

1950 (Band No. 48-230562). Incidentally, other species taken with shrimp as bait include Black-bellied Plover (*Squatorola squatorola*), Willet (*Catotrophorus semipalmatus*) and Sanderling (*Crocethia alba*).—William Davidson, 1504 Bodell St., Orlando, Fla.

## RECENT LITERATURE

### BANDING

(See also Numbers 10, 16, 47, 48, 49, 62)

**1. Bird-Banding in 1938-1943.** O. Olstad. 1953. *Statens Viltundersøkelser*, Horten, Norway. Banding Results IV, pp. 1-42. Lists the 5,861 birds of 149 species banded in Norway during the critical and difficult war years, and presents all the data available for the 289 of them of 41 species heard from after banding. Most of the records are returns and short time and distance recoveries. The comparatively low ratio of banded birds heard from is not remarkable, even under wartime occupation conditions, for 5,135 were banded as nestlings, only 726 as adults. The largest numbers banded, and the highest recapture percentages are for the Hooded Crow (*Corvus cornix*), 79 records from 218 adults and 261 nestling banded, and for the Gray Heron (*Ardea cinerea*), 50 records from 264 nestling banded in 1938 and 1939. The 19 percent recovery of the herons is remarkably high considering the circumstances; the immediate postnuptial returns demonstrate vividly the grenade effect in juvenal dispersals before migration. The later heron recoveries are equally interesting, with significant numbers reported from the British Isles, France, and Belgium, and none directly south or southeast of Norway. A few recoveries of other species were reported from Holland, Denmark, and Germany, but none whatever from farther east, which of course doesn't mean that no Norwegian birds go behind the iron curtain.—O. L. Austin, Jr.

**2. Bird-Banding in Norway 1951.** Holger Holgerson. 1952. *Dreyer Stavanger* (unnumbered), pp. 1-34. Lists by species the 17,737 birds banded in Norway in 1951 under the Stavanger Museum and Government Game Investigation Service ringing programs, and presents the data on the more important and interesting of the recoveries received during the year. Notable are a Turnstone and a Knot, each banded during their autumn southward migration in Norway and each recovered in Iceland, one the following the other the second-following spring, probably on route to their Greenland breeding grounds. A Hooded Crow was recovered at least 11 years old.—O. L. Austin, Jr.

**3. Bird-Banding in Norway 1952.** Holger Holgerson. 1953. *Sterna* (Stavanger Museum) No. 11, pp. 1-23. Shows a commendable increase in bandings and recoveries over the previous year (No. 2 above). In 1952 a total of 28,197 birds were banded, bringing the totals to 127,930 since banding started in Norway in 1914. Among the selected recoveries listed are many from abroad, the most significant being of various waders which the Scandinavians are banding in large numbers so successfully. A Knot banded in Norway in August 1948 was recovered on its Greenland breeding ground in June 1950. There are direct recoveries of a Woodcock from Spain, a Sanderling from the Canary Islands, and two Common Terns from East Africa.—O. L. Austin, Jr.

**4. Bird-Banding by the Stavanger Museum 1952.** (Stavanger Museums Ringmerkingarbeid 1952.) Holger Holgerson. 1952. *Saertrykk av Stavanger Museums Arbok*, pp. 79-86, with English summary. Lists by species the totals banded in Norway under the Museum's auspices in 1952: 21,816 birds of some 132 species, 5,400 of them "trapped" presumably as adults, the rest as nestlings. Largest bandings of one species are 3,340 Fieldfares (*Turdus pilaris*), with smaller but still respectable numbers of seven other Turdids. Most impressive are the large numbers of waders handled, 2,321 Dunlins, 808 Lapwings, and lesser numbers of 21 other species. Among the colonial seabirds, probably banded as juveniles, are 1,264 Common Gulls, 700-odd each of Black-headed and Herring Gulls, and 481 Black-backed Gulls; also 319 Common and 23 Arctic Terns. For some of the results of the Museum's banding see Numbers 2 and 3.—O. L. Austin, Jr.

**5. The Activities of the Ornithological Station at Ottenby in 1952** (Ottenby Bird Station Report No. 16). (Verksamheten vid Ottenby fågelstation 1952 (Meddelande nr 16 från Ottenby fågelstation).) Wolf Jenning. 1953. *Vår Fågelvärld*, **12**(4): 145-165. (English summary.) The 10,798 birds banded in 1952 bring the Ottenby Station's totals up to 63,352 individuals of 154 species banded since their operations started in 1937. The largest totals of the many land birds banded in 1952 are 1,947 Robins (*Erithaca rubecula*), 1,013 Willow Warblers (*Phylloscopus trochilus*), and 625 Redstarts (*Phoenicurus phoenicurus*). A picture of a mammoth Heligoland trap shows how most of the land birds are caught.

Ottenby's 1952 totals of waders handled are impressive, 3,259 birds of 17 species, the bulk of them, 2,537, Dunlins (*Calidris alpina*). I am intrigued by the photograph of a wader trap being tended, which might well have been taken on Cape Cod 20 years ago. The clover-leaf trap, gathering cages, and wire leads on the wet mudflat are identical—even the operators in hip boots and oilskin jackets could well be Seth Low or Maurice Broun in those August days so long ago when we first experimented with trapping waders!

A few notes are given on migratory movements and unusual species observed during the year, and complete data are listed for the 142 recoveries received. The Ottenby Station is on the Baltic Sea side of the long, narrow island of Öland, off the southeast coast of Sweden, due north of Poland. Most of the autumn migrants banded there seem to move southwestward through Denmark, the Low Countries, and down the western coast of Europe to Spain and Portugal; there are recoveries from practically all countries along the route. A few birds are reported from Germany, and a surprising number of waders as well as passerines from Italy. However, there are as usual none reported from behind the iron curtain.—O. L. Austin, Jr.

**6. List of Danish Bird-Ringing Reports.** Torben Donark. 1953. *Dansk Ornithologisk Forenings Tidsskrift*, **47**(4): 246-256. A useful bibliography listing 40 titles that report birds banded under Danish aegis, with the exception of those banded in Greenland, a summary of which is to be published later. None of the banding data are given, but the material in these 40 papers is summarized briefly by species and by foreign countries from which recoveries have been received.—O. L. Austin, Jr.

**7. Results of Bird-Banding in Belgium received in 1952.** (Resultats du Baguage des Oiseaux en Belgique Exercice 1952.) R. Verheyen. 1953. *Le Gerfaut*, **43**(4): 340-361. Lists the raw data for returns and recoveries received during the year from some 70 species. Most of the records are returns. Among the few recoveries of more than passing interest are a 16-year-old *Ardea cinerea*, and an *Actitis hypoleuca* banded at Turnhout 5 August 1951, recaptured at the same place 26 August 1951, and recovered in French Guinea, 4,800 kilometers southwestward 13 January 1952.—O. L. Austin, Jr.

**8. Report from Sempach for the years 1951 and 1952.** (Bericht der Schweizerischen Vogelwarte Sempach für die Jahre 1951 and 1952.) A. Schifferli. 1953. *Der Ornithologische Beobachter*, **50**(6): 169-206. This comprehensive report includes a brief mention of orientation studies which were conducted with Alpine Choughs (*Pyrrhocorax garrulus*) and Alpine Swifts (*Micropus melba*) as well as on studies of the effects of insecticides on bird populations of test areas. The results have been or will be reported in other papers. Most of this report is concerned with banding operations. As in previous years, there is a summary table listing the number of nestlings and adults banded in each year, together with recoveries by species. During 1951, 8,662 nestlings and 6,520 adults of 161 species were banded; in 1952, 9,837 nestlings and 8,557 adults of 145 species. A total of 2,170 recoveries are reported, however some of these are for birds banded prior to 1951.

The tabulation of recoveries follows previous reports. A Long-eared Owl (*Asio otus*) recovery from Spain 900 km. from point of banding is of interest. A Black Kite (*Milvus migrans*) was recovered from French West Africa 3700 km. SW from banding place. A Black-headed Gull (*Larus melanocephalus*) banded at Dnjepmündung, Russia, was recovered in Switzerland after a journey of 1980 km. west. A nineteen-year-old Coot (*Fulica atra*) banded in Switzerland was recovered in Czechoslovakia.—R. O. Bender.

**9. An Automatic Bow Net.** R.L.M. [R. L. Meredith]. 1954. *Falconry News and Notes*, 1(2): 19. Description of an ingenious bownet designed for catching hawks. The trap could be adapted for other species.—Frances Hamerstrom.

