Sonoran pronghorn

(Antilocapra americana sonoriensis)

5-Year Status Review:

Summary and Evaluation

U.S. Fish and Wildlife Service

Arizona Ecological Services Office

Tucson, Arizona

July 19, 2023

5-YEAR REVIEW

Sonoran pronghorn (*Antilocapra americana sonoriensis*)

1.0 GENERAL INFORMATION

1.1 Listing History

Species: Sonoran pronghorn (*Antilocapra americana sonoriensis*)
Date listed: 11 March 1967 (Endangered); 5 May 2011 (Non-essential Experimental)
FR citation(s): 32 FR 4001; 76 FR 25593
Classification: Endangered; Non-essential Experimental

Critical habitat/4(d) rule/Experimental population designation/Similarity of appearance listing: A non-essential experimental population was designated on 5 May 2011(76 FR 25593)

1.2 Methodology used to complete the review:

In accordance with section 4(c) (2) of the Endangered Species Act of 1973, as amended (Act), the purpose of a 5-year review is to assess each threatened species and endangered species to determine whether its status has changed and it should be classified differently or removed from the Lists of Threatened and Endangered Wildlife and Plants. The U.S. Fish and Wildlife Service (Service) evaluated the biology and status of the Sonoran pronghorn as part of a 2016 Recovery Plan for the Sonoran Pronghorn (*Antilocapra americana sonoriensis*) Second Revision (Service 2016), to inform this 5-year review. Additionally, we recently evaluated the biology and status of the Sonoran pronghorn as part of a status review conducted on July 18, 2018 (Service 2018). For this current status review, we examined whether new information was available and whether that new information would alter or affect analyses and conclusions made in the previous status review. Data for this current review were solicited from interested parties through a Federal Register notice announcing the review on January 11, 2023 (88 FR 1602).

The Service offices responsible for Sonoran pronghorn recovery (Cabeza Prieta National Wildlife Refuge (NWR), Kofa NWR, and Arizona Ecological Services Office) are in frequent communication regarding the status of this species. We are also in regular communication with our partners in Sonoran pronghorn recovery, including the Arizona Game and Fish Department (AZGFD), National Park Service, Bureau of Land Management (BLM), U.S. Air Force, U.S. Marine Corps, U.S. Army, Comisión Nacional de Áreas Naturales Protegidas, and Comisión de Ecología y Desarrollo Sustentable del Estado de Sonora, the Tohono O'odham Nation and other species experts, to request any data or information we should consider in our review. These partners and others comprise the Sonoran Pronghorn Recovery Team, an active team with members who regularly meet and participate in recovery efforts. Information about the species is regularly shared among the team, including monthly reports produced by AZGFD. We considered this information, as well as that from literature searches and review of our files, to conduct our review.

Additionally, we received and reviewed one comment letter from Western Watersheds Project during the aforementioned public comment period. The comment letter addressed multiple species including the Sonoran pronghorn and asked us to consider various threats to the species in our status review. These threats included livestock grazing and associated fencing, solar and wind infrastructure development and operations, and border wall construction and Border Patrol operations. As summarized in Section 2.2.2. below, these threats were identified in the 2016 recovery plan and are ongoing.

1.3 FR Notice citation announcing the species is under active review:

88 FR 1602, Endangered and Threatened Wildlife, and Plants; Initiation of 5-Year Status Reviews of 31 Species in the Southwest, January 11, 2023

2.0 REVIEW ANALYSIS

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations (50 CFR part 424) set forth the procedures for determining whether a species meets the definition of "endangered species" or "threatened species." The Act defines an "endangered species" as a species that is "in danger of extinction throughout all or a significant portion of its range," and a "threatened species" as a species that is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The Act requires that we determine whether a species meets the definition of "endangered species" or "threatened species" due to any of the five factors described below.

Section 4(a) of the Act describes five factors that may lead to endangered or threatened status for a species. These include: A) the present or threatened destruction, modification, or curtailment of its habitat or range; B) overutilization for commercial, recreational, scientific, or educational purposes; C) disease or predation; D) the inadequacy of existing regulatory mechanisms; or E) other natural or manmade factors affecting its continued existence.

