Evaluating surgical sterilization as a management technique for overabundant suburban deer populations

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Introduction

- Considerations
- Site feasibility
- Fertility control toolkit
- Technique selection
- Fertility control as a management tool
Why use fertility control?

- General Public Acceptance
- Program Budget & Goals
- Legal Restrictions
- State Agency Wildlife Managers
- Municipalities
- Safety Concerns
Where is fertility control feasible?

- Road Network & Lot Size
- Size of Area / Scope of Project
- Program Budget
- Legal Restrictions
- Deer Behavior

- Safety Concerns
Fertility Control Toolkit

- Immunocontraception
  - GnRH
  - PZP and SpayVac®

- Surgical Sterilization
  - Tubal Ligation
  - Ovariectomy
  - Vasectomy
Which technique to choose?
Evaluating Fertility Control: Study Areas
Study Area: Village of Cayuga Heights, NY

- 1.8 mile²
- Population ~3,600
- 850 properties
- 125 deer/mile²

Concerns
  - DVC
  - Vegetation Loss
  - Lyme Disease
Study Area: Cincinnati, OH

- 1 mile$^2$
- Population ~3,000-4000
- ~800-1000 properties
- 99 deer/mile$^2$
- Concerns
  - Forest Health
Study Area: City of Fairfax, VA

- 6.3 mile\(^2\)
- Population ~22,500
- 8350 properties
- 14 deer/mile\(^2\)
- Concerns
  - Landowner Complaints
Study Area: NIH Campus, Bethesda, MD

- 0.5 mile²
- Population ~20,777 staff
- Office Park
- 94 deer/mile²
- Concerns
  - DVC
  - Vegetative Loss
Study Area: The Villages, San Jose, CA

- 1.1 mile$^2$
- Population ~3,500
- ~2,500 condos/houses
- 155 deer/mile$^2$
- Concerns
  - Landscape Damage
Evaluating Fertility Control: Methods
Methods: Remote Immobilization
Methods: Immobilized Deer Recovery
Methods: Surgical Preparation
Methods: Local Site Adaptation
Methods: Incision Site
Methods: Immobilization Drug Reversal
Methods: Recovery
Methods: Population Estimates
Evaluating Fertility Control: Results
## Evaluating Fertility Control: Results

<table>
<thead>
<tr>
<th>Study Area</th>
<th>Pop. Est. (Deer/mi²)</th>
<th># Sterile (% Sterile)</th>
<th># Sterile (% Sterile)</th>
<th>% Decline (# Deer)</th>
<th># Sterile (% Sterile)</th>
<th>% Decline (# Deer)</th>
<th># Sterile (% Sterile)</th>
<th>% Decline (# Deer)</th>
<th># Sterile (% Sterile)</th>
<th>% Decline (# Deer)</th>
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<tbody>
<tr>
<td>CA</td>
<td>170 (155)</td>
<td>99 (100)</td>
<td>9 (100)</td>
<td>25 (128)</td>
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<td>40 (102)</td>
<td>0 (100)</td>
<td>41 (100)</td>
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<td>MD</td>
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<td>5 (100)</td>
<td>33 (30)</td>
<td>8 (100)</td>
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<td>NY</td>
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<td>137 (96)</td>
<td>12 (98)</td>
<td>32 (153)</td>
<td>0 (~95)</td>
<td>56 (100)</td>
<td>5 (~95)</td>
<td>70 (68)*</td>
<td>82 (40)*</td>
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<td>VA</td>
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<td>18 (30)</td>
<td>18 (91)</td>
<td>27 (66)</td>
<td>6 (93)</td>
<td>42 (53)</td>
<td>5 (84)</td>
<td>47 (48)</td>
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</tbody>
</table>
Evaluating Fertility Control: Results

- Average population decline after 1 year: 27%
- Average population decline in 3-5 year programs: 49%
- Minimal immigration
- Minimal surgical/capture mortality - ~2.7%
- Compatible with suburbia
Evaluating Fertility Control: Discussion
Pursuit Effort Relative to Deer Density

Person-hours

Deer per mile$^2$
What We Know

• Significant population reductions can be achieved with 90+% of females sterile and without any lethal management methods.

• Site characteristics are critical to accurately understand scope and feasibility before moving forward.

• Immigration risks seem minimal to date.

• Low mortality rates from capture and surgery.

• Costs for initial (Year 1/Year 2) high-volume capture range from $1.2k - $1.5k/deer with professional labor and $500-$800/deer with volunteer labor.
What We Don’t Know

- Quantify immigration changes as densities decline.
- How to best reduce program costs (time/scale).
- Behavioral changes resulting from infertility.
Questions?