Distribution of Black Bears in the Southeastern Coastal Plain

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Abstract: Black bear (*Ursus americanus*) distribution and habitat quantities were estimated for the Coastal Plain region of the southeastern United States. Bears are imperiled in the southeastern Coastal Plain primarily because of habitat loss. Accordingly, this paper focuses on bear habitat in the region. Resident bear populations are scattered across the Coastal Plain. They occupy an estimated 67,791 km^2. The current distribution, a consequence of habitat loss, represents a 93% range reduction from historic levels. The greatest quantity of habitat supporting resident populations occurs in Florida (30,773 km^2) and North Carolina (18,700 km^2). Most (76%) bear habitat in the Coastal Plain is privately owned. Six of the 10 states in the region contain large blocks of forested areas (>200 km^2) that are without bears; these are potential stocking sites. The largest block of potential range occurs in eastern Texas. Management implications of the distribution are discussed.

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The historic distribution of black bears included the forested areas of Canada, the United States, and northern Mexico (Hall 1981). Bears once occurred throughout the southeastern United States, but are now restricted to 3 general regions: the Appalachians, the Ozarks, and the Coastal Plain (Maehr 1984). Our paper pertains to black bears in the southeastern Coastal Plain, a region that stretches along the Atlantic and Gulf coasts from Virginia to eastern Texas.

Three black bear subspecies occur in the Coastal Plain (Hall 1981): the eastern black bear (*U.a. americanus*), the Louisiana black bear (*U.a. luteolus*), and the Florida black bear (*U.a. floridanus*). Two of the 3 (*U.a. luteolus* and *U.a. floridanus*) are endemic. The Louisiana black bear was federally listed as threatened in 1992 (Neal 1992). A petition to federally list the Florida black

bear as threatened was judged warranted (Bentzien 1991), but listing has been delayed by an administrative decision to list more imperiled species first.

Bears are imperiled in the southeastern Coastal Plain primarily because of habitat loss. Accordingly, this paper focuses on bear habitat in the region. We have estimated the quantity of bear range occupied and identified areas that do not contain bears, but seem capable of supporting them. These sites may be suitable for stocking.

We thank the numerous biologists who shared their knowledge of Coastal Plain bear distribution. Special thanks go to the following biologists who organized the distribution data by state: K. Guyse (Alabama), J. Clark (Arkansas), W. Abler (Georgia), K. Weaver (Louisiana), C. Shropshire and H. Jacobson (Mississippi), G. Warburton (North Carolina), S. Stokes (South Carolina), N. Garner (Texas), and D. Martin (Virginia). J. Brady and P. Moler provided valuable comments on the manuscript.

Methods

In 1991, we provided the "bear biologist" in each of 10 southeastern states with a topographic map of their state (scale, 1:1 million) and asked them to map the following categories for the Coastal Plain portion of their state: (1) primary range—defined as areas known to contain resident, breeding populations of black bears; (2) secondary range—defined as areas in which bears occasionally occur but that do not support resident, breeding populations; and (3) potential range—defined as forested areas >200 km^2 from which bears are absent. Most state maps were completed by a team of biologists, with each member providing detailed knowledge of a specific portion of their state.

Mapping precision varied by state: some range maps were drawn with a sharp pencil, others with a dull crayon. These differences were believed due to different levels of knowledge about bear distribution and to differences in interpretation of where to mark range borders for a wide-ranging, large mammal such as the black bear.

The completed range maps were digitized and a copy of the digitized map was returned to the state representative for checking. The final digitized version was then used to estimate quantity of bear range in the Coastal Plain for each state.

In addition to mapping bear distribution, we were interested in the quantity of range in public ownership. Maps depicting public lands were obtained from state and federal agencies. The maps were digitized and overlaid on the bear range map.

