

GENERAL NOTES

Cowbird parasitism on the White-crowned Sparrow and Wren-tit in the San Francisco Bay area.—White-crowned Sparrows (*Zonotrichia leucophrys*) have been infrequently recorded as victims of Brown-headed Cowbird (*Molothrus ater*) parasitism (Friedmann, 1971). As none of the cases on record involves the race *nuttalli*, I have brought my observations together in this paper. These include 10 parasitized broods totalling 14 juvenile cowbirds and 1 cowbird egg in a White-crown nest.

On 29 June 1969, at Fort Winfield Scott, Presidio, San Francisco, California, Robert Yoder and I watched a White-crowned Sparrow feeding a Brown-headed Cowbird fledgling. On that same day at Lake Merced, San Francisco, we collected a nest containing two cowbird and one White-crowned Sparrow fledglings. Using Banks' (1959) key we calculated the White-crown's age as approximately 6 days, although its growth may have been retarded by food competition with the two brood parasites. On the following day we collected yet another cowbird attended by White-crowns near another part of the lake. This individual had a short tail, suggesting that it had only recently fledged. All three cowbirds were hand-raised to maturity in the laboratory of Lewis Petrinovich at the University of California at Riverside. On 7 July I saw a pair of White-crowns feeding a juvenile cowbird, already larger than its foster parents, in the residential area northeast of the same lake. On 9 July I saw a pair of White-crowns feeding two cowbirds, both bigger than their foster parents, in a glade scattered with live oak trees (*Quercus agrifolia*) on the campus of the University of California, Berkeley.

On 17 July at Lake Merced I flushed a White-crowned Sparrow from a nest on some vines containing two newly hatched chicks of unknown species, one White-crown egg, and two cowbird eggs. On 21 July the same nest contained three downy young, which Lewis Petrinovich later identified at Riverside as two cowbirds and one White-crown.

George Bray (pers. comm.) watched a pair of White-crowns feeding a fledgling cowbird in the backyard of his home in San Francisco during the 1970 breeding season (exact date unknown). On 21 July 1971 on Treasure Island in the San Francisco Bay, a White-crown with insects in its mouth led me to its nest in an ornamental shrub, which contained one fully feathered nestling cowbird probably very close to fledging. On 24 July 1971 George Bray saw a pair of White-crowns in his garden in San Francisco feeding two fledgling cowbirds with short tails; on 26 July we found that one of the young cowbirds had disappeared.

Friedmann (1929: 191) notes that: "The cowbird prefers open nests built in the open." Interestingly, both nests containing two cowbirds were in unusually exposed situations, which possibly increased their chances of being parasitized. The first nest was on some lizard tail (*Eriophyllum staechadifolium*), with no overhead cover, and the second on some blackberry (*Rubus vitifolius*) beneath an ornamental acacia, once again with apparently little attempt at concealment. On 27 July I found another nest partially concealed in lizard tail containing two young White-crowns almost ready to fledge and one unhatched egg. About 4 feet away among the same shrubs was another old nest, probably a White-crown's, containing one cowbird egg.

These observations suggest that in the San Francisco Bay area the White-crowned Sparrow may be a frequent host of the Brown-headed Cowbird. These seem to be first records of the sedentary subspecies *nuttalli* of the White-crowned

Sparrow as cowbird hosts, and first records of the race *obscurus* of the Brown-headed Cowbird as parasites of this sparrow. As all but one of these records are of cowbirds actually raised by White-crowns, the latter must be regarded as an important host of this parasite in this region, rather than just a passive victim in whose nests cowbird eggs are dropped and later abandoned. It is noteworthy that in Peru, Argentina, and Brazil, its congener, *Zonotrichia capensis* "is a very frequent, if not the most frequent, host" of the Shiny Cowbird (*Molothrus bonariensis*) (Friedmann, 1963).

The Brown-headed Cowbird was not known in Alameda County prior to 1922 (La Jeunesse, 1923; cited in Grinnell and Wythe, 1927; Miller, 1935). The first records for San Francisco County were two eggs taken in a nest of a yellowthroat (*Geothlypis trichas*) at Lake Merced in 1926 (La Jeunesse, 1923). Miller (1935) commented on the increase in numbers of the species in the San Francisco Bay area in the decade spanning 1922 and 1935. Since that time the breeding biology of *Z. l. nuttalli* has been studied in great detail by a number of authors including Blanchard (1941; see also DeWolfe, 1968), Banks (1959), and Ralph and Pearson (1971). As none of these authors reported the cowbird victimizing the sparrow, apparently the current high incidence of parasitism on this particular host may be a relatively recent phenomenon resulting from the continued increase in cowbird numbers in the San Francisco Bay area during the four decades since the time of Miller's (1935) report.

Perhaps this heavy parasitism may be a local phenomenon affecting urban populations of White-crowns that are not in optimum White-crown habitat, which provides more adequate cover. It seemed worthwhile therefore to inquire into the incidences of cowbird parasitism on this sparrow in a more natural area such as the California coastal chaparral. Robert Stewart of the Point Reyes Bird Observatory, 3.5 miles north of Bolinas, Marin County, California, informed me that between the years 1967 and 1971, he and his colleagues examined 21 White-crown nests in an area covering about 50 acres of mostly soft chaparral, none of which contained cowbird eggs. They found only four nests with cowbird eggs; two of these were of Wilson's Warblers (*Wilsonia pusilla*) and two of Wren-tits (*Chamaea fasciata*). However John Smail (pers. comm.) observed a White-crown feeding a fledgling cowbird there during the 1970 breeding season (no exact date given).

