## RECENT LITERATURE

Annual Cycle, Environment and Evolution in the Hawaiian Honeycreepers (Aves: Drepaniidae).—Paul H. Baldwin. Univ. Calif. Publ. Zool., 52: 285–398, pls. 8–11, 12 figs. in text. 28 October 1953. Price, \$1.50.—This important study is based primarily upon three species Loxops virens, Himatione sanguinea, and Vestiaria coccinea; the only three species of the family, incidentally, still fairly numerous and still present on a number of the Hawaiian Islands. Baldwin's results, therefore, are not to be regarded as clues to why so many Hawaiian honeycreepers became extinct, although some of his data, for example, the inability of a rarer drepaniid, Psittirostra bailleui, to recolonize one of two mountains on its home island of Hawaii, do bear upon this point. Baldwin was in the islands as Park Naturalist and in other capacities during parts of the years 1937–1946; in 1948 he returned for a full year of intensive work on the problems considered in this thesis.

Loxops virens proved to be a more or less typical territorial songbird. The male has a territorial trill, and also a more spirited song, uttered sparingly, usually in courtship or in active territorial disputes with other males. Molt, nesting, and other activities are on an annual cycle in this and the other species but, presumably because of the equable climate, proceed at a more leisurely pace than is possible in birds that breed in a short, northern summer. Some adult males of Loxops are in breeding condition and on territory by late October or November, though at this time they sometimes leave the area for days or even weeks at a time. Nesting begins after the first of the year, and other males, including birds a year old and some of the older ones, may not take up territory until shortly before nesting commences.

Himatione and Vestiaria belong to a different subgroup, one in whose diet nectar is more and insects are less important than they are in Loxops and its relatives. Adults of both sexes are brilliant red in the two nectar-eaters; in Loxops the male is yellow, the female green. Hence Baldwin was able to learn less about the nectar-specializing forms, especially since unlike Loxops they would not enter traps, but it was apparent that territory is but little developed in them. A presumed male *Himatione* was seen on occasion to fly at others near the nest on which his mate was sitting; but again he would ignore such interlopers and often he left the nesting area altogether. Both Himatione and Vestiaria sing or call throughout the year and probably the notes are uttered by both sexes, though a presumed female Himatione seemed silent at or near the nest; the male was vocal. Vestiaria is aggressive and noisy when excitedly feeding; but little evidence of territorial interest was observed. It, and also Himatione, have definite seasonal population movements, largely but not entirely synchronized with the appearance in abundance of nectar-bearing flowers in different areas. Their preferences in this respect are not identical and, furthermore, they differ considerably in size and in the length and curvature of the bill. Food is thus of significance in allowing the species to live together but can hardly be responsible for the annual cycle, for insects seem always abundant and nectar too, is always available in one area or another. The rains of the winter trade winds may be a deterrent to nesting at that time.

The above will suggest the wealth of detailed, often tabulated, information in this paper. Comprehensive studies of annual cycle in birds are few and far between, and how many of them relate to tropical birds, or to insular endemics, or to nectar-feeders, or to a comparison of representatives of two ecologically quite dissimilar subfamilies of a family? Here, for example, is data on annual cycle of fat deposition in species that are neither migratory nor subject to low winter temperatures (a

definite weight increase was found as the gonads approached and passed maximum size; at other seasons there was much individual variation in fat resources).

In a concluding section on evolution Baldwin has quite well demonstrated that the specialized nectar-eating genera, e.g., *Vestiaria*, seem surprisingly enough, to be the older original group of drepaniids. *Loxops* and the other insect-and fruit-eaters, though in several respects more generalized, evolved from them in a comparatively recent burst of adaptive radiation. A nice example of reversibility in evolution!—D. AMADON.

The Herring Gull's World: a Study of the Social Behaviour of Birds. Niko Tinbergen. Collins, London, xvi + 255 pp., 51 photos., 58 figs. in text. Price, 18 shillings.—In publishing this book, the editors of Collins New Naturalist Library have selected a work which represents a departure from the type of life history study illustrated by such earlier volumes of this series as "The Greenshank" and "The Yellow Wagtail." Their choice of author and subject is one of which they can be proud. Dr. Tinbergen is a leading student of animal behavior and in particular, he has studied the Herring Gull for over twenty years. Furthermore, he possesses the ability to write clearly and simply. The result is a book which not only gives the reader remarkable insight on the whys and wherefores of a Herring Gull's behavior but also achieves this in a thoroughly entertaining manner.

The book is divided into five sections: introduction; settling down in the colony, fighting, and territory; pair formation and pairing; incubation; and family life. Each section contains several chapters. From this it will be seen that the emphasis is on behavior during the breeding season; the activities of the birds at other seasons are only briefly discussed. The work is based primarily on many days of studying the birds in their natural surroundings; and this is supplemented by ingenious and deceptively simple experiments by which the author has been able to determine the reasons for, or functions of, many puzzling behaviorisms. In reading the book, one cannot help but come to a better understanding of the behavior of all birds and even of man.

The book is full of provocative ideas, one of the most intriguing being that of "supernormal" stimuli. By offering newly hatched young variously painted models of an adult gull's head—and other objects—and by noting the number of times the young pecked at (solicited food from) the different models, Tinbergen was able to judge the effectiveness of each model as a stimulus and to find out what part of the model stimulated the chick to solicit food. Several objects were found to be more effective than the normally colored head of an adult gull, and these objects were in many cases more complex in pattern. For instance, a round red spot like that on an adult's bill was less effective than a spot which was similar except for a light ring inside the red, forming a bull's-eye pattern.

This concept of a supernormal stimuli is extremely provocative. Perhaps most important is its potential value as an evolutionary mechanism whereby the selection of more complex patterns, not only of bills but also of other parts, may take place. Here we have something, possibly a pre-adaptation, by means of which we may be able to trace processes of evolution of both behavior and morphology. Tinbergen's experiments on these stimuli immediately suggest further experiments with different species of gulls. Similar studies on the California Gull, which has a black spot within the red spot on the bill, and the Ring-billed Gull with its black-banded yellow bill are two of the most obvious problems which come to mind. It is particularly gratifying to report that Tinbergen has organized a world-wide cooperative project to study the comparative behavior of the different gulls. Undoubtedly many important discoveries will be made in the course of this work.

In any study of behavior, displays and postures are of extreme importance. To illustrate these parts of the Herring Gulls' behavior, Tinbergen has used many of his beautiful photographs and a series of simple line drawings, for the most part prepared from photographs. In describing the birds' actions, these illustrations are far more effective than many pages of text would have been. There are also points in the text where studies of the behavior of other animals are mentioned to shed light on the behavior of the Herring Gull; and, consequently we find figures of displays of the Three-spined Stickleback and other forms.

It is seldom that an author produces a book which should appeal to both beginning bird watchers and professional zoologists. "The Herring Gull's World" is such a book, and I heartily recommend it to everyone interested in birds. I might add that it should be studied by laboratory psychologists who too often forget the value of studying animals in their natural surroundings.—ROBERT W. STORER.

The Birds of the Belgian Congo. Part 3.—James P. Chapin. Bull. Amer. Mus. Nat. Hist., 75A: 1–821, 14 pls., 36 text figs. 20 May 1953.—The third volume of Chapin's great work on the birds of the Belgian Congo covers the first half of the Order Passeriformes, the second half of which is due to appear in a fourth and final volume. The families covered in the present part are the broadbills (Eurylaimidae), pittas (Pittidae), larks (Alaudidae), wagtails and pipits (Motacillidae), bulbuls (Pycnonotidae), cuckoo-shrikes (Campephagidae), babblers (Timalidae), warblers (Sylviidae), thrushes (Turdidae), flycatchers (Muscicapidae), and swallows (Hirundinidae). Some 597 forms of birds are treated in detail while comparative notes or remarks on at least as many more are included, making this volume one of the primary repositories of data about African passerine birds.

As in the previous volumes, the discussions are based not only on Chapin's own material but on practically all of the relevant collections in the leading museums of Europe and America. They are, therefore, a summary of all that is known and not merely of that part available to the author. Chapin's life-long studies of African birds are hereby made available to his colleagues as well as to his successors. The fourth and final volume will bring to completion the most extensive single contribution to Old World ornithology made by an American. It need hardly be added that the present volume fully maintains the standards of excellence set by the first two.—Herbert Friedmann.

Fugletraekket og dets gåder (Bird Migration and Its Puzzles).—Finn Salomonsen. (Einar Munksgaard, Copenhagen), 224 pp., 8 pls., 60 text figs. 1953. Price, 19.50 Danish crowns.—A popular, but serious and scholarly account (in Danish) of bird migration by the leading ornithologist of Denmark, the country that pioneered in the study of migration by means of marked, or banded, birds. The volume opens with a general discussion of animal wanderings, and in the second chapter begins a survey of the various aspects of bird migration that have been studied. Then follow, successively, discussions of resident and migrant birds, of the direction and extent of the routes they follow, of the influence of external conditions on the movement of birds, the invasion of new areas by birds, orientation during migration, the physiological states and processes of migrant birds, and a short and cautious survey of theories of the origin of migration. The rest of the book (nearly half) is devoted to an annotated list of the migratory birds of Denmark, describing their routes, their wintering quarters, summer homes, and their status and dates in Denmark.

This volume brings up to date and supplants the author's earlier one of 1938 and gives every appearance of being able to give further information and enjoyment to the public that has used its predecessor for the past 15 years.—HERBERT FRIEDMANN.

