

Ecological Impacts on Opportunity for Sexual Selection in Red Deer

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Ecology and Sexual Selection

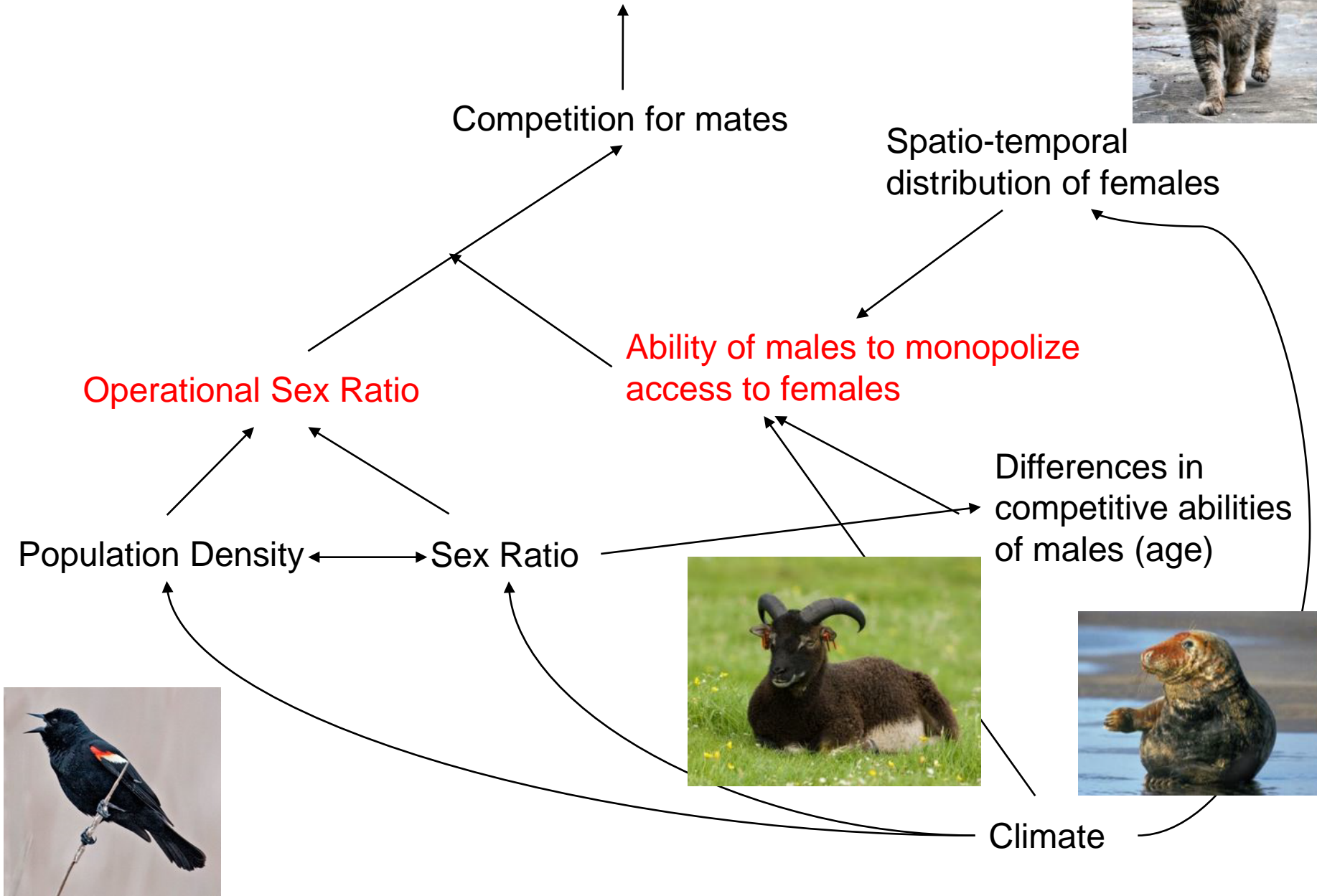
‘Sexual selection...differences in reproductive success, caused by competition over mates, and related to the expression of the trait’ Andersson 1994