In the suburbs the field observer can with some practice very easily locate White-crown nests by watching breeding pairs and following them to their nest site. This is often in ornamental plants and usually close to the crown as described for two sites earlier. In the chaparral nests are harder to find, partly because they are better concealed in the heavy cover. Thick vegetation also conceals the parent birds, which instead of leading one directly to their nest, often use diversionary tactics and spend long periods in the shadow of nearby bushes eyeing the observer before slipping unseen into the nest. Conceivably the lurking female cowbird may encounter as much difficulty as the field naturalist in locating White-crown nests in the chaparral.

While the difference in number of incidences of cowbird parasitism between the urban and chaparral areas discussed above may reflect differences in amount of cover in the two areas, it may also reflect the relative abundance of cowbirds in those two places. Possibly cowbirds are increasing in Marin County and more records of parasitism of White-crowned Sparrows, Wren-tits, and other rarely recorded hosts are to be expected.

Friedmann (1971: 249) lists three records of the subspecies *gambelii* of the White-

crown as hosts of the Brown-headed Cowbird. The localities given were: Ferguson Point at Stanley Park, Campbell River and Burnaby, in British Columbia, Canada. These would place the White-crowns mentioned above within the breeding range of the race *pugetensis* rather than *gambelii* (see Banks, 1964: 44). Although in northwestern Washington and southwestern British Columbia the range of the subspecies *pugetensis* approaches that of *gambelii*, they have not as yet been shown to occur sympatrically, nor have any intermediates between the two forms been described (Banks, 1964; Cortopassi and Mewaldt, 1965). R. Wayne Campbell (pers. comm.) of the Pacific Nest Record Scheme informs me that birds are not usually listed by subspecies on their nest record cards. He also feels that the records from British Columbia are most likely of *pugetensis*, and that the published records of *gambelii* are most likely the result of a misunderstanding either when the records were sent or when they were received.

There are also few cases on record of the Wren-tit (*Chamaea fasciata*) as a cowbird host, and apparently only two instances reported of their actually raising the parasites (Friedmann, 1963, 1966). On 21 July 1969 at Lake Merced, San Francisco I saw a Wren-tit feeding a fledgling cowbird. The earlier records of parasitism concerned the races *henshawi* and *rufula* of the Wren-tit as hosts (Friedmann, 1963, 1966). The two records of parasitism on this species mentioned earlier (Stewart, pers. comm.) are also referable to the subspecies *rufula*. As Lake Merced is within the range of the subspecies *intermedia* (Grinnell and Miller, 1944), it is probably a first record for that race as a host of the Brown-headed Cowbird.

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LUIS FELIPE BAPTISTA, *Museum of Vertebrate Zoology and Department of Zoology, University of California, Berkeley, California 94720*. Accepted 28 Sep. 71.

Two bird specimens showing abnormalities of the quadrate.—Many functional studies of skull kinetics in birds have considered such safety factors as protraction or retraction stops and distribution of muscle stresses, but I know of no reported cases of injury resulting from mechanical failure of elements of the kinetic apparatus. This paper describes two deformities that appear to have arisen in this way.

The first came to my notice while examining skulls of Ardeidae in the collection of the British Museum (Natural History). The specimen is one of a Rufescent Tiger-Heron, *Tigrisoma lineatum*, Registered No. 1865.12.8.39, purchased from the Zoological Society. The deformity is shown by the orbital process of the right quadrate (Figure 1). The distal half of the process (normally straight) is bent downward at an angle of about 50° to the rest. Its orientation is also somewhat changed, so that its medial edge is tilted nearer to the vertical plane than in the normal left quadrate. In size and form, the bent portion is similar to its normal equivalent on the left, but somewhat thinner where it meets the unaltered proximal half. The only other indication of injury to the skull is a shallow depression on the dorsal surface of the upper jaw near the anterior end of the bony nostrils. The depression crosses the jaw obliquely, being more distal on the left, and the bony nostrils are of slightly different shape on the two sides. Apart from this irregularity and the deformed right quadrate, the skull, jaws, and indeed the rest of the skeleton appear normal.

The second case is particularly surprising because it involves total breakage. The specimen is a Black-necked Araçari, *Pteroglossus aracari*, preserved in alcohol, Registration No. 1898.9.30.1. The abnormality (Figure 2) was discovered in the

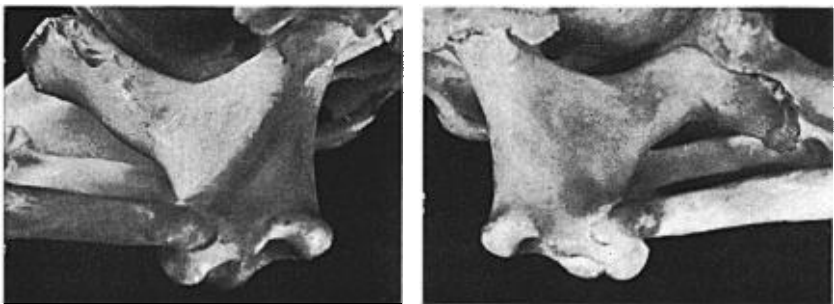


Figure 1. Dorsolateral view of normal (left) and deformed quadrates of *Tigrisoma lineatum*. The slight damage at the tip of the left orbital process is an artifact of preparation.