

Colonization of American Black Bear in Mississippi



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Introduction

American black bears (*Ursus americanus spp.*) are native to Mississippi and historically occurred throughout the state. Although Mississippi was well known for bear hunting, by 1993, black bear numbers in Mississippi were estimated at less than 25 individuals. However, since 2002, black bear sightings in Mississippi have increased and likely reflect an increasing bear population. No prior research has examined how individuals in this colonizing bear population select their home ranges with respect to the spatial distribution of available resources and demography of bears. More importantly, very few opportunities exist for studying how large carnivores colonize unoccupied habitats.

Objectives

- In 2008, we initiated a 5-year study to:
- update historical assessment and status and management of black bears in Mississippi
 - estimate black bear habitat suitability,
 - conduct a statewide corridor assessment for black bear movement
 - simulate black bear colonization across Mississippi.

Methods

We are capturing bears throughout Mississippi with emphasis in the Delta and Coastal regions. Using data from radio collared bears, we will estimate home range size, and use ecological niche factor analysis to analyze bear habitat selection. Models including least cost validation and zonal corridor analysis will be evaluated using bear movement and habitat data to define potential corridors. Using these analyses we will estimate, delineate, and rank corridors and linkages suitable for bear movement and habitat conservation. From the refined habitat use model, estimated corridors, bear movements, and dispersal we will simulate the spatial trajectory or colonization potential of this bear population over time.

Results to date

- 28 bears have been captured and radio-collared statewide (18 males, 10 females) since 2004.
- 18 bears are currently being monitored (6 males, 12 females).
- 16 GPS radio-collars have been recovered through capture or dropped collar recovery efforts and >17,000 GPS data locations have been obtained from those collars.
- We have documented multiple crossings of the Mississippi River and movements across state boundaries (Alabama, Louisiana, and Arkansas) by several bears (7 males, 2 females).
- Observations of cubs indicates successful breeding.

Discussion Points

This study will:

- Offer insight into the ecological processes of a colonizing large carnivore species in a human-altered landscape
- Provide a valid habitat suitability model through the use of actual bear location.
- Present a statewide corridor assessment for black bear movement and dispersal
- Use predicted bear habitat to simulate the spatial and temporal expansion of bears across Mississippi.

Management Implications

- Maintaining large carnivores in human-altered landscapes and understanding their sensitivity to land use patterns and resource availability is needed based on the ecological value of carnivores to thriving ecosystems.
- Understanding movement patterns of this colonizing population will assist in promoting genetic preservation through landscape connections and habitat restoration. Bowman (1999) projected that Mississippi could provide 3 of 5 forecasted sub-populations of black bears to meet the goal set by the Black Bear Conservation Committee in 1997. Therefore, results from this study can be implemented to enhance strategic planning for black bear sub-populations in Mississippi.
- Through estimating pathways of dispersal and movement we can simulate potential colonization of bears in Mississippi.
- Estimating black bear colonization statewide will assist with land use designations and management strategies to ensure suitable habitat for bears and other species (that benefit from presence of bears), as well as support public interest related to this and other wildlife species.
- Identifying areas with the highest potential for colonization will allow managers to better target preventative strategies to reduce potential human-bear conflicts.



Recent locations of bears radio collared in Mississippi.



Sub-adult female captured in Sharkey County



Adult male captured in Bolivar County

Literature: Bowman, J.L. 1999, An Assessment of Habitat Suitability and Human Attitudes for Black Bear Restoration in Mississippi. Dissertation, Mississippi State, Mississippi, USA.