

SUMMER DIETS OF FERAL HOGS IN THE DAVIS MOUNTAINS, TEXAS

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ABSTRACT—Although feral hogs (*Sus scrofa*) have expanded their range into the Chihuahuan Desert of Texas, little information is available on their ecology. We determined that the summer diet of feral hogs ($n = 28$) in the Davis Mountains of Texas was dominated by herbaceous material (38.6%) and roots and tubers (34.3%). Further investigation is needed to determine the impact of feral hog foraging behavior on the fragile floral and faunal communities of the Chihuahuan Desert.

RESUMEN—Aun cuando los cerdos salvajes (*Sus scrofa*) han expandido su distribución al desierto Chihuahuense de Texas, poca información existe sobre la ecología de esta especie. Se determinó que la dieta de los cerdos salvajes ($n = 28$) en el verano en las Davis Mountains de Texas estuvo compuesta de material herbáceo (38.6%) y de raíces y tubérculos (34.3%). Más investigación es necesaria para determinar el impacto del pastoreo de los cerdos salvajes sobre las frágiles comunidades de flora y fauna silvestre del desierto Chihuahuense.

Feral hogs (*Sus scrofa*) are medium to large opportunistic omnivores that are considered one of the most successful exotics in North America (Baber and Coblenz, 1987). Feral hogs occur throughout most mesic habitats in the southeastern United States and Mediterranean habitats along the western coast of California (Baber and Coblenz, 1986). In Texas, feral hogs inhabit

the Pineywoods, Blackland Prairies, Coastal Prairies, Rio Grande Plain, Post Oak Savannah, and portions of the Edwards Plateau, Rolling Plains, and Cross Timbers (Taylor, 1991). Taylor (1991) suggested that the presence of extremely arid lands was the only factor limiting the distribution of feral hogs in Texas. Recent sightings suggest that the range of feral hogs

has expanded into more xeric or semiarid regions of Texas (i.e., Trans-Pecos). However, resource managers have no information on feral hog ecology in desert environments. Thus, we initiated a study to determine the summer diet of feral hogs in the Davis Mountains of Texas.

Two study sites were selected: the Davis Mountains Preserve and the Sawtooth Mountain Ranch in Jeff Davis County, Texas. The Davis Mountains Preserve (7,287 ha) and the Sawtooth Mountain Ranch (3,238 ha) shared a common border and were centered 39.3 km north of Fort Davis, Texas. Annual precipitation ranged from 28.2 to 56.9 cm, with most precipitation occurring during the monsoonal season (June through September). Soils present on the study area were well drained, hilly to steep, loamy, shallow to deep, and non-calcareous (Soil Conservation Service, 1977). The terrain included perennial flowing drainages with alluvial soils and mountainous peaks with elevations that ranged from 1,524 to 2,000 m. Eight distinct habitat types were present on the study sites: plains grassland, montane grassland, oak-juniper-piñon (*Quercus-Juniperus-Pinus edulis*) woodland, oak-juniper woodland, conifer woodland, ponderosa pine (*P. ponderosa*) woodland, talus-lichen slopes, and riparian gallery forest (King, 2003).

Prominent overstory species included alligator juniper (*J. deppeana*), piñon pine, oak, and ponderosa pine. Understory vegetation was dominated by grama grasses (*Bouteloua*) and cane bluestem (*Bothriochloa babinnodis*). Common forbs in the area consisted of Mexican sagewort (*Artemisia campestris*), bush sunflower (*Asteraceae simsia*), and croton (*Croton*). Wildlife species found on the study area included deer (*Odocoileus*), black bear (*Ursus americanus*), Montezuma quail (*Cyrtonyx montezumae*), wild turkey (*Meleagris gallopavo*), and collared peccary (*Tayassu tajacu*).

