

Analysis of the Trojan Y-Chromosome Eradication Strategy

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The Trojan Y-Chromosome (TYC) strategy is a proposed method to eradicate an invasive species. The strategy consists of introducing sex-reversed males containing two Y chromosomes into a habitat to skew the sex ratio of subsequent generations toward an increasing number of males. A new mathematical model that incorporates both a strong Allee effect and intraspecies competition between supermales and wild-type males for female's mates is provided. The efficacy of the strategy is examined through the mathematical model. The influence of the frequency and amplitude of introduction on the strategy effectiveness will also be discussed.