

GENERAL NOTES

Interspecific territoriality between Bewick's and House Wrens.—Reports that Bewick's Wrens (*Thryomanes bewickii*) and House Wrens (*Troglodytes aedon*) maintain mutually exclusive territories in the eastern United States (Roads, 1929; Sutton, 1930; Brooks, 1934; Tyler and Lyle, 1947) are based chiefly on circumstantial evidence. In only one instance has observation clearly linked aggression between the two species to displacement from a particular area (Newman, 1961). The situation is further complicated in the east by the recent extension of the House Wren's range (Brooks, op. cit.; Odum and Johnston, 1951). Brooks (1947) has suggested that intense aggression between these wrens persists for only a few years following their initial contact at a particular breeding locality. Because of the inconclusive evidence, the interaction between House and Bewick's Wrens is not included among the cases of stable interspecific territoriality reviewed by Johnson (1963) and Orians and Willson (1964). My observations in California where sympatric populations of these species have persisted for a long period may help to clarify the situation.

My most extensive observations were made at the Hastings Reservation, Monterey County, California, in the area surrounding a small trash dump. The dump was situated at the junction of two draws that contained clumps of coast live oaks (*Quercus agrifolia*) and open stands of young deciduous oaks (chiefly *Q. douglasii*). Chaparral, dominated by *Adenostoma fasciculatum* and *Ceanothus cuneatus*, grew on the south-facing slopes; the other slopes were covered with deciduous oak woodland.

A House Wren territory was centered at the dump during the 1960 and 1961 breeding seasons. Bewick's Wrens were seen foraging at the dump several times during the autumn and winter of 1962-63. On 18 March 1963 I noted both members of a Bewick's Wren pair carrying nest materials to an open tin can at the edge of the dump. The can was covered by a light accumulation of dirt and old papers and contained a nest in an early stage of construction. The pair continued to build this nest the next day.

The first House Wren of the 1963 season appeared on 21 March about 100 yards from the dump; it was calling but not singing. When I next visited the site on 24 March, a House Wren was singing from a tree about 50 feet from the Bewick's Wren nest. After 20 minutes the House Wren fell silent and did not resume singing until 15 minutes later when a Bewick's Wren approached the tree. The Bewick's Wren gave a rapid series of emphatic buzzy calls but did not sing a complete song. A fight lasting less than 30 seconds ensued. As my view was obscured by foliage, I only saw that strenuous fluttering followed after the birds approached to within a few inches of each other. I heard no bill snapping, which often occurs during intense aggressive encounters between small birds. The Bewick's Wren then retreated about 100 feet and began singing immediately. The House Wren remained in the tree but did not resume singing until 5 minutes later.

On 27 March I found no evidence of further construction on the still intact Bewick's Wren nest. The House Wren was singing at the dump and the Bewick's Wrens were active in a similar habitat about 100 yards to the east. By 29 March a second pair of House Wrens became established on another portion of the territory the Bewick's Wrens had held earlier in the month. A well defined boundary between the territories of the two species was evident on 29, 30, and 31 March when the opposing males sang complete songs while facing each other at distances of about 50 feet. The males tended to sing alternately. The absence of any other Bewick's Wrens within a radius of 300 yards suggests that singing was elicited by the presence of the other species.

After 1 April the Bewick's Wrens disappeared, and none was seen in the vicinity until 25 July when a pair again approached to the former boundary. During this period both pairs of House Wrens remained near the dump and raised broods. In December at least three Bewick's Wrens were foraging on the territories the House Wrens had occupied the previous breeding season. When I visited the reservation for a short period on 24 March 1964, House Wrens were again established at the dump and Bewick's Wrens occupied similar habitats nearby.

At Las Trampas Canyon, Contra Costa County, California, where I carried out a regular trail census of the birds between March 1961 and November 1962 (see Root, 1964 for a description of methods and habitats), a pertinent series of events occurred along a 150-yard section where the trail passed through a stand of mixed evergreen forest. During mid-April 1961 both species were singing in the area. No House Wrens were seen here after 21 April. On 28 April a pair of Bewick's Wrens began to construct a nest in a small, discarded cardboard carton in the center of the area. Although this nest was never completed, a pair of Bewick's Wrens continued to frequent the entire area throughout the breeding season and autumn of 1961. A male Bewick's Wren sang and patrolled around this section of the trail during February and March 1962. On 9 April 1962 both species were singing in different parts of the area. After this date Bewick's Wrens disappeared and the section was then occupied by two pairs of House Wrens for the remainder of the 1962 breeding season. Thus these two species can occupy the same territory in successive years: a similar situation has been observed in the wren genus *Thryothorus* (Grant, 1966).

The territory boundaries formed between these wrens are well-defined and may persist for several weeks. I noted no trespassing of such boundaries after the first House Wren territories were established in the spring. Twice I saw a Bewick's Wren chase a House Wren for a few feet when the latter had wandered near a stable boundary; these encounters occurred more than 100 feet from the nearest nest. The territories of several other insectivorous species, including the Wrentit (*Chamaea fasciata*), sometimes overlap those of both wrens extensively, suggesting that the wren species are more aggressive toward each other than toward other potential competitors.

Bewick's Wrens occupy territories throughout the year (Miller, 1941). I followed one color-banded male at Las Trampas Canyon many times between 23 January 1962 and 11 March 1964. The large "core area" of this male's territory remained the same throughout this period although the perimeter shifted slightly between breeding seasons and the bird tended to range over a somewhat wider expanse during the autumn and winter.

These observations suggest that Bewick's Wrens regularly move into habitats left vacant when the House Wrens migrate in the autumn. The Bewick's Wrens defend and build nests in such areas during the early spring. When the House Wrens return they normally displace the Bewick's Wrens, which then move into adjacent habitats, that often have less timber and fewer brush piles. When the House Wren population is low, as was apparently the case at Las Trampas Canyon in 1961, the Bewick's Wrens continue to occupy the territories that have been left vacant.

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Nesting behavior of the Chestnut-and-Black Weaver.—On 20 January 1965 near Ibadan, Nigeria, I noticed several male Chestnut-and-Black Weavers, *Ploceus nigerrimus* (Vieillot), beginning to construct nests about 10 meters above ground in the top of a clump of bamboo. Daily more males arrived at this nesting site until by 9 February approximately 110 nests had been built by as many males of this species. The exact count was never certain, but the impression conveyed was that each male built one nest, unaided by another weaver. Five nests were never completed; possibly these were begun by individuals that wandered away or abandoned the first attempt to begin anew.

At the beginning of nest construction no females were present, but by 1 February 10-20 were observed and by mid-February approximately 75 females were present.

Sexes are readily distinguished by color. In the male the head, throat, breast, wings, and tail are jet black; the back, mantle, rump, and belly are chestnut colored. The female is pale yellowish below and streaked with brown and yellowish-brown above.

The females, none of which participated in nest building, moved leisurely through the bamboo, at times perching on nests and occasionally entering one. They exhibited no aggressiveness among themselves and showed little apparent interest in the males. The latter, by contrast, kept up a frenzy of activity. This consisted of rapidly moving over the surface of the nest, then clinging upside down to the entrance on the underside of the nest with wings extended and fluttering rapidly. Chapin (*Bull. Amer. Mus. Nat. Hist.*, 75B, 1954) describes a similar activity on the part of males of the all black race of *P. nigerrimus* of the Belgian Congo, and Elgood (*Birds of the West African town and garden*, London, Longmans, 1960) has observed that the male Chestnut-and-Black Weaver exhibits an elaborate courtship display while hanging below the domed nest.

On previous occasions I had noticed this fluttering behavior briefly and wondered if