

Application of GIS Model for Assessment of the Habitat Quality and Prediction of the Potential Distribution of Carnivorous Species in Local Scale - Lynx (*Lynx lynx* L.) in the Strandzha Mountain as an Example

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Abstract: The carnivores, being elusive species because of their secretive life and large home ranges are very difficult to study. The quality of habitat and the food base have proved to be of greatest importance for their presence and their area of occupancy. The assessment of the available suitable habitats and the prediction of current and potential distribution of these species are vital for their conservation, having in mind the existing conflict with humans. This paper deals with the application of deductive GIS-based model to assess the habitat quality in the Strandzha Mountain for a little known in Bulgaria species as is the lynx. The outcome of a model, based on several overlaid environmental variables are 5 suitability classes, of which class 2 and 3 (high and medium suitability) are covering the highest percentage of the area (34.7% and 34.3% respectively). Altogether the two highest suitability classes - class1 (18.1%) and class 2 form 52.8 % of the whole study area of 1852.7 km² which gives a potential good quality habitat for about 20-28 lynxes. This approach for assessing the habitat suitability could be applied for other species with scarce knowledge of distribution.

Key words: model, GIS, Strandzha, lynx