The Web of Life. A First Book of Ecology.—John H. Storer. (New York: Devon-Adair Co.) 144 pp., 48 half-tone figures. Price, \$3.00.—This book is a sort of elementary reader for the layman, the high-school senior or the college freshman wanting background, by desire or assignment, on the use of soils, water, forests, and wildlife from a point of view which stresses interrelations of things, living and non-living. The text is broken up into twenty more or less compact chapters, presenting in a clear way facts concerning physical environment, forest and grassland communities, soil and water resources, evolution and, finally, man's growing awareness of conservation problems. There is a two-page bibliography and an introduction by Fairfield Osborn.

The book should be useful to the audience it seeks. Its success will be lessened by a style of writing that drones and a text which somehow leaves an impression of duty fulfilled rather than inspiration realized. The excellent collection of photographs brought together in the middle of the book are so labeled that they may be examined separately, before or after reading the text, and these should stimulate a good many of those handling this book to read it.

To the more dedicated conservationists of the day, whose concern I share, criticism of a good, honest effort to communicate their message may seem almost to be an act of sabotage. And to tie together the facts of raw life into a neat package for the innocent is, I admit, not easy. But there are several features of this and other more or less similar pieces of writing to which I object and which I honestly believe impair the success of the effort expended.

One thing is that a reader's interest in the conservation point of view must be awakened with incisive argument based on clear fact and clear thinking. Should a book of this sort be started with pronouncements about the interdependence of it all? I find this old tune more and more tiresome. Sometimes broad statements concerning interdependence suggest a dreamy opening to a seance rather than a vigorous, confident entry into an arena fraught with debate. Such statements by a conservationist serve to let some readers know that he has become properly convinced of the soundness of a broad, ecological point of view. But what about the readers to whom all this is more or less new? All this talk about interdependence may be disillusioning because the beginner-particularly the practical and realistic citizen, young or old, whose notice we especially seek-is not going to see what the author says he will see, at least not for some time. I wonder how many of the readers of this book will end up with the "clear and comprehensive" picture its author promises them? The rest of his foreword sounds more like an invocation than a declaration of plan. Conservationists cannot expect to capture audiences by the frothy phrases drawn from the kind of ecology that is loaded with destiny. It would really be better to open with a few frightening statistics.

There is another old tune the evangelists of conservation might well drop. This is the one about balance of nature. One can examine a biota in an area and detect interactions which help to explain the composition and activities of that biota, but this does not mean that the system is so closed or regular as the word balance implies. Nor are the interactions necessarily *interdependences* in the literal sense of that word. Present-day teaching in ecology stresses instead that communities display a resiliency and a capacity for adjustment and compensation. And to bring this out as a part

of the business of man trying to encourage an area toward maximum productivity and usefulness really makes a more exciting picture than the vague balance which is there and yet it isn't there!

But this is hardly the place to continue in this vein. The point is that while conservationists are trying to be heard, there is ample room for continued re-study of how best they might try to be heard. On this score, I recommend a talk by Stanley A. Cain published in 1951 in the Proceedings of the Second Conference on Conservation of Natural Resources sponsored by several agencies of the state of California. My own feeling is that while books like this one by John Storer will continue to appear and to do some good, the strides in conservation will be made around the pivots of specific and fairly dramatic situations. In the Los Angeles area, for example, what with drought, receding water-levels, fire, flood, mud-flow, and winter-freeze, the land has cursed its inhabitants in just about as many ways as possible, and the citizenry of this colossal municipality is about as ripe as one can hope it will ever be for some sound arguments concerning treatment of land and respect for it. We shall see.—Frank A. Pitelka.

The Birds of the British Isles. Volume One.—David Armitage Bannerman. (Oliver and Boyd, Edinburgh), xviii + 356 pp., 41 colored plates by George E. Lodge. Price, 45 shillings.—Dr. Bannerman, who is well known to ornithologists for his monographic work on the birds of tropical west Africa, has set out to "do" the birds of Great Britain. Three volumes are projected for the passerines alone; and the first, following Hartert's order, includes the crows and jays, starlings, Old World orioles, and finches. (Numbered among the members of the last are the House and Tree sparrows, Passer, and the Snow Finch, Montifringilla, which are now almost universally considered to belong to the family of weaver birds.) Most of the species accounts include a brief statement of the status of the species in the British Isles, followed by extended sections on identification, local distribution, distribution abroad, migrations, and habits; there is also a short list of references at the end of each account. This plan, however, is varied from species to species, as the case demands. The author's extensive first-hand knowledge of British birds has been supplemented by wide reading, and much information was acquired through correspondence with other ornithologists. As a result, the work is authoritative and scholarly.

The treatment is both subjective and conservative. Those who enjoy reading at length what a bird looks like, where to find it, how many times it has been recorded in Britain, its status in other European countries, and what its nest looks like will probably read and reread Dr. Bannerman's book; those who want to learn about the biology of the birds—what causes a bird to select a given habitat, what its displays and calls mean, and the significance of its present and past distribution—will have to look elsewhere. In the preface, the author has anticipated criticism for his omission of biological information, but such criticism is still valid. In any field, the most important books are those which by their presentation of new ideas and viewpoints stimulate others to contribute to a deeper understanding of the subject.

All but a few of the plates depict one species each, and they are handsomely reproduced. On the whole, I do not think they compare favorably with the work of Thorburn, but it is perhaps too soon to make a final judgment. Depicting the finches, which he paints with small heads and very small eyes surrounded by light rims, is obviously not Lodge's forte. On the other hand, the plate of the Nutcracker (which also appears on the dust jacket) is a beautiful painting, giving a fine feeling of wind and mist. Lodge uses a compositional trick of putting the birds in one

corner or on one side of a picture, leaving the rest of the space nearly or quite devoid of detail. In his painting of the Magpie, this is extremely effective; but he has used it in more than one-fourth of the plates, and its impact quickly lessens with repetition.

The publishers have spared no pains to produce a beautiful book. The result is a volume which all collectors of fine bird books will want to own.—ROBERT W. STORER.

- ALEXANDER, H. G. 1953. Roseate Terns in Wigtownshire. Scot. Nat., 65: 56.

  ANDREW, D. G. 1953. Red-throated Diver in Midlothian in June. Scot. Nat., 65: 124-125.
- Andrews, F. N., S. R. Miles, and O. S. Davis. 1953. Response of inbred lines of chickens to thiouracil. Endocr., 52: 712-718, 4 tables. Evidence is provided to show that endocrine differences exist between lines or strains of the same species.
- Aveledo H., R., and A. Pons. 1953. Un ave neuva de la region de Perijá. Mem. Soc. Cien. Nat. La Salle (Caracas), 13: 203-204.—Acrochordopus zeledoni wetmorei (Jamayaujaina, Rio Negro, Sierra de Perijá, Zulia, Venezuela) new subspecies.
- BAGENAL, T. B. 1953. The birds of St. Kilda, 1952. Scot. Nat., 65: 19-24.—Birds seen 24 July to 10 August, 1952, on Hirta and Dun of the St. Kilda group.
- Baker, M. F. 1952. Population changes of the Greater Prairie Chicken in Kansas. Trans. 17th N. Amer. Wildl. Conf., pp. 359–366.—Tympanuchus cupido pinnatus survives in Kansas only where some 60 per cent of the native prairie still exists; it reached an all-time low in 1913 and has since fluctuated. The best range carried about 100 birds per square mile in 1949. Peaks were followed by hunting periods in 1941–43 and 1950–51 each of which resulted in a low marked by 56 and 46 per cent young in the samples studied. Hunters took about 50 per cent of the fall population on a study area and appear to have contributed importantly to the recent decline of the species in this state.—J. J. Hickey.
- Balham, R. W., and W. H. Elder. 1953. Colored leg bands for waterfowl. Journ. Wildl. Mgt., 17: (4): 446-449.—Rigid acrylic resin bands, available in many colors under the trade name Plexiglas, are heated before application. Permanency of band and fidelity of colors are claimed.—J. J. Hickey.
- Bannerman, D., and J. Bannerman. 1953. Common Scoters resting ashore. Scot. Nat., 65: 54.—After a storm.
- Barruel, P. 1953. Iconographie des oiseaux de France. L'Ois. et Rev. Fr. d'Ornith, 23, supplement (also listed as Mem. Soc. Ornith. de France et de l'Union Francaise, No. 5). This attractive publication consists of 20 colored plates by Barruel with accompanying text (40 unnumbered pages) by Barruel, J. Dorst, P. Engelbach, R. D. Etchecopar, Fr. Hue, Chr. Jouanin, G. Olivier, and J. Rapine, prepared under the direction of J. Berlioz. 82 species are represented, and brief accounts of their field marks, status, and distribution are included in the text. According to the introduction, a second part is scheduled for publication this year, and a third is to appear in 1955. The plates are, on the whole, excellent although in a few instances Barruel has drawn some parts of a bird out of proportion with the rest (see especially the large feet on the Sparrow Hawk and the small bill on the Bullfinch). He has demonstrated remarkable skill in illustrating several species on one plate and at the same time achieving an interesting composition and balance of colors.—Robert W. Storer.
- BATTS, H. L., Jr. 1953. Siskin [Spinus pinus] and Goldfinch [Spinus tristis] feeding at sapsucker tree. Wilson Bull., 65 (3): 198.