We had access to a GIS vegetation map for Florida based on 1987–89 LANDSAT imagery. In the areas where biologists indicated primary range in Florida, we estimated total range and amount of forested land in the range. Most (85%) of the primary range was forested. In areas of potential and secondary range, we only estimated quantity of forested land. This differs from the

other states, where estimates of secondary and potential range include all cover types, not just forested areas. Assuming that proportions of forest coverage in Florida for secondary and potential range are similar to that found for primary range (85% forested), we have slightly under-estimated totals. We consider this of minor significance in terms of our overall objectives.

Results

Resident, breeding populations of bears occur in all Coastal Plain states except Texas (Fig. 1). Within the entire region, there are an estimated 67,791 km^2 of primary range and 64,570 km^2 of secondary range (Table 1). Most of the range is comprised of private land; only 23.5% of the primary range and 15.0% of the secondary range is in public ownership.

The greatest quantity of primary range occurs in Florida (30,773 km^2) and North Carolina (18,700 km^2). These 2 states contain 73% of the primary range in the Coastal Plain (Table 1).

Six states contain blocks of forested areas that are without bears (Table 1). The greatest amount of potential range occurs in eastern Texas in the vicinity of the Big Thicket. Mississippi contains a large quantity of potential range, but it exists as relatively small patches scattered across the state.

Bears are widespread but exhibit a patchy distribution. There are at least 13 local populations (Fig. 1). The largest population area includes all the range in Virginia, North Carolina, and northeastern South Carolina (Fig. 1). The second largest population area occurs in and around Okefenokee Swamp in southern Georgia and northern Florida.

Table 1. Estimated quantity (km^2) of black bear range in the southeastern Coastal Plain, 1993.

State	Primary range	Secondary range	Potential range
Virginia	1,053 (34.4)[a]	5,170 (0)	—
N. Carolina	18,700 (16.7)	14,116 (0)	—
S. Carolina	439 (0)	5,243 (37.3)	430
Georgia	6,268 (28.9)	2,822 (0)	3,522 (0)
Florida	30,773 (29.6)	13,741 (17.3)	—
Alabama	377 (0)	6,461 (0.4)	—
Mississippi	1,579 (1.5)	9,581 (26.5)	6,375 (95.3)
Louisiana	7,199 (14.2)	5,139 (54.5)	4,526 (74.2)
Texas	—	—	16,191 (20.9)
Arkansas	1,403 (36.2)	2,297 (0)	1,167 (0)
Total	67,791 (23.5)	64,570 (15.0)	32,211 (39.8)

[a]Number in parentheses reflect percentage in public ownership.

