

# Modelling the effects of fences and fence penetrability on population viability of endangered African wild dogs (*Lycaon pictus*)

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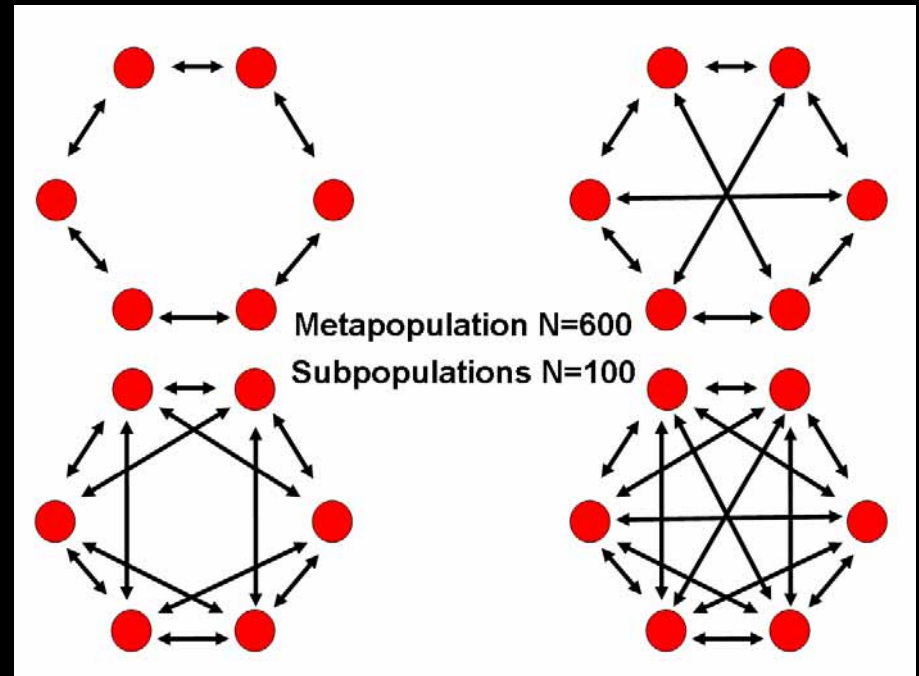
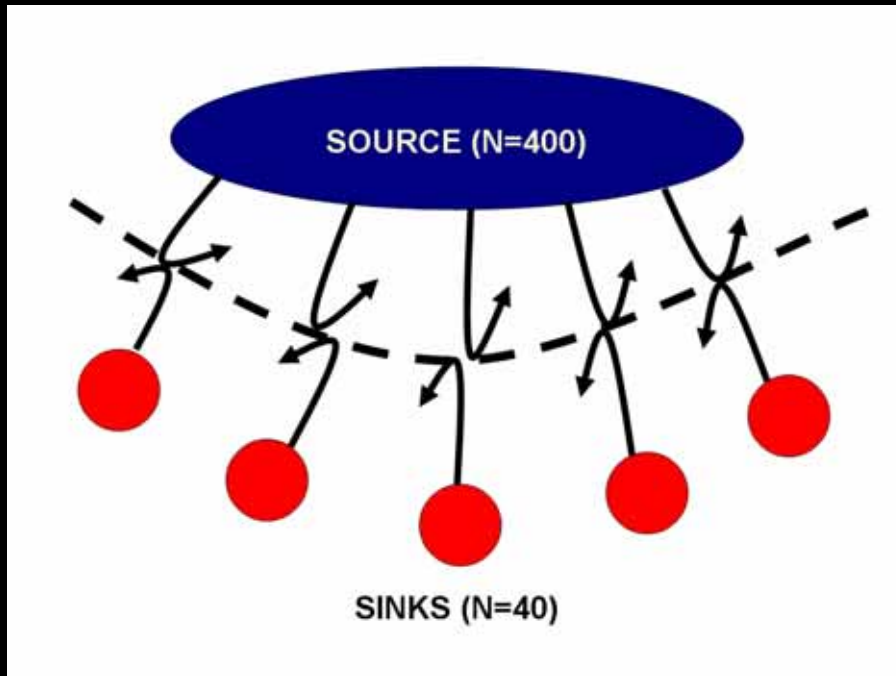
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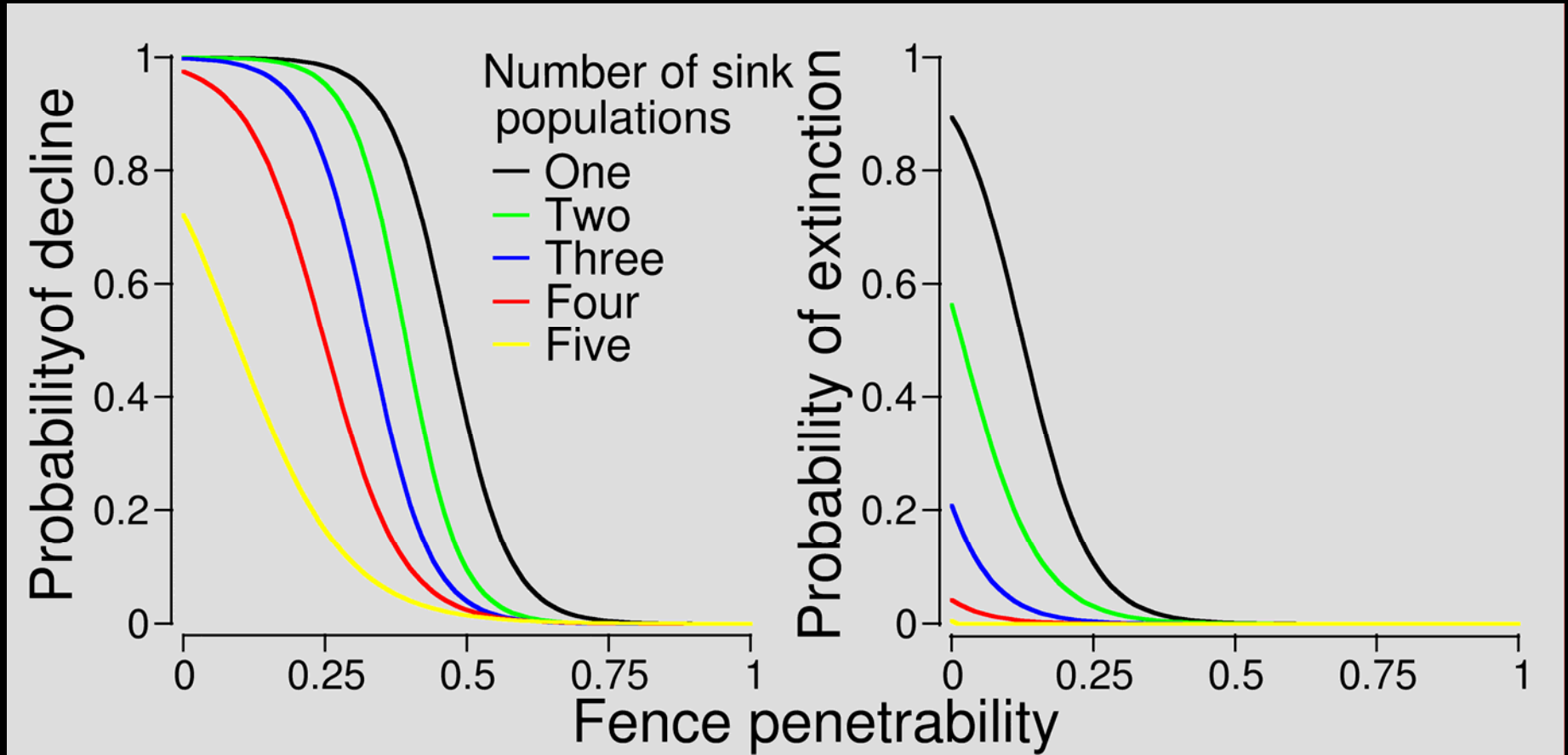
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# Stochastic population model

