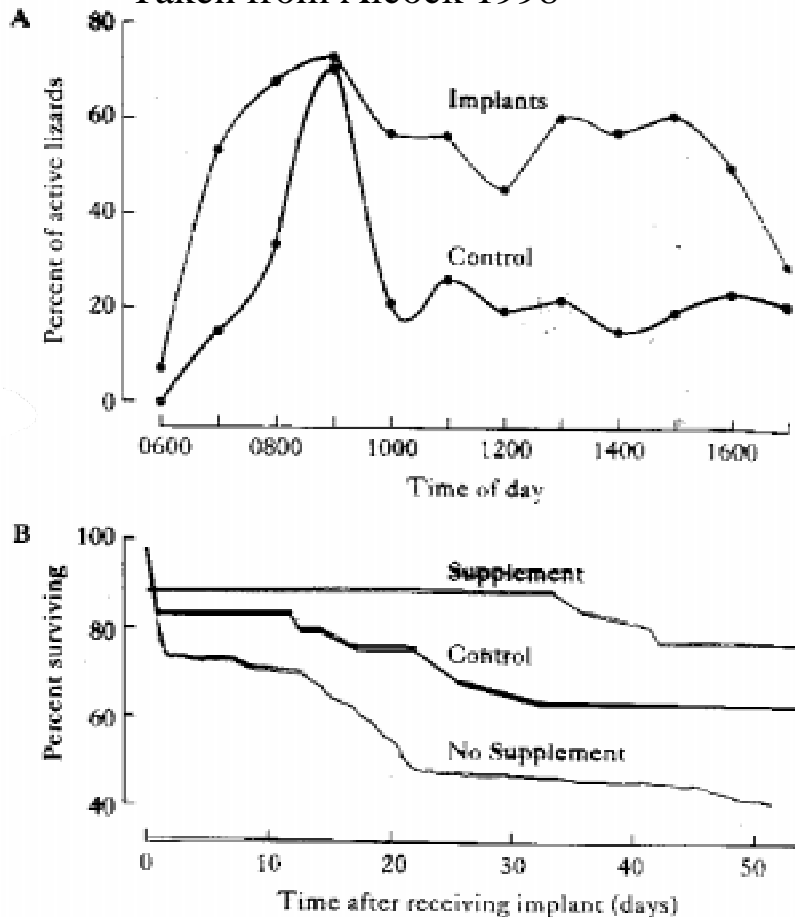
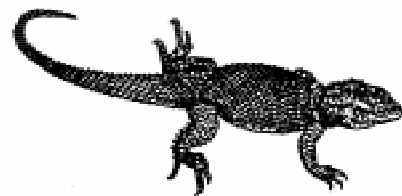


# Testosterone enhancement in lizards

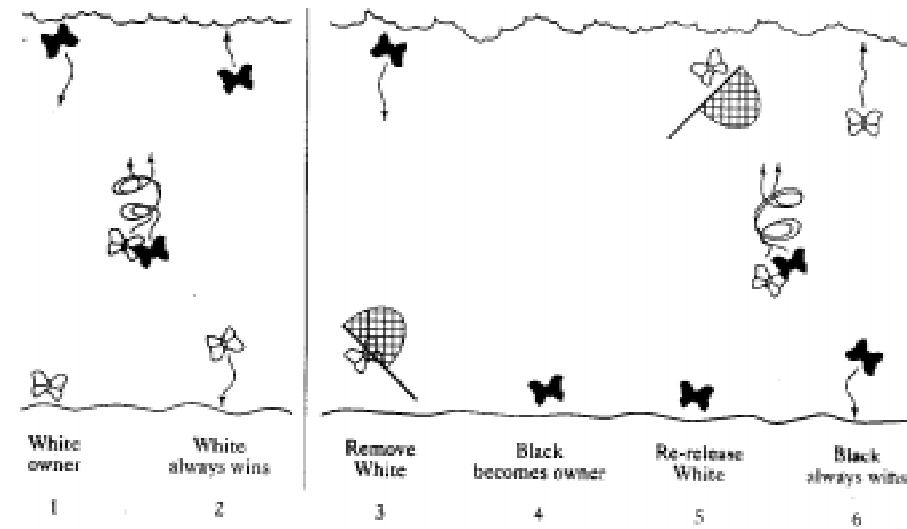
Taken from Alcock 1998



Energetic costs of territoriality. Males of Yarrow's spiny lizards became unusually territorial during the summer when they received an experimental testosterone implant. (A) The experimental males spent much more time moving about than did control males. (B) Testosterone-implanted males that did not receive a food supplement disappeared (and presumably died) at a faster rate than did control males. Testosterone-implanted males that received a food supplement survived as well or better than controls; thus the high mortality experienced by the unfed group probably stemmed from the high energetic costs of their induced territorial behavior. (Source: Marler and Moore 1989, 1991)

