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LONG DISTANCE MOVEMENTS OF A FLORIDA BLACK BEAR

DAVID S. MAEHR,¹ JAMES N. LAYNE,² E. DARRELL LAND,¹
J. WALTER MCCOWN,¹ AND JAYDE ROOF¹

¹Florida Game and Fresh Water Fish Commission,

Big Cypress Wildlife Field Office, 566 Commercial Blvd., Naples, Florida 33942, and

²Archbold Biological Station, P. O. Box 2057, Lake Placid, Florida 33852

Abstract.—A male black bear (*Ursus americanus*) traveled 140 km from central Collier County to central Highlands County between 7 June and 2 July 1986. Wanderings outside of known established bear populations suggested the potential for connecting disjunct populations, but was tempered by the bear's perpetual nuisance activities.

The black bear (*Ursus americanus*) is one of Florida's most widespread and largest native mammals. Nonetheless, there is a paucity of published information on this species' movement patterns and space requirements. Recently, there has been concern that increasing human numbers and intensified, extensive land uses have resulted in fragmentation and isolation of southeastern bear populations (Maehr 1984). This same pattern is evident in Florida (Brady and Maehr 1985). Potential impacts of habitat fragmentation include inbreeding depression, genetic drift (Franklin 1980), and increased susceptibility to accidental or natural disasters (Franklin 1980, Terborgh and Winter 1980, Frankel and Soule 1981:25). Further, while a continental habitat island or faunal preserve may be adequate to support a number of rare species, wide ranging species such as black bears may be unable to survive due to their expansive habitat requirements (Harris 1984:83). We report on the extensive movements of an adult male black bear outside of known established bear populations in southern Florida (Brady and Maehr 1985).

METHODS

Trapping was conducted on a 2 ha, residential tract in the East Naples, Collier County, development known as Golden Gate Estates in response to the owner's complaint of a "chicken-stealing" bear. On-site inspection revealed bear tracks around a damaged chicken

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enclosure and a trail of white feathers leading to and through the woods. Five heavy duty bear cable traps were set around the property on 30 April 1986 and monitored daily until the bear's capture on 4 May 1986.

The bear was anesthetized using ketamine hydrochloride at a dosage of 20 mg/kg and administered with a pole syringe. Standard measurements were taken, a premolar tooth was removed for age-determination (Willey 1974), and an eartag, tattoo, and radio-collar were applied. Radio-tracking techniques included every other day monitoring from fixed-wing aircraft, daily ground triangulation (Craighead and Craighead 1965), at Lake Placid and sightings when possible. Locations were plotted on USGS 7.5 min quadrangle maps or on Florida DOT county road maps and transferred to 1:150,000 road maps. Use areas were calculated using the convex polygon method (Mohr 1947).

RESULTS

The 88 kg (195 lbs.), 2.5 year-old black bear was located 71 times from 4 May to 28 July 1986. Movements were restricted to a cypress swamp near the capture site for the first week of monitoring. Following this period, locations were scattered in sparsely developed private lands in a 6,219 ha area (Fig. 1). The less developed mixed swamp and prairie vegetation to the east was used for about one week. The western part of this area is characterized by a network of roads and canals with scattered human settlements and sparse agriculture. The bear was located several times within a few hundred meters of homes and bee yards. Movements from 4 May to 7 June appeared random and averaged 3.5 km (s.d. = 2.9) between locations.

Between 7-12 June the bear moved 31.8 km northwest apparently through the Corkscrew Swamp Sanctuary. Except for a 7-8 day stay in Lehigh Acres in the vicinity of a bee yard, the bear traveled in a north-northeast direction until his arrival at the Archbold Biological Station near Lake Placid, Highlands County. Between the period 7 June-2 July he covered at least 140 km at an average rate of 5.6 km/day. Obstacles encountered during this time included densely populated suburbs, the Caloosahatchee River, busy highways (state roads 82, 80, and 74) and improved pastures. No observations or complaints were reported to the Florida Game and Fresh Water Fish Commission (GFC) during this period despite his frequent proximity to homes and disturbances of at least one bee yard near Lehigh Acres.

From 3 July-28 July movements were centered near Lake Placid (Fig. 1) in an area covering 1,205 ha. Distances between locations were less than in previous monitoring periods averaging 2.3 km (s.d. = 1.8), although this may have been due to more frequent monitoring. Habitats used included bayheads, sandpine scrubs, scrubby flatwoods, flatwoods and moderately developed suburbs. On at least six occasions two sets of different sized tracks were seen in areas he frequented. Movements included visits to and depredations on bee yards and penned domestic

