

## RECENT LITERATURE

Reviews by Margaret M. Nice

## BANDING

1. **Some Tagging Experiments with Black-footed Albatrosses.** Loye Miller. 1942. *Condor*, 44: 3-9. Twenty-five *Diomedea nigripes* were marked at sea off the coast of southern California; they were attracted by bacon fat and were marked by sprinkling paint on their backs. Twelve repeated at 20 miles, seven at 30 miles, three at 40 miles and one at 50 and 60 miles. The paint was repugnant to them, evidently being recognized by odor. Sometimes the marked birds followed the ship, at other times they did not arrive till 30-60 minutes after the ship had stopped. "There seemed to be some communicable interest transmitted by some means not entirely clear to us."

2. **Further Data from the Elmhurst, Long Island, Bird-Banding Station.** Marie V. Beals and J. T. Nichols. 1941. *Birds of Long Island*, No. 4: 88-114. A transient Brown Thrasher (*Toxostoma rufum*) was retaken in Georgia, another in Texas. Of 1609 Juncos (*Junco hyemalis*) banded from 1928-1939, none were retaken at Elmhurst, but three were taken in Georgia and South Carolina and one in Indiana—Nov. 8, 1933, having been banded Nov. 2, 1932. Ten per cent (31) of the 313 Tree Sparrows (*Spizella arborea*) returned. Of 7,268 White-throats (*Zonotrichia albicollis*) eight returned, and twelve were recovered from Maryland to Georgia.

3. **A Kittiwake Gull (*Rissa tridactyla*) Banded Near Murmansk, USSR., Recovered in Newfoundland.** Hoyes Lloyd. 1941. *Canadian Field-Naturalist*, 55: 138. Banded on July 25, 1938, it was captured in the autumn of 1939. This is at least the third record of Russian-banded Kittiwakes being taken in Newfoundland.

Banding was used in Nos. 5, 17, 20, 44, and 53.

## MIGRATION

5. **Migration in Pacific Coast White-crowned Sparrows.** Barbara D. Blanchard. 1942. *Auk*, 59: 47-63. Valuable histological, physiological, and behavior studies on intermediate populations of *Zonotrichia leucophrys*, in amplification of the author's admirable study on the definitely sedentary population of *nutalli* at Berkeley, California, and the migratory *pugetensis* wintering at Berkeley and breeding at Puget Sound, (see No. 53). Studies at three intermediate points showed great variations in gonad size, amount of fat, stage of molt, and flocking and territorial behavior.

6. **The Spring Migration of the Red-backed Shrike over Europe.** H. N. Southern. 1941. *British Birds*, 35: 114-119. The fifth paper in this series maps the migration of *Lanius collurio*, showing its late arrival and rapid spread, as well as its avoidance of large bodies of water.

## LONGEVITY

7. **Duration of Life of Arctic Skua.** Chas. Oldham. 1941. *British Birds*, 35: 160. A Parasitic Jaeger (*Stercorarius parasiticus*), "believed to be a female" and "identified by its small size and great tameness", returned for 31 years to the Isle of Foula, but finally "met with an accident and was found dead with a broken wing near its nest. Its partner continued to incubate the eggs, but after a week it secured another mate."

## LIFE HISTORY

8. **Aggressive Incidents Relative to Marsh Hawks.** J. J. Elliott. 1941.

*Proc. Linn. Soc. N. Y.*, 52-53: 127-128. A *Circus hudsonius* with several primaries clipped by gunshot hunted over the same area all winter; it attacked intruding hawks of other species. Once a Marsh Hawk flew at a Rough-legged Hawk (*Buteo lagopus s. johannäs*) with a harsh cry; the latter out-flew it, and later the birds came to tolerate each other. Two Duck Hawks (*Falco peregrinus anatum*) drove off a Marsh Hawk; often, however, these falcons leave the vicinity upon the approach of the harrier.

**9. Feeding Behavior of a Harrassed Duck Hawk.** R. A. Herbert and J. J. Hickey. 1941. *Proc. Linn. Soc. N. Y.*, 52-53: 128-129. A Duck Hawk captured a shorebird and started to eat it on the grass, but a young Marsh Hawk tried three times to drop on the Duck Hawk. The falcon ascended in circles and ate its prey in the air.

