

COMMENT: INTERSPECIFIC TERRITORIALITY IN HUMMINGBIRDS

In their paper reporting the interspecific aggression of a Blue-throated Hummingbird (*Lampornis clemenciae*) toward other species of hummingbirds, Lyon, Crandell, and McKone (Auk 1977, 94: 448–454) contend that their observations contradict a basic assumption of my model of interspecific territoriality (Ecology 1971, 52: 414–423). This is not so, and, because their paper is likely to be cited as a test of my theories, it seems best to correct the misinterpretations at this time.

In my 1971 paper I made the following predictions: assuming that interspecific territoriality is misdirected intraspecific aggression, (i) cases of mutual interspecific territoriality should occur only between allopatric species where their ranges abut and between sympatric species occupying different habitats, and (ii) species that are widely sympatric and occupy extensively the same habitat(s) should differ in their territorial behavior or differ greatly in size. Further (p. 421), assuming that individuals would benefit by recognizing and excluding from their territories members of other species, (iii) one species should be aggressive toward a second interspecifically non-aggressive species, which is excluded from habitat(s) it would otherwise occupy.

Evidently, a Blue-throated Hummingbird responded differentially to other species of hummingbirds, suggesting that it was able to distinguish species. Lyon et al. do not report any aggression by the other hummingbird species toward the Blue-throated Hummingbird, and they suggest that in natural situations “probably all species of hummingbirds are excluded from Blue-throated territories with equal efficiency” (p. 453). As reported, then, the observations of Lyon et al. seem consistent with my prediction (iii).—**BERTRAM G. MURRAY, JR.**, % *Biology—Livingston Rutgers University, New Brunswick, New Jersey 08903 USA.*

AUTHORS' RESPONSE

Murray's model of interspecific territoriality (Ecology 1971, 52: 414–423) consists of several assumptions and predictions. The first assumption is that interspecific aggression is misdirected intraspecific aggression, i.e. that a territorial individual behaves aggressively toward another of a different species because it mistakes it for a conspecific. Our findings (Auk 1977, 94: 448–454) showed that a male Blue-throated Hummingbird (*Lampornis clemenciae*) was able to distinguish among individuals of at least two other species of hummingbirds as well as male and female conspecifics. Thus it is highly unlikely that it was mistaking individuals of other species for conspecifics. As we pointed out this contradicts the first assumption of the model. The model also consists of the three predictions Murray cites above. It is true that our results are not incompatible with these predictions, but any model consists of both assumptions and predictions and if one or more of the assumptions can be shown to be false then the model as it stands is incorrect and needs modification.

Our findings are also compatible with predictions of simpler adaptive models of interspecific territoriality (e.g. that large size confers dominance in competition for scarce resources), models which we think more simply explain this particular territorial system. Murray does offer an adaptive model of interspecific territoriality (p. 421), but since the concept is not original with him it can hardly be called “his” model. The nonadaptive model was the unique and novel interpretation of the origin and maintenance of interspecific territoriality and the one being tested. It was clear in the article that when we referred to “the Murray model” we meant the nonadaptive model.—**DAVID L. LYON**