## MIGRATION

(See also Numbers 1, 2, 3, 5, 8, 40, 47, 48, 53, 62)

**10. Chimney Swift Banding at Kingston, Ontario, from 1928 to 1947.** R. I. Bowman. 1953. *The Canadian Field-Naturalist*, 66(6): 151-164; 7 tables, 4 figs.

This is an analysis of 2,142 returns and recoveries from 21,930 Chimney Swifts, *Chaetura pelagica*, banded at Kingston, Ontario, mainly in spring in the period 1928 to 1947. A map shows that birds were recovered in 15 of the United States, 2 Canadian provinces, and in Peru, South America. Data strongly suggest that in autumn migration these swifts use the Mississippi and Piedmont flyways to about the same extent; but because of a paucity of spring data east and west of the Appalachians little is known of flyway preference at the latter season. A table summarizes longevity data. The age record for a Kingston-banded swift is about 12 years; 177 individuals were reported still alive six years after banding. A tentative isochronal map, based on data from many sources and with isochronal lines drawn at five-day intervals, indicates that the spring dispersal of this swift over its North American breeding grounds occupies roughly two months, on an average from March 21 to May 24. At Kingston the peak of migration is reached usually in the third week of May. Banding techniques used at Kingston are outlined.—W. Earl Godfrey.

**11. Concerning the importance of the wind to the orientation of migrating Chaffinches (*Fringilla coelebs* [L.]).** (Über die Bedeutung des Windes für die Orientierung Ziehender Buchfinken, (*Fringilla coelebs* [L.] ).) D. A. Vleugel. 1953. *Der Ornithologische Beobachter*, 49(2): 45-53. The author presents observations on Chaffinches migrating under varying wind conditions, and advances the hypothesis that the Chaffinch establishes its migration direction early in the morning by orientation with respect to the sun. This course is followed with the help of wind direction by the maintenance of a constant angle with the wind. An interesting paper which should stimulate other similar studies in suitable areas.—R. O. Bender.

**12. Do our Little Bitterns winter in West Africa?** (Überwintern Unsere Zwergreiher in West Africa?) Dieter Burckhardt. 1953. *Der Ornithologische Beobachter*, 50(5): 137-140. A brief report of the first recovery of a Swiss banded Little Bittern (*Ixobrychus minutus*) from its wintering area in the Belgian Congo 5900 km. south. A map shows other recoveries from Europe indicating a southern migration route. Several Dutch records are included.—R. O. Bender.

**13. American Vagrants at Fair Isle.** Kenneth Williamson. December, 1953. *Fair Isle Bird Observatory Bulletin*, 2(1): 1-13. In several short papers Mr. Williamson records a number of American vagrants in the autumn of 1953. On October 5th on Fair Isle a Gray-cheeked Thrush (*Hylocichla minima*) was trapped and examined at length; while measurements were intermediate and no subspecific identification was possible, this is the first record of the species for Britain, and, in fact, for Europe. On September 17th an American Water-Pipit (*Anthus spinoletta rubescens*) was observed by Mr. Williamson himself, with a local race (*A.s. kleinschmidti*) for comparison. This was the first record for Fair Isle, the second for Scotland and the third for Britain. In the first half of October three Yellow-billed Cuckoos (*Coccyzus americanus*) occurred in Scotland and one in Yorkshire, while a Black-billed Cuckoo (*C. erythrophthalmus*) was found in the Shetlands.

Mr. Williamson feels that the occurrence of birds like the Gray-cheeked Thrush cannot possibly be explained on the basis of lateral drift, but only on the basis of down-wind drift. He rules out the likelihood that some of these passerines travelled part of the way on board ships, because of the lack of food and the rapid

rate of weight-loss in migrant birds. "Speed is the sine qua non of a successful transatlantic flight, and it is doubtful if any small or medium-sized passerine could make that crossing other than by a continuous down-wind drift in the strong westerly airstream of a vast Atlantic low."—E. Alexander Bergstrom.

**14. Migration into Britain from the North-west, Autumn 1952.** Kenneth Williamson. 1953. *The Scottish Naturalist*, 65 (2): 65-94. Weather conditions in the early autumn of 1952 created favorable conditions for a study of the migration into Britain of Greenland, Iceland and Faeroe birds. The paper is based largely on observations at Fair Isle (in the extreme north of Scotland, between the Shetlands and the Orkneys). Mr. Williamson suggests: "(1) the possibility that the early timing of passerine migration is an adaptation to take the best advantage of the period of optimum development of the sub-tropical highs; (2) that journeys are initiated by the calm weather conditions of cool or anti-cyclonic weather, or by the sudden amelioration of weather following temporary inhibition of the migratory urge by a passing depression; (3) that the different character of successive autumn migration seasons is a result of the varying dominance of the chief air-mass sources and the interplay of the anticyclones they produce; (4) and that in the case of Greenland-Iceland populations a down-wind drift, without dependence on an innate sense of orientation, provides the surest method of reaching the western sea-board of Europe in autumn." The paper is another fine illustration of what intensive study of individual birds captured at a banding station can produce, since the paper depends in large part on data on weight, measurements, and plumage.—E. Alexander Bergstrom.

**15. Spring Arrival of the Swallow.** (Über den Einzug der Rauschwalbe im Frühjahr.) 1953. Ludwig Schuster. *Die Vogelwelt*, 74 (6): 211-215. "Although the European literature is full of 'first arrival' records of the swallow, *Hirundo rustica*, it is plain that for the most part these records have little significance." To get a true picture of the arrival of the breeding population, Schuster selected Frischborn, a village near which there are no rushy roosting sites, so all swallows roosted in buildings where he counted them each night. In 1953, with unfavorable weather, the total adult population of 57 pairs and 3 singles was not attained until May 22, 53 days after the first arrival. In 1952, with fairly normal weather, 81 pairs arrived over a 31-day period. (Some reverse migration during bad weather is suspected.) Migrants, heading farther north, are evident at Frischborn during the daytime, especially early in the season. Dry, cold weather delays nest building. 74% (42 pairs) had second broods. There were no third broods.—Frances Hamerstrom.

**16. The Migrations of British Warblers (Sylviidae) as Shown by the Results of Ringing.** A. Landsborough Thomson. 1953. *British Birds*, 46 (12): 441-450. An analysis of some 350 recoveries of 11 species of Sylviidae ringed in the British Isles. From 1,634 to 2,865 individuals of six species were ringed; the numbers of Whitethroats, *Sylvia communis*, reached 11,272 and of Willow Warblers, *Phylloscopus trochilus*, 21,352. Two maps show recoveries abroad of the six species; most of these come from near the Atlantic seaboard of the European continent, but the four fall records of Wood Warblers, *Phylloscopus sibilatrix*, come from Italy and one in spring from Algeria. Return to the place of ringing occurred with 50 birds of eight species. With birds ringed as adults and with seven ringed as nestlings the return was exact; with five other nestlings the distance was 2, 7, 10, 11 and 12 miles from the birthplace. "Of the recoveries in the British Isles, about three-fourths of the total were in the second (i.e. next) year after that of ringing (irrespective of age) and about one fourth in the third year, with a solitary record each from the fourth and fifth years." One Whitethroat was taken on October 4th in Portugal in its seventh year. A valuable paper.—M. M. Nice.

**17. Migration at the Kentish Knock Lightship.** D. F. Owen. 1953. *British Birds*, 46 (10): 353-364. Many late fall migrants were found to be both diurnal and nocturnal.—M. M. Nice.

**18. Nocturnal Migration of Thrushes in Ireland.** P. W. P. Browne. 1953. *British Birds*, 46 (1): 370-374. Fall migration of thrushes near Dublin was inves-

tigated by recording call frequencies of the different species on 16 nights. The author found a line of concentration of movement along the coast. Also the abundance of the various species appears to have changed markedly since 1900.—M. M. Nice.

**19. Visible Migration in S.E. England, 1952.** David Lack. 1954. *British Birds*, 47(1): 1-15. A cooperative study of fall migration, discussing the different species involved.—M. M. Nice.

