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Eastern Region
Leetown Science Center

Wildlife Research

Wildlife research conducted by scientists at the Leetown Science Center helps client bureaus to better manage federal lands and trust species by making objective, science-based decisions.

Moving black bears to their former habitats.

Research on wildlife species at the Leetown Science Center is directed toward Federal trust species (such as threatened and endangered wildlife) and the management of federal lands. For example, the U.S. Fish and Wildlife Service needed to evaluate the effects of prescribed fire on Florida panthers in south Florida. Center scientists determined that prescribed burning in pine stands benefited these endangered cats by attracting deer and wild hogs which, in turn, were attracted by new herbaceous growth and acorns exposed by burning. Since most of the benefits were within 1 year following fire, officials are considering shortening burning rotations. Other research by Center scientists found no cause-and-effect relationships between public use (hunting deer and wild hogs) and panther behavior.

Research on the effects of prescribed fires on the Florida Panther National Refuge.

Experimental release of American elk in the Great Smoky Mountains National Park

Recently, the National Park Service initiated a program to reintroduce elk to Great Smoky Mountains National Park. Elk have been absent from the southern Appalachians for over 100 years. Seventy-five elk will be released in the Park over the next 3 years. Center scientists are involved in a 5-year study to determine survival and reproductive rates of the released elk, habitat use and movement, ecology, and the expected time to population establishment. A series of grazing exclosures will be used to evaluate the effects that elk have on the vegetation in the Park.

Fragmentation of habitats and populations is a major concern for many wildlife species. Center scientists are addressing this issue in their studies involving black bear populations in the southeastern U.S. Research in south Alabama suggests that the removal of den trees, along with prolonged flooding for water

Investigations of trust species, such as the Florida panther, assist resource management.

Department of the Interior
U.S. Geological Survey
Homepage: http://www.lsc.usgs.gov

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Research Applications

- A study of the population ecology of black bears at Great Smoky Mountains National Park provides valuable information for management and is the longest continuous study of bears anywhere in the world, spanning nearly 35 years.
- Habitat modeling is being used to quantify habitat quality for a number of vertebrates including black bears, peregrine falcons, and red wolves. Data on elk collected at Buffalo National River and Recreation Area in Arkansas are being used to develop models for prospective release sites elsewhere in the state.
- At Okefenokee National Wildlife Refuge, researchers have documented complete reproductive failures by black bears in years of food scarcity. Such demographic and behavioral changes during food shortages dramatically affect harvest rates and habitat use.

Bear hair used for DNA fingerprinting

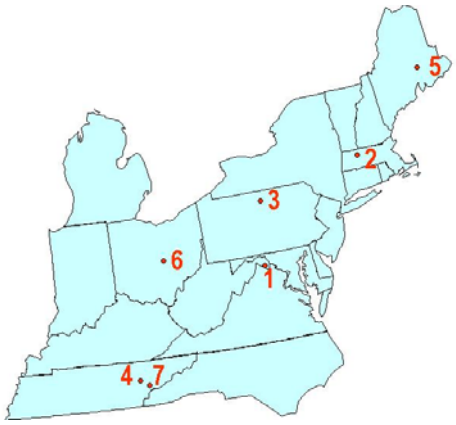
control, has resulted in a significant loss in denning habitat. To determine the size of populations at Tensas River National Wildlife Refuge, bears are being censused using DNA extracted from hair "snagged" at barbed wire bait sites. Animals can be uniquely identified using molecular techniques and accurate mark-recapture population estimates can be made. Scientists at the Center have also developed techniques for reintroducing bears into vacated habitats by translocating females with cubs during winter. These hibernating bears are moved from their natural den sites to new den sites at the release area. The technique has been shown to greatly increase survival and keep the released bears at the new site. In another study to assist management, bear population ecology is being compared before and after construction of a major highway through prime bear habitat in coastal North Carolina.

In other studies of at-risk wildlife, molecular genetics is being used to identify the population structure and lineages of amphibians in national parks. Results of this research, and related research on reptiles, such as the federally threatened bog turtle, will be used in developing conservation strategies for these declining species.

The status of amphibians can also provide valuable information on the condition of the environment. Working in West Virginia's Canaan Valley, which includes a national refuge, Center scientists examined the importance of numerous habitat characteristics on pond selection and larval survival in amphibians. Factors such as pond size and how close the ponds were to forests determined which ponds were used for breeding. This type of information assists management in maintaining and protecting these sensitive species that depend on both terrestrial and aquatic environments.

Spotted salamander

Location of Center Components



Leetown Science Center (1)
- -Fish Health Branch
- -Aquatic Ecology Branch
- -Restoration Technologies Branch

Conte Anadromous Fish Branch (2)

No. Appalachian Research Branch (3)

So. Appalachian Research Branch (4)

Orono Field Station (5)

Columbus Field Station (6)

Great Smoky Mountain Field Station (7)

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