permitting ephemeral grazing, the following criteria must be met:

1. Presence of ephemeral vegetation in draws, washes, and under shrubs.
2. Sufficient surface and subsurface soil moisture for continued plant growth.
3. Ephemeral forage has grown to useable levels by the time grazing begins.
4. Enough serviceable waters exist to provide good grazing distribution on the allotment for the number of livestock to be authorized.
5. All range improvements and livestock facilities needed for proper administration of authorized grazing use are properly maintained.
6. The level of grazing use allows for sufficient annual vegetation to remain on site to satisfy other resource concerns (i.e., watershed and wildlife).

If there are known resource conflicts with livestock grazing (such as habitat for special-status species) ephemeral authorizations will be limited to a maximum of 30 days per authorization.

Table 2: Ajo/Sentinel Complex grazing allotment permitted use.

Allotment	**Allotment Number**	**BLM Acres**	**Livestock Number**	**Livestock Kind**	**Type Use**	**Authorized AUMs**
Cameron	03013	57,934	0	Cattle	Unavailabl e for grazing	0
Childs	03016	98,845	320	Cattle	Perennial/ Ephemeral	3,802
Coyote Flat #2	00106	20,419	31	Cattle	Perennial/ Ephemeral	361
Sentinel	03076	18,537	32	Cattle	Perennial/ Ephemeral	353

A number of water developments and fences are used in the management of livestock across the complex (Figures 2 and 3). The water developments formerly used by cattle on the Cameron allotment are continuously being redeveloped for wildlife use. The Childs allotment has limited water distribution and is separated by fences and terrain into three pastures. The Coyote Flat #2 allotment is split into two pastures, north and south, with relatively even water distribution. The Sentinel has even water distribution due to numerous wells and pipeline fed troughs.

Existing range improvements will be maintained on all allotments. Maintenance, typically conducted by the permittee, could consist of replacing or repairing pipelines, pumps, storage tanks, fence lines, refurbishing or re-drilling wells, and excavating silted-in tanks. Fence lines, pipelines, and above-ground storage tanks should be inspected annually and repaired and replaced as necessary. The range and pasture fences in the area are four strand barbed-wire fence or four-strand wire fence with the top three strands made of barbed-wire and the bottom

strand made of smooth wire and maintenance is usually limited to spot repairs. BLM requires all new fencing to be built in a wildlife friendly manner. Maintenance of water pumps could occur approximately every two years and could range from servicing motors to re-drilling wells. Earthen stock tanks could be excavated approximately every 10 years with heavy equipment and would be done outside of the Sonoran pronghorn fawning season. Range features will be accessed by existing roads with motor vehicles. Maintenance activities will typically be completed within 1 to 3 days. Ranching activities are done by pick-up truck, ATV/UTV, or on horseback. Speeds are limited to 30 miles per hour and vehicles are typically limited to designated routes. On rare occasions, vehicles may be used off designated routes to reach and assist injured livestock.

Conservation Measures

Sonoran Pronghorn:

1. BLM will continue to operate and maintain the four existing wells on the Cameron allotment area for Sonoran pronghorn management. Timing of the maintenance will be coordinated with the Sonoran pronghorn Recovery Team to avoid adverse impacts to the species.
2. BLM will, in coordination with the Sonoran pronghorn Recovery Team, continue to operate and maintain ground-level drinking troughs at existing wells on the Cameron allotment area. These four troughs were installed as part of a conservation commitment in biological opinion 02-21-94-F-192-R3 (June 21, 2004). Timing of the maintenance will be coordinated with the Sonoran pronghorn Recovery Team to avoid adverse impacts to the species.
3. BLM will continue to support priority recovery actions for Sonoran pronghorn as recommended by the Sonoran pronghorn Recovery Team (e.g., BLM 2020a, BLM 2020b).
4. BLM will continue to require the permittee of the Coyote Flat #2 to remove all cattle from the allotment for three consecutive months out of the year, usually in the spring/summer, and rotate use between the north and south pastures every other year, allowing range conditions to improve during those time periods.
5. BLM will continue to authorize ephemeral grazing on the Coyote Flat #2 and Childs allotments in accordance with ephemeral use criteria contained in the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration and when the following conditions are met.
    a. The endangered U.S Sonoran pronghorn population must be approximately ≥225 (The 2016 Recovery Plan for the Sonoran pronghorn identifies the recovery abundance target for this populations as ≥225 individuals. The population has remained at approximately this target from 2016 to 2020).
    b. Prior to authorizing ephemeral grazing, BLM will coordinate with the FWS and the Arizona Game and Fish Department (AGFD) in evaluating the range conditions before ephemeral grazing is authorized. Part of the purpose of this coordination is to ensure that availability of Sonoran pronghorn forage has been evaluated and that sufficient forage occurs in other parts of the Sonoran pronghorn range to support the population.

c. Prior to authorizing ephemeral grazing on the Coyote Flat #2 and Childs allotments, BLM will quantify the available ephemeral forage and may authorize no more than 50 percent of the available ephemeral forage to be grazed.

6. BLM will continue to authorize ephemeral grazing on the Sentinel allotment in accordance with the "BLM Ephemeral Policy" (Attachment #2).
7. BLM will, in coordination with the Sonoran Pronghorn Recovery Team, install, operate, and maintain wildlife waters in at least two additional locations and as many as eight locations in pronghorn habitat. Design, site selection, prioritization, and implementation will be subject to Sonoran Pronghorn Recovery Team oversight and funding availability.
8. BLM will continue to implement the most current drought policy developed in 2013 for the allotments in the Ajo area (Attachment #3).
9. Excavation and maintenance on earthen stock tanks will only occur outside of the Sonoran pronghorn fawning season (February through May).
10. BLM, FWS, and AGFD will coordinate to determine the availability and effectiveness of vaccines against hemorrhagic diseases in cattle. If they are available and determined to be effective for reducing the risk of transmission of disease to Sonoran pronghorn, BLM will require the permittee to vaccinate cattle on the Ajo/Sentinel allotments.

Acuña cactus:

11. Conley Tank shall remain fenced, with wildlife friendly fencing, and remain unavailable to livestock.

Both Species:

12. BLM will limit the utilization of perennial forage species by livestock to 30%.
13. BLM will provide an annual report to this office regarding the status of the conservation measures described in this document by February 1st of each year.

Non-grazing Conservation Measures carried over from previous consultations:

14. BLM will identify areas of heavy recreational impacts and, to the extent practicable, initiate measures to rehabilitate these areas. Implementation will be subject to availability of funding.
15. BLM will continue to actively enforce the 14-day camping limits on BLM-administered lands.

Action Area

The action area is defined at (50 CFR 402.02) as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The Ajo/Sentinel Complex project area is within the range of the endangered Sonoran pronghorn population in Arizona (i.e., the Cabeza Prieta population), one of the nonessential experimental populations of Sonoran pronghorn in Arizona (i.e., the Sauceda population), acuña cactus, and acuña cactus critical habitat (Figures 1, 4-7). For the reasons explained below, the Service has determined that the action area for this project is defined as the project area plus current range of the endangered pronghorn population in the U.S. Although the entire action area is affected, at least indirectly, by the proposed action, potential effects of the proposed action are likely to occur where grazing activities occur on BLM lands (Figure 1).

There are three populations of Sonoran pronghorn in Arizona, United States, and two populations in Sonora, Mexico (Figure 5). In the U.S., the endangered population, known as the Cabeza population, is effectively separated from the Kofa and Sauceda populations (both of which are part of the NEP) by Interstate 8 and Highway 85, respectively. The two populations in Sonora, known as the Pinacate and Quitovac populations, are separated from the U.S. populations by Mexico Highways 2 and 8 and border barriers and activities.

The Cabeza Prieta population in Arizona (i.e., all Sonoran pronghorn occurring within the Cabeza Prieta Management Unit depicted in Figure 5) interact to form one population in which interbreeding may occur. Activities that may affect animals in any portion of the U.S. range of the endangered pronghorn (i.e., the Cabeza population) may affect the size or structure of the U.S. endangered population, or habitat use within the U.S. endangered population range. For example, if Sonoran pronghorn are excluded from using important habitat due to human activity, they will move to find other resources. This movement, particularly during drought periods, could cause pronghorn to die of dehydration or malnutrition (FWS 2016, p. 70). If this occurs, fewer Sonoran pronghorn are available for breeding and the pronghorn population may decline resulting in, among other effects, a decrease in genetic diversity within the population.

The following description of the Ajo/Sentinel Complex project area is from the 2020 BA. Within the action area, the Ajo/Sentinel Complex (Figure 1) is located about 87 miles southwest of Phoenix, AZ. The Complex is based around the city of Ajo and Sentinel, AZ expanding out to approximately 20 miles northwest and 12 miles south of the Ajo city limits and approximately six miles south of Sentinel, AZ. The Ajo portion of the Complex is in Pima County and is surrounded by a mixture of federal and tribal lands with the Barry M. Goldwater Range (BMGR) to the north, the Tohono O'odham Indian Reservation to the east, the Organ Pipe Cactus National Monument (OPCNM) to the south, and the Cabeza Prieta National Wildlife Refuge (CPNWR) to the west and is roughly bisected by State Route 85 (SR-85), which runs north and south/southeast through Ajo, AZ and extends to the United States-Mexico border. The Ajo portion is a mixture of AZ Upland Subdivision - Sonoran Desertscrub and Lower Colorado River Subdivision - Sonoran Desertscrub as described by Brown (1982). The Sentinel portion is in Maricopa County and is bound by Interstate-8 (I-8) to the north, BMGR to the south and east, and private farmland to the west. The Sentinel portion was described by Brown (1982) as Lower Colorado River Subdivision - Sonoran Desertscrub.

Heat and aridity are the dominant climatic characteristics of the Sonoran Desert. Maximum afternoon temperatures during the warmer months from mid-May through mid-September, often exceed 110º F and temperatures of 120º F are not uncommon. Soil temperatures during this period may reach 160º F. Weather stations near Ajo and Sentinel indicate that the average mean air temperature in the area is 71.6°F, with an average daily maximum temperature of 83.9°F and an average daily minimum temperature of 59.0°F. Rain gauges at Ajo, Ajo Well, and Sentinel stations indicate the mean annual rainfall in the area ranges from 4.63 to 8.37 inches per year.

The project area is heavily used by campers in the winter months and is frequented by off-highway vehicle (OHV) users and there is evidence that some of these users fail to stay on designated roads, which can result in new user created routes. There is range and pasture fence

associated with all the allotments. The fence is typically a four-strand barbed-wire fence and it does not preclude wildlife movement.

STATUS OF THE SPECIES - SONORAN PRONGHORN

Description, Legal Status, and Recovery Planning

The Sonoran subspecies of pronghorn (*Antilocapra americana sonoriensis*) was first described by Goldman (1945) and is the smallest of the four subspecies of pronghorn (Nowak and Paradiso 1983, Brown and Ockenfels 2007). The subspecies was listed throughout its range as endangered on March 11, 1967 (32 FR 4001) under the Endangered Species Preservation Act of October 15, 1966 without critical habitat. Five populations (three in the U.S. and two in Mexico) of the Sonoran pronghorn are extant: 1) a population in southwestern Arizona on CPNWR, OPCNM, BLM – Ajo Block, and BMGR (endangered population; known as the "Cabeza Prieta" population), 2) a population in southwestern Arizona on Kofa NWR, Yuma Proving Ground (YPG), and surrounding areas (nonessential experimental 10(j) population; known as the "Kofa population") (established in 2013), 3) a population in southwestern Arizona on BMGR-East and surrounding area, east of Highway 85 (nonessential experimental 10(j) population; known as the "Sauceda" population) (initiated in December 2015); 4) a population in the Pinacate Region of northwestern Sonora (known as the "Pinacate" population), and 5) a population on the Gulf of California west and north of Caborca, Sonora (known as the "Quitovac" population (Figures 4 and 5). The five populations are predominantly geographically isolated due to barriers such as roads and fences; however, some animals have crossed highways.

The 1982 Sonoran Pronghorn Recovery Plan (FWS 1982) was revised in 1998 (FWS 1998) and again in 2016 (FWS 2016). The 2016 plan (which can be accessed at Sonoran Pronghorn Recovery Plan) addresses Sonoran pronghorn populations both in Mexico and the U.S. and identifies demographic and threats-based recovery criteria. The final recovery plan contains recovery criteria based on maintaining and protecting all current populations in the wild, expanding the size of populations, and managing or eliminating threats to meet the plan's goal of downlisting and delisting the species. To downlist the Sonoran pronghorn to threatened, six criteria must be met. These criteria are abbreviated below.

1) At least three free-ranging populations are viable for at least five out of seven years.
2) A minimum of 90% of current Sonoran pronghorn habitat is retained and contiguous. This Sonoran pronghorn habitat is protected.
3) Threats to Sonoran pronghorn habitat quality in three units are stable or decreasing.
4) Human disturbance is alleviated such that a minimum of 90% of Sonoran pronghorn habitat can be occupied by Sonoran pronghorn.
5) Genetic diversity for three populations has been retained.
6) Laws are in place to ensure that killing of Sonoran pronghorn is prohibited or regulated.

After accomplishing all criteria for downlisting to threatened, Sonoran pronghorn can be delisted when at least three free-ranging populations are viable for at least 10 out of 14 years, and the other downlisting criteria have also been met.

Life History and Habitat

Life history and habitat is discussed extensively in the 2016 Final Recovery Plan for the Sonoran Pronghorn, Second Revision (or "2016 Recovery Plan").

Distribution and Abundance

The historical range of Sonoran pronghorn is described in the 2016 Final Recovery Plan and depicted in Figure 4. The current range of the endangered Sonoran pronghorn is described in the 2016 Recovery Plan and depicted in Figure 5. The Cabeza Prieta Management Unit (Figure 5) is approximately 8,161 km^2 (3161 mi^2; 2,023,040 acres) in area. The Sauceda Subunit (Figure 5) is approximately 6,161 km2 (2,379 mi^2, 1,522,560 acres) in area.

United States

Endangered Wild Population ("Cabeza Prieta" Population)

Abundance and population trends are described in the 2016 Recovery Plan. In summary, however, the endangered population in Arizona declined from an estimated 99 animals in 2000 to 21 animals in 2002, due primarily to severe drought. The December 2016 aerial surveys resulted in an estimated 228 (216 observed) individuals in the endangered wild population in Arizona (AZGFD 2018). Most recently, the December 2018 aerial surveys resulted in an estimated 215 individuals (160 pronghorn observed). Following survey protocol, the 2018 estimate did not include 17 pronghorn that moved between survey blocks. Had this group not moved between blocks and been counted, the 2019 estimate would have been 232 animals, indicating very little change in population size since the 2016 survey (AZGFD 2018). Poor recruitment in 2018 was likely offset by a decent fawn crop in 2017 (AZGFD 2018). Table 6 includes population estimates for this population from 1992 to 2018.

10(j) Wild Population

A final Environmental Assessment and final 10(j) rule (FWS 2011) were published in April and May, 2011, respectively, to establish a nonessential experimental population of Sonoran pronghorn in Arizona. See Figure 5 for a depiction of 10(j) Nonessential Experimental Population area for Sonoran pronghorn in southwestern Arizona. In 2013, the first wild population was established under the 10(j) rule on Kofa NWR with captive-bred animals from CPNWR. The population continues to be augmented with captive bred animals and additionally, fawns have been born in the wild population. In February 2020, the estimated population of free ranging pronghorn in the Kofa Subunit was approximately 120 (Table 6).

To establish a third population in Arizona, in December 2015, 26 Sonoran pronghorn were released on BMGR East, east of Highway 85, under the 10(j) rule. In February 2020, the estimated population within the Sauceda Subunit was approximately 60 (Table 6).

Semi-captive Breeding Facilities

Cabeza Prieta National Wildlife Refuge

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 May 2020 there were 102 pronghorn in the enclosure at CPNWR (note this number changes frequently with births and releases). Since establishing the program, a number of pronghorn have died in the pen due to various causes, including epizootic hemorrhagic disease, malnutrition (prior to the introduction of alfalfa hay in the pen), bobcat predation, entanglement in the fence, and capture operations. Sonoran pronghorn have been released from the pen every year since 2006, many into the endangered population and others to establish the two nonessential experimental populations.

The objective is to produce at least 20 fawns each year to be released into the endangered U.S. population; supplement 10(j) populations at Kofa NWR and BMGR East, east of Highway 85; and establish any additional populations needed for pronghorn recovery.

Kofa National Wildlife Refuge

In December 2011, 13 Sonoran pronghorn were moved from the CPNWR breeding pen to the newly built breeding pen in the King Valley on Kofa NWR to initiate the breeding program on the Refuge. As with the CPNWR pen, the Kofa breeding program has been successful and produced pronghorn for release into the wild. As of May 2020, the Kofa pen contains 49 pronghorn (note this number changes frequently with births and releases).

