

## **On the function of intra and interspecific territoriality.**

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Concerning territoriality, the role of food storage and partitioning has often been stressed. The hypothesis, that food constraints produce territoriality, or territoriality only lowers nest predation by providing lower prey densities was investigated in a mainly two dimensional habitat.

Food supply, abundance and seasonal distribution were compared in five species of Reed warblers and related to the sexual and parental behavior of the males. The Great reed warbler (GRW), the only facultative polygynous species, inhabits the best and largest territories with the most heterogenous resources. The territories of the Sedge warbler (SW) show the second highest food abundance. This species has been shown to be opportunistically polygynous (see Kelsey and Leisler in this paper). In contrast, the strictly monogamous Moustached warbler (MOW) and the Reed warbler (RW), are inhabiting the poorest sites. In addition, males of these species show the greatest amount of parental investment, in terms of feeding and incubating offspring.

Food abundance differs between different vegetation types thus birds can use habitat cues like vegetation density or type of vegetation to estimate food abundance and territorial quality. In general, food increases with the season but it is available very late in GRW and RW territories (but when food is needed at most). Differences in food abundance also increase between territories of an individual species with time (especially in the GRW).

Food dispersion is different in the five species too and thus the predictability of food is very high (regular dispersion) for the MOW and SW and very low (contagious dispersion) for the GRW.

But actually our results also show that when food is needed most, conspecific or congeneric individuals, although subordinated, can invade other territories, and at least three species (GRW, SW and MW) forage to a great extent outside of their territories. Thus the role of food should be less important for territoriality.

The high rate of nest predators and the two dimensional habitat structure force birds to nest more or less in the same height. The results show that nest predation is density dependent and follows the rules of the apparent competition hypothesis. Therefore, to lower nest mortality, birds should space their nests uniformly over a given area. The RW and the GRW show a random dispersions over their inhabited area whereas the MOW is actually regularly dispersed. Finally, examining interspecific spatial distribution of all three species together shows a strictly regular distribution pattern. So the function of spacing to avoid nest predation seems to be adaptive and perhaps more important than the protection of nutritive resources.

## **The incidence of polygyny in Marsh and Sedge Warbler.**

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A population of Marsh and Sedge Warblers were studied over three successive summers in the West-Midlands of England. The two species were sympatric and their territories showed some interspecific overlap but little intraspecific overlap. Interspecific chases were mainly initiated by the Sedge Warbler, the first of the species pair to arrive.

Some males of both species showed polyterritorial behaviour, producing song outside their primary territories during the early part of the breeding season. In Marsh Warblers this occurred mainly during the incubation phase. Polyterritorial males in Marsh Warblers were quicker to pair than non polyterritorial and suffered fewer first nest failures.



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