THE ORIOLE

A Quarterly Journal of Georgia Ornithology; Official Organ of the Georgia Ornithological Society



THE ORIOLE

EDITOR
Milton N. Hopkins, Jr., 202 W. Roanoke Drive, Fitzgerald, Georgia

EDITORIAL COMMITTEE J. Fred Denton, Robert A. Norris, Ivan R. Tomkins

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GEORGIA ORNITHOLOGICAL SOCIETY Founded December 13, 1936

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VOL. XXX

SEPTEMBER, 1965

NO. 3

SOME RANGE EXTENSIONS IN NORTHWEST GEORGIA

by ANNE and R. E. HAMILTON

Some interesting range extensions appear to have occured in northwest Georgia in recent years. The Song Sparrow (Melospiza melodia) which was first found nesting here in 1946 (Oriole 11: 51, 1946) is now numerous. As many as seven males were heard singing on June 25, 1960, during a trip of one and one-half miles from the northern edge of Dalton to the southern city limits. Additional breeding records include a pair which nested regularly in the 1950's under an azalea shrub in the hillside garden of Mrs. Carl Berry on Greenwood Place; and a nest with young found in early July, 1962, in a blackberry bush by an unpaved road at the south city limits.

Another species which apparently was absent prior to 1956 and which is now increasing in numbers here is the Brown-headed Nuthatch (Sitta pusilla). It was hardly overlooked, for one of us had been familiar with it on an almost daily basis for some years in Screven County. It was first recorded in Dalton on July 3 and 4, 1956, and was not seen again until October 3, 1959, when one bird appeared at the Lees' lake at Resaca in Gordon County. The next week, on October 10, members of the G. O. S. saw three in northeastern Whitfield County. No others were noted until November 1, 1964, when two were found at the Lees' lake. To date there are several records in 1965: at Parrott Lake on April 17, at Hoyt Shields' home on June 4 and 11 and July 2, and at the home of Mrs. W. C. Cox. Sr. on November 26. Two individuals appeared at the Cox feeder and bird-bath a number of times from late November till December 8. Since most of the appearances of this species occurred within a mile or two of either the Conasauga or the Oostanaula rivers, the assumption may be made that these small birds came up the Oostanaula river valley from Rome, where they are known to have been present for several years (Burleigh, 1958).

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The occurrence of the Whip-poor-will (Caprimulgus vociferus) in breeding season here in the Ridge and Valley Province of Georgia had been predicted but not confirmed until June, 1964. According to Burleigh (1958) there are nesting records at Young Harris, in Cobb County, and at Cloudland; and it has been reported at Canton, Trenton, Toccoa, and other places in early summer. In Whitfield County it has been recorded regularly in spring migration, but usually has not been found after the third week in May. On the two occasions when this species was heard singing in summer the individuals were considered to be stragglers or early southward migrants. These two records were of a bird which the writers heard singing on a ridge approximately 800-1000 feet high at Lake Frances a few miles east of Varnell on June 29, 1955, and another which sang on July 24, 1955, in Dug Gap Valley.

Querying friends as to the song of the Whip-poor-will, we were told by Jean and James Darnell that it sang from May till August each year at their home near Varnell. On the evening of June 22, 1964, we went to Varnell Ridge, a mile or so west of the village of Varnell and ten miles north of Dalton. While driving along the ridge, we began to hear Whippoor-wills singing and discovered one bird taking a dust bath in the unpaved road ahead of our car. A ride of about a mile and one-half revealed eight singing birds. At the Darnell home on the south end of the ridge at a somewhat lower elevation we listened for an hour to the songs of these birds and noted that a Chuck-will's widow also sang intermittently from a lower spot on the ridge. The ridge is 1030 feet high and runs from northeast to southwest for several miles in northern Whitfield County. Mr. Darnell, who has lived at this place since boyhood, stated that Whip-poor-wills have sung regularly here in spring and summer for many years. This, therefore, should not be considered an extension of range of this species, but rather as evidence of their presence in summer and probable breeding.

-704 Greenwood Drive, Dalton, Georgia 30720. December 15, 1965.

