Competition and coexistence

Aggressive posture of a Moustached Warbler.
Joseph Beier had been studying the breeding biology of Great and Eurasian Reed Warblers in Franconian carp ponds for decades. He soon came to suspect that the two species somehow did not seem to ‘like’ each other. As he monitored their nests in the reed fringes, he noticed that he never found both species breeding at the same time in close proximity. So from 1981 onwards he began to record both the breeding biology data from the nests and also the distance between them. Sure enough, the nests of those Great and Eurasian Reed Warblers which were actively breeding at the same time as each other were at least 20 m apart. Only when the Great Reed Warbler young had fledged and moved away from the immediate nest surroundings were the Eurasian Reed Warblers able to move into the space vacated in order to start breeding (fig. 6.1; Beier 1993). Beier had thus noted a strong indication of pronounced interspecific competition between the two species (section 6.2).

This chapter deals with particular aspects of territoriality, and specifically with the question: ‘Under which conditions is it advantageous to be aggressive towards both conspecific individuals and those of other species?’ Exactly which resources are being defended by territory owners: a particular nest site, fertile females, a predator-free space in which to breed, or an area in which to forage? Important foundations in this debate were laid in the 1950s, at a time when the great societal and political themes for humans also revolved around competition and coexistence. After the Second World War, the market economies of the West were booming, and economic competition became one of the export commodities of the USA, while the Cold War conflicts with Eastern block countries became ever more intense. It is surely no coincidence that ecological research at that time was preoccupied with problems of competition and coexistence. Among the most hotly contested issues was the way in which species and individuals divided up their living space, rather like cutting a cake into portions, and how it is that all organisms are at the same time in a network with each other in ecological communities. The modern pioneers of ecological competition research in the 1950s were two ornithologists, David Lack and Robert MacArthur.