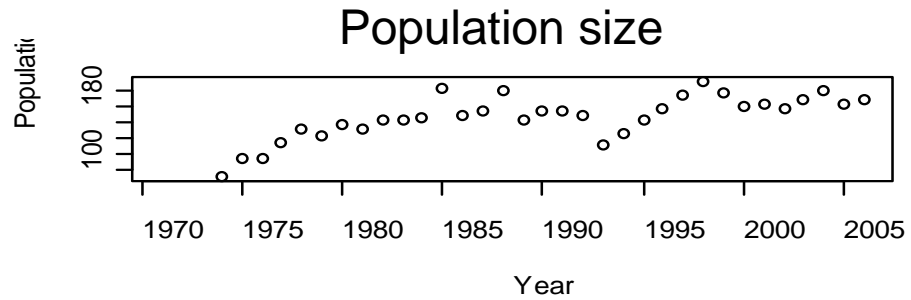
Ecology can...

- determine evolutionary dynamics of sexually selected traits...
- change the magnitude or direction of sexual selection (Kokko and Rankin 2006)
- ...but the consequences can vary between populations, and depend on interactions between factors

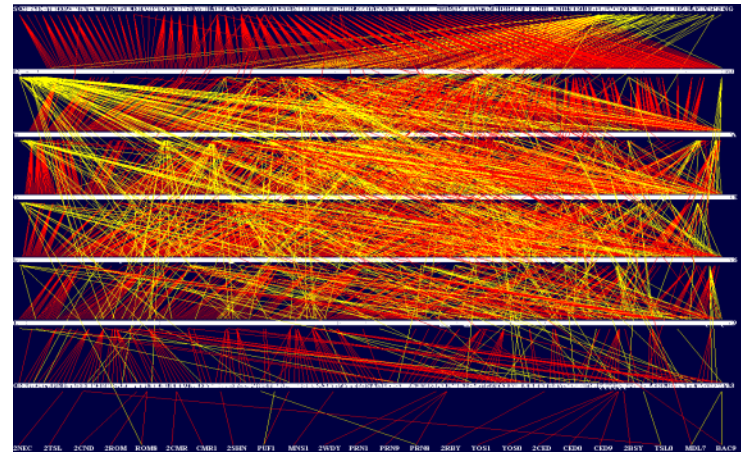
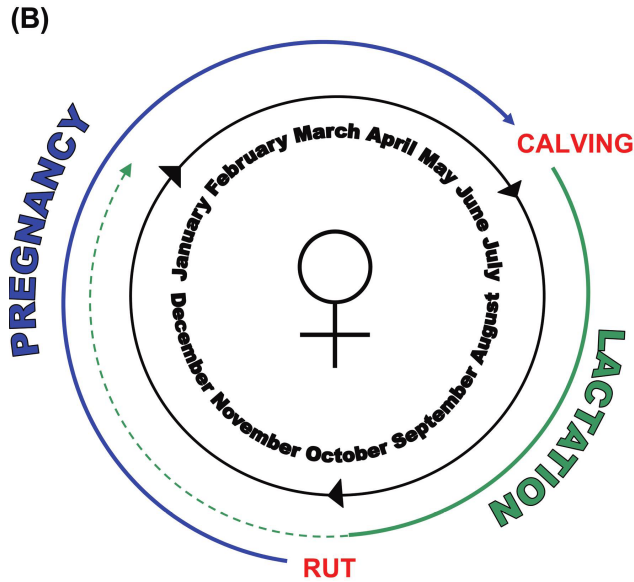
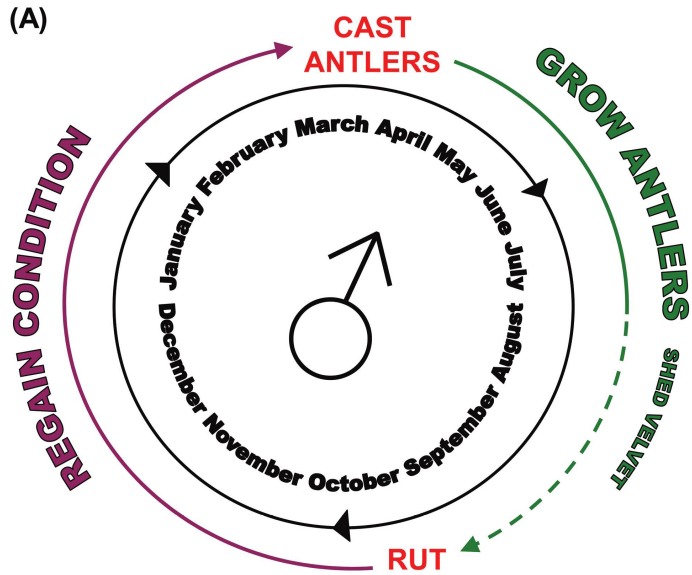
Sexual Selection