**20. On the Movements of the Manx Shearwater at Sea During the Breeding Season.** R. M. Lockley. 1953. *British Birds*, Supplementary Number, 46: 1-48. Based on results of ringing over 40,000 *Puffinus puffinus puffinus* on the island of Skokholm, South Wales between 1928 and 1952. Detailed maps show southward and northward trips of the breeding birds between Skokholm and their favorite feeding grounds, abounding in sardines, 600 miles to the south in the Bay of Biscay. Each nesting bird spends two to three days at the home burrow "fasting and working," then two to three days "feasting and holidaying at sea." Manx Shearwaters habitually fly at the rate of 25 to 35 miles an hour. One taken across the Atlantic by air and released at Boston, Massachusetts returned to its burrow in 12½ days, a distance of over 3,000 land miles (p. 3). "Long-distance flight is a habit of the shearwater; the fact that it continues to fly hundreds of miles on food-sorties when suitable food is available near home is probably due largely to habit," (p. 47). A fine example of well-planned, conscientious banding and observation.—M. M. Nice.

## LONGEVITY AND MORTALITY

(See also Numbers 2, 8, 10, 23, 49)

**21. Average Lifespan of the Alpine Swift.** (Die Mittlere Lebensdauer des Alpenseglers.) David Lack and Hans Arm. 1953. *Der Ornithologische Beobachter*, 50(5): 133-137. A statistical analysis of capture-recapture data for the Alpine Swift (*Apus melba* [L.]) gives an annual adult mortality of 17.8 percent and an expectation of further life of 5.6 years. The mortality between leaving the nest and breeding at 2 years of age may be about 80 percent.—R. O. Bender.

## POPULATION DYNAMICS

**22. The population frequencies of species and the estimation of population parameters.** I. J. Good. 1953. *Biometrika*, 40: 237-264. A random sample is drawn from an infinite (= extremely large) population and, in practice, containing a large but finite number of species. This sample tells how many species are represented by one individual each or by two individuals, and so on. It is then possible to estimate the proportion (frequency) of each species in the population, the proportion made up of all the species occurring in the sample, and the so-called heterogeneity of the population. Under certain conditions the number of species in the population not represented in the sample may be estimated. No estimate of total population size is derived nor can one be derived. The method is applicable to rather large samples of ducks, shorebirds, or warblers taken over (say) an entire migration. If a satisfactory estimate of population size for one species is available, the total population can be estimated. An interesting bibliography is given. See also *Bird-Banding*, 23:78, review No. 11.—C. H. Blake.

**23. Capture-recapture analysis.** J. M. Hammersley. 1953. *Biometrika*, 40: 265-278. From time to time I have reviewed in *Bird-Banding* papers dealing with this subject, including most of the references given in the present paper. Hammersley presents us with a method of analyzing a stochastic (statistically variable) model of the population which avoids simplifying deterministic assumptions. The computation involved is heavy and, in the long run, can only be carried out

effectively by automatic computing machines. The method is illustrated by Arn's data on two colonies of *Apus melba* at Solothurn, Switzerland. The expectation of life of an individual is  $5.61 \pm 0.30$  years. The capture was not random in all years, so the catching efficiency varies from 0.1 to 0.533 and the population size from  $40 \pm 38$  to  $5726 \pm 3279$ . It will be seen from the last figures that the standard errors can be very large although in some years they approximate 10 percent.—C. H. Blake.

**24. 99.9 and 0.1% points of the  $x^2$  distribution.** T. Lewis. 1953. *Biometrika*, **40**: 521-426. Special tables carrying the probabilities beyond previous limits.—C. H. Blake.

**25. Some simple approximate tests for Poisson variates.** D. R. Cox. 1953. *Biometrika*, **40**: 354-360. If we assemble the numbers of individuals of (say) Chickadees trapped in a given array of traps during a certain hour of each day for a period in midwinter, we would expect the assembly to form a Poisson series. Many other examples could be given. Cox gives a test to show whether the means of two such series are statistically the same. An expression is given for the confidence intervals of a single mean and a method of examining proportional changes in a set of Poisson series. If we expand the example above to include a set of series for the several hours of the days, it is possible to see whether a change in the trap array introduced proportional changes or not.—C. H. Blake.

**26. Population differences between species growing according to simple birth and death processes.** J. H. Darwin. 1953. *Biometrika*, **40**: 370-382. The first part of this article considers the same general problem as in Good (above, No. 22). The word "growing" means "increasing its population." The second part deals with speciation rate. Here there seems to be a confusion between various sorts of speciation. Geographic speciation is regarded as minor in comparison with phyletic or saltational modes. I am not convinced that we can treat the development of a new species as mathematically equivalent to the appearance of an additional species in a sample whose size is arbitrary.—C. H. Blake.

**27. Some procedures for comparing Poisson processes or populations.** Allan Birnbaum. 1953. *Biometrika*, **40**: 447-449. The aims are the same as in Cox (above, No. 25), but more emphasis is given to sample size and the use of paired observations.—C. H. Blake.

**28. A graphical method for the analysis of statistical distributions into two normal components.** Eric J. Preston. 1953. *Biometrika*, **40**: 460-464, 1 fig. Suppose we have a series of (say) wing lengths taken without distinguishing the sexes and we have reason to know that the sexes do differ in wing length. Can we separate this single distribution into two, one for each sex? We assume that each of the component distributions is Gaussian (normal) and that the variances of the two are equal. (Standard deviation is square root of variance.) With the diagram given and a moderate amount of computation the question can be answered with reasonable accuracy.—C. H. Blake.

**29. Processing data for outliers.** W. J. Dixon. 1953. *Biometrics*, **9**: 74-89. Definite rules are given for eliminating items of data which either represent rather gross errors or are not part of the series under consideration.—C. H. Blake.

**30. Population growth of the sexes.** L. A. Goodman. 1953. *Biometrics*, **9**: 212-225. The author considers theoretically what may happen to a population depending on differences in the production and survival of the two sexes. Several mathematical models are used.—C. H. Blake.

## NIDIFICATION AND REPRODUCTION

(See also Numbers 15, 40, 46)

**31. Pair Formation, Egg Laying and Incubation in the Emperor Penguin.** (Formation des couples, ponte et incubation chez le Manchot Empereur.) (*Expéditions Antarctiques en Terre Adélie, 1949-1953*. Note Ornithologique No. 8.) Jean Prevost, 1953. *Alauda*, **21** (3): 141-156. A thorough, careful study of *Aptenodytes forsteri* lasting from Jan. 21 to Dec. 26, 1952 and involving banding, dissections, and observation of some individuals in temporary captivity. First arrivals came Mar. 10, the majority of the 13,000 adults appearing during the last third of March. The birds were very fat, a male of 34 kg. furnishing 9 kg. of fat, a female of 24.8 kg., 4.65 kg. of fat. By April 16 80 percent of the birds were in pairs. The "song" is modulated in the male and ends with a long note, but in the female it is more of a cackle with a short final note. The song appears of fundamental importance in the life of the Emperor Penguin; it is the basis of sexual and individual recognition, enabling mates to find each other after separation and parents to recognize their young. During the first 3 months the majority of females were much more slender than the males and averaged 5 to 7 kg. less in weight. During the period of pair formation many trios were observed; five of these were collected and in every case proved to consist of two females and one male. The females fought each other vigorously, while the male gave numerous pecks to the non-preferred female. That there was not a surplus of females was shown by random collection of 37 individuals, 19 of which proved to be females, 18 males.

About 2 weeks after pair formation the first copulations were seen and about 25 days later the single egg was laid; 6 to 24 hours afterwards the female gives the egg to her mate and leaves for the sea. The male incubates the egg for some 2 months until the return of his mate. There is no "communal" care of the eggs, but unemployed adults are excited over chicks temporarily loose, as happened during weighing of the young. Average weight of the eggs was 460 grams. The incubation period was 62 to 64 days. The females returned in July and each sought and found her mate, as shown by banding, and took over the chick. Three returning females placed in the "observation park" where strange males were incubating eggs did not exchange eggs with them, but fought them. (B. Stonehouse, (1953. *The Emperor Penguin*. Falkland Islands Dependencies Survey Scientific Reports 6. London), studied a colony of 150 Emperor Penguins from June 5 to Aug. 15 and mistakenly concluded there were no definite pairs.) On Aug. 5, 11 adults were weighed; the males averaged 23.25 kg., the females 27.7. The females fast for about 2 months, the males  $3\frac{1}{2}$  to 4 months. Different displays are shown in nine excellent photographs.—M. M. Nice.

