Pronghorn Races Against Extinction

by Ben Ikenson

At the U.S./Mexico border in southwestern Arizona, the old "Peligroso/Danger" signs dangling from the barbed wire facing Mexico do little to stop a furtive flood of foot traffic through the unforgiving Sonoran Desert. In fact, this was the grim scene where 14 undocumented immigrants tragically perished in May 2001.

A pronghorn fawn rests among broken joints of cholla cactus.
Photo by George Andrejko, Arizona Game and Fish Department

Although humans are ill equipped for the harsh conditions of the desert, Sonoran pronghorn *(Antilocapra americana sonoriensis)* may be even less equipped for the widespread consequences of human activity in a region where moisture is already a rare commodity. In conjunction with habitat fragmentation and degradation, extended periods of low rainfall are presenting serious problems for the Sonoran pronghorn, which was listed as endangered in 1967.

A goat-like animal often mistaken for a relative of the African antelope, the Sonoran pronghorn is one of five subspecies within the unique Antilocapridae family. As much an icon of the Sonoran Desert as the buffalo was of the prairie grasslands, thousands of pronghorn likely once graced the landscape in small bands, roaming vast expanses of the Sonoran Desert.

Because of overhunting in the early 20th century, along with livestock overgrazing, new diseases introduced through cattle, and ever-increasing habitat fragmentation, the subspecies now numbers fewer than 500. There are three isolated populations: two in Mexico and one confined to federal lands in the United States, including Cabeza Prieta National Wildlife Refuge in Arizona, where Fish and Wildlife Service biologist John Morgart tracks and monitors the herd.

Creatures that occupy the Sonoran Desert have evolved over time to survive under notoriously austere conditions. To travel long distances following rainfall across a landscape teeming with hungry predators, the pronghorn adapted two distinctive survival techniques: great speed and a pair of large eyes positioned for a wide-ranging view of potential predators. However, these evolutionary attributes may not be enough; the dwindling pronghorn who gaze with such vision upon the landscape are blind to an onslaught of threats that may be impossible to outrun.

All three populations of Sonoran pronghorn have been forced to contend with roads, fencing, and railroad tracks. Border fencing and Mexico's Highway 2, which parallels the border, have divided the U.S. population from Mexico's northernmost population on the El Pinacate Biosphere Reserve. Farther south, the largest population of around 300 individuals–more than 60 percent of the pronghorn's entire number–is isolated by the Gulf of California on one side and Mexico's Highway 8 on the other.

Border-dwelling pronghorn are challenged by the ongoing legacy of human and drug trafficking. Not only are the animals disturbed, but also a net-

work of makeshift roads now litter both sides of the border. John Hervert, a wildlife program manager for the Arizona Game and Fish Department, has observed some of the long-lasting deterioration caused by these illegal roads. "On more heavily used roads, the hydrology is being altered to the detriment of plants," he says. "At first glance, you can see how a road crushes plants or cuts through the natural flow of vegetation. But even worse is what you cannot see right away. The movement of water in slightly sloping desert valleys is very slow, and heavily used roads will effectively divert moisture away from lower level vegetation." In short, pronghorn forage dies where roads cut across the land.

Additionally, livestock overgrazing has taken a toll on native vegetation, particularly in Mexico's El Pinacate Reserve, where hungry livestock deplete the greenery and make the inland soils especially vulnerable to erosion. Much of the native vegetation that pronghorn graze is fading away at an accelerating pace. "We suspect that livestock grazing can significantly alter the equilibrium of the plant community, evidence of which exists on both sides of the border," says Hervert." The dominance of creosote in certain areas is a good example of how the relative balance in the native plant ecology has been upset."

Even hearty desert critters need a minimum of water for survival. Although adult pronghorn can absorb moisture from a variety of plants, growth of their preferred nutrient- and moisture-rich forage coincides with the rainfall the animals would instinctively follow if not for the barrage of obstacles now scattered throughout their range.

The region's prolonged drought has significantly diminished the animal's success at nurturing young. The better forage a mother can access, the more nutrients she can divert to her fetus. After birth, the mother is better equipped to provide nutritious milk during the critical nursing stage. If malnourished, a fawn is likely to die.

Unfortunately, the Sonoran pronghorn is now running neck-and-neck with extinction. Along with range fragmentation and habitat degradation, continued drought conditions have seriously exacerbated problems for the pronghorn. The most recent aerial survey, conducted in December 2002, puts pronghorn numbers in the U.S. at only about 21 individuals, down from an estimated 138 a year earlier.

While over 8 years of monitoring have shown that dry conditions often result in low fawn recruitment, 2002 was the first

Corel Corp. photo

year adult animals have died in large numbers due to drought. From the first of June to mid-August 2002, 80 percent of the radio-collared pronghorn died from drought related causes.

To prevent the pronghorn's extinction and eventually restore it to a secure status, Morgart heads a recovery team that includes scientists from both sides of the border. In the U.S., the Fish and Wildlife Service, the Arizona Game and Fish Department, Organ Pipe Cactus National Monument, Bureau of Land Management, Air Force, Marine Corps, and University of Arizona are working for the pronghorn. Recovery team members from Mexico include the El Pinacate Biosphere Reserve and the Instituto del Medio Ambiente y el Desarrollo Sustentable de Estatio de Sonora. The team's ultimate goals are to increase Sonoran pronghorn numbers and to improve and expand their current range.

"It's all been a cooperative effort," Morgart says. "We're collaring animals to track them. We're working with our counterparts in Mexico. We're sharing our research and discussing ideas."

Experimental techniques are also part of the process. For example, John Hervert and his colleagues from the Arizona Game and Fish Department have been hauling water tubs to remote areas on the wildlife refuge, where they have tracked pronghorn activity. Carrying large containers of water across the desert in 105-degree temperatures is proof of their dedication.

The adjacent Barry M. Goldwater Range, a military training ground used by the Air Force, plans to fund a forage enhancement project on its land. It is negotiating with the Bureau of Reclamation to drill two test wells as a source of water for the forage enhancement project. By supplying moisture during below-average rainfall, biologists hope to increase the quantity and quality of forage.

The recovery team has proposed several additional actions in a recent Supplement and Amendment to the 1998 Final Revised Sonoran Pronghorn Recovery Plan. The recovery plan is posted at http://endangered.fws.gov, and a draft copy of the 2002 Supplement and Amendment is found at http://arizonaes.fws.gov.

There is now an emergency recovery strategy in place: 1) new wells and existing wells will be used to provide water for an above-ground sprinkler system to create small areas of forage enhancement; 2) part of the population will be placed in a semi-captive breeding enclosure where they will be protected from predators and provided water and forage (every attempt will be made to prevent habituation to humans); and 3) water will be deposited in temporary structures in key areas during future droughts.

"It may be a long, hard road to recovery ahead," says Morgart, "but the shorter road leads only to extinction."

Ben Ikenson is a Public Affairs Specialist in the Service's Washington, D.C., Office (telephone 202/208-5634; email ben_ikenson@fws.gov).

In the past, before Sonoran pronghorn numbers became so low, the subspecies could survive periods with little rain, but now it needs supplementary water to survive extended droughts.
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