

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Animal Abstract**

**Element Code:** AMALD01012

**Data Sensitivity:** Yes

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Antilocapra americana sonoriensis*

**COMMON NAME:** Sonoran Pronghorn Antelope

**SYNONYMS:**

**FAMILY:** Antilocapridae

**AUTHOR, PLACE OF PUBLICATION:** E.A. Goldman. 1945. Proc. Bio. Soc. of Wash., 58:3-4.

**TYPE LOCALITY:** A ranch on north side of Río de Sonora, 40 miles north of Costa Rica, southwest of Hermosillo, Sonora, Mexico, by Vernon Bailey and Frederic Winthrop on December 11, 1932.

**TYPE SPECIMEN:** USNM 256938 (original number 11291), Holotype.

**TAXONOMIC UNIQUENESS:** *Antilocapra americana* is the only genus and species of the family Antilocapridae. *Antilocapra* signifies that pronghorn share some characteristics of true antelopes (*antilo*) and goats (*capra*), although they are placed in a separate family; *americana* indicates this is a North American animal. *Antilocapra americana sonoriensis* is one of five subspecies of *A. americana*, and one of three that occur in Arizona, including *A.a. americana* and *A.a. mexicana*.

**DESCRIPTION:** For the species: a proportionately long-legged, small-bodied artiodactyl with conspicuous pronged sheath although the horn-core is unbranched. Horny sheath is shed annually. Conspicuous white areas of hair present, especially on the rump, sides of face, two bands on throat, underparts, and part way up sides; otherwise color of animal is yellowish tan except for blackish on top of nose. The skull, which has 32 teeth, has lacrimal and nasal bones separated by vacuity. Males are distinguished from females by a distinct black cheek patch, deep brownish-black color on top of nose, and by their much larger horns, the tips of which curve inward as they mature and have a forward projecting prong. Males average larger than females in size of the skull, although there is overlap between individuals (Hoffmeister 1986). Average height is 3 ft. (91 cm); weight 75-130 lb. (33.7 - 58.5 kg); record spread of horns is 22 5/16 in. (57 cm). Each foot (hoof) has two toes, and lack the declaws common to most ruminants. There are 4 mammae.

For the subspecies: This animal has been described as being the smallest of the 5 subspecies. It has a generally paler coloration, and distinctive cranial features that include a skull decidedly smaller, frontal depression shallower, molar teeth shorter and narrower, rostrum more slender,

premaxilla less extended posteriorly along the median line, and auditory bullae more flattened and less projecting below level of basioccipital. Some females lack horns.

**AIDS TO IDENTIFICATION:** The skull of *A. a. americana* is broad across the orbits, zygomata, and palate. The skulls of *A. a. mexicana* and *A. a. sonoriensis* are narrower. *A. a. sonoriensis* is smaller in zygomatic width, than *A. a. americana* and *A. a. mexicana*. See description of subspecies for other differences.

Four specimens collected in 1969 from northwest Sonora, Mexico, and deposited in the USNM #347452-347455, had marked similarities to the holotype, but differed from the other four subspecies (Paradiso and Nowak 1971 in USFWS 1982).

In comparison with similar species: Bighorn Sheep has massive coiled horns, and no white bands across the throat; Mule Deer has black on tail, and no white along sides; Whitetail Deer does not have a white rump patch, and no white along sides.

**ILLUSTRATIONS:**

Colored drawing of species (Burt and Grossenheider, 1976: plate 23)

B&W photos (AGFD 1981 Fig. 3-4, 10-14)

Colored photos (AGFD 1996 pp. 2-3, 5)

**TOTAL RANGE:** Historic: The historic range is difficult to determine since the subspecies was not described until 1945, many years after the population had declined and marginal populations were extirpated (AGFD 1981). Herds that were observed along the lower Gila River, Arizona, by early travelers are presumed to have been Sonoran pronghorn. They are thought to have ranged from Hermosillo to Kino Bay, Mexico to the south; Highway 15, Mexico to the east; Altar Valley and the Tohono O'odham Indian Reservation to the North; and Imperial Valley, California to the west (AGFD 1986).