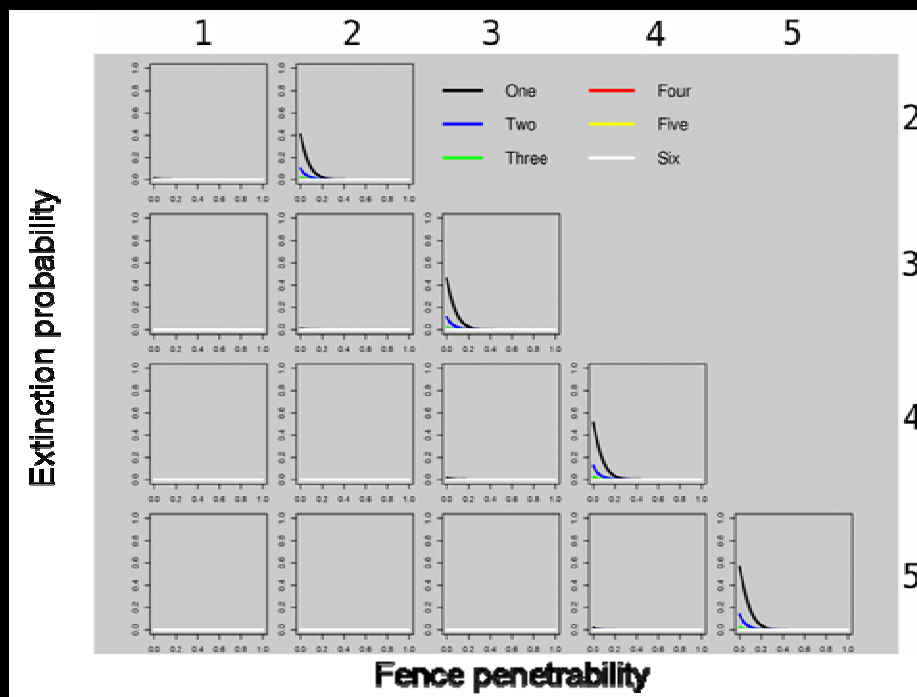
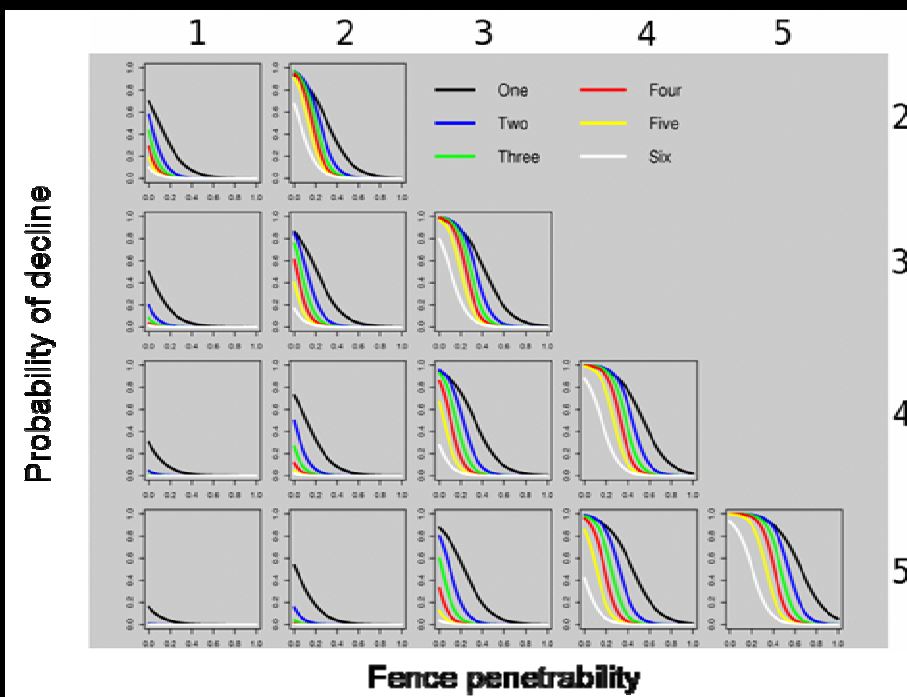