Mexico

Abundance and population trends are described in the 2016 Recovery Plan. The February 2020 aerial survey resulted in an estimated 736 (393 observed) individuals in the area southeast of Mexico Highway 8 (or the Quitovac population) and 126 (54 observed) to the west of the highway (or the Pinacate population). The estimates yielded from this survey likely overestimated the populations in Sonora due to a number of factors, including the timing of the survey in February when pronghorn groups sizes are much smaller than in November and December, when aerial survey are typically conducted (AZGFD 2020). Nonetheless, in 2020 a large number of Sonoran pronghorn were seen in both Sonora areas suggesting the two populations remain in good condition relative to historical counts (AZGFD 2020). Table 6 includes population estimates from 2000 to 2020.

Threats

Sonoran pronghorn face numerous threats throughout their range. These threats are discussed in detail in the Reasons for Listing/Threats Assessment of the 2016 Recovery Plan for the Sonoran Pronghorn, Second Revision, and are summarized below.

Barriers that Limit Distribution and Movement
Barriers that limit the distribution and movement of pronghorn, such as highways, fences, railroads, developed areas, and canals, are considered a major threat to the species and are discussed extensively in the 2016 Recovery Plan.

Vehicular Collision with Sonoran Pronghorn
Although vehicle collisions with Sonoran pronghorn are fairly rare, they have been documented, primarily on paved highways. Some of these documented cases are discussed in the 2016 Recovery Plan, however, since reported in the plan, at least 8 more Sonoran pronghorn deaths due to vehicle collisions have been documented, 6 of which occurred on Highway 95, 1 occurred on Highway 85, and 1 occurred on State Route 238.

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. Human disturbance of Sonoran pronghorn is discussed at length in the 2016 Recovery Plan and a summary of the effects of human disturbance is provided below.

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).

A number of studies have specifically investigated the effects of human activities on Sonoran pronghorn (Hughes and Smith 1990, Landon et al. 2003, Krausman et al. 2004 and 2005, OPCNM 2013, Christianson 2017). 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 Sonoran pronghorn population, they studied pronghorn use of areas with varying sound pressure (ambient sound) levels and found that pronghorn did not use the areas with different ambient sound levels in proportion to their availability. 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 Sonoran 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. (2004) 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). On days with stimuli, adult pronghorn bedded more than they foraged (Krausman et al. 2004). On days without stimuli, adult pronghorn foraged more and bedded less. Ground stimuli, including the presence of vehicles or people, comprised the majority (65%) of all anthropogenic stimuli. Ground stimuli were associated with 866 instantaneous changes in behavior (39%), with 56 of these changes resulting in trotting or running (2.6%). In response to stimuli, Krausman et al. (2004) only considered a change in behavior to trotting or running in response to stimuli as biologically significant. 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. 2005). No specific conclusions could be drawn about effects of military activities on fawns during the Krausman et al. (2004) study, but the data suggests that fawns and their mothers may be more sensitive to anthropogenic stimuli than other pronghorn. In general, the study did not detect differences in the behavior of pronghorn with and without military stimuli; however, Krausman et al. (2004) recommends that all ground stimuli and activities that alerts or startles females and their fawns should be terminated.

Wright and deVos (1986) noted that Sonoran pronghorn exhibit "a heightened response to human traffic" as compared to other subspecies of pronghorn. They noted that "once aware of an observer, Sonoran pronghorn are quick to leave the area. One herd was observed 1.5 hours later 11 miles north of the initial observation in October 1984. Other pronghorn have run until out of the observer's sight when disturbed." Hughes and Smith (1990) noted that on all but one occasion, Sonoran pronghorn ran from the observer's vehicle and continued to run until they were out of sight.

Staff at OPCNM (2013) documented that during their typical morning activity period (post-sunrise), pronghorn on OPCNM experienced some form of potential disturbance once every 4 hours 10 minutes. Actual disturbance responses took place once every 6 hours 15 minutes. Potential disturbance events resulted in the pronghorn running, about once every 8 hours 20 minutes. Helicopter overflights took place once every 6 hours 15 minutes; one out of four overflights resulted in pronghorn running, and one in four resulted in vigilance (standing, alert, watching disturbance source). Vehicles approaching within one mile occurred once every 12 hours 30 minutes. Half of these resulted in pronghorn running, but for the other half, the driver was contacted by radio and advised to drive slowly (<10 mph) past the observation area.

As reported in Christianson (2017), initial analysis of the data collected during the study showed evidence for several anthropogenic effects on Sonoran pronghorn suggesting the species is sensitive to human activity in the U.S. portion of its range. Responses to sources of disturbance such as roads and vehicles were widespread across the landscape and this study confirms that managers should consider impacts of vehicles on Sonoran pronghorn when resource planning (Christianson 2017). Behavioral observations confirmed that interactions with vehicles occur frequently and elicit strong behavioral responses (e.g., standing vigilant to running from stimulus) while interactions with humans on foot occur far less often (Christianson 2017). For example, eight Sonoran pronghorn were observed running a short distance and then remaining vigilant towards the utility vehicle noise 3.4 kilometers away. Another eight Sonoran

pronghorn were observed running from several trucks traveling fast (> 25 mph). Pronghorn were initially vigilant when the vehicles were 1.3 kilometers away but soon started running, travelling over 3.6 kilometers in under five minutes until they were out of sight of the observers (email from Stephanie Doerries, University of Arizona, May 7, 2014). Adult female Sonoran pronghorn spend more time vigilant as distance to the nearest road decreases, particularly when a motorized vehicle is present (CPNWR 2020). Adult female pronghorn trade off foraging and walking for vigilance, which could have nutritional costs (CPNWR 2020). Also, stress hormone levels in pronghorn feces increase with off-road vehicle tracks, which suggests pronghorn may exhibit a stress response to off-road vehicle traffic (S. Doerries, unpublished data).

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). Frequent disturbance imposes a burden on the energy and nutrient supply of animals (Geist 1971), which may be exacerbated in harsh environments such as those occupied by Sonoran pronghorn. Human presence may cause Sonoran pronghorn to move from an area, thereby denying pronghorn access to that specific site for what may be crucial behaviors or functions (e.g. foraging, bedding, breeding, fawning, avoiding predators). Causing pronghorn to move also increases their physiological demands by expending calories and metabolic water. These may be critical stressors in seasonal hot-dry periods and in extended periods of low forage availability. Disturbance may also lead to mortality. Causing a pronghorn to be alarmed or agitated, or to flee from a disturbance, may also make it vulnerable to predation. This is especially true for fawns and females during the fawning season. Krausman et al. (2004) found that fawns and their mothers were more sensitive to human disturbance than other Sonoran pronghorn.

Habitat Disturbance
A number of threats, including livestock grazing, mining (in particular, La Herradura mine in the range of the Quitovac population in Sonora), and off-road vehicle and pedestrian activity can alter, destroy, and fragment Sonoran pronghorn habitat. These are discussed in the 2016 Recovery Plan.

Fire
Fire, which can be a threat to Sonoran pronghorn and their habitat, is discussed in the 2016 Recovery Plan.

Drought and Climate Change
Drought limits the availability of quality forage and water. Drought may be a major factor in the survival of adults and fawns (Bright and Hervert 2005) as demonstrated by the major decline in 2002, which was driven by drought. Drought and climate change and their effects on Sonoran pronghorn are discussed in the 2016 Recovery Plan.

Disease
Sonoran pronghorn can potentially be infected by a variety of viral and bacterial diseases, as well as parasites. Epizootic hemorrhagic disease and Bluetongue virus are the most common cause of disease-caused die-offs in wild pronghorn (Brown and Ockenfels 2007). Blood testing has shown pronghorn exposure to these diseases by increases in antibody titers over time. The

diseases relevant to pronghorn can be transmitted indirectly through vectors, such as infected midges or ticks, or directly via aerosolized or direct contact of infected fluids or tissues. Diseases that potentially infect pronghorn are all serious diseases of cattle, which can act as vectors. Cattle within the current range of the pronghorn have not been tested for these diseases. See the 2016 Recovery Plan for more information on disease in Sonoran pronghorn.

Recovery Actions

Many critically important recovery projects have been implemented in an attempt to reverse the decline of the Sonoran pronghorn throughout their range. See the section on Previous and Ongoing Conservation Efforts in 2016 Recovery Plan for the Sonoran Pronghorn for a comprehensive discussion of recovery actions. For example, developed and emergency water sources and forage enhancement plots (developed to irrigate the desert and produce forage for pronghorn) have been constructed in recent years throughout the range of the U.S. endangered population and developed waters have also been constructed in the range of the Kofa and Sauceda populations. These projects are designed to increase availability of green forage and water during dry periods and 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.

Plots and waters located in areas with little human activity and better range conditions 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, Arizona Game and Fish Department [AZGFD], September 16, 2009). Therefore, to ensure success of these measures, it is critical that human activity is avoided or significantly minimized near the plots and waters.

As described above, semi-captive breeding facilities at CPNWR and Kofa NWR were established and are being used to augment and establish new populations. These crucial projects, which are helping pull the U.S. population back from the brink of extinction, have been cooperative efforts among many agencies and organizations, including FWS, AZGFD, Marine Corps Air Station-Yuma (MCAS), Luke Air Force Base (LAFB), OPCNM, U.S. Customs and Border Protection (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.

Prior to the initiation of intensive recovery efforts, the biennial population growth rate of endangered Sonoran pronghorn population in the U.S. was directly related to biennial precipitation from 1992 to 2002; in other words, the population increased under wetter conditions and decreased under drier conditions (CPNWR 2020). After the initiation of these intensive recovery efforts (e.g., captive breeding program, Sonoran pronghorn waters), no relationship was observed between population growth rate and biennial precipitation from 2004-2016. This suggests recovery efforts are reducing the effect of at least one environmental factor (i.e., precipitation) on Sonoran pronghorn survival and thus may be helping to stabilize the population (CPNWR 2020).

In Mexico, a recovery plan for pronghorn was developed in 2009 and is currently being implemented. For example, in 2015, the Comisión Nacional de Areas Naturales Protegidas (CONANP; National Commission of Natural Protected Areas) installed waters for Sonoran

pronghorn in Sonora, although pronghorn use of these waters has not been documented likely due to cattle exclusion fences around the tanks. CONANP is continuing to experiment with the waters until pronghorn can successfully use them. CONANP is also working with the local communities to educate people about pronghorn and the highway department to improve undercrossings of Highway 2 to encourage pronghorn passage. CONANP and the Comisión de Ecologies y Desarrollo Sustentable del Estado de Sonora (CEDES; Commission of Ecology and Development of the State of Sonora) also conduct Sonoran pronghorn surveys and work with the La Herradura mine and other landowners to reduce their impacts on pronghorn and their habitat.

ENVIRONMENTAL BASELINE – SONORAN PRONGHORN

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in progress. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Status of Sonoran Pronghorn within 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 in the Status of the Species for the U.S. endangered population, referred to as the Cabeza Prieta population, and the Sauceda NEP. Life history, including demographics, chronology of breeding and movements, diet, and other factors are discussed extensively in the 2016 Recovery Plan for the Sonoran Pronghorn, Second Revision and are incorporated here by reference.

On BLM lands, telemetry data was reviewed from 2009 to 2020 and one collared Sonoran pronghorn was found on the Coyote Flat #2 Allotment in 2017 and one in 2020 (Coyote Flat occurs primarily within the endangered range of Sonoran pronghorn; see Figure 1). There are no records of Sonoran pronghorn occurring on the Sentinel Allotment. Sonoran pronghorn more frequently occur on the Cameron Allotment, which is no longer used for grazing. The majority of the Childs Valley Allotment occurs within the Sonoran pronghorn NEP area. Telemetry data provided by Arizona Game and Fish Department (AGFD) shows that on the Childs Allotment east of SR 85 there have been 13 collared Sonoran pronghorn from June 26 - August 14, 2016 and nine from April 21 2019 - September 22, 2019; these Sonoran pronghorn are part of the Sauceda population.

Climate Change and Drought

Climate change has already begun, and continued greenhouse gas emissions at or above current rates will cause further warming with broad implications for living organisms across the planet, and the habitat on which they depend (Intergovernmental Panel on Climate Change (IPCC) 2014, p. 8). Climate models indicate that the transition to a more arid climate is already underway and predict that in this century the arid regions of the southwestern U.S. will become drier (i.e., decreased precipitation) and warmer (i.e., increased surface temperatures), and have fewer frost days, decreased snow pack, increased frequency of extreme weather events (heat waves, droughts, and floods), declines in river flow and soil moisture, and greater water demand by plants, animals and humans (Garfin et al. 2013, pp. 5-6; Archer and Predick 2008, p. 23). Increasing dryness in the southwestern U.S. and northern Mexico is predicted to occur as early as 2021-2040 (Seager et al. 2007, p. 1181). Analyses of the southwestern U.S. using Coupled Model Intercomparison Project Phase 3 models, show consistent projections of drying, primarily due to a decrease in winter precipitation (Collins et al. 2013, p. 1080).

The threats of climate change and drought on Sonoran pronghorn are discussed extensively in the 2016 Recovery Plan for the Sonoran Pronghorn, Second Revision. In summary, however, the most significant potential impact of global climate change on Sonoran pronghorn is its potential to increase the frequency and severity of drought. More dry days, warming temperatures, and increased evapotranspiration are expected to result in more severe drought in the Southwestern United States (Gershunov 2013). Future droughts are expected to become more frequent and severe, with 100-year droughts common in the second half of this century (Gershunov 2013). For Maricopa, Pima, and Yuma counties, where Sonoran pronghorn populations occur, Climate Explorer (2020) shows that average daily maximum temperature, under both lower and higher emissions scenarios, will increase by mid-century.

Drought was the factor causing the extreme mortality event of Sonoran pronghorn in 2002, and drought is the most important predictor of survivorship and recruitment (FWS 2016). From 2003 to 2020, rainfall and Sonoran pronghorn range conditions have varied, but have improved overall when compared to 2002. The November 24, 2020 short-term drought map indicates that southwestern Arizona is experiencing conditions of moderate to exceptional drought and the October 2020 long-term drought status map indicates that southwestern Arizona is experiencing conditions of moderate to severe drought (https://new.azwater.gov/drought/drought-status).

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, 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."

Recovery Actions

As explained above, many critically important recovery projects have been successfully implemented in an attempt to reverse the decline of the U.S. endangered population of the Sonoran pronghorn. See the section on Previous and Ongoing Conservation Efforts in 2016 Recovery Plan for the Sonoran Pronghorn for a comprehensive discussion of recovery actions in the range of the U.S. endangered population (i.e., the Cabeza population). For example, many developed and emergency water sources and forage enhancement plots (developed to irrigate the desert and produce forage for pronghorn) have been constructed in recent years throughout the range of the U.S. endangered population, including many on CPNWR. These projects are designed to increase availability of green forage and water during dry periods and 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. At some water sources, supplemental forage is provided in the form of alfalfa hay beginning in late spring when range conditions start to decline until arrival of monsoon rains. Additionally, the semi-captive breeding facility at CPNWR has been successful at augmenting existing and helping to establish new populations of Sonoran pronghorn.

Factors affecting species environment within the action area

Past and Ongoing Non-Federal Actions in the Action Area

Many non-Federal activities that have affected the Sonoran pronghorn are historical in nature, and pronghorn have been all but extirpated from private, state, and Tribal lands. As explained in the Status of the Species, highways, fences, railroads, developed areas, and irrigation canals can block access to essential forage or water resources. Highways and railroads can also lead to vehicular and train collisions with Sonoran pronghorn. Additionally, canals can lead to Sonoran pronghorn drowning. In the endangered Sonoran pronghorn range in the U.S., illegal border activities have likely had a significant impact on Sonoran pronghorn in the U.S. in recent times, particularly since the turn of the millennium. Disturbance of Sonoran pronghorn and their habitat by illegal border activities is discussed in the 2016 Recovery Plan.

Federal Actions

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. populations or their habitat are Federal actions. The primary Federal agencies involved in activities in the action area include the MCAS-Yuma, LAFB, FWS (CPNWR), BLM, NPS (OPCNM), Customs and Border Protection (CBP), and U.S. Border Patrol. Some actions of CBP and USBP have not undergone section 7 consultation. For example, construction and maintenance of portions of the border wall along the U.S.-Mexico border have not undergone section 7 consultation because all environmental laws were waived.

As part of our discussion of all past and present actions affecting pronghorn within the action area, we list below all biological opinions issued to date on actions that may affect the Cabeza Prieta population of Sonoran pronghorn; we also explain any incidental take associated with the opinions. All of these formal consultations can be viewed on our website at http://www.fws.gov/arizonaes/Biological.htm.

