(38) A DISTANCE ESTIMATOR FOR BROWN BEAR DENNING HABITAT IN ALASKA

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Abstract: Increasing winter backcountry recreation (hiking, heli-skiing, snowmobiling) in steep, high-elevation alpine terrain has elevated concern about disturbance of denning brown bears (*Ursus arctos*) on the Kenai Peninsula, Alaska. To help identify areas where such conflicts might occur, we developed a spatially explicit model to predict potential denning areas on the Kenai Peninsula. We assigned site attributes to 215 unique den locations of 74 radiotracked brown bears collected from 1995–2002. Attributes identified as predictors for the analysis included elevation, slope, distance to anadromous streams, an index of solar radiation, and distances to high use and low use roads and trails. We created a 200 m x 200 m raster grid layer for the Kenai Peninsula, for a total of 461,000 random points. The multivariate distance of every point on the landscape to the centroid of the bear dens allowed us to determine how close the points on the landscape were to the ideal den location. Using the Mahalanobis distance estimator we developed a similarity index between sites used by denning bears and each cell in the data layers. From the final distance model we produced maps of potential denning habitat and provided an example of how our results may be used by land management agencies to identify areas of potential conflict and minimize effects of regulated activities on denning brown bears.

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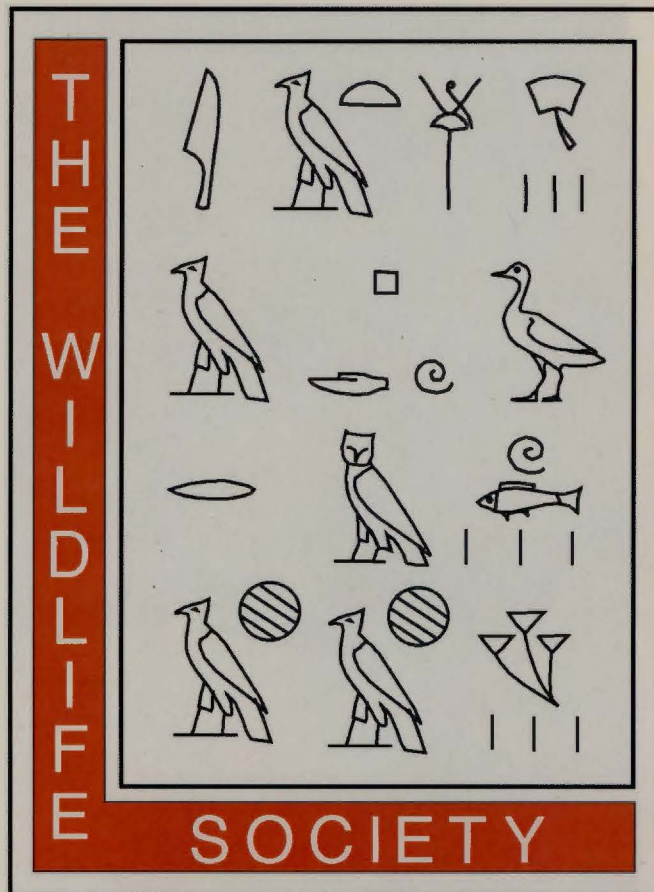
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