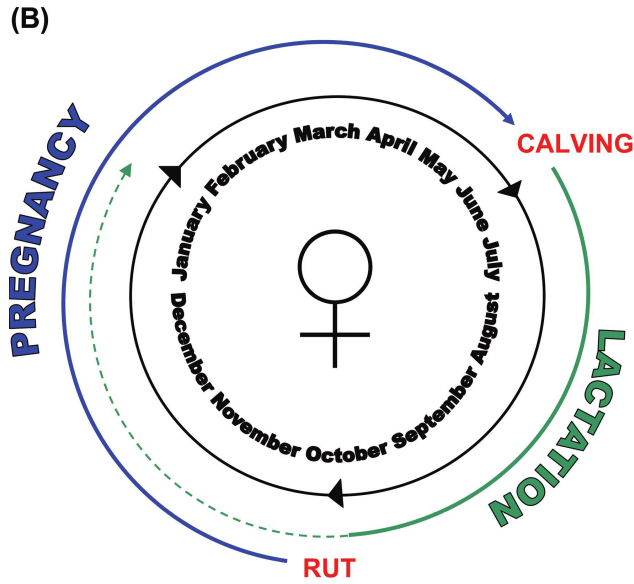
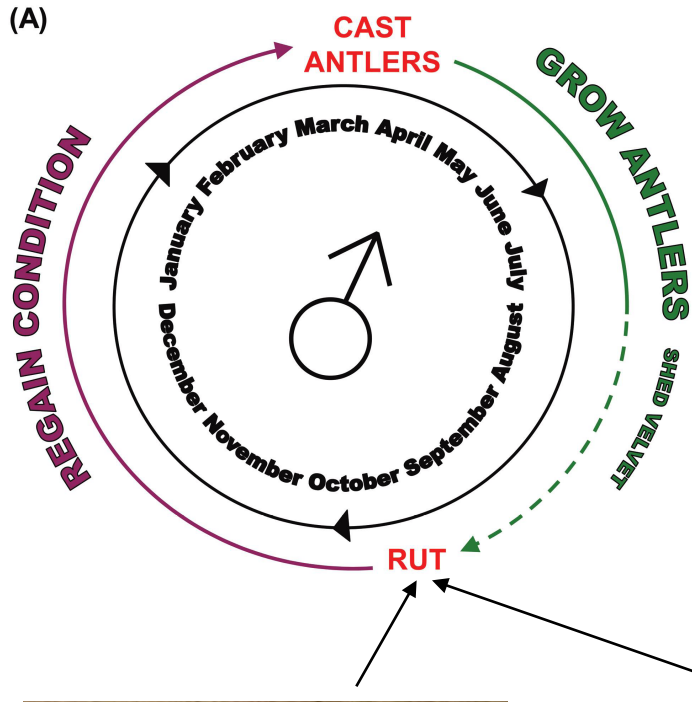
Red deer on the Isle of Rum



