

Appendix D. Updated Research Information

Southern Research Station

Below is a list of all ongoing research projects of the Southern Research Station's Nacogdoches Research Work Unit (SRS-RWU-4251) on the National Forests and Grasslands in Texas (to include research on the Stephen F. Austin Experimental Forest as of September 2008.)

1. Long-term study on the population dynamics of snags in pine-hardwood forests on the Stephen F. Austin Experimental Forest (SRS-4251-2.2) initiated in 1994 ran until 2006. Data is still being analyzed Six plots 0.56 ha were selected in 1994 at all existing snags inventoried. Annually, each plot is examined in detail for the height and condition of existing snags and the creation of new snags through tree mortality. Eventually, snag population dynamics data will be available for both pine and hardwood snags in mixed pine-hardwood forest habitat.
2. Long-term study of the Losses of Red-cockaded Woodpeckers cavity trees to bark beetles on the Angelina National Forest (SRS-4251-2.7) initiated in 1986 to run until at least 2009. This study examines the high infestation rate of active Red-cockaded Woodpecker cavity trees by southern pine beetles (*Dendroctonus frontalis*) relative to infestation rates of control pine within and outside cavity-tree clusters. Factors possibly related to bark beetle infestation rates are stand disturbance, stand structure, and resin wick volatiles from cavity trees. Results thus far indicate that southern pine beetles do preferentially attack active Red-cockaded Woodpecker cavity trees and that nest trees of the preceding breeding season have the highest probability of being infested. Use of artificial cavity inserts to augment the supply of suitable cavities for woodpeckers does not increase the risk or rate of infestation by southern pine beetles. This study is on hold until future SPB outbreaks occur.
3. Habitat selection by canebrake rattlesnakes (*Crotalis horridus*) and Louisiana pine snakes (*Pituophis ruthveni*) on the Angelina and Sabine national forests (SRS-4251-4.5) initiated in 1992. Data are still being collected in this long-term study, which will run likely until 2009. Telemetry studies on these two rare species are being used to examine their movement patterns, geographic distribution, and habitat selection. The Louisiana pine snake appears to be a critically rare species because of the loss of well-burned pine forest habitat and mortality associated with vehicle use of relatively dense forest road systems that occur within the species' shrinking habitat. A number of papers have been published based on this research.
4. Long-term study on amphibian community succession and recruitment to artificial ponds on the National Forests in eastern Texas (SRS-4251-4.8) to be conducted on the Stephen F. Austin Experimental Forest and Davy Crockett National Forest,

- initiated in 2000, and run until at least 2028. This study will examine the anuran species (frogs) that use wildlife ponds on national forests and, through the creation of new ponds, explore the succession of anuran species and predators in newly created artificial ponds. The study will also evaluate possible relationships among anuran population dynamics, pond community structure, predator-prey interactions, and global climate change.
5. Study on foraging habitat, nesting habitat, and prey composition of resident and migrant American Kestrels in eastern Texas and west-central Louisiana. The study examines the biology of the resident *Falco americanus paulus*, a declining subspecies, and its dependence on fire-maintained pine habitats.
 6. Ongoing study of the status and biology of the Alligator Snapping Turtle in eastern Texas. Current research is focused on a telemetry study to delimit movements and habitat use of the species on the SFA Experimental forest. A status report has been submitted to TP&WD.
 7. A study is currently being initiated to evaluate the effects of restoration on upland ponds in the SFA Experimental Forest. Reintroduction of fire and removal of woody vegetation will be evaluated by floristic surveys conducted by Michael and Barbara MacRoberts (Bog Research).
 8. Research initiated a study in 2007 on the SFA Experimental Forest on the effects of Chinese tallow on amphibian survival. Since Chinese tallow is a non-native invasive and is known to have rapidly decaying leaf litter, our study will examine the impacts of tallow leaf litter in aquatic ecosystems. We will explore leaf litter impacts on water chemistry and subsequent survival of larval amphibians subjected to the tallow. This study will run until 2012.

Forest Health Protection

1. Long-term study on the impacts of forest management practices on ant diversity. Pitfall traps are placed in transects in forest stands on the Sam Houston and Davy Crockett NFs. Selected stands were scheduled for future thinning or prescribed burning. Trapping is conducted in one week periods three to four times per year. All ants collected are identified by Jerry Cook at Sam Houston State University. Trapping began in 2003 and will continue until funding is no longer available. Trends in ant diversity following stand entries will be documented.