1. Capture and collaring of pronghorn for research purposes, consultation number 02-21-83-F-0026. No incidental take was anticipated.
2. Capture and collaring of pronghorn for research purposes, consultation number 02-21-88-F-00060. No incidental take was anticipated.
3. Installation of a water source in the Mohawk Valley for pronghorn, consultation number 02-21-88-F-0081. No incidental take was anticipated.
4. Implementation of the CPNWR Comprehensive Conservation Plan, consultation number 22410-2006-F-0416, with reinitiations issued on November 21, 2013 and March 14, 2014. No incidental take was anticipated.
5. 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. 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 biological opinion on LAFB's activities on the BMGR, listed below.
6. Widening of North Puerto Blanco Road, consultation number 02-21-01-F-0109, with a reinitiation issued on March 14, 2014. No incidental take was anticipated.
7. Improvements to SR 85 roadway and drainages, consultation 02-21-01-F-0546. No incidental take was anticipated.
8. Construction of a vehicle barrier on OPCNM, consultation number 02-21-02-F-237. No incidental take was anticipated.
9. U.S. Border Patrol Activities in the Yuma Sector, Wellton Station, Yuma, Arizona, consultation number 02-21-96-F-0334, issued September 5, 2000. Incidental take was anticipated in the form of harassment that is likely to injure up to one pronghorn in 10 years.
10. The BLM Lower Gila South Resource Management Plan-Goldwater Amendment, consultation number 02-21-90-F-0042, issued April 25, 1990. No incidental take was anticipated.
11. The BLM Lower Gila South Habitat Management Plan, consultation number 02-21-89-F-0213 issued on May 15, 1990. No incidental take was anticipated.
12. BLM Lower Gila South Resource Management Plan and Amendment, consultation number 02-21-85-F-0069, issued on March 27, 1998. No incidental take was anticipated.
13. BLM grazing allotments in the vicinity of Ajo, Arizona, consultation number 02-21-94-F-0192, issued on December 3, 1997, with reinitiations issued on November 16, 2001, September 30, 2002, June 21, 2004, March 3, 2005, March 8, 2007, and March 14, 2014. No incidental take was anticipated.
14. Organ Pipe Cactus National Monument General Management Plan, consultation number 02-21-89-F-0078, issued June 26, 1997, with reinitiations issued on November 16, 2001, April 7, 2003, March 10 and August 23, 2005, March 8, 2007, December 10, 2009, and March 14, 2014. In the latest versions of the opinion, no incidental take of pronghorn was anticipated.
15. U.S. Marine Corps Air Station-Yuma in the Arizona Portion of the Yuma Training Range Complex (Barry M. Goldwater Range West), consultation number 02-21-95-F-0114, issued on April 17, 1996, with reinitiations issued on November 16, 2001, August 6, 2003, October 21, 2009, and November 3, 2015. In the 2003 and 2009 versions of the biological opinion, no incidental take of pronghorn was anticipated. In the 2015 opinion,

we anticipated take of one Sonoran pronghorn every 10 years in the form of direct mortality or injury and one pronghorn every 7 years in the form of harassment.

16. Luke Air Force Base Use of Ground-Surface and Airspace for Military Training on the BMGR, consultation number 02-21-96-F-0094, issued August 27, 1997, with reinitiations issued on November 16, 2001, August 6, 2003, May 3, 2010, and March 2014. In 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.
17. Western Army National Guard Aviation Training Site Expansion Project, consultation number 02-21-92-F-0227, issued on September 19, 1997; however, Sonoran pronghorn was not addressed in formal consultation until reinitiations and revised opinions dated November 16, 2001 and August 6, 2003. No incidental take was anticipated.
18. BMGR Integrated Natural Resources Management Plan, consultation number 22410-2005-F-0492, issued on August 26, 2005, with reinitiations issued on January 7, 2013, March 14, 2014, and May 2, 2018. No incidental take was anticipated.
19. CBP and USBP Permanent Vehicle Barrier from Avenue C to OPCNM, Arizona, consultation number 22410-2006-F-0113, issued September 15, 2006. No incidental take was anticipated. Subsequent to issuing the biological opinion, the action was changed to include the installation of a section of hybrid-style fence designed to prevent the passage of pedestrians. Because all environmental laws were waived (as permitted by the Real ID Act of 2005) by Secretary of the Department of Homeland Security, CBP never reinitiated consultation with us regarding this change to their proposed action.
20. CBP and USBP 5.2-Mile Primary Fence near Lukeville, Arizona, consultation number 22410-2008-F-0011, issued February 11, 2008. No incidental take was anticipated.
21. SBI*net* Ajo-1 Tower Project, Ajo Area of Responsibility, USBP Tucson Sector, Arizona, consultation number 22410-F-2009-0089, issued December 10, 2009, with reinitations issued on March 15, 2010, April 29, 2011, September 16, 2011, and December 15, 2011. We anticipated take of three Sonoran pronghorn due to harassment within the first year of towers becoming operational and two every 5 years thereafter; and one due to direct mortality over the life of the project.
22. Tactical Infrastructure Maintenance and Repair Program (TIMR) along the U.S./Mexico international border in Arizona, consultation number 02EAAZOO-2012-F-0170, issued on November 6, 2012, with a reinitiation issued on July 13, 2016. In the 2012 opinion, we anticipated incidental take of one Sonoran pronghorn every 10 years for the duration of the TIMR Program in the form of harassment; and one Sonoran pronghorn over the total duration of the TIMR Program in the form of direct mortality. Incidental take remained the same in the 2016 opinion.
23. Land Mobile Radio Modernization for Tactical Communications at Buck Peak, Christmas Pass, Granite Mountain (CPNWR), and Cobre along the U.S./Mexico international border in Pima, Santa Cruz, and Yuma counties, Arizona, consultation number 02EAAZOO-2012-F-0200, issued April 23, 2013. No incidental take was anticipated.
24. Implementation of the Ecological Restoration Plan on OPCNM, CPNWR, and BLM Ajo Block, Pima County, Arizona, consultation number 02EAAZ00-2014-F-0538, issued on

October 2, 2014, with a reinitiation issued on August 28, 2015. No incidental take was anticipated.

25. Granting of Wildlife and Sport Fish Restoration (WSFR) Program Funds to the Arizona Game and Fish Department to Implement Aspects of Sonoran Pronghorn Recovery, consultation number 02EAAZ00-2015-F-0045, issued on November 18, 2014. We anticipated incidental take of 26 Sonoran pronghorn over the life of project (5 years), including: 1) incidental take of a total of 20 pen-raised Sonoran pronghorn over the life of the project in the form of directly mortality or injury due to capture and release operations associated with the captive breeding pens; 2) incidental take of a total of 4 Sonoran pronghorn over the life of the project in the form of directly mortality or injury due to capture and release operations of wild pronghorn; and 3) incidental take of two wild Sonoran pronghorn over the life of the project in the form of harassment from project activities that disturb Sonoran pronghorn (e.g., surveys, monitoring, pen maintenance) and/or direct injury or mortality from collision with a vehicle associated with the project.
26. Yuma Proving Ground Extended Range Cannon Artillery Test Program on BMGR, Arizona, consultation number 02EAAZ00-2017-F-0039, issued on May 3, 2017, with a reinitiation issued on September 30, 2019. We anticipated incidental take of one Sonoran pronghorn on BMGR over the life of the action (the length of the action is indefinite) in the form of direct mortality or injury from strikes with vehicles or artillery or in the form of harassment from project activities that may disturb Sonoran pronghorn (artillery fire, vehicle and human presence).
27. U.S. Customs and Border Protection, Block 1 Replacement Project, Ajo Station (AJO-1), Arizona, consultation number 02EAAZ00-2018-F-0354, issued on February 15, 2018. We anticipated incidental take of one Sonoran pronghorn (over the indefinite length of the action) in the form of direct mortality of injury from strikes with vehicle or in the form of harassment from project activities that may disturb Sonoran pronghorn.
28. Hunting of Big Game, Migratory Bird, Upland Game, and Predatory and Fur-bearing Mammals on Cabeza Prieta National Wildlife Refuge for the Sonoran pronghorn, consultation number 02EAAZ00-2020-F-1057, issued on July 29, 2020. We anticipated incidental take of three Sonoran pronghorn every 20 years in the form of direct mortality or injury from strikes with vehicles or in the form of harassment from hunting activities that may disturb Sonoran pronghorn.

With the exception of likely capture-related deaths during telemetry studies (which were addressed in 10(a)(1)(A) recovery permits), we have not documented any incidental take in the form of direct mortality or injury resulting from the Federal actions described here. That said, we are aware of numerous instances of harassment of Sonoran pronghorn. For example, Christianson (2017) reported that behavioral observations of Sonoran pronghorn confirmed that interactions with vehicles occur frequently and elicit strong behavioral responses and responses to sources of disturbance such as roads and vehicles were widespread across the landscape. Action agencies, as part of their proposed actions, have committed to implementing or providing funding to implement a variety of recovery projects recommended by the Sonoran Pronghorn Recovery Team. For example, these significant commitments have supported the construction of pronghorn waters and forage enhancement plots in various locations, construction of a captive breeding pen at Kofa NWR, and collaring and monitoring of Sonoran pronghorn.

Federal Actions – BLM Grazing - Regarding BLM grazing in the action area, as discussed in the 2016 Recovery Plan, allotments within the range of the Cabeza Prieta pronghorn population are the Cameron, Coyote Flat II, and the Childs allotments. The Coyote Flat II and Childs allotments, which are east of the Cameron, are available for livestock grazing. The Coyote Flat II Allotment permits 31 cattle on a year-round basis, while the Childs Allotment authorizes 320 cattle on a year-round basis. Both allotments are designated as perennial/ephemeral, which means that, when conditions warrant (a robust ephemeral bloom is present due to substantial rainfall) permittees can apply to turn out additional cattle for a limited time. In 2004, the BLM amended the Lower Gila South RMP to discontinue livestock grazing on the Cameron Allotment, which is directly east and adjacent to the CPNWR, and manage it in a manner that emphasizes Sonoran pronghorn recovery. The BLM upheld the closure of the Cameron Allotment to livestock grazing in its 2012 Lower Sonoran Record of Decision and Approved RMP, and continues to coordinate efforts with Cabeza Prieta NWR to address and manage Sonoran pronghorn habitat on BLM lands.

Summary of Activities Affecting Sonoran Pronghorn in the Action Area

The Cabeza Prieta and Sauceda Sonoran pronghorn populations are isolated from other populations by highways and interstates, 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 blocked. Since 2002, due to improved drought status and implementation of recovery actions, the Cabeza population has increased and remained at approximately the target abundance for recovery (225 individuals) for 3 years (CPNWR 2020). At 225, however, the wild population is still at risk of extinction due to, among other factors, human-caused impacts and drought and climate change. The estimated population within the Sauceda Subunit is approximately 60 individuals.

Although obstacles to recovery remain, since 2002, numerous crucial recovery actions have been implemented in the range of the Cabeza population, including pronghorn waters and forage enhancements plots. These projects help to offset the effects of drought and barriers that prevent movement of pronghorn to greenbelts such as the Gila River and Río Sonoyta. The semi-captive breeding facility on CPNWR helps provide pronghorn to augment the existing endangered population and establish and augment additional U.S. nonessential experimental (10(j)) populations.

The current range of the endangered 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. Action agencies have worked with us to include significant conservation measures that reduce and offset adverse effects to the pronghorn and its habitat. The current opinions that anticipate incidental take are listed above.

We believe the aggregate effects of limitations or barriers to movement of Sonoran pronghorn and continuing stressors, including habitat degradation and disturbance within the Cabeza pronghorn population's range resulting from a myriad of human activities, exacerbated by periodic dry seasons or years, are responsible for the endangered status of the Sonoran pronghorn. However, collaborative, multi-agency and multi-party efforts to develop forage

enhancement plots and waters and reduce human disturbance of pronghorn and their habitat, combined with the success of the semi-captive breeding facilities at CP and Kofa NWRs and recently established 10(j) populations, are contributing to recovery of the Sonoran pronghorn in the U.S.

EFFECTS OF THE PROPOSED ACTION - SONORAN PRONGHORN

In accordance with 50 CFR 402.02, effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of all other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see §402.17).

Adverse effects of the proposed action on Sonoran pronghorn are anticipated from: 1) livestock grazing that results in habitat degradation, loss of forage, and restriction of pronghorn movements, 2) disease transmission from livestock to pronghorn, and 3) maintenance of range improvements (e.g., fences) and cattle management activities that may disturb Sonoran pronghorn and their habitat and/or cause mortality or injury to pronghorn. However, the BLM's proposed conservation measures will reduce many of these adverse effects and provide some benefits to pronghorn. Many of the potential effects of livestock grazing on Sonoran pronghorn are detailed in the 2016 Recovery Plan and were incorporated by reference in the BA; they are also discussed below.

In summary, while many of the potential effects of livestock on Sonoran pronghorn are not well known or understood, if not managed properly, livestock grazing impacts or degrades soils and changes vegetation communities. Direct competition for forage resources may occur, as there is dietary overlap between livestock and Sonoran pronghorn. Livestock may compete with Sonoran pronghorn for preferred thermal cover and Sonoran pronghorn may avoid areas with livestock. Livestock have been reported to displace pronghorn (other subspecies than Sonoran) does from fawning areas. There is the possibility of disease transmission from livestock to Sonoran pronghorn. Sonoran pronghorn may become entangled and injured in livestock fences and they may be more vulnerable to predation as they must slow down and crouch to go under fences. Additionally, human presence (on foot, horseback, and vehicle) associated with cattle management could result in disturbance to Sonoran pronghorn in the area at the time of human presence. Human presence for livestock management will be intermittent but ongoing for the duration of the proposed action (10 years). The presence of livestock waters may provide a benefit to Sonoran pronghorn.

Effects of Livestock Grazing on Sonoran Pronghorn

Overview of Effects of Livestock Grazing on Sonoran Pronghorn
As discussed in the 2016 Recovery Plan, historical livestock grazing, and to a lesser extent current livestock grazing, has caused loss of habitat for Sonoran pronghorn. Historical livestock grazing was extensive and severe (causing erosion of soil, soil compaction, changes in composition of flora and fauna, and an increase of woody shrubs) and destroyed habitat for

pronghorn throughout their range (Brown and Ockenfels 2007). Current livestock grazing is not a continued source of habitat loss in most areas because the intensity (amount of livestock and duration of grazing) has decreased significantly from the past; however, it may reduce forage quality by altering forage species abundance and composition and habitat structure by increasing the abundance of shrubs such as mesquite, among other changes (FWS 2016). As discussed in the 2016 Recovery Plan, in general, grazing practices can change vegetation composition and abundance, and cause soil erosion and compaction, reduce water infiltration rates, and increase runoff, leaving less water available for plant production.

Sonoran pronghorn need quality forage to meet their nutritional needs and fawns are particularly vulnerable to low-quality forage. In years with poor winter rainfall, the nutritional quality of forage may be insufficient to keep fawns alive (Bright and Hervert 2005). Therefore, the Recovery Team has hypothesized that poor quality forage may be a stressor to Sonoran pronghorn. The Recovery Team has indicated that causes of reduced forage quality are an increase in the frequency and severity of drought, low annual rainfall, altered hydrology, extreme heat, erosion, fire, invasive plants, increase of creosote bush, lack of pollination of forage plants, and livestock grazing. Since 2005, the Recovery Team has attempted to reduce the effects of reduced forage quality in the Cabeza and Kofa populations by providing irrigated forage, hay, and water.

Cattle may compete with Sonoran pronghorn for forage; however, no studies have focused on dietary competition of cattle with the Sonoran subspecies of pronghorn, therefore we do not know the extent to which this may occur in areas where Sonoran pronghorn and cattle overlap. There is a limited amount of grass within the Ajo/Sentinel Complex and livestock will browse on many of the same plant species as Sonoran pronghorn. Hughes (1991) investigated Sonoran pronghorn diet on the CPNWR and the OPCNM and plant species consumed by pronghorn are overwhelmingly the same plant species that are known to be consumed by domestic livestock. Yoakum (2004) reviewed the relationships of pronghorn (other subspecies) to livestock. Impact of livestock grazing on pronghorn habitat are complex, including modification of plant biomass, species compositions, and structure.

Competition between pronghorn and cattle can potentially occur on a seasonal basis or during drought conditions and has been reported in New Mexico and Texas (Yoakum 2004). Kie et al. (1994) suggest indirect impacts include " 1) gradual reductions in the vigor of some plants and in the amount and quality of forage produced, 2) elimination or reduction of the ability of forage plants to reproduce, 3) elimination of locally important cover types and replacement by less favorable types or communities, either by direct actions over time or by changing the rate of natural succession process, and 4) general alterations and reduction in the kinds, qualities and amounts of preferred or otherwise important plants through selective grazing or browsing or other activities." Yoakum (2004) stated "Possibly the greatest impact of livestock grazing on pronghorn populations has been changes in plant succession and intensive foraging on fawning areas." To what extent any of these effects reported in other pronghorn subspecies occur in the range of the Sonoran pronghorn species remains unknown.

As discussed in the 2002 BO, changes to the structure and composition of xero-riparian and Sonoran Desert scrub communities can result in increased susceptibility of pronghorn fawns to

predators, loss or reduction of suitable thermal cover, and habitat fragmentation. Year-long grazing in Sonoran Desert scrub habitat can, in the long-term, decrease potential cover for fawns and reduce thermal cover by suppressing regeneration of trees in xero-riparian areas and by inhibiting growth of sufficient understory and ground cover.

As discussed in the 2002 BO, cryptobiotic crusts, consisting of lichens, fungi, algae, mosses, and cyanobacteria are important soil stabilizers of desert soils. Grazing and trampling by livestock damage crytobiotic crusts and reduce soil stability, soil fertility, and soil moisture retention. The intensity of damage to cryptobiotic crusts and vegetation caused solely by cattle is assumed to be proportional to the AUMs of forage used per pasture. The most severe impacts occur in areas used for loading and unloading cattle and watering sites.

