



Books For Banders

"SOMETHING OLD AND SOMETHING NEW"

Edited By Mabel Gillespie



David Samuel, a graduate student working on bird behavior at West Virginia University, wants to tempt some interest in a book that he has found of unusual import. Since he has tempted me, I'm sure other banders will succumb. His review follows.

David Lack, the well known European ornithologist, has written another scientific book, "Population Studies of Birds" (1966). This book is actually a sequel to his earlier book on the "Natural Regulation of Animal Numbers" (1954), which is now out of print. His latest work is really four books in one.

The main portion is devoted to an analysis of thirteen major bird populations studies (each four or more years in length) and eleven minor ones. It is interesting to note that none of these major studies was done in America. Even though the author is British and nine of the thirteen major studies were carried out in Britain, this foreign bias "is not due to misplaced patriotism". The fact is that since the early 1950's there have been very few, if any, long term population studies done in the United States. In analyzing these works, Lack builds strong arguments in support of density-dependent factors regulating bird populations. In fact, this is the main theme of the entire book. Density dependence means, very simply, that as the bird population increases such factors as food and competition affect reproductive success; that is, these factors do not cause mortality at low population levels but rather are dependent on the density. This theory is opposed to that of Andrewartha and Birch who propose that density independent factors (such as climate) control the population size. Still a third theory, Wynne-Edwards', will be discussed later in this review.

In addition to the main portion of the book, there is a 31-page appendix which is divided into three sections. First, there is a chapter by chapter summary of Lack's 1954 book, which is extremely valuable since that book is now out of print. Also, there is a step by step rebuttal of the attack by Andrewartha and Birch on density-dependent factors influencing populations. Finally, Lack analyzes Wynne-Edwards' theory on population dispersion. For the population ecologist and even the interested "birder", the appendix is interesting reading. Here Lack lists four points which "suggest that the numbers of many birds may be limited by food". First, predation and disease can in many instances be ruled out. Second, birds are usually more numerous where their food is more abundant. Third, related species of birds in the same area are normally separated by

habitat, feeding habits, and such isolation has presumably been evolved because there is competition for food. Fourth, the habit of intra-specific fighting for food would not have evolved unless food was hard to find.

Lack points out that the main difference between Andrewartha and Birch's book (and theory), and his own, is that "they studied insect pests (the numbers of which are greatly modified by climactic variation, hence density independent) while I studied birds". Also, "Andrewartha and Birch considered competition unimportant".

The third section of the appendix considers Wynne-Edwards' theory on population regulation. His main idea is that, "while the populations of birds and other animals are ultimately limited by the availability of food, this limit, with resultant overpopulation and starvation, is not normally reached in nature, because dispersion through behavior keeps numbers near to the optimum and below the level where overfishing might develop". Lack's critical discussion of this theory is quite interesting.

So much for the appendix; now let's get back to the text itself. Lack's discussion of thirteen major and eleven minor bird studies are divided into sixteen chapters. European species discussed in detail are: Great Tit, Black Tit, and Coal Tit (Parus); the Pied Flycatcher (Ficedula); the European Blackbird (Turdus); and the Tawny Owl (Strix). In addition Lack considers the population ecology of the following terrestrial birds: the Quelea (Quelea) of tropical Africa, a bird very similar to our Tricolored Blackbird of California; the manakins (Pipridae) of Trinidad, small fruit-eating birds with an extremely low annual mortality rate of 11%; the Wood Pigeon (Columba) in rural England; the Red Grouse (Lagopus) in Scotland; and the famous White Stork (Ciconia) of Germany. Sea birds discussed are the Yellow-eyed Penguin (Megadyptes), an 18-year study; the Kittiwake (Rissa); and two species of shearwater (Puffinus).

To summarize these studies, Lack finds food to be the main factor in regulating bird populations. Through the use of graphs he shows that clutch size is determined by food availability and also that such availability affects the survival of nestlings in many of the above species.

This book will be of value to those who are interested in (1) a concise summary of some bird population studies not done in America; (2) methods and techniques by which population studies are done; (3) a summary of Lack's 1954 book now out of print; and (4) a critical review of the three main theories of bird population regulation. It is available through the Oxford University Press of New York City for \$10.

