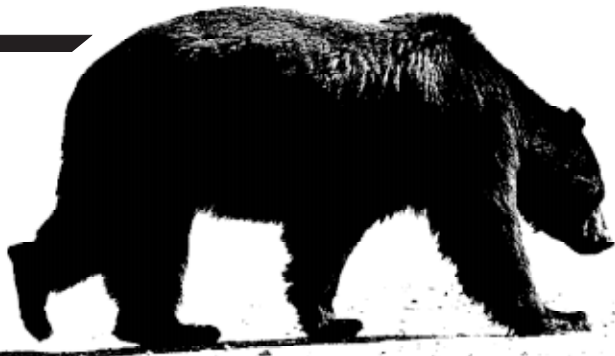




The restoration plan calls for relocating hibernating black bears from their dens in Great Smoky Mountains National Park, 80 miles to the west, to surrogate dens within Big South Fork. Scientists hope that the winter release will entice the bears to stay in their new home, and managers will study success of the experiment before a permanent restoration ensues.

STAGE SET FOR BLACK BEAR RESTORATION AT BIG SOUTH FORK

1995-96 plan calls for staff readiness, experimental winter and summer releases, and scientific follow-up

BY ARTHUR McDADE AND ROBERT EMMOTT

RECENT MEDIA ATTENTION ON THE wolf restorations in the Great Smoky Mountains and Yellowstone national parks has highlighted the resource management and scientific work ongoing in various NPS units. Wildlife re-introduction projects are very popular with the media and the public, and the success of the National Park Service in restoring native fauna to historic range has both scientific and public relations value. Each success story helps foster a positive scientific and public relations climate for other parks to engage in wildlife restoration projects.

An example can be found in the Big South Fork National River and Recreation Area in the mountains of eastern Tennessee and Kentucky. Park managers and biologists are studying restoring *Ursus americanus*, the black bear, to the rugged backcountry of the Big South Fork drainage (fig. 1). The park straddles the Tennessee and Kentucky borders in the Cumberland mountains (fig. 2). It is a rugged area, comprising 122,000 NPS acres, bordered by approximately 80,000 additional acres of the Stearns District of the Daniel Boone National Forest.

The park is a relatively new addition to the park system, established in 1974, but the landscape is ancient. The Big

South Fork of the Cumberland River winds through deep canyons carved out of the 240 million year old Paleozoic Era sandstone. For over 10,000 years the canyons of the Big South Fork provided rock shelters and hunting grounds for the Paleo-, Archaic, and Woodland Indian peoples, who hunted the rich fauna of the area. Until about 1900, the fauna included the black bear. Overhunting, habitat destruction, and timber operations in the 20th Century took their toll on the bears. Save for an occasional lone transient, black bears have been extirpated from these mountains.

Interest in black bears in the southern mountains has always been high. Tales of early European contact with bears, and spirited bear hunts, are a standard of southern Appalachian folklore. The Great Smoky Mountains National Park, 133 kilometers (80 miles) to the east, sustains 400-600 black bears, a considerable attraction to the 8,000,000 visitors who go there annually, many with the express desire of observing bears in the wild. Because of the great interest in this southern Appalachian symbol, several organizations in the late 1980s considered the idea of restoring black bears to the Big South Fork area.

In 1987, the Tennessee Bear and Boar Association suggested to the National Park Service and the Tennessee Wildlife Resources Agency (TWRA) restoring

bears in the Big South Fork area. A working group consisting of representatives from the NPS, TWRA, the U.S. Forest Service (USFS), the U.S. Fish and Wildlife Service, and the Kentucky Department of Fish and Wildlife Resources (KDFWR) studied the merits of the black bear proposal. The working group determined the need for a habitat suitability study to examine the feasibility of bear restoration in the area. Researchers from the University of Tennessee Department of Forestry, Wildlife, and Fisheries undertook the study.