Displacement of pronghorn by cattle has not been studied in Sonoran pronghorn. Based on other pronghorn subspecies, it appears possible. Yoakum (2004) found most of nine studies focusing on pronghorn/cattle interactions reported on nonaggressive association, but one study reported pronghorn avoid pastures with cattle. McNay (1980) reported a significant negative correlation between cattle and pronghorn use in some areas of his study area. Pre- and post-parturient does avoided cattle, but bucks and yearling females did not. Does used traditional fawning areas when livestock were not present but moved to other, less suitable, sites when livestock were allowed on fawning areas. Pronghorn were never observed at water holes when cattle were present (McNay 1980). In his study in Canada, Barrett (1978, 1984) documented aggressive behavior of cattle toward pronghorn fawns and that a cow trampled and killed a fawn.

Effects of Ephemeral Use

As explained in the proposed action, the allotments in the Ajo/Sentinel Complex are classified as perennial/ephemeral allotments. Perennial/Ephemeral Use Authorizations have Mandatory Terms and Conditions that specify the allotment, pasture, number of livestock, kind of livestock, period of use, percent of forage from public land, type of use, and permitted AUMs defined as perennial forage from public lands that may be consumed during the period of use. Perennial/ephemeral permits allow for additional use of ephemeral (annual) forage which may be authorized after the BLM has considered rangeland conditions and determined that such use will not cause detrimental effects to the perennial forage resource and does not present conflicts with other resource uses and values. While perennial grazing allows a set number of livestock to be grazed throughout the year, ephemeral grazing has no set number of animals and grazing can only occur by request of the rancher with approval of the BLM. Ephemeral grazing in southern Arizona may occur during years with significant precipitation resulting in a significant amount of annual plant species. This ephemeral forage is primarily available following winter rains in early to late spring.

Potential damage to Sonoran pronghorn habitat may occur from the presence of large numbers of cattle associated with ephemeral grazing. Cattle not only consume ephemeral forage at this time, but they also eat perennial shrubs and grasses used by pronghorn; trample cryptobiotic crusts, banklines, and germinating perennial shrubs, trees, and cacti; and causing soil compaction. It is during these periodic, brief wet periods that plants and cryptobiotic crusts have an opportunity to reproduce and achieve substantial germination and growth. Large numbers of cattle at this very

crucial time for plants may cause long-term degradation of plant communities and soils that are necessary for the conservation of Sonoran pronghorn.

Ephemeral grazing has not occurred on the Childs or Coyote Flat #2 allotments in the last decade or longer; however, there have been some ephemeral grazing authorizations on the Sentinel allotment. In this approximate timeframe, the Coyote Flat #2 permittee has requested ephemeral grazing once and while it was authorized by BLM, this grazing did not occur due to the falling beef prices associated with the Covid-19 pandemic. Additionally, while BLM places no limits on the number of cattle that may be authorized for ephemeral use, BLM states (BLM 1994, 2005) that ephemeral grazing is limited by the amount of available ephemeral forage, cattle are unlikely to consume a significant amount of perennial forage species when ephemeral forage is available, and that cattle should be removed if the utilization of perennial species is measurable. Furthermore, conservation measures will minimize potential adverse effects to Sonoran pronghorn habitat. Importantly, BLM may continue to authorize ephemeral grazing on Coyote Flat #2 and Childs allotments only under certain restrictive conditions (Conservation Measure #5) and on the Sentinel allotment in accordance with the BLM ephemeral policy (Conservation Measure #6). Conservation Measure #5 ensures that prior to authorizing ephemeral grazing, BLM will coordinate with the FWS and AGFD in evaluating the range conditions before ephemeral grazing is authorized. Part of the purpose of this coordination is to ensure that availability of Sonoran pronghorn forage has been evaluated and that sufficient forage occurs in other parts of the Sonoran pronghorn range to support the population. Conservation Measure #6 ensures BLM will only authorize ephemeral grazing under conditions when no resource damage will occur as a result of such authorization.

Effects to Sonoran Pronghorn by Allotment

As described in the Description of the Proposed Action, no livestock are currently permitted on the Cameron allotment, 320 cattle are permitted on the Childs allotment (occurs primarily within the NEP area), 31 are permitted on the Coyote Flat #2 allotment (occurs primarily within the endangered Sonoran pronghorn range), and 32 are permitted on the Sentinel allotment (occurs entirely within the endangered Sonoran pronghorn range).

The Cameron Allotment is no longer used for grazing, therefore no effects to Sonoran pronghorn from BLM's grazing program will occur on this allotment. Continued grazing on the Coyote Flat #2 and Sentinel allotments may affect Sonoran pronghorn as described above, but it is anticipated to only affect a small portion of the endangered ("Cabeza Prieta") population because these allotments make up a relatively small portion (~2%) of the range of the endangered pronghorn in the U.S. (i.e., the Cabeza Prieta Management Unit) and few Sonoran pronghorn have been documented on these allotments over the last decade (note: there are 40,842 acres in allotments within range of endangered Sonoran pronghorn and the total range of the endangered Sonoran pronghorn is 2,023,040 acres; therefore 40,842/2,023,040=0.02). Telemetry data was reviewed from 2009 to 2020 and a single collared Sonoran pronghorn was found on the Coyote Flat #2 Allotment in 2017 and another in 2020. Of all the allotments, the Childs Allotment east of Highway 85 (in the NEP) is most frequented by Sonoran pronghorn (part of the Sauceda population), with numerous (>20) collared animals documented since 2016. A range has not yet been constructed for the Sauceda population because the population was recently reintroduced in 2015; however, the Sauceda subunit of the NEP area is 2,379 mi^2 (1,522,560 acres). Therefore,

the Child's allotment (94,335 acres occur in the NEP) makes up 6% of the Sauceda subunit (94,335/1,522,560=0.06).

While Sonoran pronghorn and their habitat may be affected by grazing on these allotments, conservation measures will minimize potential adverse effects. For example, BLM will limit the utilization of perennial forage species by livestock to 30% in all allotments (Conservation Measure #11) and will continue to require the permittee of the Coyote Flat #2 to remove all cattle from the allotment for three consecutive months out of the year, usually in the spring/summer, and rotate use between the north and south pastures every other year, allowing range conditions to improve during those time periods (Conservation Measure #4).

There are no records of Sonoran pronghorn occurring on the Sentinel Allotment. However, there is a lack of fencing between the Sentinel allotment and the BMGR. This has resulted in livestock from the Sentinel allotment crossing onto the BMGR. Livestock entering the BMGR could potentially affect pronghorn behavior on BMGR and either displace or lead to pronghorn avoidance of areas with trespass livestock. Arizona is a fence out state (meaning that landowners who prefer not to have livestock on their property are responsible for fencing them out), but this is not usually applicable to federal lands and there have been ongoing talks between the BMGR and the permittee regarding the installation of fencing. As of November 2020, it remains unknown when the fence will be installed.

Trespass of livestock from the Ajo allotments has been reported on both CPNWR and OPCNM; however, on CPWNR trespass cattle have been rare since at least 2009. On OPCNM, occasional trespass cattle, from about 1 to 10 individuals, have been documented, usually near the northern boundary. Impacts to Sonoran pronghorn and their habitat from trespass cattle will continue to occur as a result of the proposed action. In addition to the impacts from the cattle, returning cattle to the allotments causes an increase in vehicle and human disturbance in pronghorn habitat. The severity of impacts depends on the frequency, duration, distance from the allotments, time of year (i.e., during fawning season or not), and number of trespass cattle. Overall, however, these impacts have decreased since the closure of the Cameron allotment because cattle are no longer permitted on the Cameron allotment. The Cameron allotment was the largest active allotment (57,934 acres on BLM lands, the majority of which are within the Cabeza Prieta Management Unit) and had the most AUMs (684)/cattle (57 livestock) permitted on it within the range of the endangered Sonoran pronghorn prior to its closure in 2004. It is bounded by CPNWR to the west and OPCNM to the south (Figure 1); therefore, its closure increased the amount of land with no permitted cattle surrounding these protected areas.

Disease Transmission

Potential disease transmission between cattle and pronghorn is possible where they coexist. Diseases documented in Sonoran pronghorn and discussed in the 2016 Recovery Plan include hemorrhagic disease (HD) caused by bluetongue (BTV) and epizootic hemorrhagic disease virus (EHDV). These viruses are transmitted by biting flies or gnats (*Culicoides* spp.), usually in the late summer and fall (but in southern Arizona, disease can occur in early spring if it is warm and wet), and hosts include cattle, white-tailed deer, mule deer, and pronghorn, among other ruminants. In Arizona, antibodies have been detected in cattle, deer, bighorn sheep, and pronghorn (Justice-Allen et al. 2014). The severity of disease depends on host species, host genetics, and virus strains; in some species antibodies, but no disease, have been detected

(Justice-Allen et al. 2014). Artificial water sources, such as dirt stock tanks, provide wet sediment habitat for *Culicoides* larvae. Most of Arizona is endemic for these diseases but the prevalence and incidence waxes and wanes according to precipitation and weather patterns that affect midge populations (e.g., with drier conditions, less habitat is available for midge larvae) and immunity in Sonoran pronghorn (Justice-Allen 2020). Specifically, if an area experiences significant summer drought for more than a year or two, a susceptible population of ungulates can develop, and disease can increase (Justice-Allen 2020). Observations in southern Arizona indicate that with more than two years of drought, the ungulate populations lose a significant amount of immunity because does do not pass along maternal immunity and the fawns are not exposed to the viruses, thus leading to some outbreaks of disease in ungulates (Justice-Allen 2020).

Also, as the dominant strain (of BTV and EHD) shifts in the midge population, sporadic disease can occur (Justice-Allen 2020). These diseases are not always fatal and are unlikely to cause large scale mortality events in Sonoran pronghorn (Justice-Allen 2020). Large scale events in pronghorn have generally occurred in states such as Wyoming where the disease has not been endemic (Justice-Allen 2020).

Transmission of BTV and EHDV is a complex issue and difficult to study. It is unknown where transmission of these diseases to Sonoran pronghorn is coming from (cattle, other wildlife, or both), but presence of livestock within the action area may increase the potential for the exposure of Sonoran pronghorn to BTV and EHDV. That being said, while among the hosts of these diseases, cattle are not considered a significant source of transmission (Justice-Allen 2020). The effect of increased exposure to these viruses is also not entirely known, but some Sonoran pronghorn mortality has been attributed to EHD. EHD has been confirmed as the cause of death in less than 5 Sonoran pronghorn in the captive breeding pen, and based on necropsy finding, thought to be the cause of death in a few additional pronghorn from the pens (Justice-Allen 2020). In the wild, the numbers that have died from EHD are unknown (Justice-Allen 2020). The true number of Sonoran pronghorn deaths due to these diseases is unknown because often there are no remains to sufficiently sample for disease after a dead pronghorn is discovered. Furthermore, exposure to these diseases may contribute to low recruitment in some years through decreased productivity and fawn mortality. To reduce the effects of BTV and EHDV, any Sonoran pronghorn that are handled (such as during capture operations) in the U.S. are vaccinated against both diseases.

In addition to HD caused by BTV and EHDV, it is possible that other diseases could be transmitted from livestock to Sonoran pronghorn. In 2019, more than 60 American pronghorn died in Wyoming of fatal pneumonia associated with the bacterium *Mycoplasma bovis*, a pathogen in cattle that contributes to the multifactorial bovine respiratory disease complex (Malmberg et al. 2020). Transmission was likely from livestock (either cattle or bison) (Malmberg et al. 2020). *M. bovis* is uncommon in free-ranging ungulates (Malmberg et al. 2020) and has not been documented in Sonoran pronghorn, however, this case demonstrates the potential risk for disease transmission from livestock to pronghorn.

To reduce disease transmission, it is important to reduce contact between cattle and pronghorn, to control potential sources of infection, and to help alleviate environmental situations that

increase the risk of animals being affected by these diseases. Keeping the Cameron allotment closed to grazing helps to reduce this contact. Cattle on the allotments are vaccinated against a variety of diseases, which may also help reduce disease transmission to Sonoran pronghorn. Specific to hemorrhagic disease, vaccination of cattle would likely be of limited benefit to Sonoran pronghorn because the virus would still be in the deer, and thus transmittable to Sonoran pronghorn (Justice-Allen 2020). That said, BLM has included a conservation measure to further explore the availability and effectiveness of vaccinating against hemorrhagic diseases. Specifically, Conservation Measure #10 states that BLM, FWS, and AGFD will coordinate to determine the availability and effectiveness of vaccines against hemorrhagic diseases in cattle. If they are available and determined to be effective for reducing the risk of transmission of disease to Sonoran pronghorn, BLM will require the permittee to vaccinate cattle on the Ajo/Sentinel allotments.

Range Improvements and Livestock Management

Maintenance of range improvements and livestock management may disturb and injure Sonoran pronghorn and impact their movements and habitat. Human (on foot, horseback, and vehicle) presence in Sonoran pronghorn range associated with maintenance of range improvements and cattle management may disturb Sonoran pronghorn. Human disturbance effects on Sonoran pronghorn are summarized in the 2016 Recovery Plan and above in Threats section of the Status of the Species. In summary, human and vehicle disturbance can cause pronghorn to startle and/or flee, travel farther 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. Sonoran pronghorn are particularly susceptible to stress caused by disturbance during the fawning season due to increased energetic demands of caring for fawns. Particularly during drought years, due to the low availability of forage and water resources and consequent decreased fitness of adults and fawns, disturbance may result in fawn and adult mortality. Furthermore, disturbance during the fawning season may cause fawns to be separated from their mothers which can also result in death.

The allotments will be accessed by permittees by existing roads with motor vehicles. Ranching activities are conducted by pick-up truck or on horseback. Potential disturbance to Sonoran pronghorn from range maintenance and cattle management are anticipated to occur intermittently and be relatively short in duration. For example, fence lines, pipelines, and above-ground storage tanks will be inspected annually and repaired and replaced as necessary, and maintenance activities will typically be completed within 1 to 3 days. The range and pasture fences in the area are four strand barbed wire fence and maintenance is usually limited to spot repairs. Maintenance of pumps could occur approximately every two years and could range from servicing motors to re-drilling wells. Earthen stock tanks could be excavated approximately every 10 years with heavy equipment. To reduce adverse effects of potential disturbance to Sonoran pronghorn from heavy equipment, excavation will be done outside of the Sonoran pronghorn fawning season (Conservation Measure #9) when Sonoran pronghorn typically experience less stress (i.e., it is outside fawning season, temperatures are cooler, and forage is typically available due to winter rainfall).

Vehicles associated with cattle management have the potential to collide with Sonoran pronghorn causing injury and/or death, but the risk of such collisions should remain low under the existing speed limits on BLM administered lands (i.e., 30 mph). While Sonoran pronghorn mortalities due to vehicle strikes have been documented numerous times on highways, no mortality associated with a vehicle collision has ever been documented on BLM administered lands. Ajo/Sentinel Block roads are unpaved, predominantly poorly maintained, and of native material therefore highway speeds are generally not attainable. Evidence suggests that one Sonoran pronghorn was struck and killed by a vehicle on a dirt road north of the BMGR (on non-federal land), but this dirt road was a high speed, two-lane well-maintained dirt road.

While vehicles will generally travel on designated routes, occasional off-road travel to assist injured livestock may result in some disturbance to Sonoran pronghorn habitat. Because such off-road travel should occur occasionally and vehicles are not likely to travel on the same off-road path multiple times, most habitat disturbance should be temporary.

No new fences are authorized under this proposed action; however, continued presence and maintenance of range and pasture fences associated with all the allotments may affect Sonoran pronghorn. The fences are typically either a four-strand barbed-wire fence or four-strand wire fence with the top three strands made of barbed-wire and the bottom strand made of smooth wire. These fences do not preclude wildlife movement; however, the fences may still act as a partial barrier to movement and Sonoran pronghorn may be more susceptible to predation as they crouch to go under fences. Sonoran pronghorn may also become entangled, poked, scratched, or otherwise injured in livestock fences (Barrett 1978), however, because most of the fences are designed with a smooth bottom wire to allow for wildlife passage, entanglement should seldom occur. BLM requires all new/replacement fencing to be built in a wildlife friendly manner.

Conservation Measures

As described throughout the effects analysis, conservation measures included in the proposed action will minimize adverse effects to Sonoran pronghorn. In addition to measures designed to minimize effects of the proposed action, a number of measures are designed to offset adverse effects. For example, BLM will, in coordination with the Sonoran pronghorn Recovery Team, continue to operate and maintain ground-level drinking troughs at existing wells on the Cameron allotment area (Conservation Measure #2). BLM also proposes to install, operate, and maintain wildlife waters in at least two additional locations and as many as eight locations in pronghorn habitat, in coordination with the Sonoran Pronghorn Recovery Team (Conservation Measure #7). Wildlife waters are important for pronghorn during the hot summer months, particularly in times of drought when other water sources are dry.