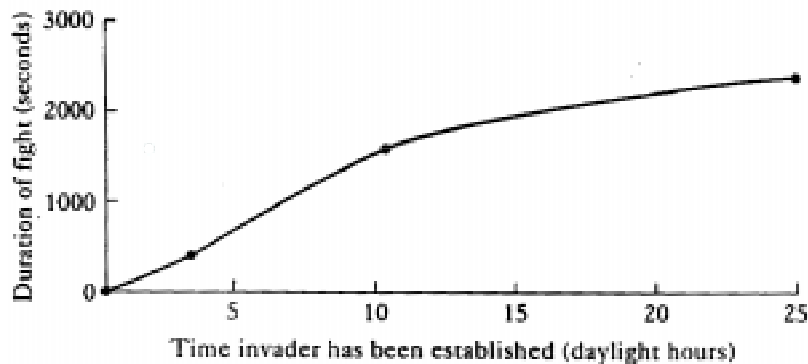


## The arbitrary-rule hypothesis. Experimental evidence. (Taken from Alcock 1998)



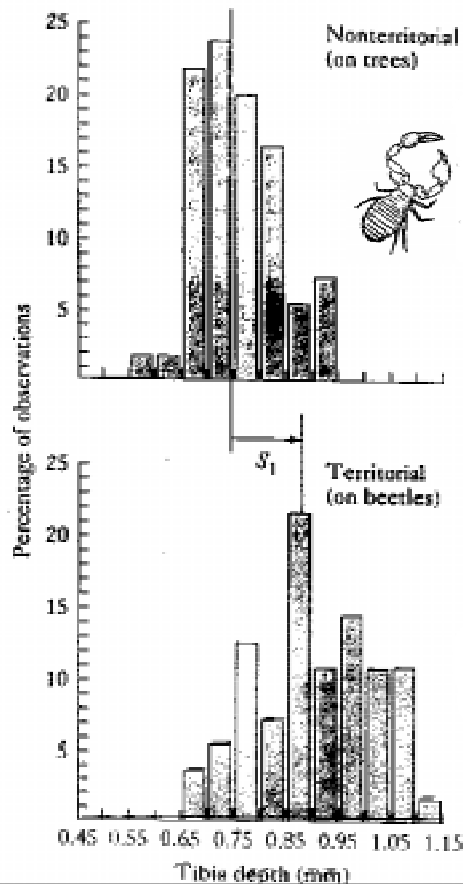
The resident always wins? An experimental test of the hypothesis that territorial resident males of the speckled wood butterfly always win conflicts with intruders. When one male (“White”) is the resident, he always defeats intruders (1,2). But when the resident is temporarily removed (3), permitting a new male (“Black”) to settle on his sunspot territory (4) then “Black” will defeat “White” upon his return after release from captivity. (Source: Davies 1978). But note that this was in a condition when sunspots were plentiful, and unoccupied ones were frequently available nearby.

## The Payoff Asymmetry hypothesis test by Krebs on great tits. (Taken from Alcock 1998)

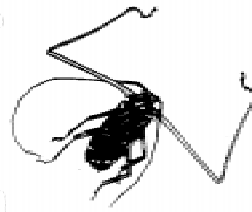


In great tits, the more time a new resident has been on a territory, the longer the fights between that individual and the original resident (which was temporarily removed from his territory by the experimenter). (Source: Krebs 1982)

## Examples related to the resource-holding power asymmetry hypothesis: taken from Alcock (1998)



Body size, territoriality and reproductive success in a tropical pseudoscorpion. During the generations when the pseudoscorpions are living on trees, where males are not territorial, being large carries no reproductive advantage. But when the tiny pseudoscorpions disperse on the backs of beetles, males fight for space, favoring large individuals. As a result, the mean size of males shifts upward during the dispersal generation by an amount shown here as  $S_1$ . (Source: Zeh 1997)



Resource-holding power and the resident advantage in a beewolf wasp. The graph plots the size of the original resident (as measured by head width) against the size of the replacement male that occupied his territory upon his removal. Points that fall above the ascending line represent cases in which the original resident was larger than the replacement. (Source: O'Neill 1983)