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My attention has recently been called to a couple of checklist items that would have been of great value to me during past years. These inex-

pensive publications are by James Tucker and are issued by The Academy Press, Box 157, Maintland, Florida 32751. A small paperback of 38 pages contains the entire North American checklist with eleven columns opposite each species name in which to check observations. It is called "Traveler's List and Check List for Birds of North America".

A "Combination List for Birds of North America" is of average book size, with card covers and ring binders. The format gives a bird watcher the opportunity to keep track of every species of the continent whenever and wherever seen. Each page lists 28 of the North American species with spaces for date and place first seen. This provides a "life list". Opposing pages in half size (so as not to obscure the species name when turned) contain "Local Migration Records for Species" under four headings: Fall early, Fall late; Spring early, Spring late. Further half pages are columned for year lists, and finally there are columned pages with 49 state headings and extra columns for possible Mexican, Canadian or other areas. I wish I had possessed something like this years ago in order to keep more convenient travel data.

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At the EBBA meeting in Cape May, N.J., April 28, 1962, Dr. Jeff Swinkroad read a paper on "Radar and Migration". In *Natural History* 70(8), 1962: 10-17, appeared "Migration of Angels" by W.H. Drury Jr., I.C.T. Nisbet, and R.E. Richardson. This article, dealing with migration studies based on radar, was briefly reviewed in EBBA News for Jan.-Feb., 1963. It dealt with three problems: statistical, behavior of birds when they reach a coastline, and effect of weather on migrating birds.

In the 1967 summer and fall issues of Massachusetts Audubon there are two articles by I.C.T. Nisbet and W.H. Drury. The first of the two is "Scanning the Sky-Birds on Radar". "In 1959 the Society started an ambitious project to study migration by means of a radar station on Cape Cod ... Seven years later, we are writing this article, in an humbler spirit, to explain the difficulties which have caused the long delay in reporting our results, to explain why nearly all our first impressions were wrong, and to describe some of the exciting and unexpected discoveries we have made since 1959."

Radar studies were made throughout almost every night during the main migration seasons in 1959, 1960 and 1961, resulting in 20 miles of film, one and a quarter million photographs, with an average of about 50,000 echos on each. It is thus understandable that it has taken over five years to reach adequate interpretations, such as: "Bird migration can be much denser than any radar screen can detect, ...because of the way that waves are reflected from a composite object, a small flock can give a large echo and a large flock often gives a small echo... The birds' orientation was unaffected by overcast skies... There seems no question that many birds, of several species, make long non-stop flights

across the western Atlantic, and this is a major advance in our knowledge of migration through the area."

The second article is called "Weather and Migration". In reaching conclusions all the data through three successive springs were coded and fed through a computer. It was found that "migration was denser when the temperature was high, when the pressure was low or falling, when the humidity was not too high, and when the wind was from the south or east (rather than from the west or north)". "Birds have evolved a mechanism for predicting the weather: they not only avoid bad weather near their starting point, but arrive at their destination in good weather for subsequent survival." There was found "evidence that migrating birds are capable of doing four things which were thought impossible in 1959 - to correct for wind drift at night; to orient accurately under overcast skies at night; to fly non-stop for four or five days without running short of food or water; and to predict the weather by assessing the pattern of a number of key factors instead of responding blindly to the two or three most obvious weather factors".

"Most of the birds netted on the coast are found to be immature birds of the year, so what we observe appears to be the sorting-out process by which the less competent and less experienced birds are eliminated from the population, before they have a chance to breed and perpetuate their incompetence in their descendents." (What do you think of this, O.R. participants?)

"With few exceptions, ground observers miss the densest movements seen on radar and the largest arrivals of birds which they notice usually follow relatively sparse movements in disturbed weather." Previous studies along this line "have not been recording maximum migration but maximum interruption to migration".

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MIGRATION CASUALTIES...THAT LIVE

By Ralph K. Bell

Since "skulling" of our songbirds to determine age is becoming more commonplace, I'm sure others have noticed that some skulls are indented, apparently as the result of hitting some object. Since I have not noticed anything in the literature about indented skulls, I decided to write this short note.

A record was kept of all observed indented skulls found during the fall migration of 1966. They are listed as follows with band numbers first, then species, age, sex (when known), where captured, date and location of indentation.