GENERAL NOTES

CATTLE EGRETS EATING YOUNG BOB-WHITES-According to a note, "Predation on birds by Cattle Egrets" in The Auk (Cunningham, R. L. The Auk 82:502-03, 1965) Cattle Egrets have been observed chasing and eating birds. On the Millhaven Plantation 14 miles northeast of Sylvania, Screven County, Georgia, Mr. Lester Kelly and Mr. Lloyd Oglesby told the writer that they have seen Cattle Egrets chasing and eating young Bob-Whites. Mr. Kelly was mowing a pasture 1 mile north of Millhaven post office in mid-July with about 40 or more of the egrets following the mower, within 10 feet of it, when he came upon 2 covies of young Bob-Whites,, not yet able to fly. The egrets caught the young birds, flung them against the ground to kill or stun them, then ate them. The egrets fought over the birds. All the young were devoured. (Mr. Kelly has also observed the egrets catching field mice and eating them.)

Mr. Oglesby was mowing a pasture in late June when he observed the egrets catching and eating Bob-Whites.

Cattle Egrets were first seen in Screven County in the spring of 1962 by Grace Boddiford (The Oriole 28:29-30, 1963). They have been noted each spring since then, in numbers from 3 to 75 or more, in many different pastures-Grace P. Boddiford, Millhaven, Georgia, August 21, 1965.

OVENBIRD NESTING IN JACKSON COUNTY-On 22 June 1965 while cruising timber on the Hardman Memorial Forest, I found an occupied nest of an Ovenbird (Seiurus aurocapillus). The forest, owned by the University of Georgia School of Forestry, is located about 12 miles north of Athens in Jackson County, Georgia. I first saw an adult Ovenbird on the ground making alarm notes about six feet from me. This led me to suspect a nest, so I began looking for one. After a short search, I found the well concealed roofed nest with four eggs; the nest was located on the ground in an old field stand of small sawtimber consisting mainly of Loblolly Pine (Pinus taeda). There was little understory vegatation on the site; the ground was covered by about an inch layer of pine needles. After finding the nest and examining it, I left the area. I went by the site the next day, 23 June 1965, and an adult was on the nest.

This is apparently the first Ovenbird nest found in the Athens area as well as the Lower Piedmont of Georgia, although Burleigh (Georgia Birds, 1958) reported the Ovenbird nesting as far south as Atlanta, which is in the Upper Piedmont. He suspected that it nested at Athens, although no nest has ever been previously reported.

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I am grateful to Dr. James H. Jenkins for a critical reading of this manuscript—C. William Dopson, Jr., 708 Graham Street, McRae, Georgia, October 27, 1965.

CATTLE EGRETS FEEDING BEHIND MACHINERY—Although the Cattle Egret (*Bubulcus ibis*) commonly feeds in association with grazing animals, it evidently will feed near machinery that makes available a preferred food supply.

C. W. Dopson, Sr. reported to me that Cattle Egrets were feeding behind a farm tractor and turn-plow about the middle of April, 1964 near Jacksonville, Telfair County, Georgia. He reported that the Cattle Egrets were feeding only in the bottoms of the furrows, and he suspects they were eating insect grubs that the plow turned up.

On 9 July 1965 while watching a site preparation operation of timberland in Echols County, Georgia, I observed Cattle Egrets feeding in an unusual manner. The land, owned by St. Regis Paper Company, was being prepared by pulling 15 ton Marden offset choppers over the land with D-8 Caterpillar Tractors. In this way the ground and all vegetation and logging slash except large tree stems are chopped up to prepare the land for the planting of pine seedlings. Eleven Cattle Egrets were following and feeding behind the three choppers, moving frequently so as to stay within about 30 yards of the machinery. I could not tell what the egrets were eating, but I suspect they were eating grasshoppers (Tettigonidae) and locusts (Locustidae), both of which were abundant in the chopped area.

One White Ibis (*Eudocimus albus*) was feeding in this same area with the Cattle Egrets but was not moving or eating as frequently as the egrets.

I am grateful to Dr. James H. Jenkins for a critical reading of this manuscript—C. William Dopson, Jr., 708 Graham Street, McRae, Georgia, October 27, 1965.