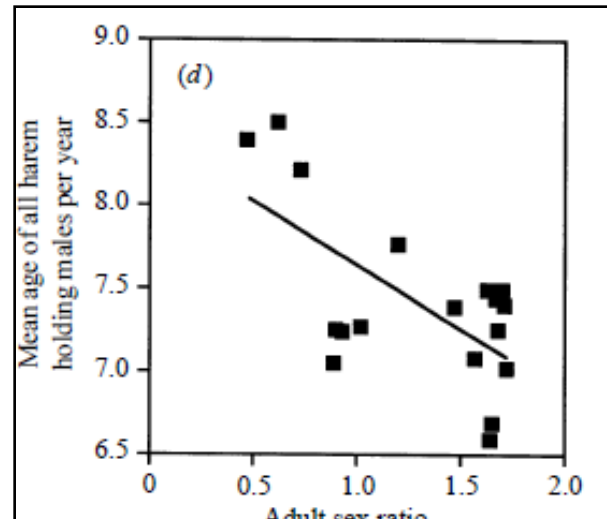
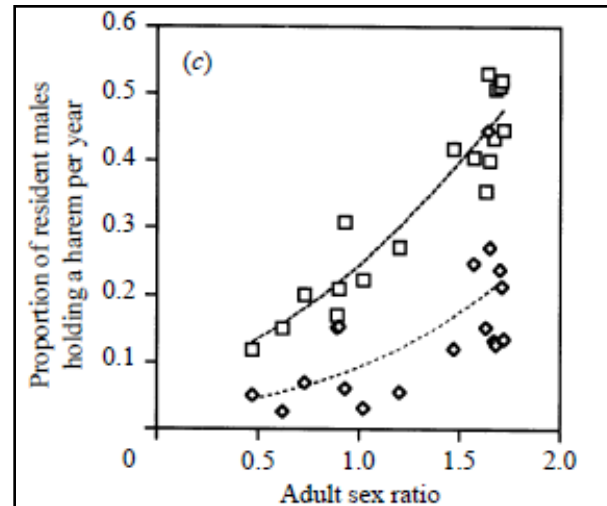
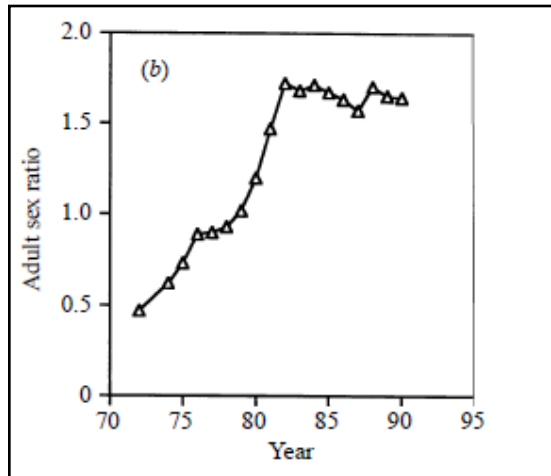
Red deer on the Isle of Rum



