

野放麋鹿种群灭绝风险与生存力分析

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摘要:

利用野放麋鹿*Elaphurus davidianus*种群检测数据建立了随机指数增长模型与生死过程模型,并对种群的未来状态、灭绝风险及种群生存力进行了分析。随机指数增长模型模拟表明,随机因素对种群动态有很大影响。随着方差的增大,灭绝概率逐渐增加。且在方差一定的情况下,继续放养小数量的麋鹿对种群灭绝概率影响不大。基于生死过程建立的随机模型计算出野放麋鹿种群在出生率为16.13%、死亡率为7.13%的情况下的种群数量翻倍时间为10年。同时就不同的出生率与死亡率分别模拟计算了95%把握下的种群数量倍增时间。

关键词: 随机模型; 生死过程; 野放麋鹿; 种群生存力分析

Extinction risk and population viability analysis of wild Pere David's deer

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Abstract:

The stochastic exponential growth model and birth-death process model were established to analyze the extinction risk and population viability with detected data of wild Pere David's deer populations. The first model showed that the stochastic factors performed a significant impact on population dynamics. The probability of extinction gradually increased as the increasing of variance. It had little effect on the probability of extinction to keep stocking a small number of deer under the condition of stable variance. In addition, the calculated population doubling time was 10 years with birth-death process model while the birth rate was 16.13% and the death rate was 7.13%. At the same time, the population doubling time on 95% confidential level was calculated with different fertility and mortality.

Keywords: stochastic model birth-death process wild Pere David's deer population viability analysis

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