

A roadmap for using fertility control inhibitors for dog population management



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From the laboratory to the field

- ❑ Linking animals with products: why different dogs need different contraceptives?
- ❑ Fertility control for managing dog populations: lessons learned from wildlife management:
- ❑ A proposed framework to use fertility control in dog population management





1st International Conference on Dog Population Management
DPM2012@fera.gsi.gov.uk





Why different dogs need different contraceptives?



Confined vs. roaming dogs	Type of contraceptive
<ul style="list-style-type: none"> ❑ Accessibility ❑ Life span and health ❑ Reproduction planned ❑ Reason to sterilize 	<p>Single vs. multiple doses, timing of administration during cycle</p> <p>Permanent vs. temporary sterilization</p> <p>Individual behaviour, population control</p>


fatchinfo.wordpress.com

Fertility control for different dogs

Confined vs. roaming dogs	Type of contraceptive
<ul style="list-style-type: none"> ❑ Side effects of fertility inhibitors ❑ Effectiveness & duration of infertility ❑ Cost 	<p>Acceptance: individual or population</p> <p>100% effective or predictable duration and effectiveness at population level</p> <p>Met by owners or by others</p>


fatchinfo.wordpress.com

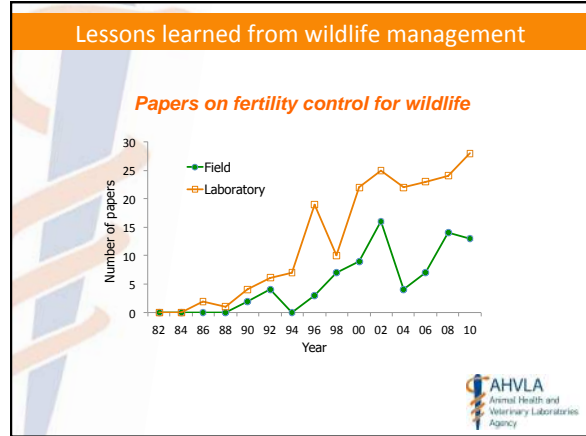
Meet ICon™, the ideal contraceptive ...

- Injectable, 1-2 doses
- No unacceptable side effects
- Effective in the long-term
- No interactions with other drugs
- Inexpensive to produce
- Registered for companion animals




Laboratory

Practical applications





Lessons learned from wildlife management

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□ Immunocastration on populations of horses and feral goats: reduced pop size, no negative side effects, enhanced survival
Turner & Kirkpatrick 2002, Kirkpatrick & Turner 2008, Cowan in prep.
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□ Possums: sterilised males < home range
Leptospirosis transmission < by 63-88% due to < contact rate
Ramsey et al. 2007
- 
□ Tubally ligated but hormonally competent females extended breeding seasons and attracted > males than controls
Ji et al. 2000
- 
□ Ring-tailed lemurs : contraception alters olfactory cues that signal fertility, individual chemical "signature" and relatedness, and may disrupt social interactions, kin recognition and mate choice
Crawford et al. (2011)

Lessons learned from wildlife management: fertility control from individuals to populations


- Proportion of population that must be targeted to achieve the goal?
- How feasible to reach goal in time?
- How long will it take?
- Long-term effects on welfare and survival?
- Do fertility inhibitors affect behaviour?
- What are the costs?
- Can costs be sustained?



Hobbs et al 2000, Bradford & Hobbs 2008

Lessons learned from wildlife management: fertility control from individuals to populations

- SMART goals: Decrease population size?
Disease control/elimination?
Decrease impact by dogs?
- Effectiveness
- Humaneness
- Costs
- Public support and response
- Feasibility
- Sustainability

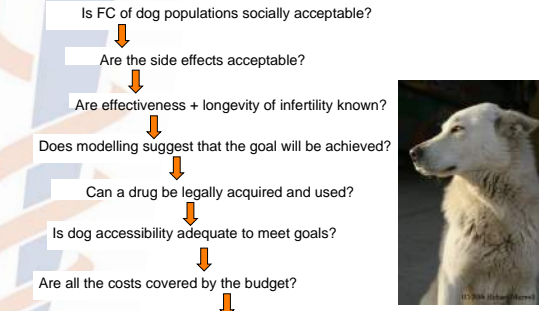


Adding the human component

- Integrating education and fertility control
- Increased "immigration"?
- Costs of contraceptives/sterilants met by "owners"?
- Alternatives to fertility control?




A framework to use fertility control in DPM




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graph TD
    Q1[Is FC of dog populations socially acceptable?] --> Q2[Are the side effects acceptable?]
    Q2 --> Q3[Are effectiveness + longevity of infertility known?]
    Q3 --> Q4[Does modelling suggest that the goal will be achieved?]
    Q4 --> Q5[Can a drug be legally acquired and used?]
    Q5 --> Q6[Is dog accessibility adequate to meet goals?]
    Q6 --> Q7[Are all the costs covered by the budget?]
    Q7 --> A[Implement, monitor and check results against target]
    
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Massei & Miller (submitted)



Conclusions



- Different dogs (owners, context) require different fertility control inhibitors
- Collaboration between ecologists, veterinarians and stakeholders will ensure the transfer of tools and methods from wildlife management to dog population management
- A framework of criteria could inform decisions on the use of fertility control in dog population management

Thank you ACC&D !!!

