

HOSTILE DANCING AND FALL TERRITORY OF A COLOR-BANDED MOCKINGBIRD

By JACK P. HAILMAN

The curious "dancing" behavior of the Mockingbird (*Mimus polyglottos*) has been known to ornithologists for many years. Careful field studies of color-banded birds by Laskey (1933, 1935, 1936) and Michener and Michener (1935) provide evidence that dancing is a means of establishing territorial boundaries, although others (for example, Forbush, 1929:320-321; Sprunt, *in* Bent, 1948:298-299; Lovin, *Chat*, 23, 1959:31) have described it as a form of courtship. I decided to re-evaluate dancing by measuring territory as accurately as possible, studying the relation of dancing to it, and analyzing in terms of ethological description the form and biological function of this performance. This paper is a summary of the results of a part-time field study conducted in November and December of 1958.

I am grateful for the comments of Mrs. Amelia S. Laskey and Mrs. Josephine R. Michener on this study and on the manuscript.

TERRITORY OF RED-YELLOW

Description.—I caught a Mockingbird with a mist net on November 16, banded it with a red and yellow band for field identification, and studied the bird on its territory until late December when it disappeared. I believe that the bird was either a female or a juvenile because of its rather mild aggressiveness as compared to other Mockingbirds in the vicinity. The small size and the shape of the white wing patches also indicate that the bird may have been in its first winter (see Michener, 1953:76, fig. 1). By using obvious perches, flying across the open lawn, and calling from the tops of trees, Red-yellow indicated that it had already established a fall-winter territory. The territory of Red-yellow is an example of the class of winter territory of Nice (1943:57). The general area included a typical suburban residence of Norfolk, Virginia, with much open lawn and scattered bushes and trees (fig. 1). The territory was measured by several independent criteria which will be discussed later; all measurements conveniently coincide (figs. 1, 2).

One measure of "territory" is demonstrated by figure 1, which charts the principal perches and flight paths utilized by Red-yellow during the autumn. There was no noticeable change in the frequency of use of any of the perches in the course of the study period. Often a circuit of the territory began in the pin oak tree in front of the house and led from there to the bushes at the head of the driveways, back down the strip between the driveways, across the yard to the trellis, along a line parallel to the lake shore to the trees behind the house, and back over the house to the pin oak in front, thus describing a loose figure eight.

The areas in which Red-yellow foraged or fed are another criterion of "territory," as indicated also in figure 1. The bird fed most often on berries of bushes planted along the strip between the driveways, and it also fed in the area near the trellis. In the early fall it fed on the lawn near the street, presumably on insects, but as the season progressed Red-yellow did not return to this area; this was the only "territorial change" observed throughout the season, hence the dotted line in figure 2. The limits of the territory measured by other means correspond well to an imaginary line drawn to include feeding areas.

Two other, more accurate, measures of territory are (a) the limits of area within which no other Mockingbirds occurred and (b) the limits within which Red-yellow acted aggressively. These are shown in figure 2 by a heavy black line and by squares

containing an "X," respectively. The aggressive acts indicated by the squares are the perches from which the aggression note *chuck* (Laskey, 1933, 1935) or a quick *chip* (Michener and Michener, 1935; Michener, 1951) was commonly uttered. The only place Red-yellow was actually seen to chase another Mockingbird was near the head of the

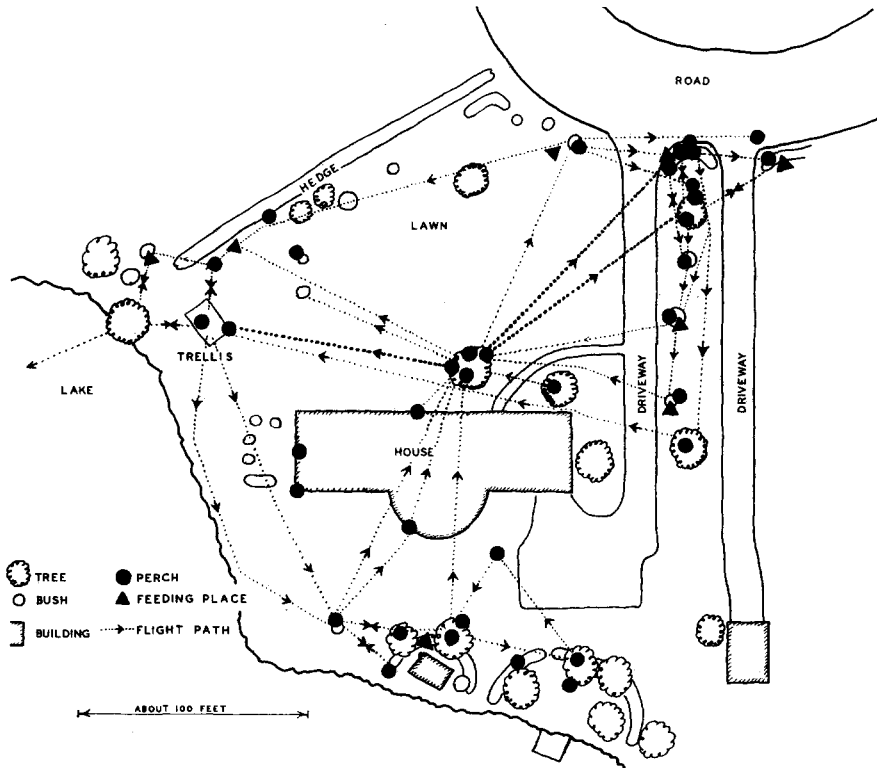


Fig. 1. Territory of Red-yellow as indicated by its perches (circles), flight paths (dotted lines), and feeding places (triangles). Compare with figure 2.