The identification of any threat(s) does not necessarily mean that the species meets the statutory definition of an "endangered species" or a "threatened species." In assessing whether a species meets either definition, we must evaluate all identified threats by considering the expected response of the species, and the effects of the threats—in light of those actions and conditions that will ameliorate the threats—on an individual, population, and species level. We evaluate each threat and its expected effects on the species, then analyze the cumulative effect of all of the threats on the species as a whole. We also consider the cumulative effect of the threats in light of those actions and conditions that will have positive effects on the species—such as any existing regulatory mechanisms or conservation efforts. The Service recommends whether the species meets the definition of an "endangered species" or a "threatened species" only after conducting this cumulative analysis and describing the expected effect on the species now and in the foreseeable future.

2.1 Distinct Population Segment (DPS) policy (1996):

Not applicable

2.2 Updated Information and Current Species Status

2.2.1 Biology and Habitat:

The biology and habitat of Sonoran pronghorn remain largely the same as described in the 2016 recovery plan, however, the abundance of Sonoran pronghorn fluctuates annually and has changed since the 2018 5-Year Review. Formal biennial surveys, as well as more frequent informal surveys, are regularly conducted for Sonoran pronghorn. Although formal and informal survey results indicate some change in the number of Sonoran pronghorn in each of the 5 populations (Pinacate and Quitovac in Sonora, Mexico and Cabeza Prieta, Kofa, and Sauceda in Arizona, U.S.) since numbers were reported in the 2018 5-Year Review (Table 1), no changes have occurred that would lead us to consider a change (downlisting or delisting) in the listing status of Sonoran pronghorn. Overall, from 2018 to 2022, there has been a decline in the estimated number of individuals in all populations except the Kofa population, which is a nonessential experimental population (Table 1). The estimated total number of Sonoran pronghorn declined 24% from 1,324 in 2020 to 1,003 in 2022/23. Although there are probably many causes for this decline, one of the most likely is drought. Drought conditions were prevalent across most of the Sonoran pronghorn's U.S. range for about half of the time from January 2018 to December 2022, particularly in the Cabeza Prieta population during and after 2020. Recruitment was low in all populations due to poor habitat conditions. Also potentially associated with the drought, mortality of both wild and released pronghorn from mountain lion predation was higher than has been historically documented in both the Cabeza Prieta and Sauceda populations from 2020 to 2022. No mortalities due to mountain lion predation were recorded in the Kofa population during this period. Furthermore, more pronghorn were released into the Kofa and Sauceda populations from the captive breeding pens (28 and 43 pronghorn, respectively) compared to the Cabeza Prieta population (18 pronghorn) during winter 2020/21 and 2021/22.

Despite recent drought conditions, Sonoran pronghorn populations have not declined as much as they did during the severe drought in 2001/2002, when, for example, the Cabeza Prieta population declined 79% from an estimated 99 animals in 2000 to 21 animals in 2002. Although the recent drought has not been as severe, the population declines were likely mitigated by the implementation of recovery actions in the U.S. management units designed to buffer Sonoran pronghorn from the worst effects of drought, such as developed and emergency water sources, provision of supplemental forage in the form of alfalfa hay, and forage enhancement plots (developed to irrigate the desert and produce forage for pronghorn), as well as the release of pronghorn into the wild from the captive breeding pens.

Table 1. Abundance of wild Sonoran pronghorn from 2018 to 2023. When appropriate, both the number of pronghorn observed and the number estimated are provided. The numbers for the Kofa and Sauceda populations in 2018 and both February and December 2020 are based on data

collected during telemetry flights (Service 2018a & 2020, Sonoran Pronghorn Recovery Team 2020). All other numbers are based on the standard field survey and sightability model (AZGFD 2020a & b, 2021a & b, 2022a & b, 2023). Standard field surveys are typically conducted every other year for the U.S. and Mexico populations.

Year	Sonora, Mexico (Pinacate)	Sonora, Mexico (Quitovac)	Arizona, U.S. (Cabeza Prieta wild)	Arizona, U.S. (Nonessential Experimental Population wild, Kofa)	Arizona, U.S. (Nonessential Experimental Population wild, Sauceda)
2018	-	-	232 estimated; 160 observed	80 estimated; 71 observed	50 estimated; 46 observed
February 2020	126 estimated; 54 observed	736 estimated; 393 observed	225 estimated	120 estimated	60 estimated
November 2020	-	-	257 estimated; 212 observed	-	-
December 2020	-	-	-	140 estimated	65 estimated
January 2021	-	-	-	Partial survey only 144 estimated; 107 observed	-
November 2021	-	-	232 estimated; 161 observed	-	-
January 2022	102 estimated; 80 observed	449 estimated; 324 observed	-	-	-
November 2022	-	-	211 estimated; 177 observed	-	-
December 2022	-	-	-	-	Partial survey only 29 estimated; 24 observed
January 2023	-	-	-	212 estimated; 172 observed	-