Present: in Arizona, they are found on the Cabeza Prieta National Wildlife Refuge, the Organ Pipe Cactus National Monument, the Luke Air Force Barry M. Goldwater Gunnery Range, and possibly the Tohono O'odham Indian Reservation. In Mexico, they are believed to be confined to the northwest part of Sonora.

**RANGE WITHIN ARIZONA:** See "Total Range."

**SPECIES BIOLOGY AND POPULATION TRENDS**

**BIOLOGY:** Pronghorn antelope are the fastest land animal in North America, with speeds recorded up to 60 miles per hour. They have keen eyesight, with large eyes that are a dominant feature of the face. The eyes are set high and on the sides of the head to give a field of view of almost 300 degrees. They use their speed and eyesight as their main defense against predation, and thus are more suited for flat to rolling topography.

Based on a study conducted in 1984 (AGFD 1986) using collared Sonoran pronghorn, 4 males had home ranges ranging from 64.5 km<sup>2</sup> - 1213.6 km<sup>2</sup> (avg. 799.7 km<sup>2</sup>), while 6 females had home ranges ranging from 40.7 km<sup>2</sup> - 1143.7 km<sup>2</sup> (avg 465.7 km<sup>2</sup>). The large variation in home range size for this study appears to be tied to forage and possible water availability. Hervert (1996) states that they are exhibiting a “nomadic behavior that is typical of other desert dwelling animals like the oryx of the Serengeti Desert or the Dorcas gazelle of the Saharai Desert. These animals must use large tracts of land to obtain adequate forage. These desert ungulates at times appear to be wandering randomly, but this movement is associated with living in desert conditions, where resources may be widely scattered or ephemeral.”

Sonoran pronghorn exhibit the same social doe/fawn, territorial, and flight behaviors as noted for the other 4 subspecies. A heightened response to human traffic has been noted. Once aware of an observer, Sonoran pronghorn are quick to leave the area (AGFD 1986). As with the northern subspecies, hair on the large white rump patch erects and makes the animal more conspicuous, thus signaling other animals in the herd of potential danger (a type of alarm call) of predators.

Mortality in the Arizona Sonoran pronghorn population has been documented to include coyotes and bobcats. Other predators possibly in the area include mountain lions and golden eagles. The most common cause of fawn deaths has not been able to be determined, but appears to be the result of environmental conditions such as hot, dry weather and poor forage conditions rather than coyote predation (AGFD 1986).

Pronghorn have difficulty jumping or going through fences constructed to control livestock. Historically, habitat occupied by pronghorn contained no similar obstacles. Fences can be a significant factor of pronghorn mortality when they restrict the animals' movements to procure food and water, or to escape predation (Yoakum 1978).

**REPRODUCTION:** Pronghorn are polygamous; does usually breed for the first time at 16-17 months of age. The gestation period averages 252 days, although a 1986 AGFD report states that the gestation period averages 240 days. Northern populations breed from mid-September to early October, while southern populations breed from July to October (July - September for Sonoran pronghorn). Fawning for Sonoran pronghorn takes place from February to May, and as early as January for populations in Mexico. Although the stress of summer rutting on pronghorn is higher, spring drop is desirable to coincide with temperate weather and spring forage. Sonoran pronghorn fawns are nursed for 60 days, unlike northern populations, which nurse up to 90 days.

During the rutting season, large bucks join herds of does and defend their territory. Territory defense has been observed earlier in northern herds (April), and continues until the end of rut. After the rut, they return to their home ranges. Does maintain herd units year-round until the fawning period, when they break away individually to seek out areas of dense ground cover, where fawns will be best protected from predators. After a few weeks, when the fawns are mobile, the does rejoin other does to form nursery herds.