**32. Notes on the Reproduction of the Antarctic Fulmar.** (Notes sur la reproduction du Fulmar Antartique, *Fulmarus glacialisoides* (A. Smith).) (*Expéditions antarctiques en Terre Adélie, 1949-1953*. Note Ornithologique No. 9.) Jean Prevost, 1953. *Alauda*, **21** (3): 157-164. A colony of these birds was watched on Cap Géologie, Terre Adélie, from October 1952 to Jan. 11, 1953. Numbers varied from 42 on fine days to one or two or even none during blizzards. Two males weighed 803 and 868 grams, their mates 746 and 662. An important occupation of the birds was digging snow away from their nest sites. During the first half of December most of the nests were free of snow and ice, but some were coated with ice which caused loss of eggs. The first eggs were laid Dec. 6, which was 17 and 21 days after the first copulations were noted. Thirty-three eggs were laid, of which 14 were deserted, 9 because of snow and ice.

The expedition left before any hatching occurred. The author cites James Fisher's (1952, *The Fulmar*, London) statement that the incubation period of the Atlantic Fulmar, *F. g. glacialis*, lasts 41 to 57 days. The last figure is well attested in a careful life history study (Richter, 1937, *Journal für Ornithologie*, 85: 187-200), but the first rests on a single observation (Robinson, 1936, *British Birds*, 30: 194), where it seems probable the author did not see the egg until some time after it was laid. The greatest authority on the biology of incubation, Oskar Heinroth, (1922, *Journal für Ornithologie*, 70: 173) wrote it was impossible

for the egg of the Griffon Vulture, *Cyps fulvus*, to hatch one time in 4 weeks and another time in 6 weeks. It is equally impossible for a Fulmar egg to hatch in 6 weeks when it regularly takes 8 weeks, as reported by many observers. Under unfavorable circumstances incubation can be considerably prolonged, but it cannot be markedly shortened from the norm.—M. M. Nice.

**33. Second Broods in the European Starling in North America.** Brina Kessell. 1953. *The Auk*, 70(4): 479-483. Observations of *Sturnis vulgaris* at Ithaca, New York show that many of these birds raise two broods in a season. The length of recorded breeding season in other localities is interpreted to show that, with the exception of the extreme northern part, this is probably true throughout its range in North America. An effort to correlate "earliness" and "dryness" of the season with frequency of second broods failed because of a lack of early or dry seasons. No evidence was seen of third broods.—J. C. Dickinson, Jr.

**34. The Common Tern Colonies at Alterrhein and Fanel in 1952.** (Die Flusseeeschwalben—Kolonien bei Alterrhein und am Fanel im Jahre 1952.) W. Stricker and R. Ryser. 1953. *Der Ornithologische Beobachter*, 50(1): 20-23. Descriptions of two attempts to promote Common Tern (*Sterna hirundo*) colonies in Switzerland through the use of artificial floats. In both cases the floats were occupied and eggs were laid. The colony at Alterrhein was destroyed by rats; the colony at Fanel fledged 13 young.—R. O. Bender.

**35. Observations of Bonelli's Warbler, *Phylloscopus bonelli*, in the Basel Jura.** (Beobachtungen am Berglaubsänger, *Phylloscopus bonelli*, im Basler Jura.) Fritz Amann. 1953. *Der Ornithologische Beobachter*, 50(6): 157-168. The observation area consisted of 11 hectares along the ridge of a wooded hill of about 600 m. elevation running from WSW to ENE. Although this warbler normally nests along the dry, sunny, southern slopes of mountain ridges, three pairs of the nine studied by the author nested on the darker, moister, northern slope. The trees were principally deciduous with beech and oak predominating. The nests of nine pairs were found in the 11 hectares, a much denser population than any previously reported.

Details are given of the song and calls. The nests, located in depressions in the ground are described in considerable detail. So far as observed nest building was accomplished by the female alone although the male remained in the vicinity. Completed clutches consisted of from 3-6 eggs. Only the female incubated, leaving the nest for no more than 10 minutes at a time. Nestlings were fed by the female in most cases, with only two observed instances of the male bringing food to the nest. Previous investigators had reported both sexes participating in the care of the young.

Four nests were destroyed but it was probable that the young from two of these may have escaped. Three pairs may have attempted a second nesting. Twenty-one young were fledged from 44 eggs (47.7% success). The area was deserted about the beginning of August. These are only a few of the observations in this fine paper.—R. O. Bender.

**36. On the Effect of a Deficient Adaptation of the Black-headed Gull to an Ocean Environment.** (Ueber die Auswirkung einer mangelhaften Anpassung der Lachmöve, *Larus ridibundus*, zur Meeresmilieu.) Göran Bergman. 1953. *Ornis Fennica*, 30(3): 77-80. Near Helsingfors there seems to be a gradual over-populating of the *Phragmites* breeding places by the Black-headed Gull with a concomitant appearance of small colonies on the outlying islands. These are successful inland on the islands, but not on the steep shores. Young gulls readily take to the water on the slightest disturbance. In this situation adult Common and Herring Gulls, (*L. canus* and *argentatus*), by flying over their young with special cries, lead them to low banks, but Black-headed Gulls pay small heed to their young who cannot climb the steep slopes and consequently drown. On June 18, 1953 the author made the following counts: on three islands: 15 pairs, 22 drowned young, 5 eaten by a Crow; some 30 pairs, at most 10 young; 8 pairs, apparently 2 young.—M. M. Nice.



**37. Woodpigeon Covering Eggs.** G. Trelfa. 1953. *British Birds*, **46**(11): 413-414. A *Columba palumbus* regularly covered its eggs with little twigs before leaving on approach of the observer.—M. M. Nice.

**38. Communal Spirit in Jackdaws.** P. Manson-Bahr. 1953. *British Birds*, **46**(11): 414-415. In Pootings, Kent, a pair of *Corvus monedula* nested in the chimney of a house; at the end of May the cock was shot and 3 days later the hen. "The next morning from the clamour which proceeded from the roof it was clear that well-grown young had been orphaned. In a few hours a flock of Jackdaws numbering over a dozen appeared soaring over the house"; about four stayed and fed the young; 4 days later these were enticed out and led away. "The nearest colony of Jackdaws is situated some six miles away."—M. M. Nice.

**39. Analysis of egg shape of chickens.** F. T. Shultz. 1953. *Biometrics*, **9**: 336-353, 3 Fig. In a production-bred flock it was found that the breadth-length ratio differed significantly between the first and second egg of a clutch and between such eggs in successive clutches, but not according to the parentage of the egg. Eight inbred lines showed significant inherent differences.—C. H. Blake.

### LIFE HISTORY

**40. On Eversmann's Warbler.** (Om nordsångaren (*Phylloscopus borealis* Blas.)) P. O. Swanberg. 1953. *Vår Fågelvärld*, **12**(2): 49-78. English summary. This paper covers a review of the species' distribution and migration, a description of fieldmarks and plumages, as well as a 4-day study of one nesting. In Sweden the bird breeds within only a limited area in the Lapland mountains, but it is widely distributed over northern Russia and all of Siberia. A subspecies, Kennicott's Willow Warbler, *Phylloscopus b. kennicotti* (*Acanthopneuste b. kennicotti* of the A. O. U. Check-List), breeds in Alaska. Both the Swedish and Alaskan birds migrate consistently over Asia to the common wintering grounds in Siam, the Philippines, and the Malayan Archipelago. The Scandinavian warblers apparently take a route north of the great deserts, making thus a journey of at least 11,000 kilometres, while the Alaskan ones cross over to Asia first and then fly south along the coast. The birds nest in the birch woods of the north and, in Sweden, egg-laying takes place during the last week of June and the first of July. There are 6 to 7 eggs in the clutch. The pair studied by the author in northern Lapland had their nest, a spherical structure with the opening at the side, tucked into the steep alpine slope near the edge of the tree limit. When found on July 22, 1952, it contained 7 nestlings at least 7 days old. The female alone brooded. She fed one young at a time and made the greater number of feeding visits (74 percent). The male compensated for his more infrequent feedings by bringing larger meals, enough to feed more than one young at a time. This fact was also borne out by his disposal of a comparatively larger amount of fecal sacs, since he "stimulated the evacuation reflex of proportionately more young during his visits at the nest" (p. 70). Interesting data were obtained during a 24-hour continuous watch on July 23-24, when the sun disappeared for about only 2½ hours. The pair commenced activities 9 minutes after sunrise, which occurred at 0110. Immediately after, the hourly number of feedings of both birds together reached the only definite and significant peak of the day. The male ceased feeding activities nearly 4 hours and the female a little over 3 hours before sundown, which took place at 2232. Consequently, the male was active 17h. 25m. and rested 6h. 35m., while the female's period of activity lasted 18h. 5m. and her rest 5h. 55m. She roosted on the nest, but left it four times during the night, returning without food to the sleeping nestlings which failed to react to her coming, as they invariably did during the day. The author concludes that, although the entire time of rest may not be devoted to sleep, the feeding-drive is "disconnected" during the whole period of inactivity, not only in the adult birds but in the nestlings as well. There are eight excellent photographs.—Louise de Kiriline Lawrence.