- BEARD, E. B. 1953. The importance of beaver in waterfowl management at the Seney National Wildlife Refuge. Journ. Wildl. Mgt., 17 (4): 398-436.—High duckling production (1.7-4.6 per acre per year) resulted where beaver dammed up sandy sedge marshes, increased the interspersion of cover and water, permitted ducks to move easily between different cover types, created water acres ½ to 3 feet deep, and made for a rich variety of aquatic animals. The important inference is drawn that waterfowl production can be best increased by the creation of small water areas, rather than by large impoundments.—J. J. Hickey.
- Behle, W. H. 1954. Changing status of the starling in Utah. Condor, 56: 49-50.
- Bellrose, F. C. 1953. A preliminary evaluation of cripple losses in waterfowl. Trans. 18th N. Amer. Wildl. Conf., pp. 337-360.—Field and laboratory studies of lethal and nonlethal effects of shot pellets upon ducks, principally Anas platy-rhynchos. Of every 100 Mallards flying south along the Mississippi Flyway, 60 will be hit by shot, 32 will be bagged, 8 or 9 will die as cripples, and 19 or 20 will live to carry pellets in their bodies.—J. J. Hickey.
- Benson, C. W. 1953. A check list of the birds of Nyasaland (including data on ecology and breeding seasons). 118 pp. (The Nyasaland Society and The Publications Bureau, Blantyre and Lusaka, Nyasaland).—Annotated list of 609 species. The accounts, presented in an abbreviated telegraphic style, include much valuable material on habitat and breeding season. Brief notes on subspecies are included, but the emphasis is on the species, which is a commendable point of view. Hypothetical lists, a gazeteer, and a list of vernaculars are included in the appendices.—Robert W. Storer.
- BLACKWOOD, G. G. 1953. Great Grey Shrike in Perthshire. Scot. Nat., 65: 59. BLOUCH, R. I., and L. L. EBERHARDT. 1953. Some hatching curves from different areas of Michigan's Pheasant range. Journ. Wildl. Mgt., 17 (4): 477-482.
- Boase, H. 1953. Little Gull in Angus. Scot. Nat., 65: 129-230.
- BOURNE, W. R. P. 1953. On the races of the Frigate Petrel, *Pelagodroma marina* (Latham) with a new race from the Cape Verde Islands. Bull. Brit. Ornith. Club, 73 (7): 79-82. Three races recognized, nominate marina with *P. marina maoriana* as a synonym, *P. m. hypoleuca*, and *P. m. eadesi*, new subspecies, Cima, Cape Verde Archipelago.
- Brakhage, G. K. 1953. Migration and mortality of ducks hand-reared and wild-trapped at Delta, Manitoba. Journ. Wildl. Mgt., 17 (4): 465-477.—No differences in migration speed, migration route, or homing tendency were noted for 4 species. Hand-reared birds were more vulnerable to local shooting pressure and underwent consistently higher mortality than wild-trapped ducks.—J. J. Hickey.
- Buss, I. O., and B. A. Schottelius. 1954. Breeding age of Blue Grouse. Journ. Wildl. Mgt., 18 (1): 137-138.—At least some *Dendragapus obscurus* retain the bursa of Fabricius until about 2 years of age when they apparently begin to breed.
- BUTLER, J. F. 1953. Sanderlings in South Inverness. Scot. Nat., 65: 56.
- CAMERON, J. I. 1953. Early arrival of Fieldfares. Scot. Nat., 65: 58.
- CARDIFF, E. and B. CARDIFF. 1954. A winter record for the Swamp Sparrow in the Imperial Valley, California. Condor, 56 (1): 54.
- CARNIE, S. K. 1954. Food habits of nesting Golden Eagles in the Coast Ranges of California. Condor, 56 (1): 3-12. From 1947 to 1952 a study was conducted on the hunting methods, prey, nesting, and development of young of 17 pairs of golden eagles. Food items were 77 per cent mammals (mostly jackrabbit and ground squirrel), 13 per cent birds, 6 per cent snakes, and 4 per cent fish.

- Caswell, E. B. 1954. A method for sexing Blue Grouse. Journ. Wildl. Mgt., 18 (1): 139.
- Chapin, J. P. A new race of *Cisticola lateralis* (Fraser). Bull. Brit. Ornith. Club, 73 (7): 83-84. *C. l. vincenti*, new subspecies, 160 kilometers west of Baraka, Belgian Congo. *C. l. modesta* (Bocage) is scarcely distinguishable from *C. l. antinorii* (Heuglin).
- CLANCEY, P. A. 1953. A preliminary list of the birds of Natal and Zululand; with a short account of the status of each. 55 pp. (The Durban Museum, Durban, South Africa).—Annotated list of 561 species. The status and distribution of each subspecies is briefly indicated.
- CLANCEY, P. A. 1953. The British race of Lesser Redpoll. Bull. Brit. Ornith. Club, 73 (6): 72. Carduelis flammea disruptis, Argyllshire, Scotland, new subspecies.
- CLANCEY, P. A. 1953. Notes on geographical variation in the south African populations of *Lybius torquatus* Dumont. Bull. Brit. Ornith. Club, **73** (9): 102–104. Three races recognized.
- CLAY, W. M. 1953. Protective coloration in the American Sparrow Hawk. Wilson Bull., 65 (3): 129-134, 1 fig.—Suggesting that the head markings of Falco sparrerius are adaptively deceptive.
- COOCH, G. 1953. Techniques for mass capture of flightless Blue and Lesser Snow Geese. Journ. Wildl. Mgt., 17 (4): 460–465.—The old Eskimo trick of surrounding flightless geese and then permitting them to follow a human leader (for several days if necessary) into a trap; described in detail. In a tundra project, jointly sponsored by Cornell University and The Stone Age, 15,000 birds were placed "under control" at a single time.—J. J. Hickey.
- Coombes, R. A. H. 1952. Mountain Birds. (Penguin Books, London) 32 pp., 16 colored plates by G. E. Lodge. Price, \$0.95.—Sixteen species (8 of them hawks) of British mountain birds figured and brief accounts of their habits presented in the text.
- Cross, A. 1953. Red Grouse feeding and drinking. Scot. Nat., 65: 128.
- Cross, A. 1953. Greater Black-backed Gull diving for food. Scot. Nat., 65: 129. Dall, G. 1953. Gathering of Long-tailed Tits in East Fife. Scot. Nat., 65: 57.
- Delacour, J. 1953. Comment on the geographical variation of the Monal, Lophophorus impeyanus Latham. Bull. Brit. Ornith. Club, 73 (2): 26.—No subspecies recognized.
- Denton, J. F. 1953. Notes on Sprague's Pipit wintering in Georgia. Oriole, 18: 41-44. An intensive discussion of the habits and habitat of this species, rediscovered in the state after fifty years.
- DE SCHAUENSEE, R. M., and S. D. RIPLEY. 1953. Birds of Oman and Muscat. Proc. Acad. Nat. Sci. Philadelphia, 105: 71-90. Ammomanes deserti taimuri (near Muscat, Oman, S. E. Arabia), Turdoides squamiceps muscatensis (As Sib, near Muscat), and Prinia gracilis carpenteri (Whatayah, near Muscat) new subspecies.
- Dulin, W. E. 1953. The effects of adrenocorticotropin on the White Leghorn cockerel and capon. Endocr., 53: 233-235, 2 tables.
- EATON, S. W. 1953. Wood warblers wintering in Cuba. Wilson Bull., 65 (3): 169-174, 1 table.—Behavior of North American warblers in Cuba in the winter.
- EDMINSTER, F. C. 1953. Snapping turtle catches Pheasant. Journ. Wildl. Mgt., 17 (3): 383.—For *Phasianus colchicus* in Pennsylvania, even the drinking water is not safe.

- EDWARDS, R. Y. 1953. Barrow's Golden-eye [Bucephala islandica] using Crow [Corvus brachyrhynchos] nests in British Columbia. Wilson Bull., 65 (3): 197-198, 1 fig.
- ERICKSON, A. B. 1953. Leucocytozoon bonasae in Ruffed Grouse; its possible relationship to fluctuations in numbers of grouse. Journ. Wildl. Mgt., 17 (4): 536-538.—Of 153 Bonasa umbellus examined over an 11-year period, 71 per cent were infected. This protozoan appears to be a widespread but relatively harmless parasite of grouse, a conclusion which Karl Borg (1953) independently reached with reference to Capercaillie, Black Grouse, and Hazel Grouse.—J. J. Hickey.
- EVENDEN, F. G. 1954. Courtship activities of the Inca dove. Condor, 56 (1): 53.
- EYSTER, M. B. 1954. Quantitative measurement of the influence of photoperiod, temperature, and season on the activity of captive songbirds. Ecol. Monogr., 24: 1–28.—Automatic recording showed that the nonmigratory English Sparrow did not display nocturnal activity at any season while the migratory White-throated Sparrow, White-crowned Sparrow, and Slate-colored Junco displayed nocturnal unrest during the spring migratory period. Nightly rest pauses usually occurred before the onset of nocturnal activity and again afterwards, so that maximum activity of caged birds came at the same hours as the greatest flight density of migrating birds. Analysis is made of effects on activity of temperature, increased photoperiods, time of day, and lack of food.
- FANT, R. J. 1953. A nest-recording device. Journ. Animal Ecol., 22: 323-327.— An automatic recording apparatus registered periodicity of egg laying and incubation at four nests of the partridge, *Perdix p. perdix*.
- Frade, F. 1949. Algumas novidades para a fauna da Guiné Portuguesa (Aves e Mamiferos). Anais Junta de Investigações coloniais, 4 (4): 165-186.—18 species of birds listed as new to the recorded avifauna of Portuguese Guinea; none of them constituting great extensions of range.
- Fraser, J. 1953. Waxwing feeding on apples. Scot. Nat., 65: 59.
- GINES, HNO., R. AVELEDO H., A. PONS, G. YEPEZ, and R. MUÑOZ-TEBAR. 1953.

