Modelling of big game populations when hunting is age and sex selective[1]

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Abstract

The forest surface at the Valencian Community ascends to 1.247.090 hectares, which represents the 53.6 % of the total surface of the Valencian territory (2.327.194 hectares) and indicates that our community has a doubtless forest character. In fact, the hunting constitutes one of the forest activities of higher socioeconomic importance, setting in the third place as a generating direct rent element of the mount. With a number of hunters bigger than to 100.000, it generates a considerable economic flow and use in rural environments.

Demographic models are a powerful tool to guide decisions when managing wildlife populations. The main objective of this work is to construct a sex-specific age-at-harvest mathematical model that can analyzes the dynamic evolution of a population due to its intrinsic characteristics (birth and survival rates) as well as the effect of hunting [2, 3, 4]. The aim is to be able to estimate the annual measures (improvements or hunting) that must be executed to take a population around the carrying capacity of the studied area, guaranteeing the maximum efficiency [1, 5]. Besides that, the model must leads the population to a given individual distribution among the different groups.

This model could be applied to work on the cinegetic plan of a hunting natural reserve. For that, the model is implemented and the computer simulation model is used to compare several alternative management strategies with respect to their economic performance and impact on population size.

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