Effects to Sonoran Pronghorn Recovery Caused by the Action

The six recovery criteria in the 2016 Recovery Plan for the Sonoran Pronghorn, Second Revision are:

1. At least three free-ranging populations are viable. Two of these must be the Cabeza population and either the Quitovac or Pinacate population. The Recovery Team defines a viable population as one that has less than a 10% probability of extinction over 50 years and a growth rate that is stable or increasing. Furthermore, at least one new population must have

been established, in addition to the Kofa subunit (e.g., Sauceda subunit). Established means that the population is stable and is no longer in need of augmentation from a captive breeding program.

A Population Viability Analysis (PVA) estimated abundance targets to meet the Recovery Team's definition of viability, which is different for each management unit due to different environmental conditions. To be considered viable, a population estimate must meet or exceed the abundance targets and demonstrate a population growth rate that is stable or increasing ($r \geq 0$) for at least 10 of 14 years. Abundance targets for each management unit are estimated from the PVA to be: a) 225 in the Cabeza Prieta Management Unit; b) 150 in the Kofa subunit or a new subunit (Sauceda or other future established subunit); c) 150 in the Pinacate Management Unit; and d) 450 in the Quitovac Management Unit. These population sizes must be estimated by monitoring (i.e., aerial surveys).

2. Within the Cabeza Prieta Management Unit, Pinacate Management Unit, Quitovac Management Unit and the Kofa and Sauceda subunits of the Arizona Reintroduction Management Unit, a minimum of 90% of current Sonoran pronghorn habitat within each unit is retained and contiguous. This Sonoran pronghorn habitat is protected through agency policies, land use regulations and plans, landowner agreements, incentives, and/or other programs and agreements. The 90% of retained and contiguous Sonoran pronghorn habitat includes key habitat features such as water sources.

3. Threats to Sonoran pronghorn habitat quality in three units are stabilized or decreasing as measured by indicators described in Appendix E. Threats must be stabilized or decreased in the three management units that correspond to the three populations that meet the population viability criteria in Recovery Criteria number 1. In particular, the threats of overgrazing; unauthorized routes, roads and trails; invasive plant and animal species threatening Sonoran pronghorn habitat; and spread of shrubby vegetation are minimized through agency policies, land use regulations and plans, landowner agreements, incentives, and/or other programs and agreements.

4. Within the Cabeza Prieta Management Unit, Pinacate Management Unit, Quitovac Management Unit, and the Kofa and Sauceda subunits of the Arizona Reintroduction Management Unit, human disturbance is alleviated such that a minimum of 90% of Sonoran pronghorn habitat can be occupied by Sonoran pronghorn.

5. Genetic diversity for three populations, as measured by heterozygosity and allelic richness[2] for nuclear DNA markers, has been retained from levels indicated in Culver and Vaughn (2015). These three populations must meet the threshold of viability as described in Downlisting Criterion 1. The minimum level of heterozygosity[3] of any of the three populations must be 49% (i.e., within 20% of the average heterozygosity of population segments (10) estimated by Culver and Vaughn (2015)). The minimum level of allelic richness of any of the three populations must be 1.96 (i.e., within 20% of the average allelic richness of population segments (10) estimated by Culver and Vaughn (2015)).

6. Effective federal, state, tribal, and/or local laws are in place in the recovery conservation units that ensure that killing of Sonoran pronghorn is prohibited or regulated such that viable populations of Sonoran pronghorn can be maintained and are highly unlikely to need the protection of the ESA again.

Any action that significantly reduces the likelihood of achieving the aforementioned recovery criteria is likely to cause Sonoran pronghorn to pass the tipping point for recovery. The proposed action is <u>not</u> likely to significantly affect or preclude the achievement of these six recovery criteria, and therefore not likely to cause Sonoran pronghorn to reach the tipping point for recovery, for the following reasons:

1. The action should not affect the ability of the Cabeza Prieta Management Unit (i.e., the action area) to sustain a viable population of 225 Sonoran pronghorn or the establishment of the Sauceda population. The "Cabeza Prieta" population estimate is currently approximately 225, which meets the PVA's abundance target. The "Sauceda" population is well on its way to becoming established. The PVA's abundance target for the Sauceda subunit is 150 animals. Sonoran pronghorn were reintroduced into the Sauceda unit in 2015. Since that time, the population has reached approximately 60 animals. To date, grazing in this unit has not resulted in a decline in the population. While the proposed action is likely to adversely affect a small portion of the "Cabeza Prieta" (BLM allotments make up ~2% of the range of the endangered pronghorn in the U.S./the Cabeza Prieta Management Unit) and "Sauceda" (BLM allotments make up ~6% of the Sauceda Subunit) populations of Sonoran pronghorn, including facilitating disease transmission from cattle to Sonoran pronghorn, impacting habitat, and disturbing pronghorn, conservation measures will help to significantly minimize the risk of these potential impacts.

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[2] Allelic richness is a measure of the average number of alleles that takes into account rarity and commonness of alleles and provides an additional measure of genetic diversity that complements heterozygosity.
[3] Heterozygosity is a measure of the proportion of individuals in a population having two different alleles of the same gene.

2. The proposed action does not include new construction, roads, or other new barriers in Sonoran pronghorn habitat; therefore, it should not reduce the amount of, nor fragment current Sonoran pronghorn habitat.

3. The proposed action does not include activities that will affect Sonoran pronghorn habitat quality beyond baseline levels (i.e., threats to habitat quality caused by the project would be considered stable) because the proposed action is not a new action, but rather an action that has been continuing for decades and is not being expanded in size or increased in any capacity (in the past, the action has decreased in geographic scope and in the quantity of cattle allowed; the effects of these past decreases were addressed in past BOs on this topic). There is no proposed increase in livestock grazing activities within the Sonoran pronghorn range.

4. The proposed action will not result in an increase in human activity in Sonoran pronghorn range and is not likely to result in increased disturbance to Sonoran pronghorn. The proposed action is not a new action, but rather an action that has been continuing for decades. There is no proposed increase in human activity associated livestock grazing within the Sonoran pronghorn range.

5. The proposed action will not significantly affect the retention of genetic diversity of the endangered U.S. Sonoran pronghorn, as it will not further fragment the Sonoran pronghorn populations or significantly reduce population size.

6. The proposed action will have no effect on laws that prohibit the killing of Sonoran pronghorn.

Therefore, while the proposed action may result in some adverse effects to Sonoran pronghorn, the proposed action is not anticipated to appreciably reduce the likelihood of recovery of the Sonoran pronghorn for the reasons explained above.

Changes in Pronghorn Status with the Project

Five populations of Sonoran pronghorn exist throughout their range, including two in Mexico (Quitovac and Pinacate) and three in Arizona (Cabeza Prieta, Kofa, and Sauceda) (Figures 4 and 5). Two of the populations (Kofa and Sauceda) in Arizona are nonessential experimental populations. Four of five populations (Cabeza, Kofa, Sauceda, and Pinacate) occur primarily within federally protected lands (in Sonora and Arizona). The largest population (Quitovac) 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 the three endangered populations (i.e., Cabeza Prieta, Pinacate, and Quitovac) is critical to the survival of this species. However, because the largest population (Quitovac) occurs outside of a protected area, ensuring the survival of the two populations within federally protected areas (Cabeza and Pinacate), including the one in Arizona (Cabeza Prieta) located at CPNWR, BMGR, OPCNM, and BLM lands, is even more imperative.

Of the Cabeza Prieta and Pinacate populations, the one in Arizona (Cabeza Prieta population), which comprises approximately 20% of the total number of wild, endangered pronghorn, is the only one over which the U.S. has management authority. Additionally, critical recovery projects, including the CPNWR captive breeding pen, forage enhancement plots, and pronghorn waters, are located in the range of the Cabeza Prieta population. Therefore, although the majority (80%) of wild, endangered 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 are minimized to the greatest degree possible. Accordingly, as part of their proposed action, BLM will implement numerous conservation measures (discussed throughout the effects analysis) that will significantly minimize impacts of the proposed project and will help to ensure these impacts do not significantly affect the reproduction, numbers, and distribution of endangered Sonoran pronghorn in the wild in Arizona.

In conclusion, although aspects of the proposed action will result in impacts to a small portion of Sonoran pronghorn in the U.S., BLM's commitment to implement conservation measures will help to ensure 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 - SONORAN PRONGHORN

Cumulative effects are those "effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area" considered in this Opinion (50 CFR 402.02).

Most lands within the action area are managed by Federal agencies; thus, most activities that could potentially affect pronghorn are authorized, funded or carried out by Federal agencies 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 range of the endangered pronghorn near Ajo and Why, north of the BMGR from Dateland to Highway 85, and from the Mohawk Mountains to Tacna (Figure 5). State inholdings in the BMGR have been acquired by the Department of Defense. Continuing rural and agricultural development, recreation, vehicle use, grazing, and other activities on private and State lands adversely affect pronghorn and their habitat. The effects of the activities on Sonoran pronghorn are discussed in detail in the "Threats Assessment" section of the 2016 Final Recovery Plan for the Sonoran Pronghorn. These activities result in decreased habitat quantity and quality for Sonoran pronghorn, increased disturbance from human presence, and in some cases, may result in direct mortality of Sonoran pronghorn. For example, multiple Sonoran pronghorn deaths have been documented from vehicle strikes, as discussed in the "Threats" section of the "Status of the Species." 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, Yuma, and along the Gila River.

CBV activity in the action area also results in various adverse effects to Sonoran pronghorn. CBV activity and its effects to pronghorn are described in detail in the 2016 Final Recovery Plan for the Sonoran Pronghorn. CBV activity has resulted in route proliferation, off-highway vehicle activity, increased human presence in backcountry areas, discarded trash, cutting of firewood, illegal campfires and arson fires, and increased chance of wildfire. Habitat degradation and disturbance of pronghorn have resulted from these CBV activities.

CONCLUSIONS - SONORAN PRONGHORN

After reviewing the current status of the Sonoran pronghorn, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological and conference 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. We base this conclusion on the following:

1. There is a risk that livestock and livestock management activities may disturb, injure, or kill (through transmission of disease) Sonoran pronghorn on or near BLM lands. However, conservation measures included in the proposed action help reduce disturbance to Sonoran pronghorn and their habitat, as well as the risk of injury or death of Sonoran pronghorn on BLM from livestock grazing related activities. Among these measures are periodic removal and rotation of cattle on the Coyote Flat #2 Allotment (Conservation Measure #4), authorization of ephemeral grazing on Coyote Flat #2 and Childs allotments under restrictive criteria (Conservation Measure #5), coordination regarding vaccinating cattle against hemorrhagic diseases (Conservation Measure #10) etc. Thus, the project is not expected to significantly affect the distribution, numbers, and reproduction of Sonoran pronghorn in the wild.

2. The proposed action will not result in the further loss of or fragmentation of Sonoran pronghorn habitat beyond baseline levels because the proposed action is an ongoing action that is not being expanded in size or increased in any capacity.

3. The proposed action will occur within the range of the Cabeza Prieta Sonoran pronghorn population in Arizona, one of three endangered populations of Sonoran pronghorn in the United States and Mexico. The Cabeza population occurs primarily on federally protected lands in Arizona, including CPNWR, OPCNM, BMGR, and BLM lands, and represents approximately 20% of all endangered Sonoran pronghorn in the United States and Mexico. Conservation measures will minimize effects of the proposed action on this population of pronghorn. Therefore, the proposed action will not have an appreciable impact on the population at the rangewide scale. Thus, the proposed action is not expected to reduce appreciably the likelihood of both survival and recovery of the Sonoran pronghorn in the wild by reducing the reproduction, numbers, or distribution of the species.

4. The proposed action will also occur within the range of the Sauceda Sonoran pronghorn population, which is a nonessential experimental population. Because the nonessential

> experimental population is, by definition, not essential to the continued existence of the species then the effects of proposed actions on the NEP will generally not rise to the level of jeopardizing the continued existence of the species. Although the proposed action is anticipated to have some adverse impacts on the Sauceda population, conservation measures will minimize these impacts and the net effects of the action will clearly not rise to the level of jeopardy.

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.

INCIDENTAL TAKE STATEMENT – SONORAN PRONGHORN

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA 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 ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by the Service for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Service (1) fails to assume and implement the terms and conditions or (2) fails to require any applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Service must report the progress of the action and its impact on the species as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

The Service anticipates one Sonoran pronghorn for the duration of the action (10 years) will be taken as result of this proposed action. One pronghorn represents approximately 0.4% of the current total number of Sonoran pronghorn in the action area (i.e., 0.4% of the Cabeza population, the only endangered population in the U.S.) or approximately 0.09% of all endangered Sonoran pronghorn in the U.S. and Mexico. The incidental take is expected to be in the form of mortality from disease transmission from cattle to Sonoran pronghorn, **or** mortality or injury from fences associated with the allotments, or in the form of harassment of Sonoran

pronghorn from livestock and human presence associated livestock management activities that cause Sonoran pronghorn to avoid areas of otherwise suitable habitat.

Note that this incidental take statement is for the endangered "Cabeza Prieta" population of Sonoran pronghorn. Incidental take for the NEP is authorized by the special rule for Sonoran pronghorn (76 FR 25610).

EFFECT OF THE TAKE

In the accompanying biological opinion, we have determined that the level of anticipated take is not likely to result in jeopardy to the Sonoran pronghorn. Although we anticipate take of one Sonoran pronghorn to occur, the implementation of the conservation measures proposed should ultimately result in avoidance and minimization of adverse effects.

REASONABLE AND PRUDENT MEASURES and TERMS AND CONDITIONS

All conservation measures including avoidance and minimization measures, status surveys, biological and compliance monitoring, and reporting measures are incorporated herein by reference as reasonable and prudent measures and terms and conditions to address the incidental take of Sonoran pronghorn. No additional reasonable and prudent measures or terms and conditions were identified during the consultation.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the Service's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, NM 87113; 505-248-7889) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

In addition to the above, the 2020 (or most recent version) Final Incident Response Protocol for Sonoran pronghorn will be followed.

CONSERVATION RECOMMENDATIONS – SONORAN PRONGHORN

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 effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We recommend implementing the following:

1. Continue to participate on the Sonoran Pronghorn Recovery Team and implement Sonoran pronghorn recovery actions.

For the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

STATUS OF THE SPECIES AND CRITICAL HABITAT – ACUÑA CACTUS

Listing History

On October 1, 2013, we listed the acuña cactus (*Echinomastus erectocentrus* var. *acunensis*) as an endangered species (Service 2013, entire). Neither a Five-Year Review nor a Recovery Plan has been written for this species.

Biology

The acuña cactus is a small, spherical member of the cactus family with a lifespan exceeding 35 years. It is usually single-stemmed, up to 40 centimeters (cm) (16 inches (in)) tall and 9 cm (3.5 in) wide (Arizona Rare Plant Guide Committee 2001, unpaginated; Zimmerman and Parfitt 2003, pp. 194–195). The acuña cactus has 11 to 15 radial spines up to 2.5 cm (1.0 in) long and 3 to 4 mauve-colored, up-turned central spines up to 3.5 cm (1.4 in) long (Arizona Rare Plant Guide Committee 2001, unpaginated; Zimmerman and Parfitt 2003, pp. 194–195). Rose, pink, or lavender flowers 3.6 to 6 by 4 to 9 cm (1.4 to 2.3 by 1.6 to 3.5 in) are produced in March (Arizona Rare Plant Guide Committee 2001, unpaginated; Zimmerman and Parfitt 2003, pp. 194–195). The fruits, which are held in place by a tight mesh of spines, are pale green, 1.25 cm (0.5 in) long, and contain small, nearly black seeds (Felger 2000, p. 208). The fruits ripen in April (Arizona Rare Plant Guide Committee 2001, unpaginated) and as they dry, they split longitudinally, exposing the seeds (Morawe 2012, pers. comm.).

Ecology

The acuña cactus relies solely on the production of seeds for reproduction, with pollination highly linked to the acuña cactus' survival. Acuña cacti are pollinated by a suite of bees from the Andrenidae, Anthophoridae, Anthophorinae, Halictidae, and Megachilidae families. The most abundant, robust, and consistent visitors in a 2-year study of acuña cactus pollination at Organ Pipe Cactus National Monument were the cactus bee (*Diadasia rinconis*) and the leafcutter bee (*Megachile palmensis*) (Johnson 1992, p. 406). No studies of pollinator dispersal distance have been conducted for the acuña cactus; however, in a study of the rare Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), McDonald (2005, p. 29) determined that the cactus bee most commonly transported pollen less than 900 m (2,953 ft). The maximum distance travelled by the leafcutter bee is not known, though it is thought to be less than this (Buchmann 2012, pers. comm).

Resource limitation may affect the acuña cactus seed set through ovule abortion (Johnson 1989, p. 11). Because flowering commences in early March and fruiting commences in late April (Johnson 1989, pp. 5, 8), it is likely also that winter precipitation is correlated with fruit set. Although viability of seed in the seed bank is unknown, germination trials in the greenhouse suggest the seeds are short-lived (Rutman 2007, p. 7). Johnson (1989, pp. 5, 12) determined that

acuña cactus seedling survival was dependent on summer precipitation and that soil moisture availability limits the distribution of the species. Rice (2001, pers. comm.) noted that in greenhouse trials of the acuña cactus, seedlings and new recruits were primarily lost due to desiccation.

