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EARLY WINTER FEEDING ON ELM BARK BY EASTERN FOX SQUIRRELS NEAR THE WESTERN RANGE TERMINUS—Fox squirrels (*Sciurus niger*) feed on >30 different types of food across their extensive range (Korschgen 1981) including tree buds, flowers, fruits, seeds, and, on occasion, bark. For a large portion of the year, fox squirrels rely heavily on tree seeds (Koprowski 1991).

For three consecutive years (2007–2009), we observed fox squirrels feeding on bark of elm trees (*Ulmus* sp.) on the campus of West Texas A&M University, Canyon, Texas. Squirrels began feeding on bark in late November shortly after leaves had fallen off the trees and continued almost daily throughout the winter. In late February, when the buds appeared on the elm trees, squirrels began feeding on buds and were no longer observed feeding on bark. We were unable to distinguish which sex fed on bark but based on the amount of activity we assumed it was both sexes. When feeding, bark was peeled and ripped off of the smaller branches near the top of the trees. Most branches from which bark was removed were approximately 2–8 cm in diameter and bark was completely removed from the entire circumference of the sections of branch. We never noticed bark removal from trunks or larger branches. To our knowledge, only one other researcher has documented fox squirrels feeding on the bark of elms, but the period of use differed from ours. In Kansas, Packard (1956) observed squirrels feeding on elm bark in January and attributed this to depletion of cached food. Researchers have documented feeding on bark by fox squirrels in other tree species. In Colorado, fox squirrels used cottonwood (*Populus* sp.) bark as a predominant food source (Yeager 1959) and buckeye (*Aesculus glabra*) pith was fed upon during late fall and winter in Illinois (Havera et al. 1976). Kenward and Parish (1986) documented bark stripping by eastern gray squirrels (*S. carolinensis*) in England but detected no evidence linking bark stripping with food shortages. Various mammals feed on bark seasonally and in some species composed an important part of their diet. Lagomorphs and small rodents feed on bark from the base of trees and bushes during snow cover, most likely in response to food shortages (Kenward and Parish 1986) and North American porcupines (*Erethizon dorsatum*) fed almost exclusively on bark of trees during winter (Dodge 1967, Griesemer et al. 1998). Further, many species of primates feed on bark seasonally in relation to absence of preferred foods (Nishida 1976).

The Texas panhandle is on the western periphery of the fox squirrel's range (Koprowski 1994) in the southern Great Plains. The population of fox squirrels in Canyon, Texas was apparently the result of introductions, but has been augmented by natural dispersal from the eastern Texas panhandle and Oklahoma (Choate 1991). River corridors and riparian woodlands facilitated continued western range expansion of the fox squirrel into western Texas (Geluso 2004). Anthropogenic tree plantings such as shelter belts, urban landscaping, and extensive plantings by the USDA

Forest Service in the mid 1900s have influenced the spread of *S. niger* (Hibbard 1956, Frey and Campbell 1997). The Texas panhandle historically was a shortgrass prairie system with trees restricted to draws and riparian areas. Hackberry (*Celtis occidentalis*) and soapberry (*Sapindus drommondii*) are the only native mast producing trees found in this area (Wright 2001). Fox squirrels in this area are rarely located outside of urban settings, but even in urban environments few mast producing trees exist. At our site, the most abundant trees were honey locust (*Gleditsia triacanthos*) and three species of elms (*Ulmus* sp.). Mast producing trees consisted of black walnut (*Juglans nigra*) and three species of oak (*Quercus* sp.). Also, Osage orange (*Maclura pomifera*) and hackberry are important but rare food sources for fox squirrels (Korschgen 1981, Packard 1956) that are located on campus.

Other studies have documented use of elm bark as food during times of food scarcity, yet this diet choice appears common and begins earlier in west Texas. We suggest that eastern fox squirrels on the extreme western edge of their range make greater use of elm bark due to the paucity of mast producing trees.—*Dessa K. Montgomery and Raymond S. Matlack*¹. *Life, Earth, and Environmental Science Department, West Texas A&M University, Canyon, TX 79015, USA.* ¹*Corresponding author email address: rmatlack@wtamu.edu.*

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Submitted 8 February 2010. Accepted 10 March 2010.
Associate Editor was Christopher S. DePerno.