HUMMINGBIRDS LESS ABUNDANT IN 1965?—Scattered reports are consistent in observing that the ruby-throated hummingbird (*Archilochus colubris*) was noticeably less abundant in Georgia during the summer of 1965 than in other years. My own back-yard in Decatur normally has four or five birds feeding daily on red salvia (*Salvia splendens*) but this year I never saw more than two birds at a time; often there was one;

and on many days they were missing. At least a dozen others in the Atlanta area reported the same general pattern, as did a few casual observers from middle Georgia.

There is a large patch of jewel-weed (*Impatiens biflora*) which annually attracts hummingbirds in the northern end of Piedmont Park in Atlanta. In early September of 1964, Mr. and Mrs. W. E. Freeborn and I saw numbers of the birds estimated to be at least 200. This year, on several trips during the first weeks of September, we did not see more than 25 to 50 hummingbirds in the same location, with the habitat apparently unchanged.

On both September 5 and 6, 1965, the Freeborns, Vaughn Morrison and I saw at least two male ruby-throats with bright red gorgets. Thomas D. Burleigh in "Georgia Birds" says, "I personally have never noted an adult male later than the latter part of July."—Louis C. Fink, 688 North Parkwood Road, Decatur, Georgia 30030.

FRANKLIN'S GULL AT COLUMBUS — An adult Franklin's Gull (*Larus pipixcan*) in summer plumage was seen on Lake Oliver April 24, 1965.

A 25-power telescope stays mounted on a heavy table from a position of about 60 feet above water level. About 7 A.M. two gulls, an accomodating Ring-billed for size and this one, were sighted in good light on relatively calm water about 800 feet distant. The white eye-ring was discernible out of the black head, and the white break that separates the gray from the black near the wing tip was unmistakable.

After several minutes I called my wife Roberta who studied the dark one carefully then indicated the summer Franklin's in the Peterson's guide that lay open on the table. After several minutes more to make doubly sure we went on to breakfast during which time the birds probably were frightened away by boats.

I have since searched Chapman, Bent, Pearson, Pough, Imhof, Gromme, Forbush and May, and Peterson's Birds of Texas for possible notes of disputation. Dr. Maurice Baker, editor of *Alabama Birdlife*, has no records more recent than June 1, 1958 and Jan. 4, 1960, both by Hulse in Tennessee Valley (presumably at Wheeler Wildlife Refuse) as noted in *Alabama Birds*. A further note of credence arises out of the fact that, in 1964, the last 70-mile transition (Ft. Gaines to Columbus) of the Chattahoochee River completed an uninterrupted lake-way, 230 miles long, from

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the Gulf of Mexico into the Piedmont at West Point- L. A. Wells and Roberta Wells, Cascade Road, Green Island Hills, Columbus, Georgia, July 20, 1965.

SWALLOW-TAILED KITE AT ROCK EAGLE—According to Burleigh, in Georgia Birds, the records for this species are quite rare in recent years. He reports one sight record by the writer, Thomas Hall, and Thomas Bivens (1942) as being the most northerly record at the time of publication of his book. On August 14, 1965, a single bird was seen soaring in wide circles over the 4-H Club Center. It was in company with four turkey vultures for perhaps ten minutes, and then broke off in a straight line due west. It was a great personal thrill to watch this graceful flier. Perhaps it is the farthest north that it has been reported in this State, but if not, it is quite surely a record for Putnam County-Frank W. Fitch, Jr., Rock Eagle 4-H Club Center, Eatonton, Georgia, September 15, 1965.

BLUE JAYS ON WASSAW ISLAND-In his interesting paper on the strange absence of the Blue Jay (Cyanocitta cristata) from several of Georgia's coastal islands (Oriole, XXX (2): 77-79) Ivan R. Tomkins notes no apparent record of the species for Wassaw Island, where I have observed it a number of times on each of three winter visits since December 1956, and where I collected an adult female for the Florida State Museum 20 December 1962. During my most recent visit I saw or heard Blue Jays in small numbers daily from 10 to 20 October 1965, and netted and banded five young of the year on 14 October.

A search of the island's "log books" for possible reports in bird lists made by other visitors revealed three other records for the species, all between October and April. Hence though the Blue Jay is apparently a regular transient visitor to Wassaw during the non-breeding season, it has not been recorded there during the nesting season-Oliver L. Austin. Jr., Florida State Museum, Gainesville, Florida, December 4, 1965.