  Lista y comentario de las aves colectadas en la region. Mem. Soc. Cien. Nat.

  La Salle (Caracas), 13: 145-202.—Annotated list of the birds collected in the region of Perijá, Venezuela.
- GINES, HNO., and G. YEPEZ T. 1953. Ojeada general sobre la avifauna de la region. Mem. Soc. Cien. Nat. La Salle (Caracas), 13: 135-140.—Introduction to the birds of the region of Perijá, Venezuela.
- GLENNY, F. H. 1953. A systematic study of the main arteries in the region of the heart. Aves XIII. Ciconiiformes, Part 2. Ohio Journ. Sci., 53: 347-348.
- GLENNY, F. H. 1953. A systematic study of the main arteries in the region of the heart. Aves XX. Caprimulgiformes, Part 1. Ohio Journ. Sci., 53: 356-357.
- GLENNY, F. H. 1953. A systematic study of the main arteries in the region of the heart. Aves XIX. Apodiformes, Part 1. Ohio Journ. Sci., 53: 367-369, 1 fig.
- GLOVER, F. A. 1953. A nesting study of the Band-tailed Pigeon (Columba f. fasciata) in northwestern California. Calif. Fish and Game, 39 (3): 397-407.— In 1950, migration peaked in second half of April; cooing peaked in June and July (9 to 10 a.m.); radii of territories averaged ¼ mile (0.1 to 0.5) and were 0.45 mile apart. On a study area with 109 pairs, 30 "producing pairs" were observed in July and 45 more in August, and from these a hatching and rearing success of about 73 per cent was calculated. A postbreeding census of 123 birds revealed 0.4 young per adult, an age ratio similar to one found by Morse (1949) among

- hunters' bags in Oregon. [This productivity is by far the lowest reported for a so-called gamebird in North America, being roughly one-half of our Woodcock's, one-quarter of our Mourning Dove's, and of the same order as the Passenger Pigeon's.]—J. J. Hickey.
- GOODBODY, I. M. 1953. Lesser Grey Shrike in Aberdeen. Scot. Nat., 65: 131-132.
- GOODEN, S. K. 1953. A collapsible quail trap. Journ. Wildl. Mgt., 17 (3): 389-391.
- GOODWIN, D. 1953. Taxonomic notes on the Himalayan Alpine Accentors. Bull.
   Brit. Ornith. Club, 73 (3): 28-31. Three subspecies recognized with cacharensis
   Hodgson and ripponi Hartert declared to be synonyms of Prunella collaris nipalensis Blyth.
- GORDON, S. 1953. Hoopoe in west Sutherland. Scot. Nat., 65: 56.
- GRAHAM, J. 1953. Willow-tit, Parus atricapillus, in Sutherland. Scot. Nat., 65: 130-131.
- Grant, C. H. B., and C. W. Mackworth-Praed. 1953. On the type of *Charadrius pallidus* Strickland, the name *Hiaticula heywoodi*, and the races of *Charadrius marginatus* Vieillot. Bull. Brit. Ornith. Club, 73 (1): 12-14. *C. pallidus* is older than *C. rufocincta* Reichenow, and its type locality is shown to be Walfish Bay. *H. heywoodi* is a *nomen nudum*. Four races are recognized in *C. marginatus*.
- Grant, C. H. B., and C. W. Mackworth-Praed. 1953. On the status of *Heterhy-phantes golandi* Stephenson Clarke. Bull. Brit. Ornith. Club, **73** (3): 31–32. This form is stated to be a melanistic phase of *Ploceus i. intermedius* Rüppell.
- Grant, C. H. B., and C. W. Mackworth-Praed. 1953. A new race of wood-pecker from Portuguese East Africa. Bull. Brit. Ornith. Club, 73 (5): 55-56. Campethera bennettii vincenti, 60 miles north of Tete, new subspecies.
- Grant, C. H. B., and C. W. Mackworth-Praed. 1953. Notes on some petrel names. Bull. Brit. Ornith. Club, 73 (9): 100-101. Pterodroma aterrima Bonaparte is the correct name for the Kerguelen Island Petrel and P. brevirostris Lesson for the Mascarene Black Petrel. P. lugens Kuhl is a synonym of P. grisea Gmelin.
- Greeley, F. 1953. Sex and age studies in fall-shot Woodcock (*Philohela minor*) from southern Wisconsin. Journ. Wildl. Mgt., 17 (1): 29-32.—Females have a broader outer primary than males; juveniles possess the bursa of Fabricius. Females slightly outnumbered males as in other studies; there were 1.4 young per adult female.
- GRIERSON, J. 1953. Chaffinches with successive broods in same nest. Scot. Nat., 65: 132.
- GRIERSON, J. 1953. Waders landing on water directly from flight. Scot. Nat., 65: 128-129.—Erolia alpina, Tringa totanus, and Calidris canutus.
- Grozdaníc, Dr. S. 1950. The Obedska Swamp and the necessity for its protection (translation of title). Zashtita Prirode (Protection of Nature), Belgrade, 1: 69-80.—List of 27 species of water birds nesting in the swamp. In Serbian.
- HACHISUKA, M. 1953. New name for a Bush-robin of Formosa. Bull. Brit. Ornith. Club, 73 (3): 33. Erithacus taiwan, new name for Ianthia (= Erithacus) johnstoniae Ogilvie-Grant, 1906, preoccupied by Pogonocichla (= Erithacus) johnstoni Shelley, 1893.
- Hall, B. P. 1953. Colour variation in Sturnus sinensis. Bull. Brit. Ornith. Club, 73 (1): 2-8.
- Hall, B. P. 1953. Notes on some Minivets in the British Museum. Bull. Brit. Ornith. Club, 73 (6): 63-65. Pericrocotus ethologus cryptus Mayr requires further

- study. P. peregrinus galbinus Van Tyne and Koelz is not sufficiently distinct from nominate peregrinus to warrant recognition.
- HANSON, H. C. 1953. Aids for the exploration of the avian cloaca for characters of sex and age. Journ. Wildl. Mgt., 17 (1): 89-90.—Bi-valve nasal speculum, Jackson Light carrier, Welch and Allyn otoscope battery case, and Pilling-Jackson lamp.
- HARRISON, J. G. 1953. Symmetrical albinism in birds' wings. Bull. Brit. Ornith. Club, 73 (9): 105-106.
- HARTLEY, P. H. T. 1953. An ecological study of the feeding habits of the English titmice. Journ. Animal Ecol., 22: 261-288.—The food niches of five species of titmice differ in respect to the characteristic height distribution of their foraging activities and preferences for certain species of trees. These niche distinctions disappear at times of temporary superabundance of food.
- HAZELWOOD, A., and E. GORTON. 1953. A new race of the jay Garrulus glandarius from Scotland. Bull Brit. Ornith. Club, 73 (1): 1-2. G. g. caledoniensis, new subspecies, Perthshire.
- HAZELWOOD, A., and J. M. HARRISON. 1953. A note on Larus "capistratus" Temminck. Bull. Brit. Ornith. Club, 73 (9): 98-100, 1 fig.
- HEBARD, F. V., and A. W. GARDNER. 1954. Mountain-top visits by birds at Aspen, Colorado, in winter and early spring. Condor, 56 (1): 53-54.
- Hердеретн, J. T. 1954. Falcated Teal at San Francisco, California. Condor, 56 (1): 52.
- HENDERSON, J. M. 1953. The Osprey in the North-East of Scotland. Scot. Nat., 65: 54-56.
- HICKEY, J. J. 1954. Mean intervals in indices of wildlife populations. Journ. Wildl. Mgt., 18 (1): 90-106.—A critical review of censuses and indices of the 9- to 10-year population "cycle." In general, hare populations decline before grouse do. A clear-cut 10-year cycle is accepted for 3 mammalian predators at the continental level and for the Minnesota Ruffed Grouse census published by King (1937) and Marshall (1954).—J. J. Hickey.
- HICKEY, J. J., and R. A. McCabe. 1953. Sex and age classes in the Hungarian Partridge. Journ. Wildl. Mgt., 17 (1): 90-91. Structure of the *Perdix perdix* population in Wisconsin in 1951 was similar to that found in Denmark by Westerskov (1951) and to that reported generally for *Colinus virginianus*. Hatching peak June 28 to July 4.
- HILLMAN, M., and M. M. ERICKSON. 1954. The Prothonotary Warbler in California. Condor, 56 (1): 52-53. This specimen is the first state record.
- HOPKINS, M. N., and E. P. Odum. 1953. Some aspects of the population ecology of breeding Mourning Doves of Georgia. Journ. Wildl. Mgt., 17 (2): 132-143.—Breeding pairs averaged 3.3 per 100 acres; density seemingly correlated with "edge effects"; colonies as found in Iowa were absent; low production (only 2.1 birds per pair in spite of 48 per cent nesting success); spot-mapping method of census recommended for this type of dove range.—J. J. Hickey.
- Howell, T. R., and G. A. Bartholomew, Jr. 1954. Experiments on social behavior in nonbreeding Brewer Blackbirds. Condor, 56 (1): 33-37. Dummies of four species were set out, and the responses of Brewer Blackbirds were noted. Female Brewer Blackbird dummies produced a greater variety of responses during the breeding season, including gathering by both sexes and mounting with or without copulation by males. Seasonal variation in responses was attributed to androgen level.