HABITAT SUITABILITY STUDY

The area study examined road density, human population, and the availability of food and cover. Black bears eat a variety of foods in different seasons in the southern Appalachians, consuming herbs and some insects and carrion in the spring. In the summer, an abundance of berries and fruits (soft mast) satisfy the bear's needs. In the middle and late fall, acorns, hickory nuts, and beech nuts (hard mast) dominate the bear's diet. These dietary needs would have to be available in the Big South Fork area for a successful restoration.



Figure 1. Angel Falls of the Big South Fork of the Cumberland River, Tennessee, and other rugged park backcountry locales were once home to now extirpated black bears. If all goes as planned, bears may begin to make their reappearance in the Big South Fork National River and Recreation Area as soon as late fall, 1995.

Completed in 1990, the habitat suitability study concluded that the Big South Fork area provided adequate summer and fall food production for bears (Van Manen). It also determined that denning cover was adequate, and that the maturing forest provided escape cover. Improved road density was determined to be low, although logging and dirt roads throughout the area are of higher density. One major element of the study was the prediction that as the second-growth forest matures in the next 5-10 years, hard mast production would improve, with optimal levels reached by the end of the century.

PRELIMINARY RESEARCH PROPOSAL AND ENVIRONMENTAL ASSESSMENT

In order to test the habitat study conclusions and to explore potential human-bear interactions, TWRA drafted a preliminary proposal for an experimental release (Wathen 1992). This proposal recommended a 2-year program in which 12 bears would be released and radio tracked in the west-central area of the park. NPS biologist Steve Bakaletz and Ron Cornelius, then Chief of Resource Management at the park, began refining

the proposal. Ultimately, they drafted and circulated for public comment an environmental assessment of the proposed experimental project (Emmott, 1994). The draft described the potential impacts of

gave the following objectives:

- Determine dispersal and mortality rates of reintroduced bears

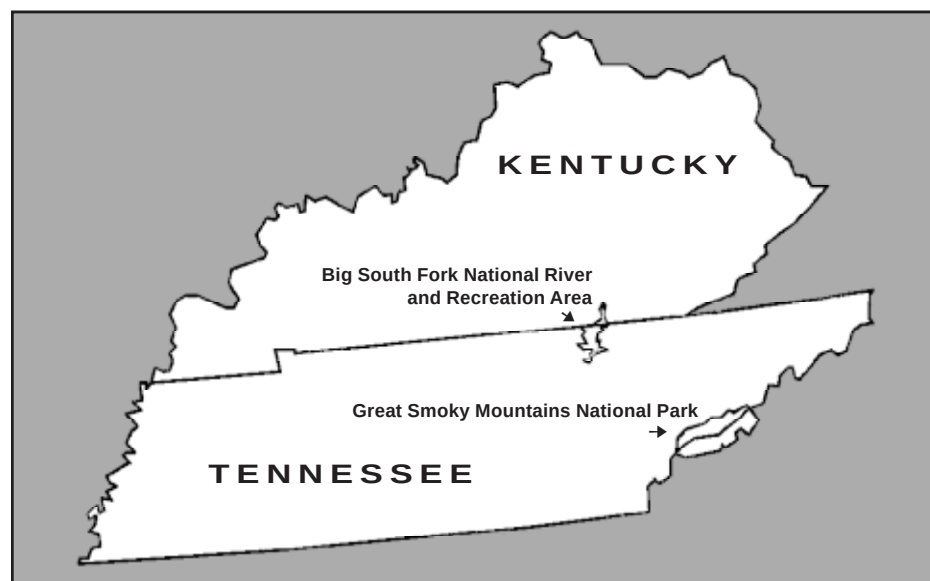


Figure 2. Located along the Tennessee-Kentucky border, the park preserves forests of the Cumberland Plateau and over 75 miles of the Big South Fork of the Cumberland River and a few of its tributaries. Now maturing, the second-growth mixed forest should produce optimal bear forage by the end of the century.

the experimental bear releases on the physical, biological, and human environments, and outlined steps to mitigate these impacts. The draft also outlined several project alternatives and described comments received from the public in 1993 regarding the proposed bear relocations.