RED CROSSBILLS IN GEORGIA-On August 10, 1963, a family of Red Crossbills (Loxis curvitostra), consisting of the two adults and three inmatures, were observed at Satolah, Georgia by Mr. and Mrs. C. H. Ekdahl and Mr. and Mrs. Tolliver Crunkleton. These birds were feeding on the dirt floor of an open barn, eating various seeds and grains, and allowed the observers to approach quite close.—Connie Ekdahl, Box 81, Highlands, North Carolina, September 2, 1965.

Ed. Note: Dr. D. W. Johnston, Dept. of Zoology, Univ. of Florida, Gainesville, Florida forwarded this interesting note and comments: "The location in Georgia, incidentally, is only a few miles from the point where we saw crossbills building a nest at Highlands in 1963 (see Chat, Vol. 27, No. 4).

BEHAVIOR OF SCREECH OWLS IN ATLANTA—Donald F. Bracewell lives in a fairly new subdivision of northeast Atlanta; his home is No. 1897, appropriately on Audubon Drive, N.E. He and his sons have been hearing owls for some time in the mornings and evenings.

At 7:30 A.M. on October 5, 1965, Mr. Bracewell's son was in a darkened room watching television, when he heard a noise behind the screen in his fireplace. He removed the screen and a screech owl (Otus asio) in the red phase flew out. The bird was captured and placed in a bird cage.

On October 7 at about 10:30 A.M., a screech owl in the gray phase came down the chimmey and flew to a wall curtain. Both birds were kept in captivity until October 10, when they were released and flew off in opposite directions. The area is wooded.

From October 7 to 10, the two owls remained almost motionless with eyes closed throughout day light hours. A live mouse was placed in the cage and ran about unharmed all day. At dusk, the birds opened their eyes and stretched their wings. The mouse disappeared during one night, and its fate is unknown. Chicken liver offered as food by the Bracewells was scarely touched by the owls.

As seems to be true with all nocturnal birds, the screech owl is counted as uncommon in Atlanta; it may well be more abundant than expected. The Bracewells' chimney is surmounted with a smooth metal pipe, capped with a metal shield leaving only an aperture of three or four inches. The screech owls would have barely fit through the opening; it may be guessed that once inside, they could get no foothold on the smooth metal and fell down the chimmey-Louis C. Fink, 688 North Parkwood Road, Decatur, Georgia 30030.

FIRST RECORD OF DOWITCHER IN WHITFIELD COUNTY-The U.S. Fish Hatchery at Cohutta, in Whitfield County, Georgia, with its more than a dozen ponds bordered with grassy banks makes a habitat suitable for many species of birds. On August 29, 1965, the writers watched a Dowitcher in fall plumage fly from one pond to another. The first impression was of dark wings bordered on the lower edge with white.

Later the bird was located feeding at the grassy edge of a pond, where its eye stripe, light gray breast, and very long bill were clearly visible. The bird was unsuspicious, allowing one observer to approach to within 8 feet, while the other stood farther back and watched it with 7X binoculars. Finally the bird was flushed, affording a good view of the white tail and the white rump spot which extended into a sharp point half-way along its back.

On September 2 five members of the Cherokee Audubon Society went to the hatchery. After some search a Dowitcher was located standing inside the grassy margin of a pond. It was feeding and as the group watched it, it continued probing in mud with a motion like a sewing machine needle and occasionally seemed to pull up into its mouth small unidentified objects. When it moved at last, the bird flew only two or three feet along the edge of the pond before stopping to feed again. All observers saw the white spot at the base of the tail that went into a sharp point on its back. This bird, also in fall plumage, may have been a different individual from the first, since the observers noted a slight wash of rusty red on a small area of the breast.

Observers from the local Audubon Society were Mourine King, Norine Boring, Jane Parrott, Nell Curtis, and Anne Hamilton.

This is the first record of this species for Whitfield County.—Anne and R. E. Hamilton, 704 Greenwood Drive, Dalton, Georgia, September 28, 1965.