**FOOD HABITS:** Sonoran pronghorn were observed browsing on forbs, shrubs and cacti. Forbs and cholla were browsed during the summer and fall seasons, while shrubs, cholla and ocotillo were browsed on the remainder of the year (AGFD 1986). Chain-fruit cholla appears to be a key succulent forage item in their diet during the summer, constituting nearly 50% of their diet, apparently to meet their water requirements (Hervert 1996). Diet analysis of Sonoran pronghorn is currently being conducted.

Free-standing water is limited within range of the Sonoran pronghorn in Arizona. Pronghorn in this range have evolved with little or no permanent drinking water; apparently adapting to living with low quantities and infrequent access to free water, relying mostly on preformed and metabolic water (Lee et al. 1998). In 1984, collared Sonoran pronghorn were observed at water troughs in November, January, and August. Tracks were observed leading up to, then away from seasonal potholes during the monsoon season. The collared pronghorn exhibit movements apparently tied to water, as well as forage, availability. The observation of tracks and pronghorn around potholes and water sources, as well as the seasonal proximity of collared pronghorn to maintained water sources, suggests Sonoran pronghorn are opportunistic drinkers (AGFD 1986). During a study conducted in 1995 using collared animals, Sonoran pronghorn were observed using an ephemeral supply of water on a daily basis in a crater on the Barry M. Goldwater Gunnery Range, supporting the opportunistic drinker suggestion (Hervert et al. 1995).

**HABITAT:** Regional topography typifies that of the Basin and Range physiographic province of the western and southwestern U.S. and northern Mexico (Nations and Stump 1981 in AGFD 1986). The physiography of Sonoran pronghorn habitat is characterized by broad alluvial valleys separated by block-faulted mountains. These valleys are partially filled with clay, silt and alluvium deposited from sheet erosion and ephemeral streams. The valleys are fairly level, with drainage to the north and west through a braided wash system in the center of the valleys. Mountain ranges generally run in a northwest to southeast direction. The range of Sonoran pronghorn in Arizona is approximately 1 million ha in size.

The flat, sandy desert offers little protection from the excessive summer heat and provides little free water under today's conditions. Food plants are common throughout most of the Sonoran pronghorn's habitat, but often these food plants are in a dormant stage and are less desirable than they would be if rain had fallen and triggered fresh new growth. Rainfall is scanty and sporadic. The climate is characterized by winter rains, spring drought, summer rains and fall drought. Almost one-half of the normal yearly precipitation (avg. 12.7 cm), falls from July-September, in the form of intense localized thunderstorms. Winter storms from the Pacific Ocean sweep across southern Arizona via southern California. These storms usually produce the heaviest, most widespread and effective precipitation. Heat and aridity are dominant climatic characteristics. During July-August, daily maximum temperatures exceed 110 F°, with temperatures of 120 F° not uncommon. Winter daytime temperatures range in the mid 60's -70's, while nighttime temperatures remain above freezing (USFWS 1982).

**ELEVATION:** Mean elevations of the valleys vary from 400 - 1,600 feet (122 - 488 m).

**PLANT COMMUNITY:** Sonoran pronghorn habitat is within the Lower Sonoran Desert life zone (Shreve and Wiggins 1964). They occur in two divisions in this life zone in Arizona; the first is the Arizona Upland subdivision of the Sonoran Desert, with a paloverde-saguaro association, and the second is the Lower Colorado subdivision of the Sonoran Desert, with primarily a creosote-bursage association.