**41. Some Studies on the Little Ringed Plover.** K. E. L. Simmons. 1953. *Avicultural Magazine*, Nov.-Dec.: 191-207. Very interesting description of the life history and displays of *Charadrius dubius* with comparisons with those of the

Ringed Plover, *Charadrius hiaticula*, and Kentish Plover, *Charadrius alexandrinus*. Special attention is given to the "predator-reaction." "When an individual displays the main drive behind its behaviour at the moment is in some way stopped from fully expressing itself." Seven excellent sketches by Robert Gillmor illustrate different displays. The author points out many problems for further study.—M. M. Nice.

## BEHAVIOR

(See also Numbers 20, 31, 35, 36, 38, 40, 41, 46, 51, 57)

**42. Does the Swift (*Apus apus* [L.]) spend the night in the air?** (Übernachtet der Maurersegler, *Apus apus* [L.], in der Luft?) E. Weitnauer. 1952. *Der Ornithologische Beobachter*, 49(2): 37-44. After reviewing the literature which suggests that non-breeding birds in their first year spend the nights in good weather at considerable altitudes, the author adds his own observations. These consist of typical descriptions of the evening flight in which flocks of swifts ascend until lost from sight, and of their return in the morning. Four attempts were made to follow these flights from an airplane; two in the evening and two in the morning. Swifts were observed on all four flights at altitudes up to 1550 m. (above sea level). The author concludes that overnight flights do occur although he recognizes the several questions which still require an answer. The evidence presented is, in the reviewer's opinion, quite conclusive.—R. O. Bender.

**43. An Observational Study of the Gulls of Southampton Water.** John H. Crook. 1953. *British Birds*, 46(11): 385-397. Winter observations on the four species of gulls roosting near Southampton, England. Some of the gulls feed inland while others feed along the estuaries. Nine feeding methods of "estuarine" Black-headed Gulls, *Larus ridibundus*, are described. "The flocks flying to or from the roosts are shown to steer in high winds in such a way as to maintain a straight line advance."—M. M. Nice.

**44. Displacement-Sleeping in the Avocet and Oystercatcher as a Reaction to Predators.** K. E. L. Simmons and R. W. Crowe. 1953. *British Birds*, 46(11), 405-410. "Predator-reaction" is the term suggested to include all the "activities performed by breeding birds to predators." Displacement-sleeping of *Recurvirostra avocetta* and *Haematopus ostralegus* is considered to be the "result of the joint stimulation, at relatively low intensity, of attack and escape." Sketches show seven reactions of the Avocet towards predators.—M. M. Nice.

**45. Effective Distraction Display by Mallard.** Edward A. Armstrong. 1953. *British Birds*, 46(11): 410. Through distraction display a female *Anas platyrhynchos* saved her small ducklings from the attack of a male Mute Swan, *Cygnus olor*.—M. M. Nice.

## ECOLOGY

(See also Numbers 36, 55, 59)

**46. Annual Cycle, Environment and Evolution in the Hawaiian Honeycreepers (Aves: Drepaniidae).** Paul H. Baldwin. *University of California Publ. Zool.*, 52(4): 285-398, pl. 8-11, 12 text figs.

Zoologists have often expressed their desire for more accurate knowledge of the ecology of this most peculiar family of exclusively Hawaiian perching birds. Heretofore the greatest efforts have been centered upon taxonomy as a means of solving the problem of their evolution. Field workers have devoted themselves largely to collecting specimens, although it must be said that Henshaw (1903) and Munro (1944) interested themselves and others in the birds' habits, as did Perkins (1913)—particularly well from the point of view of an evolutionist. Based for the most part on these works, Amadon (1950) has summarized taxonomy and probable evolution in a succinct and ingenious paper.

Dr. Baldwin's study involves three species, the tiny green Creeper, *Loxops* [*Chlorodrepanis*] *virens virens*, the dark red Apapane, *Himatione sanguinea sanguinea*, and the crimson Iiwi, *Vestiaria coccinea*, all of which are still common in his study area. This was on the slopes of the volcano, Mauna Loa, on the island of Hawaii, between 2300 and 3650 feet. There he spent many years working with the birds themselves.

A great deal of factual data has been amassed to prove points that had only been suggested before, and these data are well presented. The environment, the manner of occupation of territory, breeding cycles and their correlation with changes in body weight, molts, skull development, population movements, as related to food supply, and the staples themselves are treated in painstaking detail.

Most original matter lies in discussions of the breeding cycles (illustrated well by curves), in tables of body weights, and population movements. Heretofore it was known only that the breeding season of Drepaniidae was occasionally protracted, at least in certain species. We had to be content with "about March" or "found a nest in April." This paper proves that pairs of all three genera may be found nesting between January and July. Testicular enlargement occurs in individuals of all three between October and July and annual molt August through October as a rule, with variants in June and November. Territories are not vigorously defended.

No one has weighed Drepaniidae before; here we learn that there is a cycle of body weight with extremes up to 10 percent, highest being at first testicular enlargement and lowest at the end of the breeding seasons.

As has previously been suggested, but without elaboration or attempt at proof, populations are found to move in search of food and this is especially noticeable when trees are in flower. Lists of staple flowers and insects are given and it would appear that they are quite similar for all three species, but there are subtle differences in preference, as well as other habitual attributes. As might have been expected from the shape of the bill, *Vestiaria* is more inclined to prefer nectar, *Himatione* and *Loxops virens* insects. There is said to be no dearth of insects at any time of year but the failure of flowers to bloom may imperil the breeding season of *Vestiaria*. This may have been an important limiting factor upon populations of the more specialized groups such as *Drepanis*, now extinct.

Apparently these populations are not as large as ecological factors involved might permit, although the author is not quite clear on this point. Limiting factors are thought to be climatic — directly in that storms inhibit nesting success, and indirectly in that flowers may not bloom. Factors induced by man's interference are listed: destruction of forest, introduction of foreign birds and others. It is interesting that at least one introduced bird (*Zosterops*) is a direct competitor.

This paper is an important contribution. How sad it is that such studies could not have been made of the seven species that are now certainly extinct.— J. C. Greenway, Jr.

## WILDLIFE MANAGEMENT

(See also Numbers 50, 55, 56)

**47. Fall Migration of the Black Duck.** C. E. Addy. 1953. *Fish and Wildlife Service, Special Scientific Report: Wildlife* No. 19., 63 pp., 32 maps and graphs. This paper is the Fish and Wildlife Service's first serious attempt to analyze any of the thousands of banding records which have been piling up in its files for the last score and more years. As evidence that at long last the Service seems to realize that the collection of banding records must be followed by interpretation, the paper can be regarded as a step forward, but it leaves much room for improvement in subsequent reports.

The paper's most conspicuous fault is its failure to present any clear-cut conclusions about Black Duck movements. This results partly from inadequate and faulty analysis of the data, but more I fear from the author's reluctance to accept as valid any banding evidence that does not support the Service's established doctrines and preconceived theories of waterfowl movement and distribution. This is particularly evident in the treatment of the data from the northeast section of the species' range, where considerable dissatisfaction with

the Service's management policies has been expressed (see review No. 48 below).

The author states quite frankly that the over-emphasis he gives to the Massachusetts bandings (pp. 11-17) is not so much because they are the most complete and comprehensive of those available, but "because much of the past and current sentiment regarding special shooting regulations for New England originated in Massachusetts." He is obviously most concerned with trying to prove that the Massachusetts Black Duck population is an integral part of the "Atlantic flyway" waterfowl stocks, a theory which the data cannot be made to support. To establish this thesis he conveniently disregards entirely the time element in the bandings, and wastes much space and effort in trying to show bias in the Massachusetts banding samples (pp. 2-6, 11-17).