SANDHILL CRANE DEFINITELY ON ATLANTA LIST—It seems to the writer that it is time to establish definitely the presence of the sandhill crane (*Grus canadensis*) in the Atlanta region. The bird is not included in the list of 236 species recorded by Griffin and Parks in 1955. Burleigh (*Georgia Birds*) notes that Harold Peters listed three birds in Fulton County on November 1, 1951.

Within the last two years, several observers have called to report one or more sandhill cranes in the general area of the Chattahoochee River near Roswell Road in north Fulton County. On November 12, 1965, Vaughn Morrison saw four of these birds standing in the water near the Chattahoochee Day Camp in this area. Mr. and Mrs. C. M. Einhorn went out early on November 13 and saw the same four birds. All were described as adults. The birds disappeared that morning and were not seen by observers who came later.

Since the Griffin-Parks list of 236 species was published, the alder flycatcher and the glossy ibis were added. The sandhill crane brings the Atlanta total to 239—Louis C. Fink, 688 North Parkwood Road, Decatur, Georgia 30030.

YELLOW-BELLIED FLYCATCHER AT ROME—I am well aware of the uncertainties of proper identification of (Empidonax) flycatchers. Nevertheless, I believe that I have an observation that can be regarded as reasonably certain, within the limitations of sight records. On July 28, 1965 I had a fairly close look through six-power binoculars at a small flycatcher. This bird had reacted to my imitation of a wren-scold by flying up the hill from a rather open area of thick, weedy, bush-grown vegetation on the side of a ridge. It perched in a small dead tree, staying long enough for a rather good observation to be made. It did not behave in the manner of the familiar Acadian Flycatcher. The breast, wing-bars, and eye-ring were a fairly bright yellowish. It had a mannerism of flipping the tail in a quick up-then-down motion, which is used quite frequently. It gave a call which I wrote down as: "chi-tik!"-accented on the last syllable, and with the phonetic sound of the "i" as in the word "hit." The bird repeated this call several times. It was almost exactly the same as the so-called song of the Yellow-bellied Flycatcher as recorded on the discrecord, "A Field Guide to Bird Songs," published by Roger Tory Peterson. It was not as coarse in sound quality nor quite as rapid in timing as the somewhat similar note of the Least Flycatcher on the same record. I am rather convinced that this bird was a Yellow-bellied Flycatcher (Empidonax flaviventris), having arrived early in migration. The habitat in this case was certainly not the expected one for this species, but the bird may have been enroute between sites in which it might linger. After its not too brief stay with me it flew on across the ridge, going into trees down the opposite slope-George A. Dorsey, Darlington School, Rome, Georgia, August 6, 1965.

FROM THE FIELD

Mr. R. Connor Tedards, Route 2, Brown Road, Anderson, South Carolina sent the following worthwhile record of Cliff Swallow nestings at Hartwell Dam in May 1965. "On May 23, 1965, a friend of Mrs. Tedards, Mrs. Joseph P. Watson of Andersonville, S. C. called us saying she had noticed an unusual swallow at Hartwell Dam. Early on May 24 Mrs. Tedards and I determined that there was a nesting colony of Cliff Swallows (*Petrochelidon pyrrhonota*) on the back side in the tail race of the dam. With the help of Mr. John LeRoy, reservoir manager, and Mr. James B. Shuler, naturalist of Greenville, S. C., we were able to photograph the nests and to confirm approximately 25 nesting pairs in this colony. These swallows could be observed from the public parking area and fishing ramp at the rear of the dam by the use of binoculars."

The first Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) for Whitfield County, Georgia was seen by Norine Boring on September 6, 1965. In addition to this interesting record, Anne Hamilton reports the following species and dates. "A female Hooded Warbler was seen several times daily from August 26 till September 1 in Anne Hamilton's yard. A flock of warblers observed at Dalton, Georgia on September 2 included 1 Cerulean, 1 Parula, 1 Yellow-throated, 3 Black and White, 1 Prairie, 1 Baybreasted, and 1 Tennessee. On September 5 one Solitary Sandpiper and one Semipalmated Plover were seen at Looper Farm ponds. On September 12 one Lesser Yellowlegs and one Semipalmated Sandpiper were observed at Cohutta. Three Baltimore Orioles in fall plumage appeared on September 7, one Magnolia Warbler on September 8, and one female Redstart on September 9 and 10.

