

The role of neighbours in territorial systems: when are they ‘dear enemies’?

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Abstract. Many territorial animals respond less aggressively to neighbours than to strangers (the dear enemy phenomenon). The dear enemy phenomenon generally has been assumed to represent neighbour–stranger interactions for all territorial systems. Here studies of territoriality are reviewed and the occurrence of the dear enemy phenomenon is shown to depend on the kind of territory studied: it tends to be present in studies of multi-purpose, breeding territories, but absent in studies of feeding territories. Moreover, whether a territory owner interacts less strongly with a neighbour than with a stranger in studies of colonial nesting birds is a function of nearest nest distance. These results support hypotheses that explain the dear enemy phenomenon based upon the relative threat presented by neighbours versus strangers, but not those based upon familiarity with neighbours versus strangers. Hence, the role of neighbours may vary depending upon territorial conditions, and an owner’s potential gains and losses from interactions with neighbours and strangers.

Many territorial animals respond less aggressively to intrusions by their territorial neighbours than to intrusions by non-neighbours (strangers). This difference in the intensity of territory owners’ responses to neighbours and strangers has been termed the ‘dear-enemy phenomenon’ (*sensu* Fisher 1954).

Recently, I found that female northern harriers, *Circus cyaneus*, defending winter feeding territories responded more aggressively to their territorial neighbours than to non-territorial floaters (strangers); i.e. they did not exhibit the dear enemy phenomenon (Temeles 1989, 1990). Consequently, the purpose of this review was to re-examine studies of the dear enemy phenomenon in order to determine the conditions under which it does, or does not, occur.

Although the dear enemy phenomenon has been documented for a variety of animal species, its causes remain poorly understood and controversial (e.g. Ydenberg et al. 1988, 1989; Getty 1989). The dear enemy phenomenon has been assumed to occur on all types of territories (i.e. feeding, multi-purpose, breeding), and has led authors to treat neighbours as relatively neutral in analyses of territoriality (Hixon 1980; Carpenter 1987). As noted above, however, it was not observed in two recent studies (Temeles 1989, 1990).

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Hypotheses

Two major groups of hypotheses have been presented to explain the dear enemy phenomenon, which differ in their emphasis on (1) the relative threat posed by neighbours and strangers versus (2) the degree of familiarity a territory owner has with a neighbour or a stranger.

Several hypotheses for the dear enemy phenomenon propose that if territory owners can learn to recognize and respect each other’s territorial boundaries, they can reduce the energy expended in territorial defence and more successfully focus their defence against potential usurpers of their territories, such as non-territorial floaters (strangers; e.g. Falls 1969; Krebs 1971, 1982; Getty 1987, 1989). Expressed in terms of game-theoretic payoffs, these hypotheses suggest that owners’ potential losses to floaters may be higher than their potential losses to neighbours: that is, owners may stand to lose both mates and territories to floaters, whereas they may only stand to lose mates to neighbours, because neighbours already have territories (e.g. Jaeger 1981; Getty 1987; Temeles 1990). These differences in potential losses could result in reduced fighting intensity between owners and neighbours relative to owners and floaters (Jaeger 1981; Getty 1987; Temeles 1990).

In contrast, Ydenberg et al. (1988) argued that the degree of escalation in a territorial interaction