Bias of one sort or another is present in every banding sample, and theoretically can be of considerable importance, especially in small samples. The effects of such variable factors as hunting seasons and pressures, local meteorological conditions, time of bandings, operator's trapping skill and consistency of operations, birds' reactions to trapping, the vagaries of hunters in reporting bands, and many other influences only too familiar to the experienced bander must all be given due consideration. However, when the samples are sufficiently large and well distributed, most if not all of the biases tend to cancel out — and the samples for the Massachusetts populations are among the largest available for the species, and certainly the best distributed in time. They are beyond question fair samples, and any attempt to prove them otherwise is futile. In over-emphasizing the theoretical biases the author has succeeded only in clouding his interpretation of what the banding results do show.

I fear the unfortunate and misleading term "flyway" has now become too deep-rooted in game management jargon ever to be eliminated. In trying to apply to banding analysis the "flyway concept" it has established as an administrative convenience, the Fish and Wildlife Service forgets that the ducks know nothing about the matter, and cannot be expected to confine their movements to the prettily depicted lines of flight that have been drawn for them. Any attempt to make banding data conform to a rigid flyway concept is bound to end, as does this paper, in confusion.

So why continue to confuse the issue by trying to reconcile the irreconcilable? Why not admit that banding data honestly obtained are valid, and use them as the only sound basis for management, rather than trying to twist them to conform to a preconceived party line? That is being tried elsewhere, and one country with such scientific morals is one too many in our world at this time.—  
O. L. Austin, Jr.

**48. Northeast Flyway/A proposal for more effective waterfowl management in the New England Coastal States and Long Island.** Joseph A. Hagar. 1954. Commonwealth of Massachusetts, Division of Fisheries and Game, Bureau of Wildlife Research and Management. 22 pp., 11 maps, 1 graph. This strong brief for setting off the northeast coastal region as a separate waterfowl administrative unit is based primarily on a careful, thorough analysis of the available banding records of the Black Duck, which outnumbered all the other waterfowl together in New England waters, and is the backbone of the sport of waterfowling there. The clear, logical conclusions it presents so forcefully and lucidly are at considerable variance from those deduced from the same data in the paper reviewed above (No. 47).

Behind both these contradictory papers is the New England coastal waterfowlers' expressed resentment against discriminatory federal hunting regulations, which are based essentially on the requirements of maintaining the wintering duck populations of the Middle and South Atlantic States. "A comparison of northeastern stock of game ducks with middle and south Atlantic stocks shows radical differences in species-composition and source. . . . More than 80% of the whole [Atlantic] flyway population originate in the prairie region of interior North America, and arrive on the lower Atlantic coast from the northwest, without entering New England."

Contradicting the Fish and Wildlife Service's contention that the northeastern Black Ducks are an integral part of the vast Atlantic flyway, the author shows that these birds contribute only negligibly to the game stocks wintering south of Long Island. The banding evidence shows conclusively that the Black Ducks

nesting in coastal New England are "nearly sedentary, and fall arrivals from the north are essentially terminal migrants." Most interesting is his discovery that the eastern Black Ducks "are separable into a maritime population which winters chiefly in the Northeast, and a [smaller] inland population which winters from New Jersey southward." The total contribution of Black Ducks from the entire northeast to the middle Atlantic region comes mostly from the inland, not the maritime population, and comprises about 20 percent of the Black Ducks and less than 5 percent of the total of all game ducks in that area.

The number of shooting days allowed by federal regulations in New England has followed the trend of the prairie duck populations, which have varied violently over the past 30 years. New England waterfowl stocks, on the contrary, have remained remarkably constant; "the number of shooting days has had little or no relation to population; conversely, Black Duck stocks have neither decreased with long seasons nor increased with short seasons . . . no regulatory change since the abolition of spring shooting has had a clearly measurable effect on the most important game duck in the Northeast." Clearly the waterfowl of coastal New England can be utilized for more hunting than is allowed by the present and proposed regulations. The author contends therefore that the management of New England coastal waterfowl "is essentially a regional problem," and that it is unfair to manage this population "on the basis of the poor condition in a separate population which does not come into the northeast at all."

The paper is an excellent example of the logical analysis of banding data and the application of the results to the practical aspects of waterfowl management. The data are so unimpeachable, the reasoning so sound, and the presentation so clear that the thesis can be neither misunderstood nor contradicted. It will be most interesting to see what results ensue from its publication, for politicians have found ways to ignore facts and logic in much more important issues than this one.—O. L. Austin, Jr.

**49. Banding Willow Ptarmigan in Øyer.** (Ringmerking av Lirype i Øyer.) O. Olstad. 1953. *Statens Viltundersøkelser*, Oslo, Norway. Ringmerkningsresultater VI, pp. 1-71. The banding of non-migratory species has always been discouraged in North America as a waste of bands. This thorough analysis of the 302 returns and recoveries received from 552 Willow Ptarmigan banded in the Øyer district, Norway, between 1923 and 1939 shows how valuable the practice of banding sedentary species can be, particularly to game management.

After presenting the complete banding and recapture data, the author breaks them down and analyzes them in a series of 21 tables, on which he comments at some length. I wish he had seen fit to present a summary of his comments and conclusions in English, French, or German for the benefit of those who, like myself, cannot read Norwegian. While the figures speak for themselves, and the titles and headings of the tables are no trouble to decipher with the aid of a dictionary, whole sentences and paragraphs in an unfamiliar tongue are a bit beyond the average foreigner's capabilities. I am sure there is much of importance in his remarks hidden behind the language barrier.

The raw data and the tables, however, show that all the ptarmigan were banded in summer, late July through August, evidently broods of young with their parents. They total over the 16-year period 533 juveniles, 5 adult males, 14 adult females. The percentage of banded birds heard from later is the highest I have ever seen for so large a sample, and possibly one of the highest on record. It varies annually from 27.3 percent (of the 1939 bandings) to a high of 81 percent (1928 crop), with an overall average of 55 percent. Most of the recoveries are reported as shot or snared, which shows not only the heavy hunting pressure to which the species is subjected in Norway, but the excellent cooperation of the Norwegian hunters in reporting the bands.

The sedentary nature of the Willow Ptarmigan is shown by table 19. Some 118 were taken in the immediate vicinity of banding, 85 more within 5 kilometers, 30 within 10, 20 within 15, 9 within 20, 4 within 30 kilometers; one bird managed to move 50 and another not quite 100 kilometers from the place of banding before capture. Those at distances above 10 kilometers were all taken late in winter; no young bird had moved more than 10 kilometers from its birthplace by the end of September.

The species' longevity is shown in table 21: 74.8 percent of the banded birds were killed in their first year, 13.6 percent in their second, 7.9 in their third, 2.0 in their fourth, 0.7 percent in their fifth year. One ptarmigan survived into its 8th year, and one, the oldest, into its 9th.

Weights are given for all the birds at the time of banding, and for a large number at the time of recapture. The paper is an important, significant contribution, especially to game management.—O. L. Austin, Jr.

## FAUNISTICS

(See also Number 61)

**50. Report on the Water Bird census during the Winter 1951/52.** (Bericht über die Wasservogel-Zählung im Winter 1951/52.) D. Burckhardt. 1952. *Der Ornithologische Beobachter*, 49(5/6): 137-170. A report of the first winter census during the period of December 25 to January 12 comprising the observations of 86 cooperators. A total of 67,000 Water Birds (including herons, gulls, and coots) was reported of 29 species. Three species comprised 70 percent of the total, Coot, Mallard, and Black-headed Gull. The weather during the census period was warmer than usual which explains the lower population of diving ducks. Sex ratios are given for ten species and their probable accuracy discussed. An estimate of the total number of ducks in all Switzerland (the census covered only the northwest portion) during the census period is given as 120,000-173,000. Incomplete hunting reports indicate 11,614 ducks shot for a hunting mortality of 7-10 percent. This is a very complete report which if continued over the years should prove to be very valuable.—R. O. Bender.

**51. The Brambling roost near Thun 1950/51.** (Beobachtung am Bergfinken Schlafplatz bei Thun 1950/51.) F. Mühlethalen. 1952. *Der Ornithologische Beobachter*, 49(5/6): 173-192. This paper, the first of three describing the 1950 invasion of the Brambling (*Fringilla montifringilla*) in Switzerland, describes two roosts which were established near Thun. Both were in red and white pine trees of 5-10 m. in height, and protected by hills and cliffs from the north and east winds. Each covered about 6.8 hectares. Details of the evening flight to the roosts and of the morning flights out to the feeding places are given. Of particular interest are observations of extremely confused behavior during the evening flight when thick fog covered the area. These flocks were preyed upon by Common Buzzards, Sparrow Hawks, a Goshawk, a Peregrine and perhaps by the Kestrel and Tawny Owl.