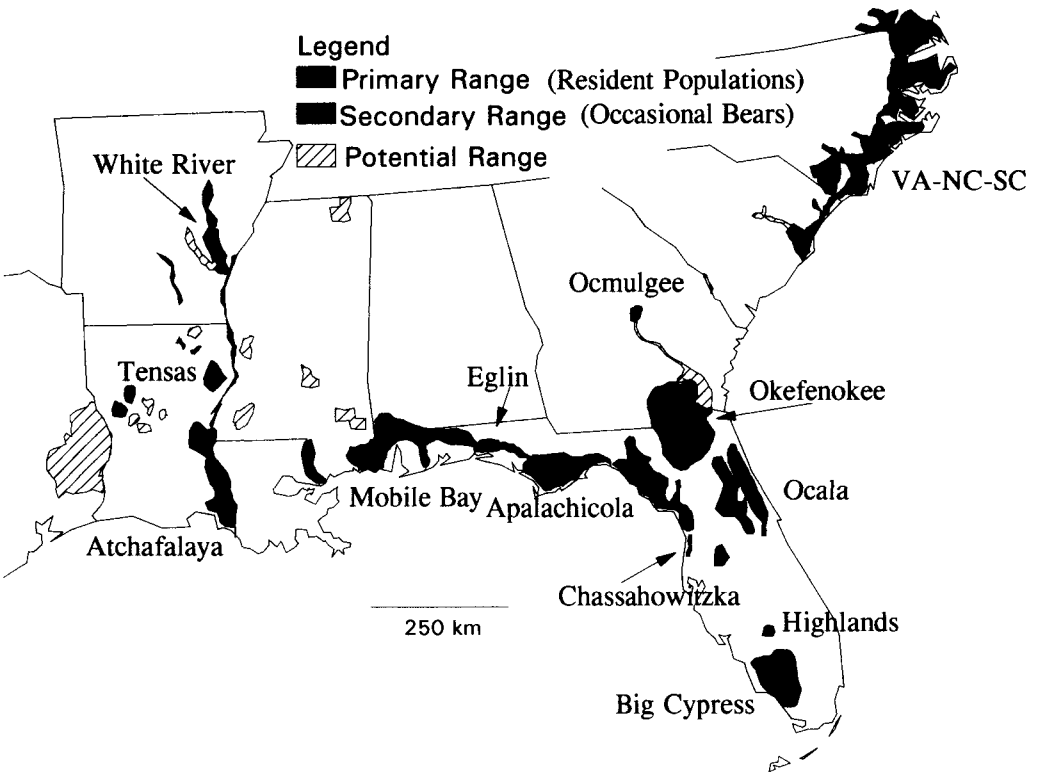

Figure 1. Distribution of black bears in the southeastern Coastal Plain, 1993.

Discussion

The southeastern Coastal Plain contains an approximate land area of 955,451 km² (Nelson and Zillgitt 1969). The primary range of black bears by our estimates is now restricted to 67,791 km². Assuming bears historically occurred throughout the region, they have been eliminated from approximately 93% of their former range. The range reduction is believed a consequence of human persecution and habitat loss. The remaining Coastal Plain bear populations are remnants.

Although habitat loss has been severe, there is understocked habitat where population increases seem possible. Increases may occur naturally, but human-assisted stocking may be necessary in other areas, such as in eastern Texas. Smaller, isolated sites, such as the National Forests in Mississippi, might also benefit from stocking, but relocated bears tend to wander after release (Alt et al. 1977), and these smaller blocks may be too small to contain their movements. Improved methods of translocation and acclimation would increase chances of relocated bears remaining on the smaller, unoccupied enclaves of habitat.

Current bear range in the Coastal Plain is a mixture of wooded swamps, pocosins, farm land, and pine plantations. There are wilderness areas, such as the Okefenokee Swamp, but most of the range is not wilderness but farm land and pine plantations interspersed with forested wetlands. Human presence in the habitat is the rule rather than the exception. People live, work, and recreate throughout the occupied habitat. With the close contact between bears and humans in the region, maintaining or increasing current levels of human tolerance for bears should be a priority for managers charged with black bear conservation.

Most of the habitat occupied by bears in the Coastal Plain belongs to private landowners. Incentives are needed to encourage these landowners to maintain habitat suitability. Public land acquisition may work as a conservation strategy in limited situations, but more should be done to promote habitat conservation on private lands.

We think there is value in examining black bear distribution from a regional perspective, but bear managers should focus on the local population level. There are at least 13 bear populations in the Coastal Plain. This is a conservative estimate because we counted the inhabited range from southern Virginia to northern South Carolina as 1 population whereas it may represent several local populations. Genetic exchange may occur between some of the Coastal Plain populations, but we believe most are at least demographically isolated because of the distance and habitat barriers separating them. One consequence of the isolation is that numeric maintenance of the population is dependent on local reproduction and not on immigration. These isolated concentrations are independent units, and managers should treat them as such.

Most populations in the Coastal Plain straddle state lines, and all occur on land with multiple owners. Cooperative management as promoted for the

Louisiana black bear could serve as a model for other areas. The Black Bear Conservation Committee is an advisory group whose goal is to conserve the Louisiana black bear. Similar, but more informal advisory groups are being formed in Florida for the 4 largest bear populations in the state. The committee approach may not be useful in all situations, but it is something managers may wish to consider.

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