driveways, which provides a fifth territorial indicator. This probably demonstrates a relatively low level of aggressiveness in Red-yellow, because other Mockingbirds in the vicinity often engaged in aerial chases.

It should be emphasized here that the heavy line in figure 2, which is called the territorial boundary, enclosed: (1) the area in which Red-yellow was found, (2) the area in which it fed, (3) the area in which it gave the aggression call, (4) the area in which it chased another Mockingbird, and (5) the area in which no Mockingbirds other than Red-yellow were seen.

Function of winter territory.—It has already been pointed out that the territory of Red-yellow included certain feeding areas, and the bird usually spent more time perched near these areas than it did in other parts of its territory. It is also noteworthy that Red-yellow did most of its dancing in the vicinity of the berry bushes between the driveways (fig. 2). These observations agree well with those of Michener and Michener (1935:134), who conclude that "the winter territory centers about the food supply and is defended by both the male and the female, in case the pair remain together, or by the

lone male or female occupant." Laskey (1936:243) also notes that "food is an important item of consideration" in the winter territory of the Mockingbird.

Another function of winter territory which has been frequently suggested by ornithologists is that of protection from predators (see Nice, 1943:57). By living in a restricted area, an individual presumably is able to learn certain hiding places which can

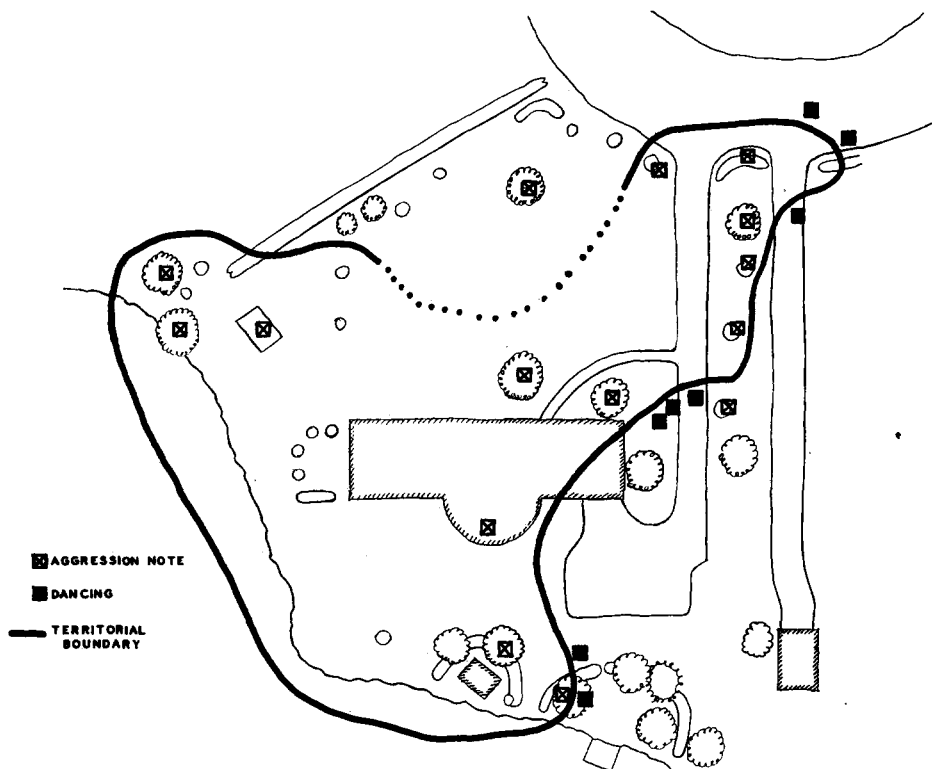


Fig. 2. Relation of aggressive *chuck* notes (crosses in open squares) and dancing bouts (solid squares) to territorial boundaries (solid line). See text and figure 1.

help it escape detection or attack. In the case of Red-yellow, this does not seem to have been important. The only avian predator seen in the area was a Sparrow Hawk (*Falco sparverius*) which normally does not prey on Mockingbirds and no attacks were observed. Bent (1948) mentions few enemies of the Mockingbird. The Sparrow Hawk in Norfolk was not seen after November and it is unlikely that any other predators which could prey on Mockingbirds would have escaped notice for very long. The disappearance of Red-yellow on December 16 could have been due to death by a predator. However, the disappearance coincided with a snowstorm which may have killed the bird or driven it away. Red-yellow had several cysts or parasites of some sort on its face (Hailman, 1959) which may also have contributed to its death.