Mr. L. A. Wells of Columbus, Georgia noted 60 Pectoral Sandpipers on August 8, 1965. Back in May of this year he noted Black Terns for the first time in spring on May 26 (a single bird) and again one each on June 5 and June 6.

Prof. George A. Dorsey, Darlington School, Rome, Georgia noted a Blackburnian Warbler on July 26, 1965 and a Cerulean Warbler on July 31, 1965 at Rome. He stated that both of these birds were apparently young males, judging by the plumage.

Milton Hopkins, Jr. collected a Lark Sparrow near Fitzgerald, Georgia on September 1, 1965. He had noted three individuals of this species in a cotton patch at this same location on August 31. He also noted an Upland Plover at Osierfield, Georgia on September 15, 1965 in a peanut field.

NEWS AND COMMENTS

NEST CARD PROGRAM

The North American Nest Card Program is winding up the 1965 nesting season, and many cards have already been returned. There are still many cards in the hands of the individual recorders, however, and these should be returned to us as quickly as they are completed. We are preparing the data for transferral onto IBM cards, and a large bulk of material is needed for the first run, to be started soon.

Regional Centers may determine for their members whether their cooperators should return the cards to the center first, in order to complete local records, or whether they may be sent directly to us as they are completed. Laboratory of Ornithology, 33 Sapsucker Woods Road, Ithaca, New York 14850.

Thank you very much for your help. We hope that as many journals as possible will print this, for we have contributing individuals in areas in which there is no official Regional Center for card distribution.

Helen Fessenden Laboratory of Ornithology 33 Sapsucker Woods Road Ithaca, New York 14850

RECENT LITERATURE

THE BIRD WATCHER'S AMERICA, 1965. Edited by Olin Sewall Pettingill, Jr., McGraw-Hill Book Company, 330 West 42nd Street, New York, 441 pp., \$7.50.

Editor Pettingill began in 1962 gathering material from qualified authors and authorities in areas to be covered in this volume and requested that they cover their subject in a 2500 word chapter. The book covers a wide variety of notable environments and their ornithological peculiarities but is naturally limited in geographical scope by the availability of qualified authors. It is to be regretted that Georgia's Okefenokee Swamp was not mentioned.

The text is aimed at the group of bird watchers who know the commoner species in their home region and who do not have the good fortune of knowing a competent birder in new regions where they intend to go. It will introduce you to some of the best places for birds in the U. S. and Canada as attested by some 44 authors who for the most part were born and reared in the areas of which they describe.

John Henry Dick's brief line drawings are in tune with the locale and the outstanding species treated by the various authors. Editor Pettingill wrote the preface and introduces each chapter with a short biographical sketch of its author. The volume begins with a treatment of the eastern seaboard from Bonaventure Island to the Florida Keys, then the Eastern mountains and foothills, Pacific Coast, Alaskan islands, arctic Alaska, Hudson Bay, prairies, deserts, and the Rio Grande Valley.

Migration spectacles are covered in six chapters and four avian specialities, the Trumpeter Swan, Kirtland's Warbler, Golden-Cheeked Warbler, and Rosy Finches are the subjects of separate chapters.

NORTH AMERICAN BIRDS' EGGS, 1965, by Chester A. Reed, Dover Publications, 180 Varick St., New York, New York, 372 pp., \$3.00.

This is a reproduction of Reed's 1904 edition with a preface by Paul A. Buckley. It contains black and white photographs or illustrations of nearly every species of North American birds' egg. The 5th edition of the A.O.U. check-list is used for showing current concepts of avian relationships.

Species treatment is all covered under "range" which includes life history information, breeding and winter range, description of nests, number of eggs in most cases, their size in inches, locations of nests, and usually a date and collector name. The present reviser has concerned himself mostly with corrections of range extensions and nomenclature with a few notes on relative abundance of certain species. There are many glaring mistakes and untrue statements in the original species accounts that could have been omitted or corrected profitably. Nearly all eggs are illustrated in natural size and the revision contains some good photographs of nests and nest sites.

