CFEOR Endorsed Project: Response of Bat Communities to Prescribed Fire in Florida Sandhills
By: David Armitage, Graduate Student at UF/NFREC and Melissa Kreye, CFEOR Coordinator

Little is known about the effects of fire on bat activity, “Response of Bat Communities to Prescribed Fire in Florida Sandhills” is a CFEOR Endorsed Project conducted by David Armitage, a master’s student at the University of Florida North Florida Research and Education Center in Quincy, Fl. His research focuses on the linkages between prescribed fire and bat activity in Florida’s high pine ecosystems. These habitats are fire-climax communities and as such, require frequent prescribed burns to maintain community structure. To elucidate the effects of burning on foraging activity of forest bats the effects of prescribed burning on the gross vegetative structure of the forest (canopy cover, basal area, etc.) was determined and the reduction of shrub vegetation by fire impacts to the nocturnal insect community. The answers to these questions will be used to explain the differences in bat activity across a gradient of prescribed fire treatments. Armitage’s hypothesis is that forest bats face a tradeoff between the insect prey base and the physical space in which they navigate, and that both of these variables are strongly mediated by prescribed fire.

To carry out this work, Armitage established a number of plots within two high pine forests, the Ordway-Swisher Biological Station (Putnam Co., FL) and Withlacoochee State Forest (Citrus Co., FL). The plots fall into general categories of “time since last burn (0-1 years, 3-5 years, >8 years).” During the past two summers he deployed bat echolocation detectors both above and below the tree canopies in plots at each of these sites. Bat detectors record the echolocation calls that bats emit while flying, which can be identified to the species level at a later date. The number of calls recorded at a site can be considered an index of bat activity, facilitating comparisons of bat use of different plots. Armitage also spent time measuring vegetation characteristics and trapping nocturnal insects with black light traps at each plot. Initial results show that there are differences in insect communities among plots, and that overall bat activity is highest above the canopy in sites which have not been burned in at least 8 years. Also, the differences in bat activity above and below the canopy are most pronounced in the sites that have not been burned in at least 8 years, and least pronounced at the sites which have most recently been burned. Armitage is continuing to analyze the insect and vegetative data and hopes to provide a species-level analysis of bat activity in the near future. Final results from this project will provide a better understanding of the relationship between bats, insects, forest vegetation, and fire in Florida’s sandhill communities.
Recent Research Finding

A Habitat Assessment for Florida Panther Population Expansion into Central Florida


One of the goals of the Florida panther (Puma concolor coryi) recovery plan is to expand panther range north of the Caloosahatchee River in central Florida. Our objective was to evaluate the potential of that region to support panthers. We used a geographic information system and the Mahalanobis distance statistic to develop a habitat model based on landscape characteristics associated with panther home ranges. We used cross-validation and an independent telemetry data set to test the habitat model. We also conducted a least-cost path analysis to identify potential habitat linkages and to provide a relative measure of connectivity among habitat patches. Variables in our model were paved road density, major highways, human population density, percentage of the area permanently or semipermanently flooded, and percentage of the area in natural land cover. Our model clearly identified habitat typical of that found within panther home ranges based on model testing with recent telemetry data. We identified 4 potential translocation sites that may support a total of approximately 36 panthers. Although we identified potential habitat linkages, our least-cost path analyses highlighted the extreme isolation of panther habitat in portions of the study area. Human intervention will likely be required if the goal is to establish female panthers north of the Caloosahatchee in the near term.

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Upcoming Events

- **Hydric Soils Specialized Training for Wetland Specialists**
  Oct. 6-8, 2009. Austin Carey Memorial Forest, Gainesville, FL. For more information contact W. Hurt at whurt@ufl.edu.

- **Florida Division of Forestry Workshop: Best Management Practices,**
  Oct 22, 2009. 8:30am -12:30pm, Trenton Community Center, 214 SE 3rd Avenue Trenton, FL 3269. Please RSVP by October 16th, 2009 to Greg Marshall, Division of Forestry, (352)463-3138. marshag@doacs.state.fl.us

- **Hernando Audubon Society Workshop: Healthy Forests for Bird Habitat,**
  Oct. 22, 2009. Sign in at 7 pm ET, Community Activity Center, 205 E Fort Dade Avenue, Brooksville, FL. Program will feature Chuck Hess, Wildlife Biologist at Apalachicola National Forest. To RSVP and get more information, contact Mary Dowdell at maryedowdell@bellsouth.net or (352) 797-7874.

- **Natural Areas Training Academy, Managing Visitors and Volunteers in Natural Areas**
• **4th International Fire Ecology & Management Congress: Fire as a Global Process**

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**CFEOR Mission:** To develop and disseminate knowledge needed to conserve and manage Florida’s forest as a healthy, working ecosystem that provides social, ecological and economic benefits on a sustainable basis.

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