

Approaches to disease control in domestic dogs for carnivore conservation



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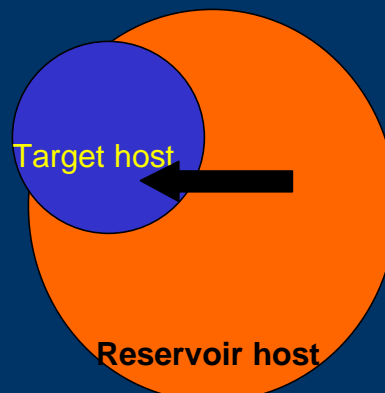
1. CTVM, University of Edinburgh & Frankfurt Zoological Society

2. Ethiopian Wildlife Conservation Organisation

3. Tanzanian National Parks

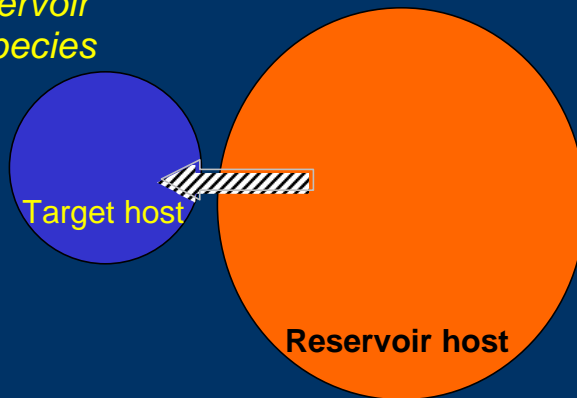
Disease management options 1.

*1. Reduce transmission
between reservoir
and target species*



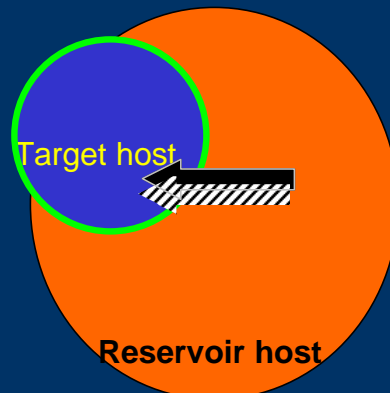
Disease management options 1.

1. *Reduce transmission between reservoir and target species*



Disease management options 1.

1. *Reduce transmission between reservoir and target species*



1. Reducing transmission between domestic dogs and wildlife

Keep populations separate



1. Reducing transmission between domestic dogs and wildlife

Tools to enforce separation....

a. Fences
Kruger
Madikwe

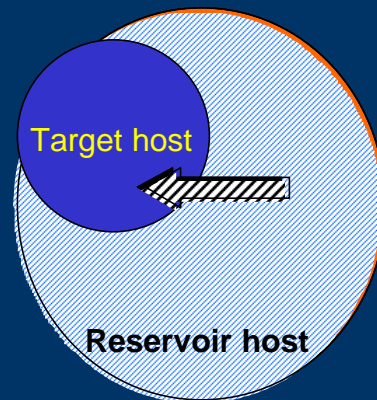


b. Tie up dogs

Disease management options 2.

1. *Reduce transmission between reservoir and target species*

2. *Decrease disease incidence in reservoir population*



2. *Reduce dog reservoir incidence*

a. *Reduce dog population size*

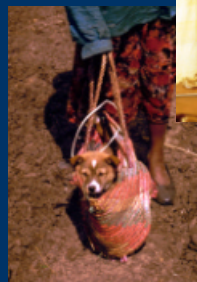
Culling



Limit reproduction



Change dog ownership patterns



2. Reduce dog reservoir incidence

a. Reduce dog populations

Feasible?

Dog functions

Guarding

Livestock

Homesteads

Cleaning



Cultural attitude change?