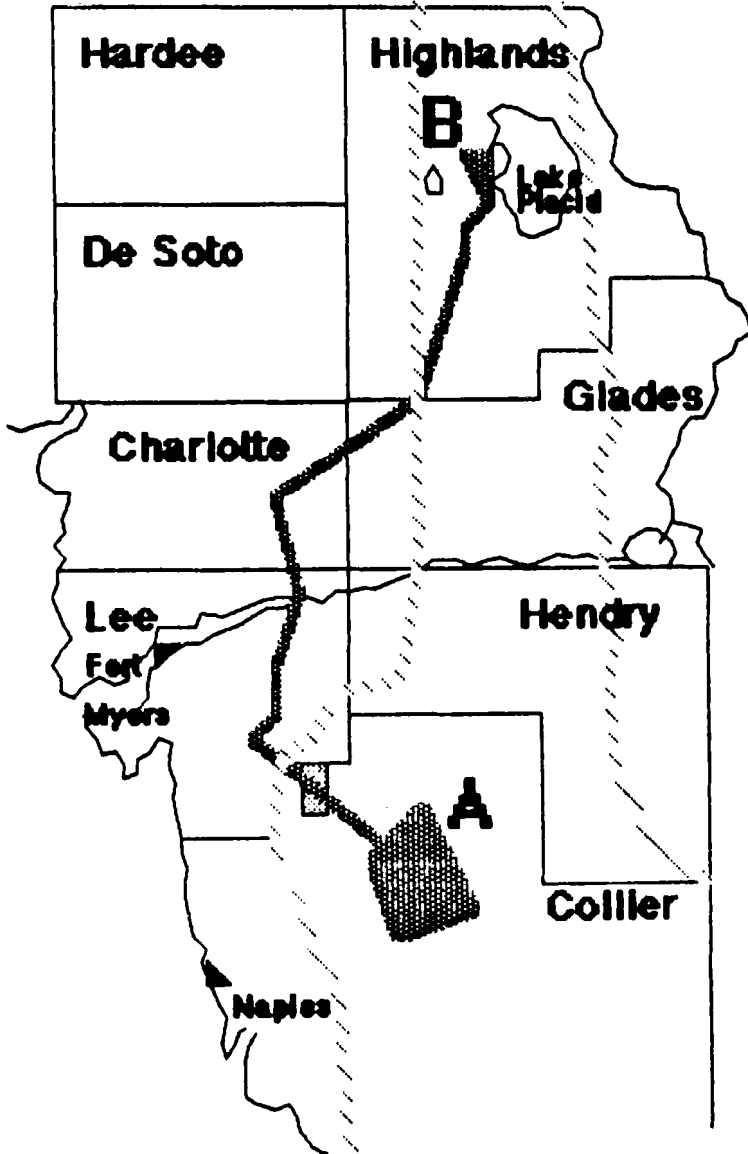


Figure 1. Movements of a south Florida black bear. Site A represents movements from 4 May-7 June 1986, and site B represents movements from 3 July-28 July 1986. Hatched line indicates known established bear range in southwest Florida.

chickens and turkeys. On 4 July, the bear was seen within 200 m of a large outdoor family picnic. Activities associated with this gathering (including fireworks) apparently did not affect the bear's behavior (nor were the picnickers aware of the bear's presence). On several other occasions he appeared to show no fear of people. As a result of continued depredations on apiaries and chickens and a lack of fear of people that could have developed into human endangerment, the bear was killed by GFC personnel on 28 July. A subsequent necropsy revealed a weight gain of 12 kg since his capture, scattered buckshot in back fat and muscle tissue, as well as a severely damaged kidney due to gun shot sustained several days to a week before his death (J. Brady, J. Wooding, necropsy report pers. comm.). The straight line distance between the southern-most Collier County location and northern-most Highlands County location was 125.6 km. We estimated the non-straight line distance traveled to be about 140 km.

DISCUSSION

Whereas the movements of this male black bear may not be representative of its species, they are of interest because of the extent and distribution. While relocated black bears in other parts of North America have exhibited homing tendencies approaching, and in some cases exceeding this example (Rogers 1984), these unperturbed movements (not involving a relocation) represent the longest documented distance traveled by a bear in Florida. Locations outside of recognized range (Brady and Maehr 1985) may indicate inaccuracies in current understanding of bear distribution in Florida. On the contrary, we feel this bear exhibited breeding season wanderings that may be common for young adult males. We suspect an unidentified bear he apparently was with near Lake Placid was an adult female because of the smaller tracks we found. In light of recent interest in a corridor system for wildlife in Florida (Harris 1985), this example may demonstrate that the interconnection of distant, disjunct populations of black bears is possible. In fact, the movements of this bear outside of areas of frequent reports (Brady and Maehr 1985) is equal to a distance capable of connecting any two adjacent bear population islands in Florida. This may help explain the persistence of such small population fragments as exist in Escambia, Citrus, Pasco, and Hernando counties. It also could be argued that for black bears, well-defined travel corridors are not necessary so long as the areas separating population fragments do not impede movements. It is possible that low levels of human habitation or disturbance may not be a hindrance for dispersing or wide ranging bears.

The behavior of this bear seems typical of many nuisance bears in

Florida. Disturbances around apiaries, livestock, garbage, and other human attractants are most commonly engaged in by males. Undoubtedly, the increased presence of humans around these bear population fringes increases the likelihood of bear-human encounters. Pelton (1982:511) observed, "The comparatively high intelligence of the species and the emotions it evokes in people combine to present a singular dilemma for responsible resource agencies." Clearly, the perceived need for protection of human life and property versus the ecological or aesthetic value of a single wild animal is a difficult management problem. For example, Rabinowitz (1986) recommended the destruction of individual livestock-killing jaguars (*Panthera onca*) in Belize as an effective management tool. He found that when a depredating jaguar was killed, its home range often was filled by an individual that did not engage in domestic prey consumption. The bear we monitored was definitely a habitual nuisance and represented a situation similar to this. Inasmuch as most bears do not engage in depredations, the removal of occasional persistent nuisance individuals is probably justified.

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