In general, cacti are susceptible to attacks from numerous types of insects, and the acuña cactus is no exception. The interior flesh of cacti provides both a nesting area and food source for beetles, weevils, and other insects. Once an infestation has occurred, cacti can die from the eating and tunneling activities or from the introduction of fungus or disease. Four native species of insects have been documented to impact the acuña cactus. Of these, cactus weevils (*Gerstaeckeria* spp.) and cactus longhorn beetle (*Moneilema gigas*) are documented to be most responsible for acuña cactus declines (Rutman 2007, p. 6; Johnson 1989, p. 10). No diseases have been documented in the acuña cactus, though plants are exceptionally susceptible to bacterial rot after minor stem damage (Rutman 2007, p. 3). There have been reports of loss of the acuña cactus due to small mammal depredation evidenced by scattered spines and rooted bases at Organ Pipe Cactus National Monument (Buskirk 1981, p. 5; Buskirk and Phillips 1983, pers. comm.; Heil and Melton 1994, p. 15; Holm 2006, pp. 2–3).

Habitat

The acuña cactus occurs in valleys and on small knolls and gravel ridges of up to 30 percent slope in the Palo-Verde-Saguaro Association of the Arizona Upland subdivision of the Sonoran Desert scrub at 365 to 1,150 m (1,198 to 3,773 ft) in elevation (Phillips et al. 1982, p. 4; Arizona Rare Plant Guide Committee 2001, unpaginated; AGFD 2011, entire). This taxon grows on soil overlying various bedrock types including extrusive felsic volcanic rocks of rhyolite, andesite, and tuff, and intrusive igneous rocks composed of granite, granodiorite, diorite, and Cornelia quartz monzonite (Rutman 2007, pp. 1–2).

Associated plant species include creosote bush (*Larrea tridentata* var. *tridentata*), ironwood (*Olneya tesota*), palo verde (*Cercidium microphyllum*), triangle-leaf bursage (*Ambrosia deltoidea*), and catclaw (*Acacia greggii*). The acuña cactus is often noted growing under the protective canopy of these or other associated species (Phillips et al. 1982, p. 6; Butterwick 1982-1992, entire; Felger 2000, p. 208; Service 2011a, p. 1; Service 2011b, p. 3), which may act as nurse plants, thereby sheltering seedlings from extreme temperatures and providing some protection from mechanical disturbance (Nobel 1984, p. 316; Suzán et al. 1996, p. 635).

Foraging plants, habitat, and corridors for bees must be preserved to protect the acuña cactus (Buchmann 2012, pers. comm.; McDonald 2007, p. 4). Introduced grasses such as buffelgrass form continuous mats and remove open bare ground for nesting bees such as *Diadasia* spp. (Buchmann 2007, p. 13). These bees move nesting sites yearly to shed parasites, therefore requiring the continued availability of sandy, well-drained, bare ground available to create nests.

Distribution/Abundance

The acuña cactus populations are known from Maricopa, Pima, and Pinal Counties in Arizona and from Sonora, Mexico (AGFD 2004, p. 2). In western Pima County, plants are known from the Puerto Blanco Mountains and adjacent Aguajita Wash on National Park Service lands within Organ Pipe Cactus National Monument; from the Sauceda Mountains on Bureau of Land Management and Tohono O'odham Nation lands; from Department of Defense military lands on

the Barry M. Goldwater Gunnery Range; and from private lands near Ajo. In Maricopa County, the acuña cactus is known from the Sand Tank Mountains on Bureau of Land Management lands within the Sonoran Desert National Monument. In Pinal County, plants are known from Mineral Mountain on Bureau of Land Management, State, and private lands. In Sonora, Mexico, the acuña cactus occurs on Reserva de la Biosfera El Pinacate y Gran Desierto de Altar (Pinacate Biosphere Reserve), communal ejido lands, and private ranches. Available information indicates that the current range of this species does not differ from the historical range, with the exception that the current Ajo populations likely had been part of a larger population that occurred before mining activity began there (Rutman 1996, pers. comm.; Rutman 2007, p. 7). However, there are no survey records for this species in the area prior to mining activity. An estimated 3,609 plants occurred in Arizona and Sonora, as detected during surveys from about 2009 to 2013 (FWS 2013).

Threats

Urban Development and Site Degradation

The direct and indirect effects of urbanization are limited to the acuña cactus populations in the vicinity of Ajo and Florence in the United States and in the immediate border region of Sonora, Mexico. These areas collectively make up roughly 31 percent of known living acuña cactus individuals across the range of the acuña cactus, including Mexico. The majority of the range in the United States is protected from urban development because populations are on Federal lands, where little or no development will take place. In addition, most populations of the acuña cactus are relatively remote or otherwise protected from the effects of urbanization.

Livestock Grazing

In general, grazing practices can change vegetation composition and abundance and cause soil erosion and compaction, reduced water infiltration rates, and increased runoff (Klemmedson 1956, p. 137; Ellison 1960, p. 24; Arndt 1966, p. 170; Gifford and Hawkins 1978, p. 305; Waser and Price 1981, p. 407; Robinson and Bolen 1989, p. 186; Holechek et al. 1998, pp. 191–195, 216; and Loftin et al. 2000, pp. 57–58). In addition, livestock can step on or knock over individual acuña cacti. Herbivory of the acuña cactus has not been reported. More than 60 percent of acuña cactus individuals occur within lands protected from cattle grazing either by National Park Service or Bureau of Land Management National Monument status. In areas occupied by the acuña cactus where livestock grazing does occur, impacts from livestock do not appear to be a consistent or significant threat to populations (see FWS 2013 for a complete discussion of the effects of livestock grazing on acuña cactus populations).

Border Activities

More than 84 percent of the known living acuña cactus individuals occur within 16.5 km (10.25 mi) of the border in either Organ Pipe Cactus National Monument or Sonora, Mexico. Cross-border violators, Customs and Border Protection, and National Park Service law enforcement activity in this area may degrade acuña cactus habitat by creating new roads and trails, disturbing vegetation and soils, and moving exotic plant seeds or plant parts, leading to their spread into unoccupied areas (Duncan et al. 2010, p. 124). Direct mortality of the acuña cactus may occur by running over individuals; to date this has not been observed. In 2010, however, two vehicle tracks and associated articles of clothing from cross-border violators were found within one of the six 20-by-50-m (66-by-164-ft) acuña cactus long-term monitoring plots at Organ Pipe Cactus National Monument (Holm 2012a, pers. comm.).

Nonnative, Invasive Plant Species Issues

Nonnative grasses compete with native plants for water and nutrients, reduce community composition and structure, and alter fire frequency and intensity. Known populations of the acuña cactus are well distributed across southern Arizona and northern Sonora and occur in areas subject to effects from nonnative, invasive plant species. Although no populations of the acuña cactus currently show evidence of negative effects from nonnative, invasive species, reports indicate that buffelgrass (*Pennisetum ciliare*) is currently in close proximity and could expand into acuña populations within the near future. Fires occurring on lands infested by nonnative, invasive species are more severe and frequent than fires in surrounding ecosystems, even in communities with comparable fuels (McDonald and McPherson 2011b, p. 1152). Increases in nonnative grass cover in deserts can also increase habitat for rodents, which may in turn consume cacti, like acuña cactus, for water (FWS 2013), especially in times of drought. In addition, nonnative grasses in deserts may be detrimental to the survival of ground nesting native bee species that require sparsely vegetated habitat (Lindsay et al. 2011, p. 3262). A decrease in native bee species could negatively affect acuña cactus populations because they rely on bees for pollination.

Mining

The immediate threats from mining activity include the direct loss of individuals and habitat. Indirect impacts of mining activity include fragmentation of acuña cactus habitat and associated pollinator populations, which can reduce genetic vigor of the cactus and result in degradation and fragmentation of habitat and dusting of individual cacti adjacent to mines and associated roads. For example, Rutman (1995, p. 1) noted that on the east side of the Ajo rock dump, roads, wells, prospecting holes, rock piles marking mining claims, and past use of explosives occurred immediately adjacent to the acuña cactus plants. Rutman (2006, p. 1) noted that habitat was lost when Indian Hill Village Road was built and occupied habitat may also have been lost where the following buildings and infrastructure now occur: Assembly of God Indian Mission, New Cornelia mine, parking lot for the mine lookout, baseball diamond, and the large informal parking lot to the north of the hill. It is possible that these populations were at one time connected with the few plants to the southeast of the open pit mine on Bureau of Land Management administered land (FWS 2013). We are aware of no acuña cactus populations that are currently impacted by active mining.

Drought and Climate Change

Since the late 1990s, the southwestern United States has been experiencing drought conditions and increasing high temperatures. Climatic predictions suggest continued less frequent, but perhaps more intense, summer precipitation, reduced winter precipitation; and increasing temperatures in this region (Seager *et al*. 2007, p. 1181; Archer and Predick 2008, pp. 23–24; Karl *et al.* 2009, p. 24). Data from the acuña cactus monitoring plots at Organ Pipe Cactus National Monument and at Coffeepot Mountain, along with occasional surveys of these and most other populations, indicate major population declines have occurred across the acuña cactus range over the past 30 years. It appears that a combination of drought stress, warmer winters, and insect attack have reduced adult plant numbers, while heat stress, lack of precipitation, and seed predation have combined to reduce or halt reproduction. Because the current drought is occurring on a regional scale, and because climatic models predict future regional droughts, it is

likely that all populations of the acuña cactus will continue to decline due to drought and the effects of climate change. In addition, it appears that drought and climate change in combination with insect damage and predation, as a combined effect, is the more likely scenario for rangewide level impacts to acuña cacti.

Critical Habitat

Acuña cactus critical habitat was finalized on August 18, 2016 (81 FR 55266) (along with Fickeisen plains cactus) and included areas within Maricopa, Pima, and Pinal counties, Arizona. In total, approximately 18,535 ac were designated as critical habitat and were organized into six units. The six units are titled after geographic locations: (1) Organ Pipe Cactus National Monument, (2) Ajo, (3) Sauceda Mountains, (4) Sand Tank Mountains, (5) Mineral Mountain, and (6) Box O Wash.

The PCEs of acuña cactus critical habitat focus on native plant assemblages, cactus protection, pollinator habitat, seed dispersal, and soils.

Acuña Cactus Critical Habitat PCEs:

1. Native vegetation within the Palo Verde-Cacti-Mixed Scrub Series of the Arizona Upland Subdivision of the Sonoran Desert-scrub at elevations between 1,198 - 3,773 feet. This vegetation must contain predominantly native plant species that:

    a. Provide protection to the acuña cactus. Examples of such plants are creosote bush, ironwood, and palo verde;

    b. Provide for pollinator habitat with a radius of 2,953 feet around each individual, reproducing acuña cactus;

    c. Allow for seed dispersal through the presence of bare soils immediately adjacent to and within 32.8 feet of individual, reproducing acuña cactus.

2. Soils overlying rhyolite, andesite, tuff, granite, granodiorite, diorite, or Cornelia quartz monzonite bedrock that are in valley bottoms, on small knolls, or on ridgetops, and are generally on slopes of less than 30 percent.

ENVIRONMENTAL BASELINE – ACUÑA CACTUS

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in

process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Status of Acuña Cactus and Critical Habitat within the Action Area

There are acuña cactus and acuña cactus critical habitat within the Childs and Cameron allotments (Figures 6 and 7). Out of 6 critical habitat units, one unit, Unit 3, occurs within the action area. Unit 3 or the Sauceda Mountains Unit of acuña cactus critical habitat is 2,724 acres and is entirely within the Childs Allotment. This unit represents about 15% of all critical habitat and comprises four separate populations that are close enough in proximity as to be combined within the 2,953–ft radius defined for pollinators. In 2016, the combined number of plants occurring within this unit was 212. This subunit contains all the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus. This unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species. The features essential to the conservation of the species within the unit are threatened by mining; grazing; nonnative, invasive species issues; and off-road U.S.-Mexican border CBP and CBV activities (FWS 2013). Special management considerations or protection may be required within the unit to minimize habitat fragmentation; to minimize disturbance to individual acuña cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within acuña cactus habitat.

Within the Childs allotment, acuña cactus critical habitat is located within the Coffeepot Area of Critical Environmental Concern (ACEC). The Coffeepot Botanical ACEC designation of approximately 8,900 acres is to protect the outstanding botanical diversity of the native and rare plant communities, such as acuña cactus (BLM 2020).

EFFECTS OF THE PROPOSED ACTION - ACUÑA CACTUS

Of the four allotments addressed in the proposed action, acuña cactus and its critical habitat occur within the Childs and Cameron allotments. As documented in biological opinion 02-21-94-F-192R3, grazing has been discontinued in the Cameron allotment, therefore, the proposed livestock grazing will have no effects on acuña cactus and its critical habitat within this allotment. Within the Childs allotment, an estimated 212 acuña cactus occur within the 2,724-acre Sauceda Mountains Critical Habitat Unit, both of which may be affected by livestock grazing (Figure 7). As described in the "Status of the species" section, livestock can trample acuña cactus and if not managed properly, livestock grazing can impact or degrade soils (PCE #2) and impact or change the vegetation community (PCE #1). For more than approximately 10 years, the permittee of the Childs allotment has chosen not to graze the area within the Sauceda Mountains Critical Habitat Unit because the waters have been in disrepair. Therefore, for the past 10 years, there have been no impacts from grazing on acuña cactus and its critical habitat in the Childs allotment. In the future, livestock could affect acuña cactus and critical habitat in the Coffeepot well area of Childs allotment, but are less likely to affect acuña near Conley Tank, for the reasons explained below.

Within the Childs allotment there is a well and range improvement at the eastern edge of the Coffeepot ACEC called Coffeepot well that was built in 1962. Coffeepot well is approximately one mile from (i.e., outside of) acuña cactus critical habitat (the Sauceda Mountains Unit) (Figure 7). Coffeepot well is currently in disrepair, but the permittee has expressed an interest in repairing it and utilizing it in the future. In general, livestock do not travel more than two miles from water on flat terrain and normally no more than one mile in rough terrain (Smith et al. 1986, as cited by BLM 2020). The terrain in the area of the Coffeepot well is rough, but it is possible that livestock could enter acuña cactus critical habitat (Sauceda Mountains Unit) as a result of potential repair of Coffeepot well. We do not anticipate that livestock will frequently travel far enough to enter critical habitat, but if they do, as stated above, they could trample acuña cactus and degrade a portion of the Sauceda Mountains Critical Habitat Unit.

Also, within the Childs allotment in acuña cactus critical habitat (Sauceda Mountains Unit) there is an earthen stock tank called Conley Tank and/or Conley Reservoir. The permittee has agreed to make the Conley Tank unavailable to livestock and the Conley Tank has been fenced since January 2018 (with a wildlife friendly fence) to keep livestock out (Conservation Measure #11). Trespass cattle from the Tohono O'odham Nation had frequented this area prior to the installation of the fence around Conley tank. While trespass cattle are not part of BLM's proposed action, the effects of trespass cattle would not occur but for Conley tank and therefore are considered a consequence of the proposed action. Conley Tank is the only water within the Sauceda Mountains Unit and because it is not and will not be available to livestock, trespass livestock are now less common in the area and permitted livestock are not likely to frequently occur in the area. Therefore, while livestock could enter and degrade critical habitat in the Sauceda Mountains Unit and/or directly trample acuña cactus, we anticipate this will occur infrequently due to the implementation of Conservation Measure #11. Furthermore, some acuña cactus in the Sauceda Mountains Unit occur in extremely steep and rocky terrain devoid of palatable forage species for cattle (note that the number of acuña cactus in steep, rocky terrain versus flatter terrain has not been quantified to our knowledge). It is therefore unlikely that cattle would enter areas where some acuña cactus occur in this unit, thereby decreasing the risk of direct harm to acuña cactus from livestock trampling.

In summary, regarding potential effects to critical habitat, proposed livestock grazing could occasionally affect both PCEs (#1 and 2) within one critical habitat unit (the Sauceda Mountains Unit) out of six total units, or about 15% of all critical habitat. Because livestock are unlikely to enter critical habitat, effects to PCEs should be infrequent and temporary. Should livestock enter the Sauceda Mountains Unit, they likely would not affect the entire unit because at least a portion of this unit is extremely steep and rocky terrain devoid of palatable forage for cattle. Regarding potential effects to acuña cactus, proposed livestock grazing could affect about 6% of all acuña cactus (i.e., 212 plants out of a total 3,609 plants rangewide). Again, however, it is unlikely that all 212 acuña cacti would be affected because some of these cacti occur in areas where cattle are unlikely to enter.

Effects to Acuña Cactus Recovery with the Project

No recovery plan or outline has been written for acuña cactus and no conservation goals/objectives have been documented for the species, therefore, it is challenging to analyze the

effects to acuña cactus recovery with the project. That said, livestock grazing is considered a threat to acuña cactus and recovery of the species will be achieved, in part, through ameliorating threats. Any action that significantly increases the geographic scope or intensity of threats to the species, could cause the species to pass the tipping point for recovery.