- HOYT, S. F. 1953. Incubation and nesting behavior of the Chuck-will's-widow [Caprimulgus carolinensis]. Wilson Bull., 65 (3): 204-205.
- HUEY, L. M. 1954. Notes from southern California and Baja California, Mexico. Condor, 56 (1): 51-52. Additional knowledge on the ranges and habits of 10 species is presented.
- Hunt, G. S., and K. J. Dahlka. 1953. Live trapping of diving ducks. Journ. Wildl. Mgt., 17 (1): 92-95.—Trap design.
- HUNT, G. S., and H. E. EWING. 1953. Industrial pollution and Michigan water-fowl. Trans. 18th N. Amer. Wildl. Conf., pp. 360-368. Heavy duck mortality on the Detroit River in 1948 was caused by cold weather, starvation, and pollutants. More than 2,000 gallons of oil daily settle to the bottom of this river and render it a biological desert.—J. J. Hickey.
- HUSTON, T. M., and A. V. NALBANDOV. 1953. Neurohumoral control of the pituitary in the fowl. Endocr., 52: 149-156, 4 tables.
- IMHOF, THOMAS A. 1953. Effect of weather on spring bird migration in northern Alabama. Wilson Bull., 65 (3): 184-195, 3 figs., 4 tables.—The numbers of transient species in spring at Birmingham, Alabama, were correlated with weather conditions. Most transients were observed, and therefore were not migrating, after the passage of a cold front, and fewest were observed in clear, warm weather.

  —J. T. Tanner.
- Janson, R. G. 1953. Observations indicating egg-moving by nesting Pheasants. Journ. Wildl. Mgt., 17 (3): 386.—Six eggs moved about three feet the day before hatching; from a flooded site.
- JOHNSON, N. K. 1954. Food of the Long-eared Owl in southern Washoe County, Nevada. Condor, 56 (1):52. From 131 pellets small rodents; six species comprised nearly 98 per cent of the contents.
- JOHNSTON, D. W., and M. E. FOSTER. 1954. Interspecific relations of breeding gulls at Honey Lake, California. Condor, 56 (1): 38-42. Sympatric Ring-billed and California gulls exhibited an ecological separation in timing of the breeding cycle. On a given date nests of Ring-billed Gulls contained either young or eggs at least one-half incubated, but contiguous California Gull nests had eggs incubated less than one week.
- JORDAN, J. S. 1953. Consumption of cereal grains by migratory waterfowl. Journ. Wildl. Mgt., 17 (2): 120-123.—Adult drake Mallards averaged 0.08 to 0.16 lb. of corn per day or 0.12 to 0.18 lb. of small grains, according to season and weather; Canada Geese, 0.4 lb. of corn or 0.36 lb. of small grains, in winter; Bluewinged Teal 0.06 lb. of mixed grain in October.
- JORDAN, J. S. 1953. Effects of starvation on wild Mallards. Journ. Wildl. Mgt., 17 (3): 304-311.—Acute starvation in captive wild (male) Anas platyrhynchos was accompanied by average weight losses of 45 per cent in winter up to 60 per cent in summer, critical levels being reached in the third week, and the greatest mortality in the fourth week. Females differed somewhat, especially in spring mortality, being more resistant. In nature, two weeks of complete starvation would probably not be fatal during normal Illinois winter weather.—J. J. Hickey.
- JUDD, W. W. 1953. A collection of feather lice (Mallophaga) from birds in Ontario. Trans. Amer. Micros. Soc., 72: 349-350.
- KAY, G. T. 1953. Shetland offshore visitors. Scot. Nat., 65: 50-52.—Records of seabirds.
- KAY, G. T. 1953. The Fulmar's bill. Scot. Nat., 65: 125-127, 1 fig.—Comparison with the bill of the Herring Gull with regard to the functional morphology.

- Kiel, W. H., Jr., and A. S. Hawkins. 1953. Status of the Coot in the Mississippi Flyway. Trans. 18th N. Amer. Wildl. Conf., pp. 311-322.—Fulica americana is more and more being hunted as a gamebird, an estimated 2,000,000 having been killed in the United States in 1951-52. Transect studies in Manitoba, a rich breeding area of the species, showed a population decline from 12.4 birds per square mile in 1949 to 4.7 in 1952. In this period a nesting success remained high (97 per cent for 380 clutches), and mean clutch size was 9.88±0.12.—J. J. Hickey.
- КІІ.НАМ, L. 1953. Warblers, hummingbird, and sapsucker feeding on sap of yellow birch. Wilson Bull., 65 (3): 198.—Species observed were Archilochus colubris, Dendroica caerulescens, Dendroica tigrina, and Sphyrapicus varius.
- KIRKPATRICK, C. M., and H. E. Moses. 1953. Effects of streptomycin against spontaneous quail disease in Bobwhites. Journ. Wildl. Mgt., 17 (1): 24–28.—Successful use shown for experimental birds and game-farm stock.
- Kossack, C. W., and H. C. Hanson. 1953. Unisexual broads of the Mourning Dove. Journ. Wildl. Mgt., 17 (4): 541.—When 21 broads were raised in captivity, each was found to be unisexual.
- Lack, D. 1954. Cyclic mortality. Journ. Wildl. Mgt., 18 (1): 25-37.—A review of population cycles in which the basic cause is postulated to be the dominant rodent's interaction with its vegetable food to produce a predator-prey oscillation. When the rodents decline in numbers, Lack suggests that their bird and mammal predators shift over to depress populations of gallinaceous birds in the same region.—J. J. Hickey.
- LAMORE, D. 1953. Ring-billed Gulls [Larus delawarensis] stealing fish from female American Mergansers [Mergus merganser]. Wilson Bull., 65 (3): 210-211.
- LAWRENCE, L. DE K. 1953. Notes on the nesting behavior of the Blackburnian Warbler. Wilson Bull., 65 (3): 135-144, 2 tables.—Dendroica fusca in Ontario.
- Leach, H. R., C. M. Ferrel, and E. E. Clark. 1953. A study of the Ringnecked Pheasant on irrigated pasture in California. Calif. Fish and Game, 39 (4): 517-525.—For 101 specimens of *Phasianus colchicus*, ladino clover was the staple item of diet throughout the year, 67 per cent of the birds' food being weed seeds. Ridge and ditch-bank nesting sites, plus relative freedom from moving fatalities, contribute to the high percentage (86) of [surviving] hens successful in rearing broods.—J. J. Hickey.
- Leach, H. R., and W. H. Frazier. 1953. A study on the possible extent of predation on heavy concentrations of Valley Quail with special reference to the bobcat. Calif. Fish and Game, 39 (4): 527-538.—Mammalian predators take adult quail only incidentally, despite the concentration of *Lophortyx californica* around artificially constructed waterholes.—J. J. Hickey.
- Lehmann, V. W. 1953. Bobwhite population fluctuations and Vitamin A. Trans. 18th N. Amer. Wildl. Conf., pp. 199-246.—Colinus virginianus has exhibited spectacular overpopulations in southwestern Texas in 1923, 1930, 1935, and 1941, each time in the second of two successive years of atypically favorable rainfall. The nature of peak or near-peak densities on the King Ranch in 1949 and 1950 is here analyzed, and the dramatic crash of the population in the winter of 1950-51 is shown to coincide with marked nutritional deficiencies, specifically with inability of the quail to maintain reserves of Vitamin A. The intensive analysis of changing population densities, sex and age composition, food habits, and behavior is combined with major physiological and parasitological studies to form a report so rich in detail as to make any short abstract inadequate. This paper is certainly a modern landmark among ecological studies of birdlife.—J. J. Hickey.