**POPULATION TRENDS:** Aerial surveys of the Arizona population in 1992 and 1994, resulted in estimates of 256 and 184 pronghorns, respectively. This is up from the estimates of 80 to 125 pronghorn from the 1984 to 1987 studies conducted by the AGFD's Research Branch. It appears that this increase in numbers may have been due to favorable rainfall patterns over the past 10 years (Hervert 1996). The range-wide survey conducted in December 1992 estimated 30-38 groups of Sonoran pronghorn in Arizona. In addition, the Sonoran pronghorn recruitment equaled 12 fawns per 100 does in 1995 (Hervert et al. 1995). A 1996 survey estimated 130 pronghorn, while a 1998 survey estimated 140 pronghorn. Drought conditions resulted in zero fawn recruitment in 1996 and 1997. Documented mortality of adults also occurred during that same time period. A significant downward trend in the population has been observed since 1994 (USFWS 1998). Based on 2002 surveys, numbers are hanging on at 25 individuals in Arizona. This drastic decline is due in part to the severe drought that has gripped the area the last several years. Measures have been undertaken to help those animals remaining by clearing vegetation around water catchments, and by planting and irrigating fields of forage.

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:**

LE (USDI, FWS 1970)

**STATE STATUS:**

1A (AGFD SWAP 2012)

[WSC, AGFD, WSCA in prep]

[Endangered AGFD, TNW 1988]

**OTHER STATUS:**

P (Mexican Federal Endangered Species List, 1994, 2010)

**MANAGEMENT FACTORS:** In Arizona, the reason for population decline is attributed mainly to loss of habitat and drought. The drying of major rivers and overgrazing significantly altered Sonoran pronghorn habitat in southwestern Arizona by the 1930's. The population has not recovered since the establishment of three large public land withdrawals, and the removal of cattle from these areas in the early 1980's (AGFD 1986). The only significant loss of habitat in recent years in Arizona occurred on the Tohono O'odham Indian Reservation where severe overgrazing by cattle, coupled with recurrent drought, resulted in the loss of large areas of pronghorn habitat (USFWS 1982).

In Mexico, it is believed that economic exploitation of habitat (grazing and agriculture) and poaching are still causing population and habitat losses (USFWS 1982).

**PROTECTIVE MEASURES TAKEN:** One protective measure taken was the establishment of three large public land withdrawals in Arizona, which include Cabeza Prieta National Wildlife Refuge, Organ Pipe Cactus National Monument and Luke Air Force Gunnery Range (= Barry M. Goldwater Gunnery Range). The removal of hunting from these sites, and the restriction of vehicle traffic further protects the Sonoran pronghorn. The removal of fencing between the Cabeza Prieta NWR and Organ Pipe Cactus NM, and within the Cabeza Prieta NWR in the 1990's has allowed for easier natural movement of Sonoran pronghorn.

An initial recovery plan was prepared in 1982, and a final plan was completed in 1998.

Forage enhancement projects have been implemented as a way to enhance the survival of fawns during periods of below average rainfall, by providing high quality forage for lactating does and weaned fawns.

**SUGGESTED PROJECTS:** Continue collecting information on habitat use and preference, diet, dependence on free-standing water, and design configuration and/or habitat related variables of water developments.

**LAND MANAGEMENT/OWNERSHIP:** U. S. Fish and Wildlife, U. S. Air Force, National Park Service, Tohono O'odham Nation (Indian Reservation) and Bureau of Land Management.

## **SOURCES OF FURTHER INFORMATION**

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**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

Jim deVos, Assistant Direction, Wildlife Management Division, AZGFD, Phoenix  
John Hervert, Arizona Game and Fish Department, Yuma  
Richard Ockenfels, Private Consultant (Retired – AZGFD), Spring Valley, AZ  
Bill VanPelt, Arizona Game and Fish Department, Phoenix

**ADDITIONAL INFORMATION:**

A major problem facing the recovery of the Sonoran pronghorn is that the recovery methods employed in Mexico may have to be quite different than those used in Arizona. The prime objective for recovery is to increase existing population numbers and distribution of Sonoran pronghorn while developing techniques which will result in a U.S. population of 300 animals (average for 5 year period) or numbers determined feasible for the habitat. Another major problem is increasing the population to a point where it is safe to remove animals for transplant into historic habitats. Assessment of historic habitats for suitability for future

transplant of pronghorn is difficult due to unsubstantiated assumptions regarding preferred habitat, reasons for extirpation, etc.

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