
PREDICTING THE SPATIAL DISTRIBUTION OF HUMAN-BLACK BEAR INTERACTIONS ACROSS AN URBAN AREA

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Human (*Homo sapiens*)-black bear (*Ursus americanus*) interactions are increasing throughout North America. Information that assists managers in developing methods to reduce conflicts is lacking. We used human-bear incident data, i.e., phone complaints and conflicts, collected in Missoula, Montana, by Montana Fish, Wildlife and Parks from 2003-2008 to describe the attractants and human impacts of incidents, and develop a model that predicts the spatial probability of incidents. We combined the locations of black bear sightings ($n = 307$), other incidents, e.g., bear seen feeding on garbage ($n = 549$), and sites where proactive management actions were carried out ($n = 108$), and compared them to 5000 random locations using logistic regression. Based on literature, we used distance to forested patches, distance to water, and housing density as variables in our model. Garbage (38%), fruit trees (10%), and bird feeders (7%) were the most common attractants at incident sites, and some incidents resulted in threats to human safety (9%) and property damage (7%). All variables were significant in the predictive model, and the model performed well at discriminating the relative spatial probability of incidents ($r_s = 0.782$; $P < 0.01$). The probability of incidents increased when residents lived close to forested patches, close to water, and in intermediate housing densities (~ 6.6 houses/ha). Our results suggest that spatial patterns in human-black bear interactions are predictable and these patterns can be used to understand the potential for conflict in developing areas and to identify areas where preventative management is necessary.