

the north-eastern outer suburban and nearer country areas. Around Bulleen, Doncaster and Heidelberg, many birds have been noted often in flocks of from a dozen to twenty. At the last-named place I found them to be common in pine trees and feeding on water-weeds in drying lagoons. They have a song similar to that of the alien Goldfinch. A number of Greenfinches have always been about the environs of Geelong—around Bream Creek, Torquay, Barwon Heads and Anglesea, for example—and I noted them apparently increasing at Anglesea at least, a few days ago.—C. E. BRYANT, Melbourne, Vic., 5/1/39.

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## Reviews

["Territory, Annual Cycle, and Numbers in a Population of Wren-Tits (*Chamaea fasciata*)."] By Mary M. Erikson, Univ. of Calif. Publ. in Zool., vol. 42, 1938, pp. 247-334; illus. Price \$1.25.]

This is another worthy addition to the excellent recent American literature on studies in territorialism in bird life, and has a special interest for Australian readers because it concerns not migratory birds, which have been most studied from this point of view, but a strictly sedentary, non-flocking species. And as most of our own familiar birds are regarded as non-migratory, anything written elsewhere of those with similar habits should be scanned with particular interest.

Like Mrs. Nice's investigations on the Song-Sparrow, the work provides a most convincing example of the success of the marking method in conjunction with systematic trapping, in tracing in detail the haps and mishaps of individual birds during their daily lives. Both ordinary numbered aluminium rings and combinations of coloured celluloid ones were used. The species must be ranked as amongst the most extremely territorial of all birds so far studied. The territory, once selected, is defended at all seasons, and not only during the breeding season, as is the case with many birds. So it comes about that the song of the male is to be heard throughout the year, affording additional evidence for the modern view that true song is to be interpreted as a means of announcing occupancy of territory and a warning to actual or potential invaders to "keep off."

One nesting is the rule, but if a brood is not successfully reared, further attempts will be made. The resulting family group will at first keep together, but gradually the bond of attachment will loosen and the young will disperse and forage in the neighbourhood, their presence at such period being tolerated by the adult territory holders. By the end of winter, however, sexual urgings become manifest in the maturing yearlings. The young male responds by attempting to select a plot of ground as his own and the

young female by attaching herself to a landed male. Thus the sequence of events leading to nest-building and the rearing of young is initiated.

It was found that in the district studied the average size of a territory was eight-tenths of an acre, and 17 to 20 pairs came under observation. These birds produced about 33 young, which was about half the potential increase, as the theoretical expectancy was 72 young if every egg laid had hatched and the nestlings successfully raised. The main loss was due to destruction of nests, for only 56 per cent. of the pairs managed to raise fledglings. Mortality of the fledglings continued during the year and 72 per cent. of them did not survive the first winter.

Deaths of adult birds also occurred and by the next breeding season the population had been reduced to about the level of the previous year. The average age of birds which had survived to their first breeding season was calculated to be about five years, and consequently approximately one-fifth of the aggregate population was replaced each year. A certain excess of unmated individuals, without territory, existed in the area, averaging about five to the 17-20 established pairs. Without territory these surplus birds did not seem to be able to mate, so the territory habit limits the population pressure and numbers tend to remain fairly constant. There was no evidence that compression of territories occurred to accommodate these unmated birds, even though, in the opinion of the investigator, the area could have supported more birds.

Dr. Erickson's work invites comparison in some respects with another recent account of a stationary American bird by Californian workers—"Mocking-birds, Their Territories and Individualities", by Harold and Josephine R. Michener. *The Condor*, vol. xxxvii, 1935, pp. 97-140. The well-known Mocking-bird (*Mimus polyglottos*) was shown to possess two types of territory, summer and winter areas, which might or might not be identical. The summer territory was of the normal type, established and defended by the male alone. In winter the mated pair might continue residence in it, but with the important difference that the female would also assist in its protection. Or the territory might be divided and the female be solely concerned with the defence of her part of it, or, again, her winter territory might be some distance from that of her mate, with whom she would probably consort again the following spring. The defence of these winter territories, centering around a food supply, is very vigorous, for there are always numbers of wandering Mocking-birds which, owing to the exhaustion of local food supplies, cannot maintain winter territories and form into small roving bands whose incursions are hotly resisted by their better-situated kin. A wide range of song is associated with this territorial

defence activity. Thus the male sings the whole year through, practically, with a lull at the moulting period, whilst (and this is an interesting point in view of the fact that it is the male which sings in most species) the female begins to sing in the autumn and continues to do so while she is responsible for the defence of a territory, but is silent in the spring and summer when the whole of that duty devolves on her mate.

A similar finding was made in one of the earliest works on territory—that of J. P. Burditt on the Robin in Ireland (*British Birds*, 1924-1926), wherein he showed that the male maintains territory during the whole year and sings. Females separate off in winter and many wander away, but a few hold territories of their own during this period and occasionally sing whilst doing so, a habit which seemed unique at the time.

The paper under review, together with those of Mrs. Nice on the Song-Sparrow, present a picture of the life history of the various species so wonderfully revealing and so intimate in detail that our Australian birds, even the most written about, appear by comparison mere strangers of which we know only odd vague facts. In the words of Mr. and Mrs. Michener concerning one particular bird of theirs, "we feel we know as much about him as we could know about any next-door neighbour whose activities were one of our main interests in life."—D.L.S.

[*The Bird Man. A Sketch of the Life of John Gould.* By Charles L. Barrett. Whitcombe & Tombs Ltd., Melb. Price, 2/-.]

So much material was gathered for the Gould commemorative issue of *The Emu*, and published, that it cannot be suggested that added information will be found in this brochure. But members have friends who will require a concise and more popular account—and *The Bird Man* will supply it. The chapters, "The Gardener's Boy," "Author and Publisher," "The Man Himself," "In Australian Wilds" and "The Gould League" are an indication of the contents. A general account, ornamented with reproductions of plates from Gould's works and photographs by the author, the whole forms a popular illustrated resumé of what is known of Gould. Many have refused to admire a plaque of Gould prepared, apparently, not from an actual photograph, but from an engraving of the ornithologist, and a photographic reproduction of the plaque, used as a frontispiece, appears to extend the "likeness" even further from the original.

The final portion of the booklet, dealing with the foundation and growth of the Gould League, is a more detailed account than it was possible to include in *The Emu*, and readers will obtain an insight into this laudable movement by a perusal of that particular section.—C.E.B.