

CORRELATES OF SUCCESS FOR ON-SITE RELEASES OF NUISANCE BLACK BEARS IN GREAT SMOKY MOUNTAINS NATIONAL PARK

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Abstract: Since 1990, wildlife biologists in Great Smoky Mountains National Park (GSMNP) have used capture and on-site release as a management technique to reduce recurrence of nuisance activity by black bears (*Ursus americanus*). On-site release involves capture and immobilization of bears that frequent developed areas, collection of biological data, and subsequent release in the area of capture. Our objective was to identify factors related to success of this technique. We classified 85 on-site releases of black bears as successes or failures based on post-release observations and subsequent management actions at the release site. The success rate of on-site releases in GSMNP (58 – 73% for the 3 classifications of success) indicates the overall effectiveness of this technique. We examined 11 variables for their associations with release success. Important variables associated with success of on-site releases were sex, presence of young, type of developed area where capture occurred, time of day that the bear was active in developed areas, and bear population abundance. Our results indicate on-site releases were most effective when bears were captured early in their progression towards nuisance behavior; on-site releases of night-active bears were 4.0 times less likely to require further management actions and at least 7.6 (lower limit of the 95% CI) times less likely to be relocated than day-active bears. Our results further indicate females with young may be the most difficult to deter from developed areas. Therefore, to avoid relocation of a family group, early detection and capture of females with young may be particularly important. Given various scenarios of nuisance bear activity, biologists can use our findings to determine when on-site release is appropriate.

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