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 2011.)

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) was initiated in 1994. 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) was initiated in 1986. 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. 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.

Other Research on the NFGT

A graduate student at Stephen F. Austin State University is conducting research on the Brown-headed nuthatch on the Angelina/Sabine National Forest.

A Baylor University PhD student is conducting bat research on the Sam Houston National Forest. Her dissertation project focuses on the roosting and foraging ecology of forest-dwelling bats. Research began is 2009 and would continue through 2011. The dissertation would be completed in late 2011 or early 2012 after the data is analyzed. The NFGT will receive a copy of the Dissertation when it is completed.

An Oklahoma University student is conducting DNA research on the Tufted Titmouse on the LBJ National Grasslands.