Human densities



2. Reduce dog reservoir incidence

b. Dog vaccination

Good vaccines for dogs, particularly for viral diseases

Additional community benefits: public health

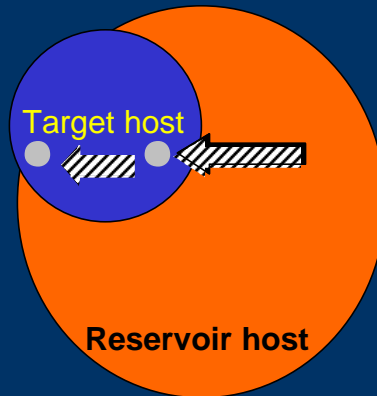
Expensive, extensive and unless eradicated, must continue.



Increasingly a part of PA management

Disease management options 3.

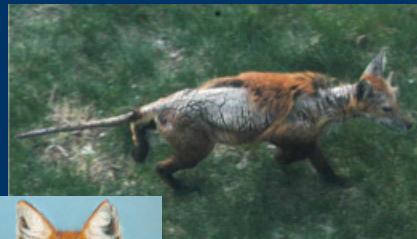
1. *Reduce transmission between reservoir and target species*
2. *Decrease disease incidence in reservoir population*
3. *Decrease susceptibility or spread in target species*



3. Reducing susceptibility or spread in target species

a. Treatment

Arctic foxes



b. Vaccination

African wild dogs
Ethiopian wolves
Channel Island foxes



What approach is best? Cost

Site (No. wolves)	Cost/wolf Wolf vax £	Factor increase for dogs
Bale (250)	39	1.4
Arsi (50)	48	5.4
Simien (40)	72	3.6
N. Wollo (40)	60	4.0
S. Wollo (30)	83	1.9
Guna (25)	91	1.8
Menz (20)	85	1.8



What approach is best?

Cost

Feasibility

Vaccination: dogs +/- wildlife

Politics

Local culture

Epidemiology

Ecology



Situation specific
But limited options

Acknowledgements

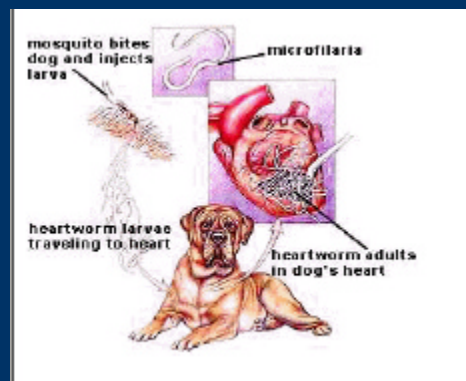
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Frankfurt Zoological Society

2.Reduce dog reservoir incidence

a. Treatment

Viruses

Bacteria, parasites,
fungi, mycoplasmas



1. Reducing transmission

<i>Advantages</i>	<i>Disadvantages</i>	<i>Chance of success</i>
No intervention with target species	<p>Often unfeasible</p> <p>Cultural constraints</p> <p>Conflict with dog function</p> <p>Carnivore-proof fences</p>	Variable and no guarantee

2. Reduce reservoir incidence

<i>Advantages</i>	<i>Disadvantages</i>	<i>Chance of success</i>
No intervention with target	<p>No guarantee of protection in target</p> <p>Scale: logistics, expense</p>	
a. Treatment	a. Limited availability of effective drugs	a. Generally limited
b. Culling	b. Cost, welfare, logistics, sustainability	b. Low, not acceptable

2. Reduce disease incidence in dog reservoir

<i>Advantages</i>	<i>Disadvantages</i>	<i>Chance of success</i>
c. Limit reproduction	c. Species specificity. Technology availability Cultural resistance	c. Reasonable in theory as adjunct
d. Reduce ownership	d. Cultural resistance	d. ? Challenging
e. Vaccination Added benefits Often Feasible	e. General caveats	e. Often good

3. Reducing susceptibility or spread in target species

<i>Advantages</i>	<i>Disadvantages</i>	<i>Chance of success</i>
<i>Direct protection of individuals</i>		<i>Last chance in emergency</i>
a. Vaccination	a. Availability of safe and effective vaccines	a. Can be high
b. Treatment	b. Availability of therapies	b. Generally low but good for some