**10. Attwater's Prairie Chicken. Its Life History and Management.** V. W. Lehmann. 1941. *Fish and Wildlife Serv., No. An. Fauna*, 57: 1-65. 40 cents. *Tympanuchus cupido attwateri* used to be exceedingly abundant in the coastal prairie section of Texas; now due to merciless slaughter and to destruction of its habitat, probably less than one per cent of its former numbers remain. In 1937 there were about 8,700 birds. Booming of the males starts in February, and laying in late March and early April. Twelve eggs are laid; early nests are more successful than re-nestings. Broods dwindle from 11 to 5 in the first four weeks. Adults do not have a highly developed rallying call, and the young get lost. Two chicks, 2-3 weeks old, were seen with two molting males. The young leave their mother at about six weeks. If the increase in one nesting season reaches 100 per cent, that is very good. Heavy rainfall in May is disastrous. Management recommendations are made and the setting aside of ample reservations urged to prevent extermination.

**11. Successful Breeding of the White-necked Crane.** (Erfolgreiche Zucht von Weissnackenkranichen (*Grus leucauchen*.) L. Hagenbeck. 1940. *Journal für Ornithologie*, 88: 348-354. A pair brought from Japan to Germany in 1933 raised two young in 1933, one each year in 1935, 1936 and 1937, four in 1938 and two in 1939. The female incubates during the day, and the male at night. They attack all visitors but their keepers, the male being especially pugnacious. The young get their growth and feathering in five and one-half months, but the voice does not change until the next spring.

**12. The Black-headed Gull in the City Limits of Zurich.** (Die Lachmöve (*Larus r. ridibundus*) L.) im Stadtgebiet von Zürich, besonders im Sihlgebiet, Winter 1940-41). W. Epprecht. 1941. *Ornithologische Beobachter*, 38: 95-113. An account of the movements, morning and night, of the different flocks of gulls in the winter of 1940-41. When the weather is above freezing the gulls stand on stones or walls; if these are snow-covered, they stand in the water; at 2° below freezing they stand on one foot on the ice, while at lower temperatures they lie on the ice.

**13. Mourning Dove Production in Southeastern Iowa.** H. E. McClure. 1942. *Auk*, 59: 64-75. On 220 acres 1,108 nests of *Zenaidura macroura* were built in 1938 and 1443 in 1939; 1,464 nestings were attempted in 1938 and 1,975 in 1939. The first year there were 250 pairs and the second year 330. Each pair averaged 5.85 nesting attempts in 1938 and 5.98 in 1939. Nesting started April 16, 1938, and on March 23, 1939; the last young left Oct. 15, 1938 and Oct. 11, 1939. Thus the nesting season lasted 183 days in 1938 and 203 in 1939. "Winds and heavy storms are the greatest decimating factors of nests, eggs and young", p. 66. In 1938 1,502 young left, in 1939 1,583. In 1938, 220 young were killed, and 275 in 1939. Of more than 6,300 eggs that were laid, 48 per cent produced successful young. The average of 1.83 young were raised to a successful nest. In ten cases four broods were raised in a nest. A paper that represents a vast amount of work.

**14. Possible Homosexual Mating of the Rock Dove.** Hervey Brackbill. 1941. *Auk*, 58: 581. In two pairs of feral pairs mates trod each other.

**15. The Feeding Interval in the Hoopoe.** G. K. Yeates. 1941. *British Birds*, 35: 108-109. In Provence a male *Upupa e. epops* fed his incubating mate about three times an hour; he might come every ten minutes and rarely stayed away for forty. When he did, the female gave harsh notes like the begging notes of young Green Woodpeckers.

**16. Skylark Singing Continuously for eighteen Minutes.** H. G. Alexander. 1941. *British Birds*, 35: 160. It is very unusual for *Alauda arvensis* to give a "completely uninterrupted song lasting much over five minutes."

**17. Life History Studies of the Tree Swallow.** Richard G. Kuerzi. 1941. *Proc. Linn. Soc. N. Y.*, 52-53: 1-52. Fine account of a three-year study of a colony of *Iridoprocne bicolor* in Kent, Conn. Boxes were erected in a favorable place by a river; ten pairs nested in 1937, 23 pairs in 1938 and 35 in 1939. (There were 30 pairs in 1940 after the severe winter in the South, but 50 in 1940.) There were 65 pairs of birds nesting on three and one-quarter acres. The swallows arrive in a small band about April 8; immature females (known by their plumage) come in late April; in mid-May there is a secondary flight made up of 40 per cent of immature females. (The male gets his mature plumage at less than one year.) These cause considerable disturbance; they may be non-breeders or may settle in a more northerly location. There is a mass departure from the colony on cloudy days, even though eggs are partly incubated, but the eggs do not seem to be adversely affected. Cooper's Hawks are attacked by the colony (p. 11).