Red deer on the Isle of Rum

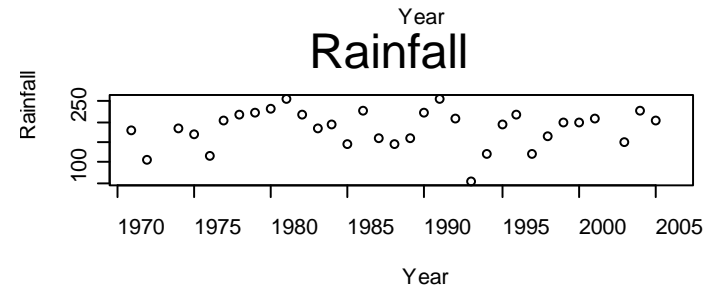
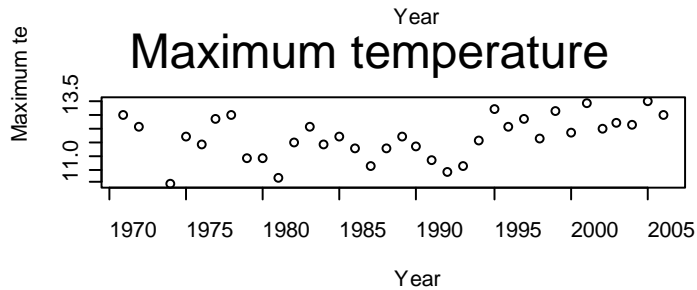
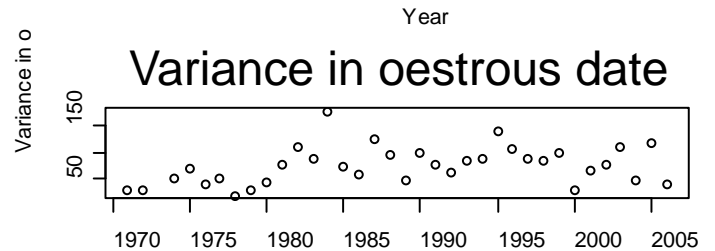
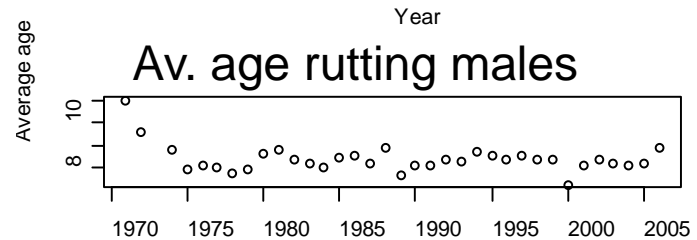
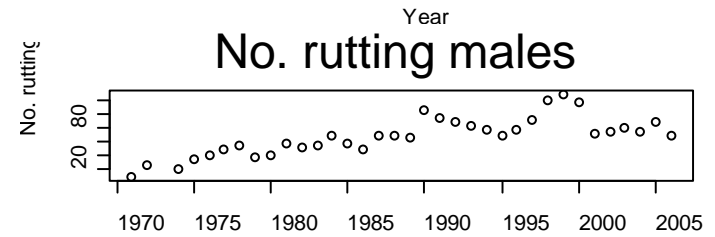
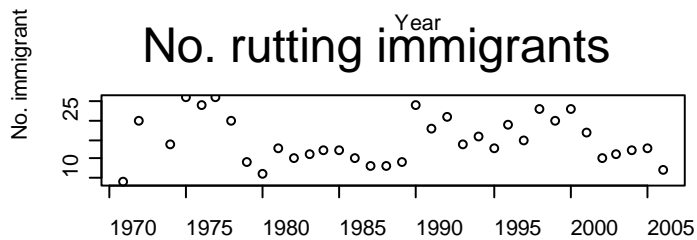
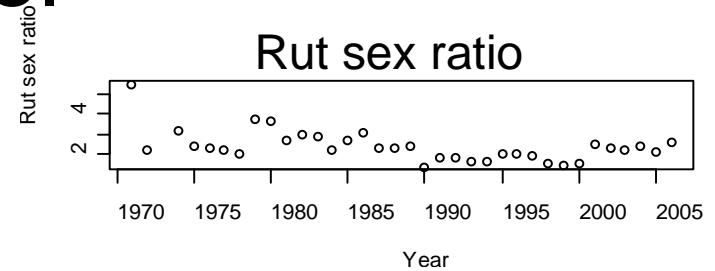
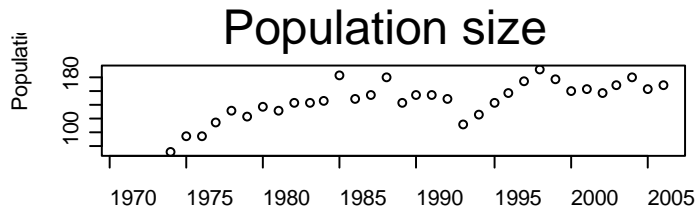


Red deer on the Isle of Rum



Clutton-Brock *et al.*
1997 PRSB

Ecological Factors at the Population Level



Opportunity for selection

“The upper limit for changes in phenotype caused by variation in mating success”

$$\frac{\text{Variance in mating success}}{(\text{Average mating success})^2}$$

i.e. variance in relative fitness

(Crow 1958, Arnold and Wade 1984)

Opportunity for Selection: population level results

The interaction between male density and temporal female availability