- LEOPOLD, A. S. 1953. Intestinal morphology of gallinaceous birds in relation to food habits. Journ. Wildl. Mgt., 17 (2): 197-203.—Browsers are shown to have materially longer caeca than seed-eaters, presumably to permit the grouse to winter on sources of low-quality bulk food, by providing storage room for microbial decomposition of cellulose; 20 species examined.—J. J. Hickey.
- LEVINE, N. D., and H. C. HANSON. 1953. Blood parasites of the Canada Goose, Branta canadensis interior. Journ. Wildl. Mgt., 17 (2): 185-196.—Leucocytozoon simondi found in 9 per cent, Haemoproteus sp. in 1 per cent, microfilariae in 1 per cent, and Plasmodium sp. in 0.3 per cent of 353 geese in Illinois.
- Lysaght, A. M. 1953. A rail from Tonga, Rallus philippensis ecaudata Miller, 1783. Bull. Brit. Ornith. Club, 73 (7): 74-75. This is the correct name of the Tongan race and R. p. forsteri Hartlaub, 1852, is a synonym.
- MacDonald, Donald M. 1953. Lesser Whitethroat in Lewis, Outer Hebrides. Scot. Nat. 65: 58-59.
- MACDONALD, J. D. 1953. The races in South West Africa of the Orange River Francolin. Bull. Brit. Ornith. Club, 73 (3): 34-36. Four races of Francolinus levalliantoides are recognized, one of them new, F. l. wattii, Windhoek, South West Africa.
- MACKWORTH-PRAED, C. W., and C. H. B. GRANT. 1953. On the affinities of Apus somalicus (Stephenson Clarke). Bull. Brit. Ornith. Club, 73 (9): 105. These authors disagree with White (1953, Bull. Brit. Ornith. Club, 73: 77) that this form is a race of A. niansae; they consider it to be a separate species.
- MACLAREN, P. I. R. 1953. Bird Notes from Nigeria. Nigerian Field, 18 (4): 165-171.—Notes on 35 species, including notes on fledgling or courtship feeding by metallic cuckoos, the extent of nesting association between *Spermetes* and red ants, and the status of *Centropus epomidus*.
- MACMULLEN, R. A., and L. L. EBERHARDT. 1953. Tolerance of incubating Pheasant eggs to exposure. Journ. Wildl. Mgt., 17: (3): 322-330.—Incubating eggs of *Phasianus colchicus* were subjected to low temperatures and simulated rain for various lengths of time. Tolerance to these conditions was great enough to indicate that widespread mortality from unseasonal cold spells would not likely occur in the wild.—J. J. Hickey.
- MAIR, W. W. 1953. Ducks and grain. Trans. 18th N. Amer. Wildl. Conf., pp. 111-117.—Research is needed on the ecology of crop depredation by prairie waterfowl.
- MANSON-BAHR, SIR PHILIP. 1953. On the migration of the Pacific Golden Plover (*Pluvialis dominica fulva*), the eastern Bar-tailed Godwit (*Limosa lapponica baueri*) and other Limicolae. Bull. Brit. Ornith. Club, 73 (5): 50-55.
- MARSHALL, W. H. 1954. Ruffed Grouse and Snowshoe Hare populations on the Cloquet Experimental Forest, Minnesota. Journ. Wildl. Mgt., 18 (1): 109-112.— Progress report on the interesting long-term census of Ruffed Grouse carried out by King (1937), G. A. Swanson, and the author from 1927 to 1953. Peaks occurred in 1933, 1942, and 1951 in grouse, Hare highs at 6-, 8- and 7-year intervals.— J. J. Hickey.
- MATVEEV, S. 1950. Protection of birds (translation of title). Zashtita Prirode (Protection of Nature), Belgrade, 1: 63-67.—A plea for the conservation of birds, particularly rare and beneficial species. In Serbian.
- McCullough, R., and J. B. Low. 1953. Waterfowl accidentally caught in muskrat traps. Journ. Wildl. Mgt., 17 (2): 222.—About 3.5 per cent of the total wintering ducks on a Utah refuge were trapped, one for each 4.2 muskrats taken.

- McGinnes, B. S., and R. A. Beck. 1953. Recuperative rate of wing-shot Mallard. Journ. Wildl. Mgt., 17 (4): 541-542.
- McGovern, T. A. 1953. The call-count as a census method for breeding Mourning Doves in Georgia. Journ. Wildl. Mgt., 17 (4): 437-445.—A comparison of transect and study-area data on *Zenaidura macroura*. The seasonal plateau in morning call activity is similar in Georgia to that reported in Maryland and Wisconsin. Moderate colonial behavior was noted; home ranges often exceeded the 100-acre tracts. Counts taken around June 1 at the proper hour and in good weather will provide a useful year-to-year index of population level.—J. J. Hickey.
- MEANLEY, B., and J. A. NEFF. 1953. Bird notes from the Grand Prairie of Arkansas. Wilson Bull., 65 (3): 200-201.—On 17 species.
- MEIKLEJOHN, M. F. M., and C. E. PALMAR. 1953. Notes on the birds in the Clyde area, 1951. Scot. Nat., 65: 1-4.
- MEIKLEJOHN, M. F. M., and C. E. PALMAR. 1953. Report on birds of the Clyde area, 1952. Scot. Nat., 65: 115-119.
- Meiklejohn, M. F. M. 1953. Garganeys in North Argyll and South Inverness. Scot. Nat., 65: 127.
- MEINERTZHAGEN, R. 1953. On the validity of Saxicola torquata hibernans Hartert. Bull. Brit. Ornith. Club, 73 (1): 14-15. This form is stated to be a synonym of S. rubicola Linnaeus.
- MEINERTZHAGEN, R. 1953. On some west Irish birds and a suggestion for the use of the cline. Bull. Brit. Ornith Club, 73 (4): 41-44. The author discusses 19 continental Palearctic species whose breeding range extends to western Ireland and which represent the extreme in a cline of increasing saturation running from east to west. He proposes that only the populations at both extremes should be recognized nomenclaturally and "that intermediate races from intermediate areas should not bear scientific names." One may sympathize with Meinertzhagen's point of view but his proposal is not likely to be followed in the case of the species he discusses for in most instances the name of the intermediate race which is to be suppressed is a Linnaean one. A new subspecies is described: Anthus pratensis theresae, extreme West Ireland.—C. Vaurie.
- MEINERTZHAGEN, R. 1953. A new geographical race of Shrike, Lanius excubitor Linnaeus. Bull. Brit. Ornith. Club, 73 (6): 72. Lanius excubitor theresae, Galilee, northern Palestine, new subspecies.
- MENGEL, R. M. 1953. On the name of the Northern Bald Eagle and the identity of Audubon's gigantic "Bird of Washington." Wilson Bull., 65 (3): 145-151, 1 fig., 1 table.—A discussion of Audubon's Falco washingtonii (or washingtoniensis) concludes that this questionable form cannot now be identified and that the name of the Northern Bald Eagle should be Haliaeetus leucocephalus alascanus Townsend.—J. T. Tanner.
- MILLER, A. H. 1954. The occurrence and maintenance of the refractory period in crowned sparrows. Condor, 56 (1): 13-20. Under experimental conditions Golden-crowned and White-crowned sparrows were investigated with respect to their refractory periods. An experiment was designed to explain the sustained refractory period of these two species, and it was found that this sustained period was due to a constant fatigue of the pituitary-gonad mechanism.
- MILLER, A. W., and B. D. Collins. 1953. A nesting study of Canada Geese on Tule Lake and Lower Klamath National Wildlife Refuges, Siskiyou County, California. Calif. Fish and Game, 39 (3): 385-396.—Muskrat houses and islands preferred; eggs in 79 per cent of 201 nests hatched; mean clutch size 5.1, hatching broods 4.4; hatching peak April 23-May 12.—J. J. Hickey.

- MILLER, A. D. 1953. Further evidence of the homing ability of the Cowbird [Molothrus ater]. Wilson Bull., 65 (3); 206-207.
- MITCHELL, R. T., H. P. BLAGBROUGH, and R. C. VAN ETTEN. 1953. The effects of DDT upon the survival and growth of nestling songbirds. Journ. Wildl. Mgt., 17 (1): 45-54.—Applications of 3 pounds per acre affected adult songbirds only slightly, but caused considerable mortality among young nestlings.
- MOREAU, R. E. 1953. On the status of Zosterops phyllicus Reichenow. Bull. Brit. Ornith. Club, 73 (6): 70-71. This form appears to be aberrant Z. stenocricotus.
- MURRAY, I. M. 1953. Blackcap in Skye in November. Scot. Nat., 65: 58.
- Mursell, D. F. 1953. Chaffinch using Greenfinch's Nest. Scot. Nat., 65: 60. Nelson, A. L. and A. C. Martin. 1953. Gamebird weights. Journ. Wildl. Mgt., 17 (1): 36-42.—Nearly 26,000 weight records from U. S. Fish and Wildlife Service files are summarized for 80 species of birds in terms of means and maxima for each sex.
- Nelson, U. C. 1953. Cliff-nesting Canada Geese on the Arctic slope of Alaska. Journ. Wildl. Mgt., 17 (4): 536.—Branta canadensis leucopareia, along the Colville River
- O'CONNOR, R. J. 1953. Glycogen in the dividing cells of the liver of the chicken embryo. Nature, 172 (4380): 678-679. No difference could be detected in the glycogen content of dividing and non-dividing cells.
- Ornithological Society of New Zealand. 1953. Checklist of New Zealand Birds. 80 pp. A. H. and A. W. Reed, Wellington, N. Z. Price, 10/6, from J. M. Cunningham, 39 Renall St., Masterton, N. Z.—Annotated list of 333 species and subspecies, indexed. Status and range of each form are given, and important references and illustrations are listed for most forms.
- OWEN, D. F. 1953. The autumn migration of the Meadow-pipit and the Skylark on the Kirkcudbright coast. Scot. Nat., 65: 101-107.
- PALMER, J. F. 1953. Willow-tit in North-west Sutherland. Scot. Nat., 65: 131.
  PAPIĆ, J. 1951. Le Marais d'Obed, la question de sa protection et de son etude scientifique. Zashtita Prirode (Protection of Nature), Belgrade, 2-3: 303-317.—
  In Serbian, with French summary.
- PARMALEE, P. W. 1953. Hunting pressure and its effect on Bobwhite Quail populations in east-central Texas. Journ. Wildl. Mgt., 17 (3): 341-345.—A mistitled "ecological study" of the effect of weather on hunting.—J. J. Hickey.
- Pennie, I. D. 1953. Black Redstart in Caithness. Scot. Nat., 65: 58.
- PERRY, R. 1953. Kingfisher in Inverness-shire. Scot. Nat., 65: 56.
- Perry, R. 1953. Great Grey Shrike in Inverness-shire. Scot. Nat., 65: 59.
- Peters, J. L., and A. Loveridge. 1953. Zoological results of a fifth expedition to East Africa. II. Birds from Nyasaland and Tete. Bull. Mus. Comp. Zool., 110 (2): 87-139, pls. 1-2.
- Petraborg, W. H., E. G. Wellein, and V. E. Gunvalson. 1953. Roadside drumming counts / a spring census method for Ruffed Grouse. Journ. Wildl. Mgt., 17 (3): 292-295.—Directions for setting up a spring population index of male Bonasa umbellus as used in Minnesota, together with a brief summary of results obtained from 1949 to 1952. The principles on which the technique is based are stated only in general terms, and one wishes that more details would be given concerning the variables encountered.—J. J. Hickey.
- PITTMAN, J. A. Direct observation of the flight speed of the Common Loon [Gavia immer]. Wilson Bull., 65 (3): 213.
- Place, G. 1953. Flock of Goldfinches in Perthshire. Scot. Nat., 65: 132.

