

Multi-scale Den-Site Selection by American Black Bears in Mississippi

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Abstract: Knowledge of den-site selection by American black bears (*Ursus americanus*) at multiple spatial scales is necessary for effective conservation. Currently, there is no quantified information on den-site selection by black bears in Mississippi, including the state- and federally-listed Louisiana black bear (*U. a. luteolus*). Consequently, our objectives are to describe: 1) black bear denning chronology and den characteristics, 2) second and third order den-site selection, and 3) the effects of bear population density and associated risks on den-site selection. We will evaluate den-site selection of radio-collared bears statewide during 2009-2011 in addition to characterizing den sites located previously. We will summarize and compare dates of den entrance and emergence by age-sex class and reproductive status. We will classify dens by type (e.g., tree, ground, excavated) and record den dimensions, presence of bedding material, and degree of security. For second and third order den-site selection, we will develop models of habitat, human activity, and risk from conspecifics and compare these models at the habitat patch and home range extents to estimate their relative contributions to den-site selection. Habitat model metrics will include elevation, slope, aspect, and vegetation type. Attributes of the human model will include road type, agricultural fields, and residential areas. Risk model metrics will include late autumn adult male space use, percent horizontal cover, and den type. We also will compare data between Mississippi and Michigan to evaluate the effects of bear density and associated risks on den-site selection. Our study will provide improved understanding of factors that influence selection of den sites by black bears in Mississippi. Understanding these factors will allow managers to identify existing suitable denning habitat and prescribe appropriate management regimens.