2.2.2 Threats Analysis (threats, conservation measures, and regulatory mechanisms):

The FWS uses five factors to determine threats to a species under Section 4(a)(1) of the ESA. The five factors are considered in determining if a species should be listed as threatened or endangered, and are also used to determine if the species should be downlisted or delisted. Threats to Sonoran pronghorn, as discussed in the 2016 recovery plan, by each factor include:

A) Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range.

a. Habitat loss from mining, agriculture, livestock grazing, and renewable energy.

b. Habitat fragmentation from habitat conversion, physical barriers, and human disturbance.

c. Multiple stressors and contributing factor to multiple sources (reduced availability of water, low annual rainfall, frequency and severity of drought, reduced forage quality, thermal stress) from climate change.

d. Reduced access to water from physical barriers, human disturbance, and inadequate distribution of waters.

e. Reduced availability of water from low annual rainfall, increased frequency and severity of drought, and altered runoff patterns.

f. Reduced forage quality from low annual rainfall, increased frequency and severity of drought, livestock grazing, extreme heat, altered hydrology, altered fire regimes, increased cover of creosotebush, invasive plants, erosion, and lack of pollination.

g. Altered habitat structure from fire, livestock grazing, military training, renewable energy, mining, and illegal extraction.

B) Overutilization for Commercial, Recreational, Scientific, or Educational Purposes: none.

C) Disease or Predation.

a. Predation by native predators.

b. Disease from interaction with cattle.

c. Lack of genetic diversity from barriers to dispersal and small population size.

D) Inadequacy of Existing Regulatory Mechanisms: none.

E) Other Natural or Manmade Factors Affecting Its Continued Existence

a. Human disturbance from border activities, recreation, military activities, land management activities, renewable energy (e.g., solar, wind) projects, mining, ranching, and agriculture.

b. High mortality rates from drowning in canals, entanglement in fences, vehicle collisions, thermal stress, poaching, capture-related mortality, and military activities.

c. Catastrophic events from lack of population redundancy and small population size.

Threats remain largely the same as described in the 2016 recovery plan and 2018 status review, although some threats or potential threats have been increasing. For example, proposed and recently developed solar projects within the Kofa Subunit of the Arizona Reintroduction Management Unit (or nonessential experimental population area) in Arizona

(on BLM, private, and state lands) and within the Quitovac Management Unit in Sonora, Mexico, threaten to remove and fragment large areas of Sonoran pronghorn habitat within these units. We are currently working to analyze the impacts of proposed solar projects within the Kofa Subunit, and have provided recommendations to the BLM to avoid, minimize, and mitigate the effects of solar projects on Sonoran pronghorn. Mining continues to be a significant threat to Sonoran pronghorn in the Quitovac Management Unit. Mining on BLM lands within the Cabeza Prieta Management Unit has the potential to threaten this population, as well, and we have provided the BLM with measures to avoid, minimize, and mitigate the effects on Sonoran pronghorn. Vehicle collisions with Sonoran pronghorn have increased since reported in the 2016 recovery plan. We are currently developing partnerships with researchers to explore options for improving connectivity and reducing vehicle-induced mortality.

Additionally, since the 2018 status review, a border wall was constructed on Organ Pipe Cactus National Monument, Cabeza Prieta NWR, and Barry M. Goldwater Range West that left 8 Sonoran pronghorn, most likely from the Cabeza Prieta population, isolated between the border wall and Mexico Highway 2 in Sonora. Mexico Highway 2 has long been a barrier to Sonoran pronghorn movement between the Cabeza Prieta and Pinacate populations. However, at least one Sonoran pronghorn was documented in 2008 moving from the Cabeza Prieta population to the Pinacate population, indicating that Highway 2 may not be a completely impermeable barrier to cross-border movement. Regardless, the border wall has further impeded movement between these the two populations. Habitat loss and fragmentation from many sources, including those mentioned above, continue to thwart Sonoran pronghorn recovery.

