

## REVIEWS

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**The Kirtland's Warbler**

By HAROLD MAYFIELD. Bloomfield Hills, Michigan, Cranbrook Institute of Science, 1960. 242 p. \$6.00.

Although detailed accounts of a number of birds are now available, Mr. Mayfield's study is distinctive particularly because Kirtland's Warbler is most unusual among strongly migratory birds in its severely restricted breeding range. The limited range and habitat have, in fact, made the Kirtland's or Jack-pine Warbler famous. The late Josselyn Van Tyne hoped to write a comprehensive study of this species, which he studied for so long; and Mayfield is to be congratulated on working up the data. Although he had participated in much of the field work, most of the information had to be culled from Van Tyne's cryptic files and field notes. The chapter headings show the plan of the book: introduction, history, the nesting ground, wintering ground and migration, mating and territorial behavior, the nest, eggs, incubation, nestling period, fledglings, song, weights and plumages, the cowbird, reproduction and mortality, and problems for further study.

When jack pines grow nearly from coast to coast why should a species that inhabits them be restricted to a small area in the northern part of Michigan's Lower Peninsula? This is a relict pattern, which the biogeographer inevitably views with concern. Although Mayfield terms the position of the species precarious rather than critical, some will consider the latter term warranted, for there is no indication that the downward trend in the population has been halted. The species must have sandy soil, for otherwise the nests, in depressions on the ground, would be subject to flooding by rain. The bird accepts only pines about 5 to 15 feet high and associ-

ated with plenty of herbaceous ground cover. Such areas must be extensive, for the species is loosely colonial; single pairs seldom nest successfully. Small areas of pine scrub are thus unacceptable; the successful penetration of new areas is made difficult; and there is clearly danger of inevitable extinction through colonies falling below a critical minimum. Regrowth after extensive lightning fires seems to have provided the original habitat of this warbler. Today improved fire control means that most burns are small; and controlled cutting and planting on state lands seem to provide the best hope for its survival.

The greatest single menace to Kirtland's Warbler today is the Cowbird, to which the longest chapter in the book is devoted. Before the white man cleared much of the eastern forests, the Cowbird was a plains species that barely reached Ohio. Lumbering and farming allowed it to reach the breeding area of Kirtland's Warbler after 1870. It is significant that, in the wintering range in the Bahamas, 44 specimens were taken from 1880 to 1889, 22 from 1890 to 1899, and only three in the next 20 years. Since 1919 there has been no winter specimen and, despite repeated searches, only one acceptable sight record. It thus seems that a severe decline set in soon after the Cowbird reached the breeding area. Today, with the breeding population at scarcely 500 pairs, studies show that 55% of the nests are parasitized with the annual production of fledglings being reduced by about 40%.

The remoteness of the breeding area has limited the possible study time at the nests. Consequently some conclusions are inevitably based on limited data. Nevertheless the findings must provide





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