



Using Telemetry to Understand Pronghorn Fawn Production and Survival

Article by **DANIEL TIDWELL** (McNair Fellow), **JAMES WEAVER** (Graduate Assistant), **LOUIS A. HARVESON** (Director), and **SHAWN GRAY** (TPWD) Photos by **DANIEL TIDWELL**

Throughout their distribution, twinning is the rule for pronghorns. In fact, twinning occurs in over 94 percent of pronghorn births, with few observations of singlet and even fewer observations of triplets.



Pronghorn populations in the Trans-Pecos region of Texas have been in a precipitous decline since the 1980s, where their numbers have declined from over 17,000 individuals to current lows of less than 3,000 individuals. Many factors play into the population dynamics of pronghorns, including drought, predation, habitat quality, fragmentation, land-use, and diseases. Working with the Texas Parks

and Wildlife Department (TPWD), private landowners, and many other organizations, the Borderlands Research Institute initiated a series of investigations designed to identify limiting factors for pronghorn populations.

Fawn production and survival is one of the most crucial indicators of population viability. Previous studies indicate that pronghorn populations will decline if fawn production is less than 25 percent. Because

pronghorn population dynamics are so dependent on fawn production and survival, we studied pronghorn fawn production and survival using radio telemetry in the Marfa Plateau and Marathon Basin of the Trans-Pecos.

Our monitoring consisted of two phases: (1) assessing birth synchrony, fawn production, and natal bed characteristics, using vaginal-implant-transmitters (VITs),





Researchers with the Borderlands Research Institute take every precaution when handling pronghorn fawns, including masking scent, using rubber gloves and processing fawns in less than three minutes. To date, no fawns have been abandoned during this study.

and (2) monitoring neonate survival, movements, and causes of mortality, using expandable radio collars.

During the 2013 translocation, we inserted 20 VITs into radio-collared females using an Eazi-Breed CIDR gun. VITs were recovered using aerial and ground telemetry. VITs were generally dispelled at the parturition site so that researchers could document fawn production (still born, singlet, twin, and predation) of translocated does.

Since 2011, we have been capturing and monitoring fawns using small, expandable radio collars. Fawns were captured at night

using spotlights and 3-foot diameter hoop nets equipped with a 10-foot telescoping handle. Once captured, fawns were weighed, gender was determined, and age was estimated by measuring new hoof growth. Fawns were monitored daily from afar, in order to determine movements and survival.

We recovered 18 (90 percent) of the VITs. Two of the VITs were discharged prematurely, five provided exact parturition sites, and the remainder provided incomplete data regarding parturition sites. Of the VITs that provided parturition sites, we were able to document twinning in each instance.

In 2011, 2012, and 2013, we have captured 26, 34 and 40 fawns, respectively, for a total of 100 fawns for the three-year study. During the droughty years of 2011 and 2012, 14-week fawn survival was less than 5 percent. The survival of radio-collared fawns mimicked fawn production documented by TPWD in the region (approximately 5-15 percent). Although predation (bobcat and coyote) was the primary causes of mortality in 2011 and 2012, several other factors were at play during these droughty years. Specifically, capture weights of fawns were abnormally low (as much as 50 percent of normal) in 2011 and 2012, indicating that the nutritional plane of the dam (mother) was also low. In ungulate studies across North America, birth weight is a great predictor of survival. Thus, most fawns born in 2011 and 2012 were predisposed to predation and other causes of mortality (disease, parasites, malnutrition) because of the drought.

In 2013, 14-week fawn survival was much improved and averaged 42 percent. These higher survival rates were corroborated by TPWD fawn estimates (50 percent) and higher birthing weights (8 pounds for 1-week-olds). Coyotes and bobcats were still the primary cause of mortality, but fewer fawns were being predated in 2013. The drastic difference documented in our study can be attributed to nutritional condition, which is a function of forage quality and quantity (habitat), which is an end product of timely precipitation. Beginning in fall of 2012, our 2013 study site has had consistent precipitation events ranging from snowfall to downpours. The timely precipitation resulted in a very good and consistent crop of forbs – the primary food source for pronghorn.

Our findings provide insight into pronghorn fawn production and survival and a much thorough understanding of their population dynamics. This information will be used as we continue to recover pronghorn population in the Trans-Pecos. 🌍

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