Since the Recovery Plan was published, a study on the behavioral and physiological effects of human activities on Sonoran pronghorn was completed (the study was conducted 2013 to 2016). Although this study was completed prior to the 2018 status review, information from it was not included in review and is therefore reported here. 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 while interactions with humans on foot occur far less often (Christianson 2017). For example, of 342 behavioral observations 33-60 minutes in length, 15.2% involved at least one potential interaction with humans (CPNWR 2020). In comparison, only 8% of observations involved at least one potential interaction with another species of wildlife (mule deer or coyote). Seventy percent of potential interactions with humans involved a motorized vehicle; 30% involved a human on foot. Approximately 61% of motorized human activity with the potential to affect Sonoran pronghorn was produced by CBP; 22% was from civilians and 17% was from land managers. Civilians are restricted to three public access roads, whereas CBP may drive administrative trails, even in designated Wilderness. Thus, in terms of numbers and area, CBP has more potential for widespread impacts associated with motorized human activity

than civilians or land managers. Focusing on motorized vehicles, adult female Sonoran pronghorn spend more time vigilant as distance to the nearest road decreases, particularly when a motorized vehicle is present. Adult female pronghorn trade off foraging and walking for vigilance, which could have nutritional costs. 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). Although motorized human activity causes behavioral and physiological changes in adult female Sonoran pronghorn, it is unknown whether these changes significantly affect survival and reproduction. Available demographic data lack the accuracy and/or precision for any relationship with human activity to be assessed. There were not enough potential interactions with humans on foot to examine how non-motorized human activity affects the behavior of adult female Sonoran pronghorn (CPNWR 2020).

In December 2022, six Sonoran pronghorn were translocated from the Cabeza Prieta NWR breeding pen to the Pinacate Biosphere Reserve in Sonora. Two individuals were likely illegally killed within months of release there, indicating that poaching is an ongoing threat to pronghorn in Sonora.

2.3 Synthesis:

After reviewing the best available scientific information, we conclude that Sonoran pronghorn remains an endangered species. The evaluation of threats affecting the species under the factors in 4(a)(1) of the Act and analysis of the status of the species in our 2018 status review (Service 2018) remains an accurate reflection of the species' current status.

3.0 RESULTS

3.1 Recommended Classification:

No change is needed

3.2 New Recovery Priority Number:

No change recommended. The species' current recovery priority number is **3**, indicating the subspecies has a high degree of threat and a high potential for recovery.

Brief Rationale:

Not applicable

3.3 Listing and Reclassification Priority Number: Not applicable

Reclassification (from Threatened to Endangered) Priority Number:
Reclassification (from Endangered to Threatened) Priority Number:
Delisting (Removal from list regardless of current classification) Priority Number:

Brief Rationale:

Not applicable

4.0 RECOMMENDATIONS FOR FUTURE ACTIONS

A full suite of recovery actions is included in the 2016 Recovery Plan for the Sonoran Pronghorn (*Antilocapra americana sonoriensis*) Second Revision (Service 2016). We continue to recommend all the actions be implemented to recover the species as determined by the Sonoran Pronghorn Recovery Team, and that the team continue to meet at least three times per year to coordinate recovery implementation and assess success of actions. For the next 3-5 years, the highest priority activities associated with actions in the recovery plan are outlined in the draft Recovery and Sustainment Partnership (RASP) Initiative Sonoran Pronghorn (*Antilocapra americana sonoriensis*) Species Action Plan (Service 2022). The RASP is a partnership between the Department of Defense and Department of Interior to develop and promote effective ecosystem and species conservation and recovery initiatives. We continue to recommend maintenance of existing recovery partnerships, as well as the development of additional ones, to advance our knowledge of Sonoran pronghorn and further Sonoran pronghorn recovery.

Additionally, we recommend that efforts be continued to analyze the impacts from a myriad of existing and potential threats and that we and other federal agencies use our authorities to avoid, minimize, and mitigate the effects of solar, mining, and other projects that threaten to destroy and fragment Sonoran pronghorn habitat. Potential opportunities to protect BLM land (e.g., through the designation of Areas of Critical Environmental Concern), as well as state and private lands within the Sonoran pronghorn range, should be explored to help ensure that habitat is retained and contiguous within each management unit, as called for in the recovery plan. Additionally, opportunities to connect Sonoran pronghorn populations through corridor protections and the development of highway overpasses should be explored and implemented where they would be beneficial.

5.0 REFERENCES

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U.S. FISH AND WILDLIFE SERVICE

5-YEAR REVIEW of Sonoran pronghorn (*Antilocapra americana sonoriensis*)

Current Classification: Endangered

Recommendation resulting from the 5-Year Review:

No change needed

Appropriate Listing/Reclassification Priority Number, if applicable: Not applicable

FIELD OFFICE APPROVAL:

Lead Field Supervisor, Fish and Wildlife Service, Arizona Ecological Services Office

Approve HEATHER WHITLAW Digitally signed by HEATHER WHITLAW Date: 2023.07.19 13:39:58 -07'00'