Hastings Deer Immunocontraception Study

WHY HASTINGS-ON-HUDSON IS PURSUING IMMUNOCONTRACEPTION

Like many communities, the Village of Hastings-on-Hudson has a significant white-tail deer population that has resulted in numerous negative impacts, including car-deer collisions, property damage, over-browsing of the woods and the spread of various diseases. The Village has examined a range of alternatives and has settled on embarking on a study of immuno-contraception to examine its impact on the local deer population.

Two lethal options were examined and rejected:

1. Hunting
   Hunting is constrained both by County law (which only permits bow hunting in parks) and New York State DEC law which limits hunting to no closer than 500 feet from school buildings and homes which have not given permission. Bow hunting would be limited to only one location, limited in size, in an isolated corner of the village and is therefore impractical. Furthermore, hunting would run into substantial annual cultural resistance, making an annual hunt a divisive event.

2. Net and Bolt
   "Net and Bolt" involves trapping deer by luring them under nets and then dispatching them by using a "captive bolt", a device used in slaughter yards to kill deer. The method, only used in a few communities, would be divisive and problematic to implement because it could be easily disrupted. While the Village secured a permit, it was never used and this concept never left the early planning stages.

We then examined non-lethal options.

1. Surgical Sterilization
   We examined the possibility of surgically sterilizing deer. This is being tried near Cornell and, while effective, involves first sedated the deer and then performing a surgical operation by a trained veterinarian in a temporary field hospital. We decided that this would be too expensive on an annual basis.

2. Immunocontraception
   We examined the field studies of immunocontraception (Fripp island, Fire Island) and realized that they were successful in bringing down deer populations within 5 years by more than 50%. If effective in a community like ours, and the production of the immune vaccine became industrialized, the ultimate annual cost would be brought down to low single-digit thousands of dollars. We decided that this approach was worth studying and, if effective, could be a practical method of lowering deer numbers.

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W are seeking to bring down the deer population by 35-45% over five years. This rate is slightly faster than that seen in the Fire Island study, but slightly slower than that observed at Fripp Island. The study will include the collection of metrics that will seek to determine whether any drop in population levels will have a concurrent impact on the negative impacts of the deer.

To do so, we will seek to inoculate as many does as can be reasonably captured during the period allowed by the DEC license with a immunocontraceptive (PZP, derived from a pig protein). We will then repeat this effort over four subsequent years, monitoring whether the fawn population drops, and whether the lower population will positively impact other metrics that the project will track.

Although the village is bordered on to the west by the Hudson River, and parkways and other geographic boundaries may inhibit deer ingress from the east, immigration routes from the north and south may permit deer to enter and leave the site. Thus, the absence of clear borders poses a new and challenging environment for the application of contraception for management of deer populations.

In summary, this trial will focus on three questions.

1. What will be the effects on fawn production and population growth of PZP contraceptive treatments in an open suburban population of white-tailed deer?
2. What changes in deer impacts on vegetation and vehicle safety are associated with the contraception project?
3. Will the particular formulation of the PZP we will use (FIA emulsion plus PZP/QA-21 pellets) provide longer-lasting contraceptive efficacy than just PZP/FIA emulsion alone?