The proposed action is not likely to significantly increase the geographic scope or intensity of threats to acuña cactus, and therefore not likely to cause acuña cactus to reach the tipping point for recovery, for the following reasons:

1. The proposed action is not new, but rather an ongoing action (including conservation measures) that is being renewed. The geographic scope and intensity of the proposed action has not changed.
2. The proposed action includes an important conservation measure (#11) that will reduce the likelihood of livestock entering, and therefore affecting, acuña cactus critical habitat or trampling acuña cactus plants.

Therefore, while the proposed action may result in some adverse effects, including possible trampling, to acuña cactus, the proposed action is not anticipated to appreciably reduce the likelihood of recovery of the acuña cactus for the reasons explained above.

CUMULATIVE EFFECTS - ACUÑA CACTUS

Cumulative effects are those "effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area" considered in this Opinion (50 CFR 402.02).

Lands within the action area are managed by BLM; thus, most activities that could potentially affect acuña cactus are Federal activities that are subject to section 7 consultation. The effects of these Federal activities are not considered cumulative effects. A few non-Federal activities occur in the action area, including unauthorized off-road vehicle (ORV) use off designated roads, CBV activities associated with human and drug smuggling; and livestock and burro trespass from the Tohono O'odham Nation onto BLM lands. These activities can result in adverse effects to acuña cactus, including direct trampling of acuña cactus, disturbance to vegetation and soils, and moving exotic plant seeds or plant parts, leading to their spread into unoccupied areas. CBV and ORV activity has resulted in unauthorized route proliferation, off-highway vehicle activity, and increased human presence in backcountry areas. CBV activity has additionally resulted in discarded trash, cutting of firewood, illegal campfires and arson fires, and increased chance of wildfire.

CONCLUSIONS - ACUÑA CACTUS

After reviewing the current status of acuña cactus and its critical habitat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the acuña cactus, and is not likely to destroy or adversely modify designated critical habitat.

We base this conclusion on the following:

1. There is a risk that livestock associated with the proposed action may trample acuña cactus or degrade their critical habitat. However, Conservation Measure #11 included in the proposed action significantly reduces the likelihood of this occurring because livestock will be excluded from the only water within the Sauceda Mountains critical habitat unit. Thus, the project is not expected to significantly affect the distribution, numbers, and reproduction of acuña cactus in the wild.

2. The proposed action will occur within one of six total critical habitat units and could potentially affect approximately 6% of all acuña critical habitat. However, the proposed action will not result in the permanent loss or fragmentation of acuña cactus critical habitat beyond baseline levels and conservation measures will reduce the likelihood of adverse effects of the proposed action on acuña cactus and critical habitat within the Sauceda Mountains Unit. Therefore, the proposed action will not have an appreciable impact on the species at the rangewide scale. Thus, the proposed action is not expected to reduce appreciably the likelihood of both survival and recovery of the acuña cactus in the wild by reducing the reproduction, numbers, or distribution of the species.

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.

INCIDENTAL TAKE STATEMENT

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. Furthermore, incidental take statements are not required for plants. See, Interagency Cooperation—Endangered Species Act of 1973, (codified at 51 C.F.R. pt. 402) (defining an incidental taking as a taking that results from activities that violate "the prohibition against taking in section 9 of the Act"); U.S. Fish and Wildlife Service and National Marine Fisheries Service, Final ESA Section 7 Consultation Handbook 6–10 (1998) (stating that an incidental take statement is required as part of formal consultation "except for plant species"). However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

REINITIATION NOTICE

This concludes formal consultation on the Ajo/Sentinel Complex Grazing Renewal. As provided in 50 CFR §402.16, reinitiation of 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 biological opinion or written concurrence; 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.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (Eagle Act). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA and Eagle Act, please visit the following websites. More information on the MBTA and available permits can be retrieved from http://www.fws.gov/migratorybirds and http://www.fws.gov/migratorybirds/mbpermits.html. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007 (http://www.fws.gov/southwest/es/arizona/BaldEagle.htm), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

In keeping with our trust responsibilities to American Indian Tribes, we encourage you to continue to coordinate with the Bureau of Indian Affairs in the implementation of this consultation and, by copy of this biological opinion, are notifying the Tohono O'odham Nation of its completion. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

Please refer to the consultation number, 22410-2005-F-0120-R003, in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Erin Fernandez (520) 670-6150 (x238) or Julie McIntyre (x223).

Approved:

Julie McIntyre for Digitally signed by Julie McIntyre for Date: 2021.01.11 11:14:48 -07'00'

Jeffrey A. Humphrey, Field Supervisor
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1.11.21
Date

cc (electronic copy):

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TABLES AND FIGURES

Table 6. Wild and captive Sonoran pronghorn numbers. From 1992 to 2016, wild Sonoran pronghorn population estimates are provided after adoption of standard field surveys and sightability model for wild population estimations (numbers in parentheses are 95% confidence intervals) (FWS 2016; AZGFD Data). From 2017 to 2019, Sonoran pronghorn observed and estimated are provided. The numbers for the Cabeza population in 2020, as well as the Kofa and Sauceda populations in all years, are based on data collected during telemetry flights instead of the standard field survey and sightability model.

Year	Sonora, Mexico (Pinacate)	Sonora, Mexico (Quitovac)	Arizona, U.S. (Cabeza wild)	Arizona, U.S. (Nonessential Experimental Population wild, Kofa)	Arizona, U.S. (Nonessential Experimental Population wild, Sauceda)
1992	-	-	179 (147-234)	-	-
1994	-	-	282 (205-489)	-	-
1996	-	-	130 (114-154)	-	-
1998	-	-	142 (125-167)	-	-
2000	34 (27-48)	311 (261-397)	99 (69-392)	-	-
2001	-	-	-	-	-
2002	25 (21-33)	260 (216-335)	21 (18-33)	-	-
2003	-	-	-	-	-
2004	59 (32-171)	624 (454-2079)	58 (40-175)	-	-
2005	-	-	-	-	-
2006	67 (54-195)	567 (445-1530)	68 (52-117)	-	-
2007	50 (36-162)	354 (327-852)	-	-	-
2008	-	-	68	-	-
2009	101 (57-321)	381 (268-1158)	-	-	-
2010	-	-	76 (58-210)	-	-
2011	52 (32-183)	189 (168-435)	-	-	-
2012	-	-	159 (111-432)	-	-
2013	No survey	434 (376-1105)	-	9	-
2014	122 (79-464)		202 (171-334)	30	-
2015	117 (98-224)	862 (759-2129)			-
2016			228 (196-616)	70	41

2017	72 estimated; 52 observed	683 estimated; 559 observed			
2018			215 estimated; 160 observed	80 estimated; 71 observed	50 estimated; 46 observed
February 2020	126 estimated; 54 observed	737 estimated; 393 observed	225 estimated	120 estimated	60 estimated

Figure 1. The Ajo/Sentinel Complex on Bureau of Land Management lands in Maricopa and Pima counties, Arizona, and Sonoran pronghorn range, including the range of the endangered Sonoran pronghorn and nonessential experimental population (10j) area of Sonoran pronghorn (BLM 2020).

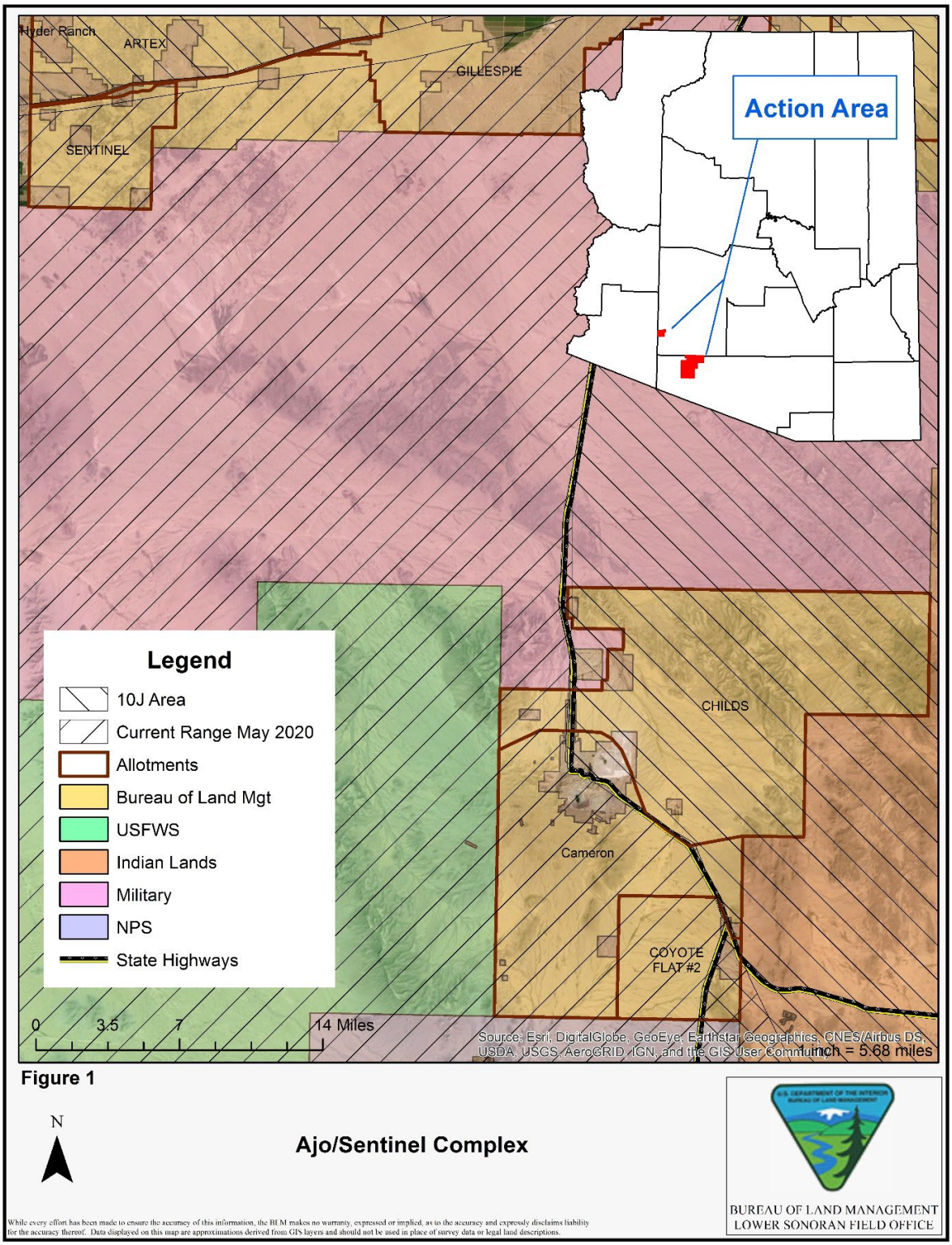

Figure 2. Ajo Complex Range Improvements, Arizona (Map 5 from the BLM's Ajo/Sentinel Complex Land Health Evaluation).

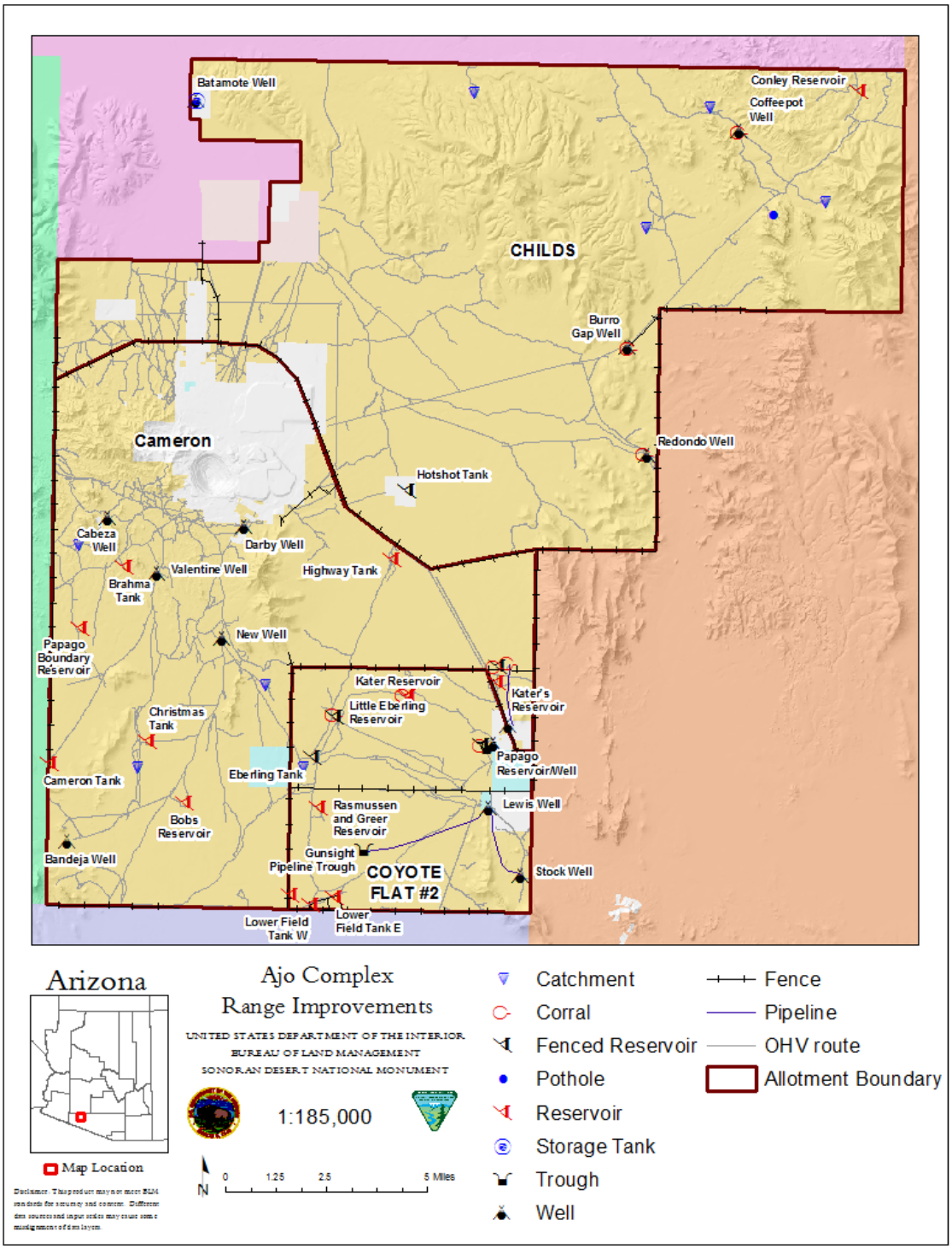

Figure 3. Sentinel Allotment Range Improvements, Arizona (Map 6 from the BLM's Ajo/Sentinel Complex Land Health Evaluation).

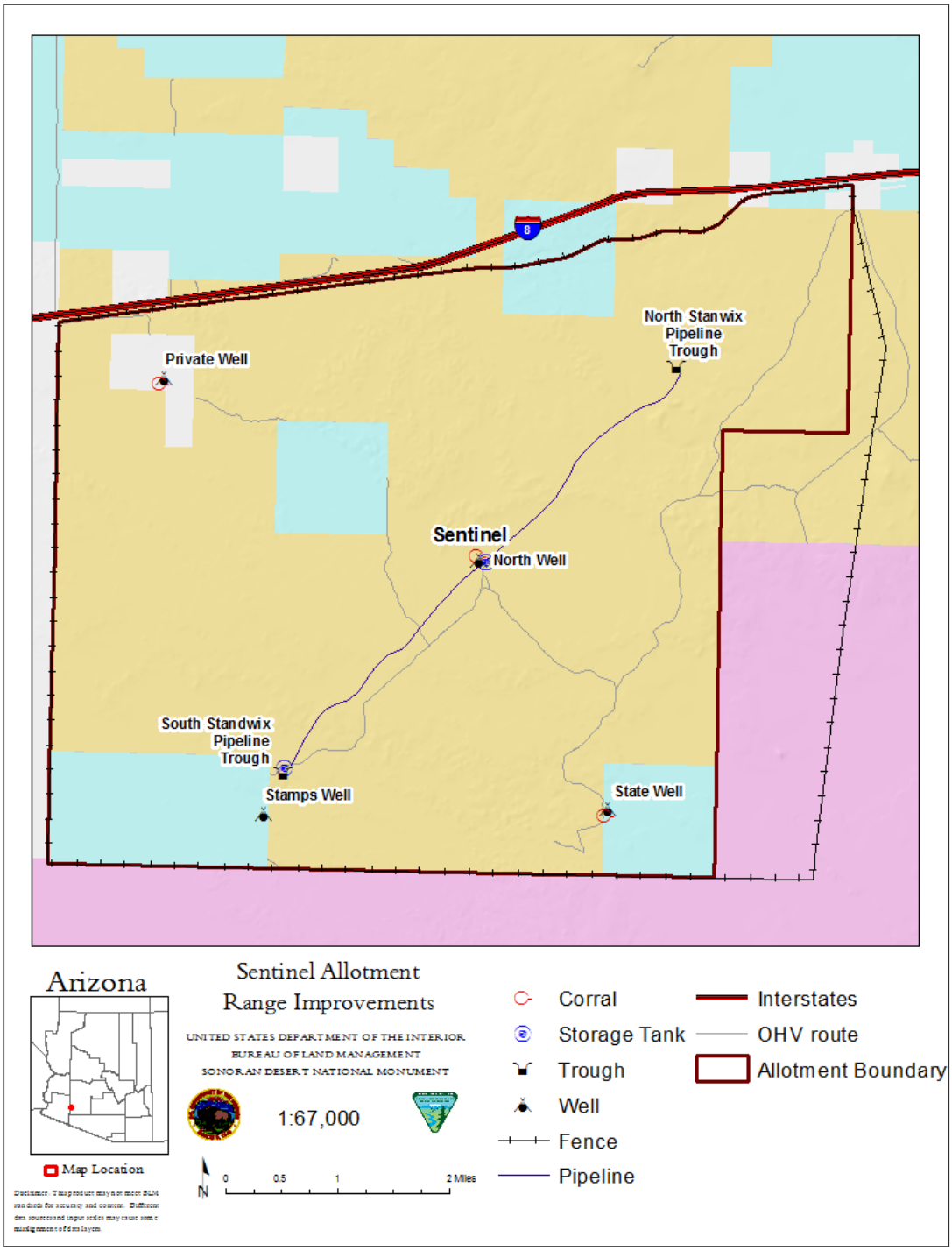

Figure 4. Historical and current ranges of Sonoran pronghorn in the United States and Mexico (FWS 2016).

