



Patuxent Science Meeting 2004 Poster Abstract

Evaluating immunocontraception for managing overabundant white-tailed deer in suburban environments

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Immunocontraception is frequently proposed as an alternative to lethal removal of females for deer management. However, little information is available for evaluating the potential of applying immunocontraceptives to free-ranging populations. Our objectives were to estimate effort required to apply porcine zona pellucida (PZP) to individual white-tailed deer (*Odocoileus virginianus*) and assess the utility of using immunocontraception to control growth of deer populations. The study was conducted in a 43-km² suburban community with about 400 deer. Effort per deer was measured as time required to capture and mark deer, and then to apply booster immunocontraceptive treatments by remote injection. Estimates of numbers of females to treat to control population growth were based on the generalized sustained-yield (SY) model adapted for contraception of females. The SY curve was calibrated using data on deer abundance acquired from aerial population surveys and nutritional condition of females removed by a concurrent culling program. We conclude that contraception can be used to control deer populations within small geographic areas (<5 km²). Estimating cost is dependent on deer population density, approachability of individual deer, access to private and public land, and efficacy of the contraceptive treatment. For large areas, cumulative effort for treatment will increase exponentially because some deer were more difficult to approach than others. Potential of using immunocontraception at low deer population densities (<25% ecological carrying capacity) is limited by the interaction of the proportion of females in the population and treatment efficacy, as well as encounter rates. Immunocontraception has the best potential for holding suburban deer populations between 30 and 70% of ecological carrying capacity, but is likely to be useful only in localized populations when the number of females to be treated is small (e.g., <200 deer).