Feral hogs were trapped using 1.2-m × 1.2-m × 2.4-m and 0.9-m × 0.9-m × 2.1-m box traps with rooster-style gates. Trapping and handling protocols were approved by the Sul Ross State University Animal Use and Care Committee and Texas Parks and Wildlife Department Permit SPR-0592-525. Traps were made from 1.6-cm angle iron and 10.2-cm cattle panel. Each door was held open with a 30-cm stick allowing for multiple hog captures. Traps were placed in areas with hog sign and were pre-baited for several days with soured corn and carrion. Feral

hogs were harvested from April to August 2003. Traps were checked every 48 hours and captured animals were euthanized using a small caliber rifle. Additionally, feral hogs were shot opportunistically on the study sites. Stomachs of juvenile and adult feral hogs were removed by severing the esophageal-cardial juncture and the pyloric-duodenal junction. Each stomach was individually labeled according to sex and age, given a unique identification number, and frozen.

We determined summer diets using methods described by Chamrad and Box (1964). Stomachs were thawed to room temperature and then placed on a sieve (0.5 × 0.5 cm) and washed at a low pressure to remove the smaller unidentifiable content. Washing reduced the amount of bait in the sample (Taylor and Hellgren, 1997). The sieved stomach contents were placed in a 32.2-cm × 22.6-cm × 4.8-cm pan and allowed to air dry. Once dry, stomach contents were stirred and spread across the entire pan. A pin frame was then fitted to the pan. Frequency of occurrence was determined by identifying contents at each of the pin points. Stomach contents were identified as roots and tubers, herbaceous material, mast, vertebrate, invertebrate, bait, or other. Each stomach was sampled using 100 point-counts. If stomach contents were insufficient to cover the entire pan, contents were spread over half of the pan and values were extrapolated (Bruinderink et al., 1994). We used chi-square analyses to test whether diets of males differed from those of females.

Forty-one hogs were captured during 564 trap-nights resulting in 1 capture/13.75 trap-nights from April to August 2003. We captured 27 juvenile and 14 adult feral hogs, which were represented by 19 males and 22 females. The

TABLE 1—Percent composition (mean ± SD) of summer diets of feral hogs (*Sus scrofa*) in the Davis Mountains, Jeff Davis County, Texas, April 2003 through August 2003.

Food item	Male	Female
Herbaceous	37.00 (±16.4)	40.11 (±17.3)
Roots/tubers	34.75 (±10.7)	33.83 (±10.5)
Mast	3.75 (±5.5)	4.12 (±6.7)
Invertebrate	1.25 (±1.7)	1.25 (±1.0)
Vertebrate	0.50 (±1.2)	0.81 (±1.3)
Bait	22.50 (±3.5)	19.63 (±11.6)
Other	0.25 (±0.25)	0.25 (±1.0)

most common non-target species captured were collared peccary ($n = 43$) and turkey ($n = 2$). Stomach contents of 28 (16 females, 12 males) of the 41 feral hogs were used for this study.

Diets of male and female feral hogs did not differ ($\chi^2 = 0.13$, $P > 0.9$; Table 1). The diet was dominated by herbaceous material (38.6%), roots and tubers (34.3%), and bait (21.1%). Invertebrates (1.3%), vertebrates (0.7%), and mast (3.9%) represented a small amount of the summer diet of feral hogs in the Davis Mountains.

Feral hogs used many food sources in the Davis Mountains. The use of herbaceous vegetation during the summer months is attributed to the availability of new green growth, which is both palatable and nutritious (Heitschmidt and Stuth, 1991). Taylor and Hellgren (1997) and Ilse and Hellgren (1995) reported that consumption of grasses and forbs increased during the summer. Additionally, Baber and Coblenz (1986) reported an increased use of grasses and forbs during the wet season. Springer (1977) reported 16 to 25% animal matter in the seasonal diet of feral hogs. However, feral hogs in the Davis Mountains consumed a small amount of animal matter (e.g., vertebrates, 1.5%). Although our results are similar to previous published studies, further investigation is needed to determine the impact of feral hog foraging behavior on the fragile floral and faunal communities of the Chihuahuan Desert.

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