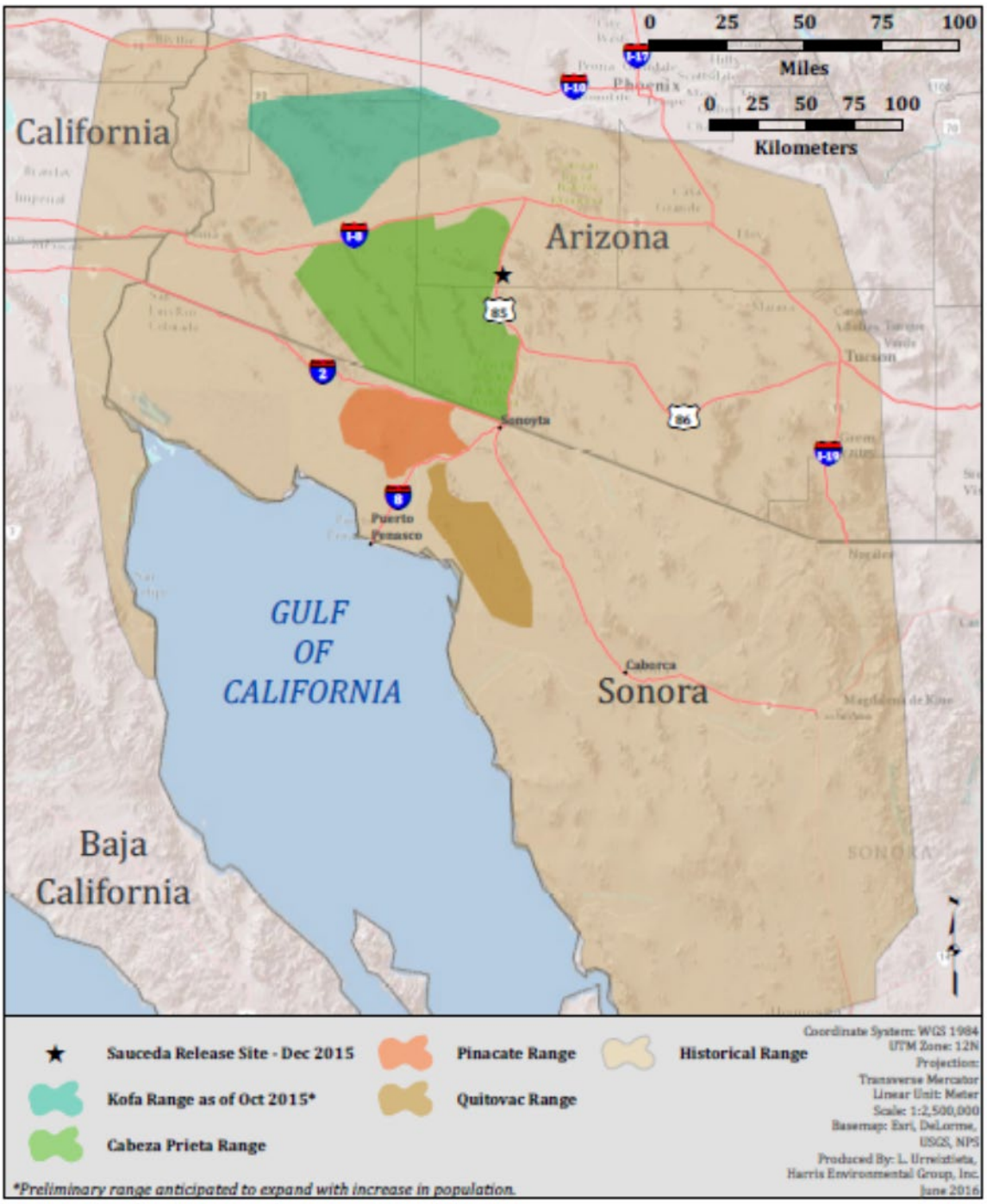

Figure 5. Sonoran pronghorn range in the United States and Mexico. The endangered Sonoran pronghorn range in southwestern Arizona, United States, is depicted in yellow cross-hatching (FWS 2016). The nonessential experimental population area, Arizona, is depicted in black cross-hatching. The endangered Sonoran pronghorn range in Sonora, Mexico, is depicted in orange and red cross-hatching.

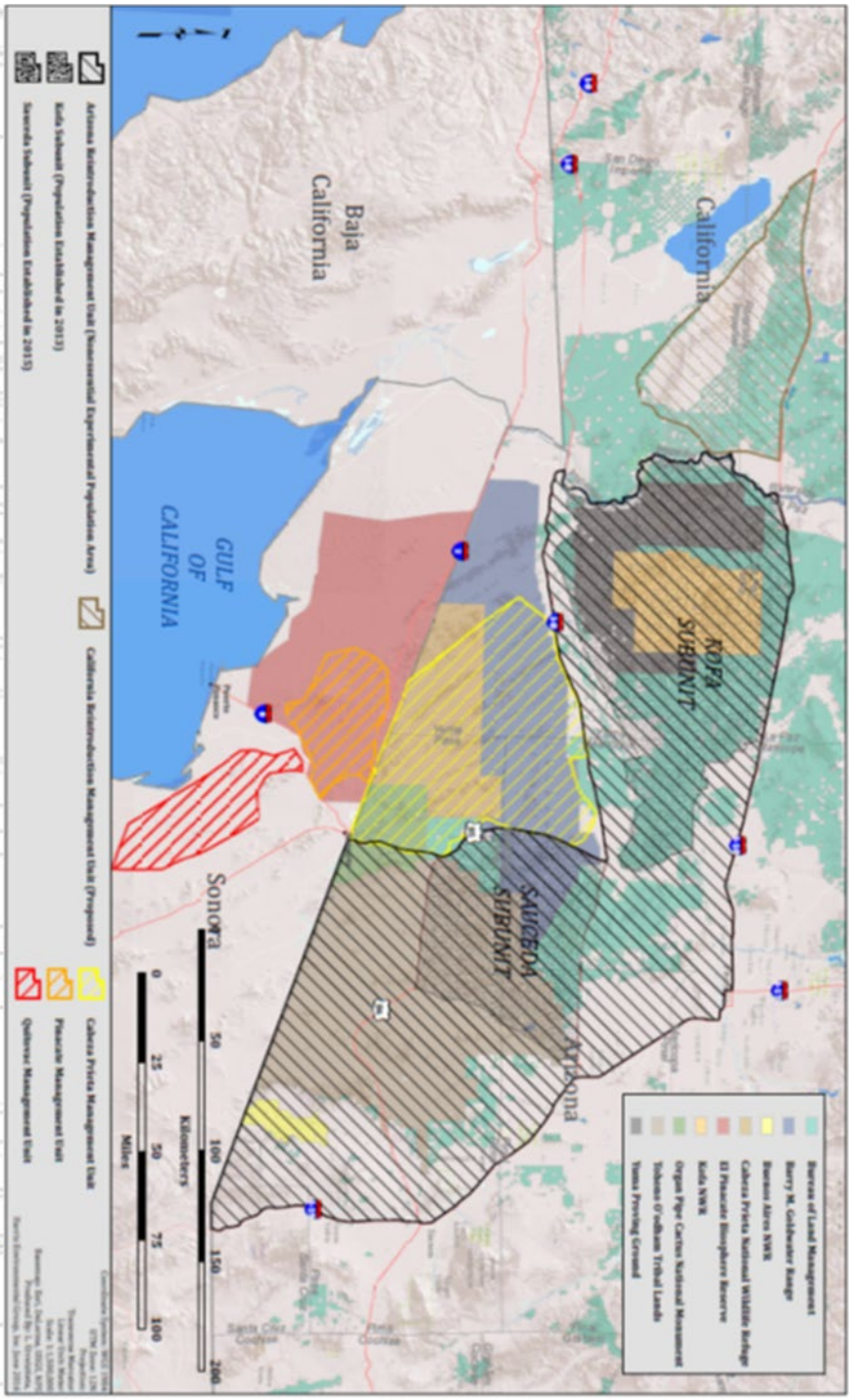

Figure 6. Acuña cactus critical habitat (Unit 3: Sauceda Mountains) within the action area on Bureau of Land Management lands in Pima County, Arizona (BLM 2020).

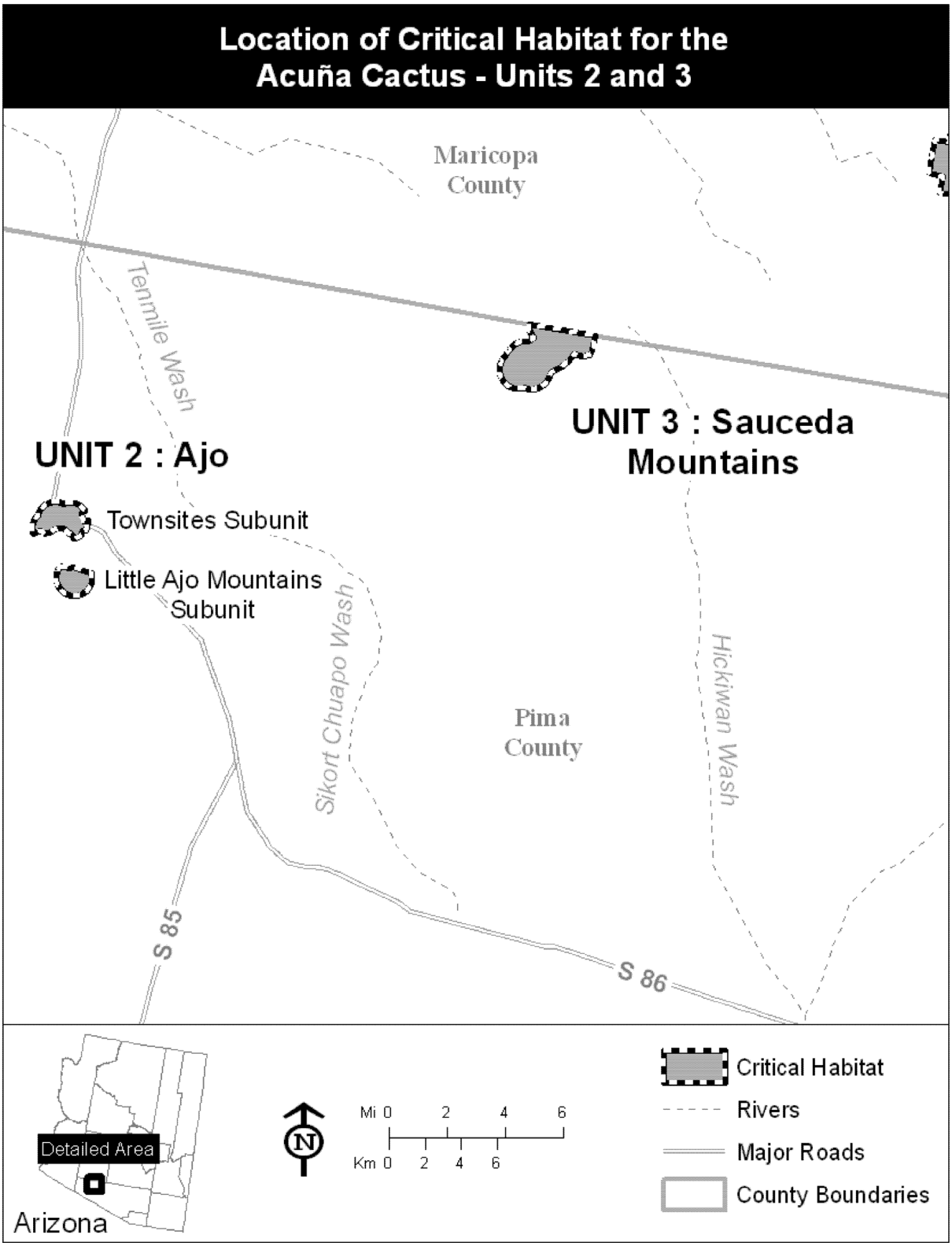
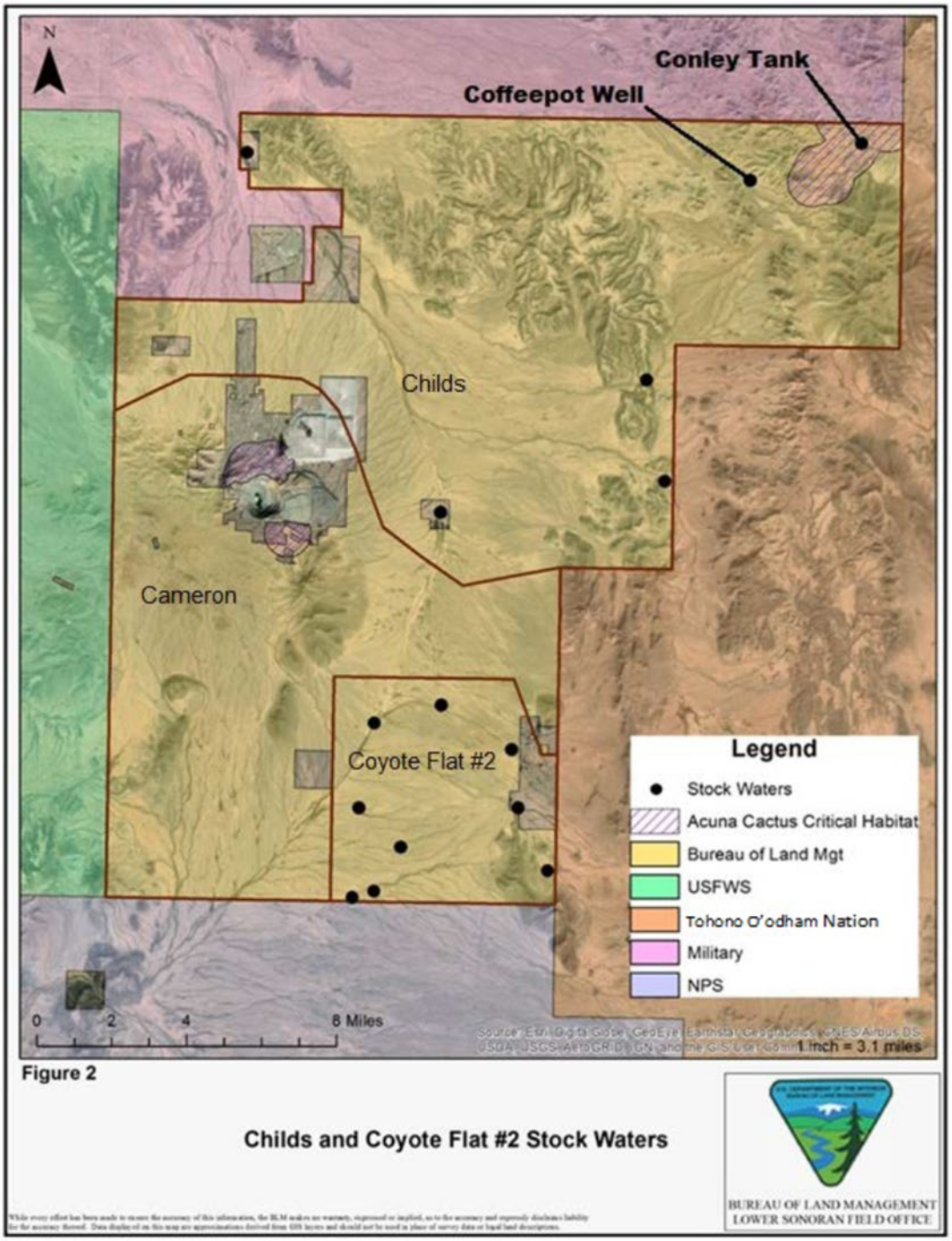
Figure 7. Acuña cactus critical habitat (Unit 3: Sauceda Mountains) on Childs Allotment on Bureau of Land Management lands in Pima County, Arizona (BLM 2020).