- Prigogine, A. 1953. Contribution à l'étude de la Faune ornithologique de la région à l'ouest du lac Edouard. Ann. Mus. Roy. Congo Belge, Tervuren, Ser. 8, vol. 24: 1-117, 27 fig.—Annotated list of 396 species and subspecies with lists of specimens collected, status, and habitat. A section on the distribution of birds in the region studied, a gazetter, and a bibliography conclude the work. Many photographs of the region and its birds are included.
- RAY, A. P., V. N. BHATNAGAR, and M. K. MENON. 1953. A Plasmodium in the common Indian partridges. Nature, 172 (4380): 687. Gametocytes and asexual forms of *P. polare* (?) were found in the erythrocytes of *Francolinus pondicerianus interpositus*.
- RIDLEY, M. W., H. G. PERCY, and R. C. PERCY. 1953. The birds of Bwamba—Further Additions. The Uganda Journal, 17 (2): 161-165.—Eighteen species added to the Bwamba list, none of a surprising nature from a geographic standpoint.
- RIEFFENBERGER, JOSEPH C. 1953. Identification of songbird nests by reclaimed eggshell fragments. Wilson Bull., 65 (3): 196.
- RINTOUL, L. J., and E. V. BAXTER. 1953. Common Scoter in St. Andrews Bay. Scot. Nat., 65: 52-53. Flocks of molting males present during the summer, females and young appear in the fall. (Additional notes on this subject on pp. 53 and 54 by the editors, V. C. Wynne-Edwards and James W. Campbell.)
- Rosen, M. N., and A. L. Bischoff. 1953. A new approach toward botulism control. Trans. 18th N. Amer. Wildl. Conf., pp. 191–199.—In the Tulare Lake Basin, an expected outbreak of this epizootic in 1952 was reduced to 1 per cent mortality by herding the ducks, changing water levels and by distributing feed elsewhere. A similar outbreak in 1941 took 20 per cent.—J. J. Hickey.
- ROWAN, W. 1954. Reflections on the biology of animal cycles. Journ. Wildl. Mgt., 18 (1): 52-60.—Critical arguments are advanced against Cole's 1954 postulate of random population cycles and for a biological explanation. A population index based upon nearly 100 observers in Alberta shows a generally synchronized oscillation of Ruffed Grouse, Sharp-tailed Grouse, European [Hungarian] Partridge, and Varying Hare.—J. J. Hickey.
- Sachs, I. B. 1953. Certain Blood-inhabiting protozoa of birds in the vicinity of Urbana, Illinois. Trans. Amer. Micros. Soc., 72: 216-227, 2 tables.
- Schaefer, E. 1954. The bird with the stone on its head. Frontiers (Acad. Nat. Sci. Philadelphia), 18 (3): 67-69. 2 phots.—An account of the life history of the Helmeted Curassow (*Pauxi pauxi*), including descriptions of "song" and nest. Incubation by female, who usually leaves the nest but once a day during the incubation period of 34 to 36 days.
- Schell, S. C. 1953. Four new species of *Microtetrameres* (Nematoda: Spiruroidea) from North American birds. Trans. Amer. Micros. Soc., 72: 227-236, 3 plates. Schultz, V. 1953. Status of the Ruffed Grouse in Tennessee. Migrant, 24: 45-52.
- SICK, H. 1953. The voice of the Grand Potoo [Nyctibius grandis]. Wilson Bull., 65 (3): 203.
- SIEBENALER, J. B. 1954. Notes on autumnal trans-gulf migration of birds. Condor, 56 (1): 43-48, From mid-September to mid-October, 1952, observations were made from many locations in the Gulf of Mexico, mostly between Alabama and Mississippi and the Yucatan Peninsula. Of hundreds of birds seen, representing many species, the general direction of flight was southward.

Silvonen, L. 1954. Some essential features of short-term population fluctuation. Journ. Wildl. Mgt., 18 (1): 38-45.—The sharpness of the 3- to 4-year fluctuations in 3 tetraonids in Finland progressively decreases from north to south. Fluctuations in numbers are markedly synchronized among tetraonids in Finland, in Norway, and in Britain, and in small rodents in Finland, Norway, and eastern North America. Clutch size, hatched eggs, July broods, and population level in autumn vary annually and in a somewhat similar fashion for Capercaillie, Blackgame, and Hazel Grouse. Cole's argument for randomly operating environment factors may be considered practically watertight as an explanation of cycles in the southern regions, but probably calls for readjutment as regards the northern basic fluctuation.—J. J. Hickey.

SIMS, R. W. 1953. On the status of *Cyanoramphus magnirostris* Forbes and Robinson, Liverpool Mus., 1, p. 21, 1897, Tahiti, Society Islands. Bull. Brit. Ornith. Club, **73** (9): 104–105. Determined to be a synonym of *Platycercus cookii* Gray and the unique specimen to have come from Norfolk Island, not Tahiti.

Sheldon, W. G. 1953. Woodcock studies in Massachusetts. Trans. 18th N. Amer. Wildl. Conf., pp. 369-377.—A number of interesting facts are now emerging from this successful banding project of Philohela minor on its breeding grounds. A singing male will often attempt to mate with different decoys at "widely separated" sites. Among 54 "returns," 60 per cent were recaptured an average of one mile's distance from the original trapping site. Recommendations for improving census techniques are given. "The calculated annual mortality of adults is 63 per cent," based principally on a 37 per cent recapture rate in two successive years. [Lack's (1943) estimate of an adult mortality rate of about 37 per cent per year for the European Woodcock (Scolopax rusticola), should be noticed here, as the brood size of this species (3.2—Alexander) is only slightly less than the 3.9 (Mendall and Aldous) of the North American bird. The age ratio of 42 juveniles: 58 adults found among fall-shot Wisconsin birds by Greeley (1953) over a 6-year period carries the implication that a mortality rate for adults may indeed be approximately 42 per cent per year. Although this implication must be limited by potential biases in Greeley's field sampling, it seems to me more tenable than the assumption underlying Sheldon's calculation: that retrapping programs of this type can attain 100 per cent efficiency in relocating surviving adults.] One of the Massachusetts birds was found to resettle 5 miles away. - J. J. Hickey. SMITH, A. J. 1953. Wryneck in Inverness-shire. Scot. Nat., 65: 57.

SMITH, R. H. 1953. A study of waterfowl production on artificial reservoirs in eastern Montana. Journ. Wildl. Mgt., 17 (3): 276-291.—Pond size was positively correlated with usage by 5 species of dabbling ducks and their production of broods, biometrical tests being used to establish the significance of the results at 1 per cent levels of probability. There are many interesting ecological observations in this paper, but one is tempted to question the application of statistical methods to establish what is really a well known corollary of a law of physics: the biggest ponds will have the biggest total numbers of ducks. The more pertinent ecological question faced by conservationists is this: is pond size positively correlated with waterfowl usage and production per acre of water? Our whole reaction to modern drainage depends upon the answer. Stoudt (1950) has already answered this question for the Dakotas, the relationship being inverse rather than positive. The Montana data, as given in this paper, really indicate that the smallest-size group of ponds had the highest density of ducks and of broods per acre of water. There remains finally the unhappy impression that some parts of this 16-page

- publication are badly padded. This is driven home when four statistics, cited for Green-winged Teal and Gadwall nests, are carried out to one decimal place each (per cent of nest success, average number of eggs, etc.) although only one nest was found for each species.—J. J. Hickey.
- SNYDER, L. L. 1953. An apparently hybrid golden-eye. Wilson Bull., **65** (3): 199.—Bucephala clangula × B. islandica.
- Southwick, C. 1953. A system of age classification for field studies of waterfowl broods. Journ. Wildl. Mgt., 17 (1): 1-8.—Five fairly discrete age classes are recognized for 8 species of ducks.
- Speirs, J. M. 1953. Winter distribution of Robins east of the Rocky Mountains. Wilson Bull., 65 (3): 175–183, 6 maps.—Of *Turdus migratorius*, from an analysis of banding records and Christmas bird counts.
- STAGER, K. E. 1954. Birds of the Barranca de Cobre region of southwestern Chihuahua, Mexico. Condor, 56 (1): 21-32. An annotated list of 91 species is included.
- STEINKE, H. 1953. The automobile as a predator of wildlife. Wis. Cons. Bull., 18 (7): 7-10.—Six-year record of 3,362 animals killed on 153,089 miles of highway scanned by the author. Among the birds, 228 Pheasants, 23 Crows, 12 Bobwhite Quail, 10 European Partridge, and 8 Ruffed Grouse are itemized. The 580 "songbirds" are not broken down by species.
- STEWART, I. F. 1953. Albinism in Starlings. Scot. Nat., 65: 60.
- TANNER, S. E. 1954. Purple Gallinule in Chavez County, New Mexico. Condor, 56: 50.
- Turner, L. B. 1953. A rapid method of sexing Canada Geese. Journ. Wildl. Mgt., 17 (4): 542-543.—The profiles (forehead and culmen) of male Branta candensis are pictured as markedly different from those of females and, when compared to body weights, are reported to be a much more reliable criterion of the two sexes. Wrist-joint callosity, individual weight, and degree of roughness of scales on the feet are cited as additional criteria which apparently will help separate the intermediate individuals. The technique, admittedly less reliable with juvenile birds, came up for critical discussion at the Midwest Wildlife Conference in December, 1953. As far as I could tell, experienced waterfowl investigators were extremely skeptical of the reliability of Turner's technique on the larger geese of the Mississippi Valley.—J. J. Hickey.
- UDAGAWA T. 1952. Karyogram studies in birds, I. Chromosomes of five passeres. Cytologia, 17: 311-316.—Chromosome numbers of Alauda arvensis japonica (A, 78; Q, 77), Lanius tigrinus (A, 72), Prunella rubida rubida (A, 84), Luscinia calliope calliope (A, 80), and Acrocephalus bistrigiceps (A, 72; Q, 71).
- UHLIG, H. G. 1953. Weights of Ruffed Grouse in West Virginia. Journ. Wildl. Mgt., 17 (3): 391-392.—Fall weights of 168 Bonasa umbellus [presumably B. u. monticola] are greater than those for New York reported by Bump (1947). Although quite probably correct, the sex criteria used here await published documentation.—J. J. Hickey.
- VAURIE, C. 1953. Geographical variation in Garrulax erythrocephalus in central and western Himalayas with description of a new race from Nepal. Bull. Brit. Ornith. Club, 73 (7): 77-79. A strong cline of increasing pigmentation runs from west to east, G. e. kali, Baglung District, west central Nepal, new subspecies.
- VILLIERS, A. 1953. Observations sur la faune ornithologique de la region de Linguere (Senegal). Notes Africaines. Bull. d'Inform. et de Corresp. de l'Inst. Français d'Afrique Noire, no. 60, 123-125.—71 species listed with brief notes.