SPECIFIC RESEARCH PROPOSAL

In November 1994, representatives from the cooperating agencies met and agreed that a research proposal should be completed. Dr. Joseph Clark of the National Biological Service (Southern Field Laboratory, Knoxville, Tennessee), working with NPS Resource Management Specialist Robert Emmott, completed a draft proposal consisting of a 2½-year project involving 12 released bears (Clark, 1994). The proposal recommended securing the bears from the Great Smoky Mountains National Park and

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- Assess bears habitat use based upon Van Manen's habitat study
- Evaluate effects of bear-human interactions and document any damage to private property
- Determine effects of age, sex, release method, or other factor on mortality or postrelease movements
- Assess feasibility and probable success of a gradual, long-term bear release to establish a permanent, viable population at Big South Fork

PERMANENT RESTORATION TO BE EVALUATED

At the end of the 2½-year experimental releases, park managers will be better able to determine whether a permanent restoration program should be initiated. With the results of the experimental project, managers can base this decision on scientific data regarding habitat adequacy, home range establishment, and human contact.

The park is gearing up for the potential 1995 experimental releases, and Superintendent Lee Davis is enthusiastic about the project. He shares the belief that

hold public information meetings along with home visits to park neighbors to explain the project. Backcountry hikers will receive literature about the bear reintroductions, and temporary bear ecology exhibits are planned for the park's two park visitor centers. Park interpreters will provide formal and informal presentations on the continuing bear project during the 2-year experimental phase.

The cooperating agencies have agreed to fund the project. At present, we anticipate a winter 1995-96 relocation of bears from the Great Smokies to the Big South Fork.

...wild bears will be captured in their dens in the Smokies and relocated to the Big South Fork during winter where they will resume hibernation in the new location.

Clark proposes releasing the bears in both summer and winter. For the winter releases, he will use a variation of a soft release; (a soft release involves a period of acclimation with food and shelter in an enclosure area prior to release to the wild). This includes capturing wild bears in the Smokies, relocating them to the Big South Fork, and releasing them into denning locations during the winter. To accomplish this, selected Smokies bears will be trapped and radio collared in the summer, then later tracked to their winter dens. Biologists will sedate these hibernating bears and transport them to the Big South Fork. The bears will resume hibernation in the new location, and in the spring, venture out into the new habitat acclimated to their new home range. Bears have a strong homing instinct, and we hope that the winter release will provide the acclimation needed to prevent the bears from trying to return to the Smokies.

Clark's proposal also calls for summer releases, whereby bears will be translocated from the Smokies to the Big South Fork with a short confinement period in acclimation pens. During the project, researchers from the University of Tennessee will radio track the bears until home ranges are established.

the National Park Service has a role to play in restoring native fauna to historic range, where feasible. His enthusiasm is balanced by a healthy regard for the concerns of park neighbors, however. He does not want the experimental bear releases to fail due to adverse public relations concerns, which could jeopardize a future permanent bear release. Consequently, he has been an engaged participant in the planning.

The Acting Chief of Resource Management, John Cannon, is making plans for release site protection. Rangers will closely monitor the remote release area and work jointly with cooperating agencies to establish security for the bear releases. Cannon, who came to the Big South Fork from the Great Smokies, believes that the bears will be a biological bonus for the area, restoring a native species to its historic range, and may provide an economic boost to the surrounding human communities.

The park also plans to interpret the significant project. The bear project has generated considerable interest amongst constituency groups, such as hikers, conservation organizations, and hunting and fishing clubs. Steve Seven, Chief of Interpretation, plans on using the park interpretive newspaper to highlight the ongoing experimental reintroduction project. He also plans on having site bulletins at backcountry trailheads with information on the bear project. Staff will

The intense scientific planning over 5 years at the Big South Fork is nearing fruition; the park is gearing up for an exciting and scientifically challenging research project. Between the hard science in the field and the interpretation ongoing throughout the park, the public will be able to follow the experimental release of *Ursus americanus* to a part of its former range.



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