Three hundred and four were caught in an elevated net and banded; 118 of these were females and 186 males. While this ratio may not be exact, the author expresses the opinion that there were substantially more males than females in the wintering flocks. The males left for the breeding grounds before the females. Adults and juveniles were present in approximately equal numbers. Data are also given for body weights and wing measurements.

The roosts, which were only about 300 m. apart, were occupied around the 20th of December. One was abandoned at the end of March and the other on April 6. An estimate of the total number of birds involved, based on estimates of flock width, length, and depth together with an assumed flight speed (60 km/hr.) and an observed time for passage, gave a figure of 72,000,000 birds for the two roosts. A very interesting paper.—R. O. Bender.

**52. The Brambling in the eastern part of the Bern highlands during the winter of 1950/51.** (Der Bergfinken-Einfall im Winter 1950/51 im Östlichen Teil des Bernerlandes.) Hans Lanz-Wälchli. 1953. *Der Ornithologische Beobachter*, 50(1): 12-19. The second of a series of three papers dealing with the Brambling invasion of 1950/51 (see 51, 53) is concerned principally with details of the occurrence of these Finches in the Bern highlands.—R. O. Bender.

**53. The Brambling Invasion of Switzerland in 1950/51.** (Der Bergfinken-Masseneinfall [Fringilla Montifringilla (L.)] 1950/51 in der Schweiz.) A. Schifferli. 1953. *Der Ornithologische Beobachter*, 50(3): 65-89. This paper

summarizes the observations of Swiss ornithologists on the Brambling invasion of 1950/51. The invasion occurred in two principal waves; one began the end of November and continued until the middle of December, the other commenced at Christmas and ended in early January. It was estimated that at least 100,000,000 birds were present. Departure began in the second half of February and lasted through all of March. Principal food was beechnuts and seeds of conifers.

It was calculated that the invading birds represented 26,000,000 nesting pairs. Using population density figures of 4 pairs per km<sup>2</sup>, the nesting area from Norway to the Urals can accommodate 6.7 million pairs. Hence the authors conclude that a substantial proportion of the invaders came from the Trans-Ural regions. The reasons why these Trans-Ural birds desert their normal migration routes is not known. This series of three papers comprises an excellent account of a most impressive avian phenomenon.—R. O. Bender.

**54. Observations of the Short-tailed Hawk in Florida.** Joseph C. Moore, Louis A. Stimson and William B. Robertson. *The Auk*, **70**(4): 470-478. The Short-tailed Hawk, *Buteo brachyurus*, appears in the United States only in Florida, where its status has never been clearly known. The authors have attempted to document and collate the available information. Records from literature added to sight records contributed by the authors and thirteen other field observers are included. It does not appear that museum collections were searched for additional records, nor is it always possible to discern whether the quoted records represent "sight" or "specimen."

The data which are presented show that (1) Short-tailed Hawks have been seen with some regularity in certain areas of southern Florida in winter and early spring; (2) there is some indication that this Florida population of this species diminishes during the summer; (3) the light and dark-phases occur with equal frequency. Additional field marks for identification are remarked upon.

The authors comment that this species seems to be increasing and propose that this is possibly due to protection from casual shooting since the establishment of the Everglades National Park in 1947. The conjecture is interesting but there appears to be no real basis for such a conclusion. The estimate of increasing numbers is based largely on field observation made by Stimson from 1932 through 1951. Percentage increase in number of observations per 100 days is actually greater prior to the establishment of this immense Park.

No speculation is offered in explanation of the apparent lowering of the population numbers during the summer months. No effort is made to equalize man-days of observation over the 12-month periods, and the possibility of biased data is obvious. The lack of specimens or sightings of birds in juvenal plumage is puzzling, and the inclusion of some of these in the sight records is certainly to be considered.

The need for further careful, well-documented work is indicated. — J. C. Dickinson, Jr.

**55. A review of the avifauna of Stora Karlsö.** (Översikt av Stora Karlsös fågelfauna.) Bengt Flach. 1953. *Fauna och Flora*, pp. 28-139, with English summary. This small island of hardly 2 square miles, situated in the Baltic Sea off the island of Gotland, is considered one of Sweden's foremost ornithological resources. This paper is primarily an annotated list of the 187 species recorded on the island, 46 of which are habitual breeders, 26 temporary or probable nesters, 60 transients during migration and, almost as many, rare visitors.

Special attention is given population fluctuations, the effects of predators including man, and artificial control, migration and recoveries of ringed birds, as well as circumstances and traits influencing survival. The Razor-billed Auk, *Alca t. torda*, and the Murre, *Uria aalge intermedia*, are the most common breeders. The Black Guillemot, *Uria g. grylle*, has difficulty in retaining a foothold, and the lack of parental attention when the young go into the sea is given as a contributing factor (p. 130). The gulls rank foremost as predators, and even newly fledged Ravens, *Corvus c. corax*, avoid flying over the sea where the gulls may force them down and drown them (p. 35).

The historical review, which represents much painstaking research, reveals facts of interest. Thus, bones of birds from the Stone Age about 5,000 years old have been unearthed in a cave and so far identified as belonging to 41 species. The island was first mentioned in a 14th-century chronicle, Linnaeus visited it in 1741, and in 1880 the Karlsö Club was formed, Sweden's oldest conservation club. It is of note that measures of direct control aimed at protecting the so-called desirable species appear to have rather consistently been counteracted by nature and often in unexpected ways. As examples may be cited, the replacement after stringent sterilization of its eggs of the Herring Gull, *Larus argentatus*, by the Lesser Black-backed Gull, *Larus f. fuscus* (p. 92); the emigration of the Common Eider, *Somateria m. molissima*, to Gotland after Karlsö became protected (p. 76); and the male Peregrine Falcon, *Falco p. peregrinus*, which successfully raised the 4 nestlings after the female died (p. 61), a remarkable instance of the male actually taking over the duties usually performed by the female while the young were still in the downy stage.—Louise de Kiriline Lawrence.

## FOOD HABITS

(See also Numbers 43, 51, 53)

**56. A Brief Study of the Double-crested Cormorant on Lake Winnepegosis.** J. A. McLeod and G. F. Bondar. 1953. *The Canadian Field-Naturalist*, 67(1): 1-11. During five summers in a period of 9 years the authors briefly investigated the economic status of the Double-crested Cormorant, *Phalacrocorax auritus* on Lake Winnepegosis, Manitoba. Size of the colonies varied from 10 to 5,292 nests. The total breeding population in 1945 was estimated at 39,448 individuals. Although fish consumption was large, only 7.2 percent of it by weight was made up of fishes of particular commercial value. Some cormorant population control methods are discussed.—W. Earl Godfrey.

**57. The Snail-eating Behaviour of Thrushes and Blackbirds.** Desmond Morris. 1954. *British Birds*, 47(2): 33-49. A detailed analysis of this "specialized feeding process" in the Song Thrush, *Turdus ericetorum*, carried out in a garden; 239 snail shells were collected with the exact sites on the concrete walks noted. Special attention was paid to the actions of breaking open the shell; 30 broken shells are shown in photographs. The actions of extracting the snail and the invariable wiping of it before swallowing are discussed. It is not clear whether other species of Turdidae break open snail shells, although the Redwing, *T. musicus*, is said to do so. The Blackbird, *T. merula*, was found by the author to rob the Song Thrush "at the crucial moment when the Thrush had just removed the shell." Many other interesting aspects are discussed in this important contribution to the study of behavior. Mr. Morris urges a comparative study of this technique in other Turdidae, as well as experiment and observation on its development in individual Song Thrushes.—M. M. Nice.

**58. Do predatory birds play a role as "health police";** (Spielen die Raubvögel eine Rolle als "Gesundheitspolizei"?) Dieter Burckhardt. 1953. *Der Ornithologische Beobachter*, 50(5): 149-152. This is a review of a paper by the Swedish Ornithologist, G. Rudebeck, which appeared in *Oikos* 2: 65-88, 3: 200-231. One table is of particular interest:

Species	No. of hunts observed	No. of successful hunts	Percent of success	No. of seized birds showing abnormal behavior	Percent of total seized birds
Sparrow					
Hawk	213	23	10.8	5	21.7
Merlin	155	7	4.5	1	14.3
Peregrine	260	19	7.3	3	15.8
Sea Eagle	60	3	5.0	1	33.3



No clear-cut answer to the title question can be given from these or other available data, but the trend suggests that more abnormal (in behavior or in physical structure) birds are taken than are normally present in wild populations. The review concludes with a plea for more study of the subject.—R. O. Bender.