- WALKINSHAW, L. H. 1953. Life-history of the Prothonotary Warbler. Wilson Bull., 65 (3): 152-168, 7 figs., 5 tables.—An eight-year study of *Protonotaria citrea* in Michigan included nesting behavior and success, banding returns, and histories of pairs.
- WARD, P. 1953. The American Coot as a game bird. Trans. 18th N. Amer. Wildl. Conf., pp. 322-329.—Summary of the life cycle of *Fulica americana* at Delta, Man. Many birds are shot by hunters and very few retrieved.
- WESTERSKOV, K. E. 1953. A note on partridge terminology. Journ. Wildl. Mgt., 17 (3): 386-387.—Alectoris rufa, occasionally termed Red Quail in America, should be called Red-legged Partridge.
- Whelan, Mary-Elizabeth. 1953. Fresh-water mollusks fed to young Tree Swallows [Iridoprocne bicolor]. Wilson Bull., 65 (3): 196.
- WHITE, C. M. N. 1953. The races of Coqui Francolin in south and central Africa. Bull. Brit. Ornith. Club, 73 (6): 66-68. Five races recognized; Francolinus coqui campbelli Roberts and F. c. lynesi Sclater are synonyms of nominate coqui, F. bourquii Monard of F. c. angolensis Rothschild.
- WHITE, C. M. N. 1953. A revision of Sylvietta ruficapilla Bocage. Bull. Brit. Ornith. Club, 73 (6): 68-70. Six subspecies recognized, three of them new: S. r. gephyra, Mwinilunga, Northern Rhodesia; S. r. makayii, Malandje, northern Angola; S. r. schoutedeni, Tembwe, southwest of Lake Tanganyika.
- WHITE, C. M. N. 1953. Systematic and distributional notes on African birds. Bull. Brit. Ornith. Club, 73 (7): 76-77. Notes on size variation in Accipiter castanilius Bonaparte; Treron australis gibberifrons Madarasz replaces T. a. granviki Grote; only two races recognized in Glaucidium perlatum; Apus somalicus Stephenson Clarke is a race of A. niansae rather than A. pallidus; Pogoniulus bilineatus and races are conspecific with P. leucolaima.
- WHITE, C. M. N. 1953. A note on *Rhinomyias brunneata*. Bull. Brit. Ornith. Club, **73** (7): 83. Validity of *R. b. nicobarica* is confirmed and is stated to be probably non-migratory and resident in the Nicobars.
- WHITE, C. M. N. 1953. Variation in *Streptopelia decipiens*. Bull. Brit. Ornith. Club, **73** (8): 85-87. Six races recognized.
- WHITE, C. M. N. 1953. Notes on some African larks of the genus Mirafra. Bull.
  Brit. Ornith. Club, 73 (8): 87-91. Geographical variation in M. africanoides and M. rufocinnamomea; M. a. macdonaldi, new subspecies, southern Ethiopia.
- WHITE, C. M. N. 1953. Notes on the taxonomy of the Guinea fowls. Bull. Brit. Ornith. Club, 73 (8): 93-94. Numida meleagris marchei Oustalet is a synonym of N. m. galatea Pallas, N. m. transvaalensis Neumann is a synonym of N. m. mitrata Pallas, N. m. maxima Neumann and N. m. bodalyae are synonyms of N. m. marungensis Schalow.
- WHITE, C. M. N. 1953. Systematic notes on African birds. Bull. Brit. Ornith. Club, 73 (8): 94-96. Francolinus sephaena thompsoni Roberts, F. s. chobiensis Roberts, and F. s. mababiensis Roberts are synonyms of F. s. zambesiae Praed. Three races recognized in F. bicalcaratus. Rhinoptilus africanus raffertyi Mearns is a valid race. Glareola pratincola boweni Bannerman is a synonym of G. p. fuellerboni Neumann. Poicephalus robustus angolensis Reichenow is a synonym of P. r. suahelicus Reichenow. Poicephalus meyeri neavei Grant is a synonym of P. m. matschiei Neumann. Malacocincla fulvescens dilutior, new subspecies, Vila Salazar, northern Angola.
- WILLIAMS, J. G. 1953. Cinnyris mediocris. A revision of the species and description of a new race. Bull. Brit. Ornith. Club, 73 (1): 8-11. Four subspecies

- recognized, one of them new, C. m. bensoni, Mt. Dedza, Nyasaland; C. m. keniensis Mearns and C. m. garguensis Mearns are considered to be synonyms of nominate mediocris.
- WILLIAMS, J. G. 1953. On the status of *Cinnyris chalybeus capricornensis* [Roberts]. Bull. Brit. Ornith Club, 73 (6): 65-66. This form is stated to be a synonym of *C. chalybeus subalaris* Reichenow.
- WILLIAMS, J. G. 1953. On the status of *Cinnyris erikssoni* Timen. Bull. Brit. Ornith. Club, **73** (1): 11-12. Considered to be a synonym of *C. afer ludovicensis* Bocage.
- WILLIAMSON, K. 1953. Redwing passage in Autumn at Fair Isle. Bull. Brit. Ornith. Club, 73 (2): 18-23, figs. 1-5. Movements of Turdus musicus.
- WILLIAMSON, K. 1953. Ortolan and Little buntings and Fair Isle. Scot. Nat., 65: 60-61.
- WILLIAMSON, K. 1953. Migration into Britain from the north-west, autumn 1952. Scot. Nat., 65: 65-94.—Correlation of migratory movements with weather phenomena. Observations mainly from Fair Isle, Scotland.
- WILLIAMSON, K., and E. WILLIAMSON. 1953. Hoopoe pursued by a Merlin. Scot. Nat., 65: 56-57.
- Wolfson, A. 1953. Correction of data reported on White-throated Sparrows. Condor, 55 (6): 318. Refers to errors in a previous paper, Condor, 55: 187-192, 1953.
- Wolters, H. E. 1953. A new name for Euplectes (Diatropura) progne ansorgei Neumann. Bull. Brit. Ornith. Club, 73 (3): 32. E. progne delacouri, new name for Diatropura p. ansorgei Neumann, 1908, preoccupied by Pyromelana (= Euplectes) ansorgei Hartert, 1899.
- WOOTEN, W. A. 1954. Waterfowl losses in the surf along the northern California coast. Journ. Wildl. Mgt., 18 (1): 140-141.—Feathers of surface-feeding ducks and several other birds fill up with sand immediately following severe storms and during off-shore fogs. In one two-month period, 6,000 to 9,000 are believed to have perished along a 25-mile stretch of beach.
- WRIGHT, B. S. 1953. The relation of Bald Eagles to breeding ducks in New Brunswick. Journ. Wildl. Mgt., 17 (1): 55-62. Haliaeetus leucocephalus is chiefly a scavenger and fish eater in summer. Those that winter turn to coastal waters and in time become locally important predators on waterfowl. Their effect on waterfowl production was found to be negligible. An ingenious experiment to determine food preference is described.—J. J. Hickey.
- WYNNE-EDWARDS, V. C., and J. W. CAMPBELL. 1953. A Snowy Owl in the Cairngorms during summer. Scot. Nat., 65: 129.
- WYNNE-EDWARDS, V. C., and J. W. CAMPBELL. 1953. An unusually-coloured juvenile Rook. Scot. Nat., 65: 130.—Dark brown.
- Yepez, G. 1953. El indio y las aves. Mem. Soc. Cien. Nat. La Salle (Caracas), 13: 141-143.
- YOCOM, C. F. and S. W. HARRIS. 1953. Food habits of Mountain Quail (Oreortyx picta) in eastern Washington. Journ. Wildl. Mgt., 17 (2): 204-207.—Thirty-three examined; 95 items tabulated; Rhus glabra the most important food from October 30 to December 16.