BIRD DISPLAY AND BEHAVIOR, 1965, by Edward A. Armstrong, Dover Publications, 180 Varick St., New York, New York, 431 pp., \$2.50.

The present book is an unabridged and revised republication of the 2nd 1947 edition of *BIRD DISPLAY AND BEHAVIOR* and is now subtitled "An Introduction to The Study of Bird Psychology." It contains 33 plates, 62 photographs, and 30 line drawings.

Observations of the living bird, figured in man hours devoted to the science of ornithology, continue to increase each year. In its infancy field ornithology was little more than a hobby but when wisely directed it has and can produce remarkable and highly useful information. There are still few species whose life history has been thoroughly worked out.

Certain types of behavior-patterns recur in groups of organisms widely separated from each other and birds are not excepted. As author Armstrong says: "These parallelisms are not to be explained as coincidences but are due to the operations of fundamental psychological forces."

The author's discussion of the role of territory in bird life is enlightning in relation to recent avian-ecological studies. Rather than consider the role of territory as simply a defence of a foraging area or ritualised aggression he delves into the combined picture consisting in part of coloration, display, hazards from predators, nest building ritual, and other factors.

And again on the multipurpose use of song and calls he says: "It is apparent that most bird utterances are stimulatory as well as communicatory and further confirmation is available from both ornithological and anthropological research that basically human and avian singing and dances have much in common."

The volume is well documented. Eugene P. Odum's work on the Black-capped Chickadee is referred to in relation to courtship feeding, peck-right in winter flocks and territory formation, and copulation during nesting. Many other North American species that have been thoroughly studied are used in the text.

ECOLOGY AND BIOENERGETICS OF THE LONG-BILLED MARSH WREN IN GEORGIA SALT MARSHES, 1965, by Herbert W. Kale, II, Publications of The Nuttall Ornithological Club, Cambridge, Mass., No. 5, 140 pp., 61 tables, 22 figures, Cloth, \$4.00.

The present work is based upon a thesis and dissertation submitted in partial fulfillment of the requirements for a M.S. and a Ph.D. degree at the Univ. of Georgia (Kale, 1961, 1964). It forms Contribution No. 75 of the Univ. of Georgia Marine Institute, Sapelo Island, Georgia.

The study concerns Worthington's Long-billed Marsh Wren (Tel-matodytes palustris griseus, Brewster), and is one of few attempts to estimate the total energy flow through an avian population in its natural ecological system. The salt marshes in the area are in a belt about 8 kilometers wide and consist botanically of almost pure stands of marsh grass (Spartina alterniflora). During the breeding season T. p. griseus is restricted primarily to streamside and levee marshes but in winter the wrens forage more widely over the marsh.

The study area comprised approximately 2600 acres including 410 acres of the Duplin River area at mean low water. Censusing at high tide enabled Kale to reach all wren territories at a time when each wren was forced to occupy the upper portion of the marsh grass. He estimates available habitat to be approximately 25 acres of inhabitable marsh and the ecological density of 45-46 pairs/hectare or 18-23 pairs/acre of suitable nesting area is based on this figure. The area actually utilized by wrens was found by multiplying the total number of pairs observed by the mean territory size maintained by a male.

The most frequent food items of this species were spiders. They comprised 78% of food intake but accounted for only 15% by volume of the total. Kale found that the number of species of salt marsh insects and spiders was low, with a strong dominance by a few species. Daily energy requirements of ten hand reared adult wrens (7 males and 3 females) over a two year period were determined by measurement of food consumption and measurement of oxygen consumption. The mean daily energy flow represented about 50% of the mean caloric value of the standing crop of wrens.

The nesting success of the population of wrens under study ranged from 42% in 1958 to 6.8% in 1960. Kale concludes by saying: "T. p. griseus is a locally important predator upon the herbivorus insects feeding on Spartina alterniflora and upon the hymenopterans and spiders that para-

sitize or prey on insects, and may be a major factor in the control of the secondary consumers among the arthropods of the grazing food chain."

This scholarly study represents only a small segment of the total picture of bioenergetics of species inhabiting the salt marshes of Georgia but is a major contribution to our completeness of understanding of this vast field.—Milton Hopkins, Jr.

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