N = 600  
Time = 25 years

# Source-sink



# Metapopulation



Population type	Number of connections	Number of fenced connections	Decline			Extinction		
			25%	50%	75%	25%	50%	75%
Surce-sink			0.53	0.47	0.41	0.19	0.12	0.06
Metapop	2	1	0.23	0.10	0	0	0	0
		2	0.44	0.31	0.18	0.04	0	0
	3	1	0.13	0	0	0	0	0
		2	0.09	0.21	0.34	0	0	0
		3	0.56	0.43	0.3	0.05	0	0
	4	1	0.03	0	0	0	0	0
		2	0.24	0.12	0	0	0	0
		3	0.46	0.33	0.20	0	0	0
		4	0.67	0.54	0.41	0.06	0	0
	5	1	0	0	0	0	0	0
2		0.15	0.02	0	0	0	0	
3		0.36	0.23	0.10	0	0	0	
4		0.57	0.44	0.32	0	0	0	
5		0.79	0.66	0.53	0.07	0.01	0	

# Conclusions

**Fences can have substantial effect on the viability of populations of African wild dogs**

**Fences efficient in limiting wild dog migrations can generate substantial extinction probabilities within 25 years**

**The connectivity within a meta population will affect the way fences affect population viability.**

**Periodic translocations of animals between fenced populations may be necessary to maintain sufficiently large effective population sizes**