**59. The results of composition studies of owl pellets and their scientific usefulness.** (Das Ergebnis der Zergliederung von Eulenwöllen und seine Wissenschaftliche Verwertung.) Herman Kahmann. 1953. *Ornithologische Mitteilungen*, 5(11): 201-206. Employing actual data from the work of Utten-dorfer and from his own studies the author demonstrates how a knowledge of the composition of owl pellets can be used to compare the food habits of the Barn, Long-eared, and Tawny Owls; also to study the variation in prey species from month to month and year to year, and the seasonal and annual fluctuations in small mammal populations. As illustrative of the type of information presented one graph shows that the percentage of field mice in the diet of six Long-eared Owls during March of 1950 varied from 83-95 percent, but during March of 1951 the variation was only 93-99 percent. Another graph shows the change in the percentage of wood mice in the diet of a Barn Owl from a low of zero in April to a high of 50 percent in May, all of the same year. This is a most interesting paper.—R. O. Bender.

## SONG

(See also Numbers 18, 35)

**60. The Song of the Woodpigeon.** Julian S. Huxley and P. E. Brown. 1953. *British Birds*, 46(11): 399-404. A detailed analysis of nearly 4,800 songs of *Columba palumbus* showed much variation in number and duration of both phrases and songs, the former ranging from 2.55 to 3.10 seconds in length, while the latter might last as long as 15.5 seconds. The most common version consisted of 3 phrases and lasted 8 seconds. It was found that the song differed from the generally accepted version; "almost 97 percent began on what has usually been described as the second note of the phrase, and nearly 80 percent ended on what has usually been called the first." Only the Heinroths (1927) seem to have described the song correctly. One more example of our uncritical acceptance of the printed word.—M. M. Nice.

## BOOKS

**61. Birds of Washington State.** Stanley G. Jewett, Walter P. Taylor, William T. Shaw and John W. Aldrich. 1953. University of Washington Press, Seattle. 767 pp. \$8.00. The materials in this attractive book are of exceptional quality and durability. There are 12 color plates, 99 halftones, 51 distribution maps and a colored life zone map. Eleven of the color plates are by Roger Tory Peterson; the frontispiece is by E. R. Kalmbach. The 99 halftones are generally of excellent quality and distributed throughout the book close to the related discussion. In some cases the caption tells where the picture was taken; in others this information is not given. The reader will wonder whether some of the pictures were taken in Washington.

The 47-page introduction gives the scope of the study, location of the area and topographic features of various regions in the state including the Olympic Mountains, Willapa Hills, Puget Sound Basin, Cascade Mountains, Okanogan Highlands, Columbia Plateau, Blue Mountains and the Selkirk Mountains. It also includes a discussion of climate, life zones and a review of bird work in Washington. Finally, the introduction gives brief but valuable notations on birds in relation to reclamation, the forest, fish-eating proclivities, conservation, refuges, and introduction of exotic species.

In 1909 William L. Dawson and John H. Bowles published "Birds of Washington." In the 40-odd years since that time the state of Washington has changed

from a near-primeval area to one of modern civilization including industry and intensive agriculture. The great stands of Douglas fir west of the Cascade Mountains are nearly gone. In their stead are various ages of second growths, growing cities and farms. The apple industry in the Columbia Valley, the irrigated lands in the Columbia Basin, and the wheat fields of southeastern Washington have greatly altered the landscape and thereby changed the bird life of these major areas. Consequently "Birds of Washington State," which shows many of the changes that occurred in our bird life, is a much needed publication that will be of interest to everyone. Young and old, amateur and professional, administrator and scientist—all will find this book interesting and valuable in showing the status of birds in various areas of Washington.

"Birds of Washington State" is a book of broad or comprehensive scope treating of more than 450 birds. Each species or subspecies of bird found in the state of Washington is discussed in considerable detail. These details include: (1) The status of each bird with its geographical and seasonal occurrence, (2) extreme dates of observation for migratory species, (3) immediate surroundings or habitat conditions for each bird, and (4) characteristics, mannerisms, food habits, nesting ways, and songs of the species included.

On p. 1 in the introduction it is pointed out that, "Much of the information is based on personal investigations by the writers and by the temporary or permanent personnel of the Fish and Wildlife Service and cooperating institutions, and has not previously been published. Published information has also been freely drawn upon." Again, on p. 37, the authors state that, "While it is the intention of the authors to take full account of the work of others in the state, the principal informational basis for the present reports is afforded by the mass of original information resulting from the activities of the U. S. Biological Survey and its successor, the Fish and Wildlife Service, at intervals from 1889 to the present time, and the active cooperative work of the Biological Survey and the State College of Washington between the years 1917 and 1921." It would have been fitting to point out that the manuscript was completed in 1948, and that there was about a 5-year delay in publishing. The inclusion of a few references after 1948 (see Aldrich, 1951; Slipp, 1952; Yocom, 1951) tend to obscure this delay, but other reports published during this 5-year period are conspicuously missing.

The authors have done an excellent job of assembling a mass of data, analyzing them critically and presenting the findings in a very readable style. This work will not only stimulate resident ornithologists and others to publish supplementary information on birds of Washington, but it will serve as a guide for the beginner who enjoys bird watching as well as the scientist who needs a reference for launching more intensive studies. As indicated by the writers, there are gaps to be filled. Some of these are not very apparent, whereas others like further studies on the flycatcher family are obvious. On p. 430 a distribution map of the Western Flycatcher *Empidonax difficilis* shows the subspecies *hellmayri* breeding throughout the entire area east of the Cascade Mountains. An examination of the records shows that only two specimens were taken in the state, one in Yakima County and one in the Blue Mountains of southeastern Washington. The European Starling *Sturnus vulgaris* is indicated, on page 545, as a "Rare permanent resident. . ." Actually this species is a common to abundant winter visitor and a rare summer resident. Observations obtained since 1948, including the first three breeding records for the state, show that flocks of a hundred birds are not unusual in winter.

On page XV the following notation is made regarding the systematic classification of Washington birds: "Except where original study dictated otherwise, scientific and common names used herein are from a tentative list prepared by the Committee on Classification and Nomenclature of the American Ornithologists' Union for use in the forthcoming revision of the *Checklist of North American Birds*." At least 12 subspecies are included that are apparently based on original studies but which have not been accepted by the Committee on Classification and Nomenclature. How many of these races will be accepted? Most readers would probably prefer having such new subspecific designations proposed in a separate list.

By and large the criticisms are overshadowed by the many good features of this report. It is a good book that is very useful, interesting and fulfills a definite need.—Irven O. Buss.

**62. Bird Migration and its Routes.** (Fugletraekket og dets Gåder.) Finn Salomonsen. 1953. E. Munksgaard, Copenhagen, 224 pp., 19.50 Danish Kroner. Salomonsen's book on bird migration is a nicely balanced combination of a general discussion of bird migration (126 pp.) with a detailed presentation of the present knowledge of the migration of Danish birds based on an evaluation and analysis not only of field observations, but also of the banding records of Danish birds. There are 60 text figures (mostly maps and graphs) and 8 plates of photographs. Although essentially written for a Danish audience (there are no English summaries) the volume is of considerable interest to any student of bird migration.—Ernst Mayr.

#### NOTES AND NEWS

The annual meeting of the Northeastern Bird-Banding Association (combined with the fall field meeting) will be held on Saturday, October 2, at 10 A.M., at the Cook's Canyon Sanctuary of the Massachusetts Audubon Society. Those interested in appearing on the program should get in touch with Dr. C. H. Blake, Dept. of Biology, Massachusetts Institute of Technology, Cambridge 39, Mass. A hot meal will be available at noon; the cost will not be over \$1.75 and may be less. After a postcard notice is sent to NEBBA members in September, those who plan to attend will be asked to make a reservation for the meal if desired. Others interested in banding will be welcome, and may write to Mr. R. M. Hinchman, 75 Fairbanks Road, Milton 86, Mass., for meal reservations.