Male Mockingbirds often remain on winter territory and expand it into breeding territory (Laskey, 1933; Michener and Michener, 1935); whether successful establishment of a breeding territory is contingent upon possession of a winter territory is not known. Therefore, it appears that Red-yellow defended a fall territory principally to insure its food supply rather than for protection from predators, or for other reasons.

DANCING

Relation of dancing to territory.—The observations of dancing ceremonies involving Red-yellow and unbanded Mockingbirds are shown in figure 2 by black squares. It is evident that the dancing of Red-yellow always took place along a territorial border, as defined previously. Because Red-yellow sang only two or three times after October and showed no other signs of reproductive behavior whatsoever, it seems highly plausible that the fall dancing was strictly concerned with territorial defense.

Description of hostile dancing.—Although dancing motions have been described several times (Forbush, 1929:320–321; Laskey, 1936:250; Michener and Michener, 1935:126; Sprunt, *in* Bent, 1948:296), the exact posture of the bird apparently has not been noted in detail. Since feather postures and movements are very important in communicative behavior (Morris, 1956), it is important that adequate descriptions of the form of these motions and postures be recorded.

All except one of the dances of Red-yellow occurred on the ground. In a dance, two Mockers stand face to face on the ground, with legs parallel, wings drawn in to the sides, and tail erect. The appearance of each is generally "tall-and-thin," the effect being aided by compression of body feathers and very upright stance. In the ground displays, the wings are not opened, and the tail is only occasionally spread slightly; it is never fully fanned. What follows is best defined as a series of movements, each of which occurs more or less at right angles to the previous movement, with a decided tendency for one individual to move whenever the other moves and for the two birds to keep close together. Thus, if one bird jumps forward, the other may jump forward or to the side to meet the first face-to-face, in which case the first Mocker may retreat with a hop to the side or to the rear. If the second does not hop to meet the first, then a new line is established. This process, I believe, continues until a boundary line is established beyond which one bird will not retreat and the other will not advance, and so each hops mainly to the side. Further evidence of the hostile nature of dancing is the fact that Mockingbirds' dancing bouts often begin or end with actual fighting (personal observation; and Laskey, 1933, 1936:250).

On November 16, I saw a complete dancing ceremony occur in one of the trees behind the house. It took place on the outer limbs of the tree, about 15 feet above the ground. On December 7 I saw the conclusion of another dance in the same tree. This second, incomplete observation is not included in figure 2. The general situation appeared to be the same as for dancing on the ground, with one individual hopping in advance and the other hopping to meet it. In addition, when one bird hopped down to another limb, the other followed, and the same occurred when one hopped up, so that the vertical dimension of movement is as important as the other two in arboreal dancing.

The feather postures, as well as the motions, were modified somewhat in arboreal dancing. Although each bird took an upright stance, with body feathers compressed, wings drawn to the sides, and tail erected, some motion of the wings and tail, plus associated spreading of feathers, took place. I suspect these are primarily balancing and flight intention motions which do not have any communicative significance. However, one component may be more than simply an unritualized locomotor element superimposed on the dancing display. Twice in the course of the arboreal dancing the opponent noticeably cocked its tail to the side, in full view of Red-yellow, and fanned the feathers so that the white tail feathers "flashed." It appeared as if this were a deliberate display of the fanned tail, but because the motion was seen only twice, nothing definitive can be stated about it. I have been unable to find any previous report of arboreal dancing in the literature, although Laskey (1936:35) noted opponents which met in a tree but departed without hostility.

Relation of dancing to courtship.—It had been my original intention to study dancing throughout the year in order to determine its relation to courtship. However, the departure of Red-yellow prevented this, and no other individuals could be marked. A few careful accounts of dancing during the reproductive season (Laskey, 1933, 1935; Michener and Michener, 1935) show that dancing was used only in territorial defense between males. These same studies show that pairing displays are accompanied by vocal activity. Pairing behavior may also include song flights, wing-fluttering and other displays. It is possible that hostile dancing attracts females to the displaying males, but accounts like Laskey's (1933) make the possibility seem unlikely. It is also possible that wing-fluttering, or another courtship action, might be superimposed on dancing, but this has never been reported. In fact, neither Mrs. Michener (personal communication) nor Mrs. Laskey (personal communication) has seen dancing used in any way between mates or potential mates during the reproductive season.

SUMMARY

The winter territory of a color-banded Mockingbird (*Mimus polyglottos*) was mapped on the basis of where the bird lived, fed, and behaved aggressively (figs. 1, 2). Territoriality seemed to be primarily a means of insuring a food supply. Dancing usually occurred on the ground, although it was twice seen in the branches of a tree. In dancing, birds face each other with bodies and tails erect, and they advance or retreat in short hops, until a boundary line is established that neither can cross without being challenged by the other. Dancing is therefore considered to be a hostile display used in territorial defense. Dancing probably has no relation to courtship.

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