

Distribution of American alligators across an urban landscape

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Abstract: Urbanization is an ever increasing threat to wildlife and their natural habitats, yet research has been limited to a small number of taxa. Filling this knowledge gap, while effectively educating people about urbanization and its effects on wildlife, will require new research projects that target charismatic species which naturally capture the public's attention. One such species, the American alligator (*Alligator mississippiensis*), is an apex predator across the southeast United States and has surprisingly received minimal attention within urban areas. To investigate the potential effects of urban land cover on alligator habitat use, we conducted surveys of relative alligator abundance in nine tributaries with varying levels of urban influence surrounding the St. Johns River in northeast Florida, USA. For each animal sighted, several environmental variables were measured and global positioning system coordinates were recorded. These data were then incorporated into geographic information system analyses to determine the potential effects of urban development on alligator spatial distribution at a coarse scale. Habitat selection preferences at a fine scale were then determined using observed habitat data. At the coarse scale, we found that there is no correlation between percent developed land and relative alligator abundance. Instead, salinity is the primary driver of relative abundance across tributaries. However, only two out of 93 sighted individuals were adults, suggesting that adults avoid urbanized areas while juveniles are forced to occupy these potentially more marginal habitats. At the fine scale, the data showed that alligators prefer habitats characterized by more open water and highly vegetated shorelines and avoid anthropogenic structure. Further urbanization may therefore degrade favorable habitat and limit the distribution of breeding adult alligators in once suitable areas, potentially leading to local population declines.

Keywords: Urbanization, Distribution, Habitat selection, *Alligator mississippiensis*

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