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MODELING *GAZELLA SUBGUTTUROSA* DISTRIBUTION IN BAMOU NATIONAL PARK USING MAXIMUM ENTROPY

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INTRODUCTION

Knowledge about the species distribution is critical to the management of wildlife habitats (Andren, 1994). However, direct survey of wildlife and exact determination of their distribution in large scale is costly, time-consuming and even impossible in some cases. On the other hand, as time-related changes in landscape structure alter the combination and frequency of species (Anderson and Gutzwiller, 1994), the application of species distribution prediction models seems essential. Differences between the various recommended models to predict species distribution stem from their use of statistical algorithms and required data about the presence/absence of species. Maximum entropy (MaxEnt), a prediction method that uses presence records to model species habitats, is especially beneficial when comprehensive data about a particular species is not available (Phillips et al., 2006). The current study sought to model *Gazella subgutturosa* distribution in Bamou National Park (Iran) by using MaxEnt.

MATERIALS AND METHODS

In order to do so, first, the variables which contributed to *G. subgutturosa* habitat preference in the studied area (including altitude, slope, direction, distance from villages, water resources, watering places, vegetation type, and land use) were listed based on the comments of environment experts. After preparing the maps and rasterizing them with a predefined cell size, the suitability of each habitat cell was expressed as a function of the environmental variables, i.e. cells with higher values were more suitable for *G. subgutturosa*.

RESULTS AND DISCUSSION: According to our findings, MaxEnt could efficiently model *G. subgutturosa* distribution in Bamou National Park. In fact, the method not only determined the species distribution by recieving a combination of presence data and environmental variables, but also considered the relations between the variables via employing both discrete and continuous variables. MaxEnt model was not highly sensitive to the number of presence records and effectively worked with as few as five presence records. Moreover, it could tolerate a spatial error of five kilometers in determining presence points. Our findings may be employed in the management of *G. subgutturosa* habitat and conservation of this species at Bamou National Park. Further studies are thus suggested to clarify the distribution of significant species in other protected areas in Iran.

Keywords: Gazella Subgutturosa, Distribution, Maximum Entropy

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