Territory is restricted to the nest-box; both sexes fight for boxes, occasionally killing each other. They pay no attention to Barn, Bank and Rough-winged Swallows, but a female Purple Martin was set upon by the whole colony. There was competition between the Tree Swallows and Bluebirds. The mating call and note used when attacking the observer sounded the same; in both cases the bird is descending. Both birds build the nest. "Mature females were more efficient in nest-building than one-year-old birds" (p. 50). Nests of the latter were more fully lined with feathers than those of the former. Copulation takes place five and six days before the first egg is laid. Temperature, humidity and possible sunshine relations with egg-laying are discussed and the suggestion made that "the first egg is probably laid 6 days after the mean temperature of three successive days was 55.3° F., and the threshold decreased about 0.6° F. each day thereafter" (p. 23). However, in 1941, despite abnormally high temperatures in April and May, the Tree Swallows' first egg was laid May 6, corresponding exactly with the average of 1937-39. "On the other hand the Bluebird did respond to the higher temperatures, by laying its first egg on April 13, the previous earliest date in this study being April 21" (p. 48). It may well be that Bluebirds and Song Sparrows, both early nesters, are markedly affected by temperature in starting to lay, whereas with species that nest later, temperature makes little difference.

The age of banded birds at first laying ranged from 344-354 days. Normally the female does all the incubating, but in one case where the female died after three days of incubation, the male took over incubation and raised the young (p. 27). A few hours' observation on incubation rhythm showed an average of 10.9 minutes on the nest and 9.3 minutes off (p. 29). [The figure on p. 50 of nineteen minutes on the nest is a misprint.] Six to seven days elapsed between the loss of one set and the first egg of the second, except in three cases of subnormal temperature, when 8, 11 and 11 days intervened. The incubation period lasted 13 to 16 days, the average being 14.5 days.

The fledging period lasted 15-24 days, 18-20 days being usual. The average number of young raised per nest was 4.5. "Except for the first few days after the young hatch, the normal or average number of visits by both parents was approxi-

mately one visit every two minutes" (p. 33). Eight hours' observation on four nests showed that with a pair known to be first year birds, the male made seven visits to each one made by his mate; with a pair where the female was first year, the male's age unknown, he made three times as many visits as she; where the female was probably two years old she and the male fed equally; while a fully adult female outdid her mate.

Within a day or two of the fledglings' leaving, the adults definitely attempted to coax them out; they could be seen flying to the boxes without any visible food. "The adult would perch at the opening for a moment, flutter off, and then return" (p. 34). One fledgling flew a mile at the first attempt! Reproductive efficiency was excellent, for 72.1 per cent of the eggs laid resulted in fledged young. Ten per cent of the eggs were destroyed, probably by Tree Swallows. The reproductive efficiency of ten pairs in which one or both birds were fledgling returns was fully as high as that of the rest of the colony, 75 per cent. (The reproductive efficiency of 211 House Wren eggs was 55.9 per cent; that of 33 Bluebird eggs 51.5 per cent.) In 1938 108 fledglings were banded; of these eleven returned the following year—10.4 per cent. Five were males, six females. Twenty-seven per cent of banded adults returned. Plumage changes in banded fledglings are discussed. A well-planned and well-executed study, giving a wealth of information including comparisons with other studies.

**18. Three Long-tailed Tits Feeding One Brood.** J. A. Gibbs. 1941. *British Birds*, 35: 59. Three adult *Aegithalos caudatus rosaceus* were feeding eight young in the nest. At least six previous records of three adults at one nest and three records of four adults were given in *British Birds*, vol. 29, p. 80; since then there have been other records.

**19. Nesting of the Long-tailed Tit.** (Brut der Schwanzmeise (*Aegithalos caudatus*)). W. Vogt. 1941. *Ornithologische Beobachter*, 38: 137-139. A pair was watched at intervals while the female incubated. After the young hatched, a handsome male assisted in feeding the young and cleaning the nest. A fourth Titmouse entered the home tree and was driven off by the father of the family.

**20. An Instance of Mockingbird Bigamy.** Amelia R. Laskey. 1941. *Migrant*, 12: 65-67. A male *Mimus polyglottos* banded in September 1936 remained continuously on Mrs. Laskey's grounds through 1939; in this year he had two mates incubating eggs simultaneously 80 yards apart. Apparently the territory was divided between the two females. The second female lost her eggs and disappeared.

**21. The Cowbird at the Nest.** Harry W. Hann. 1941. *Wilson Bull.*, 53: 211-221. Three photographs were obtained as the result of great patience and persistence; two show a female *Molothrus ater* in Ovenbird's nests, and one taking an egg from an Ovenbird's nest. The female finds nests by watching the bird building; she watches intently, and "this doubtless stimulates the development of the eggs, which are laid four or five days later" (p. 220). She makes "regular trips of inspection to nests during the absence of the owners." She spends from a few seconds to a minute in the nest when laying; she comes very early, 27 minutes before sunrise on the cloudy morning of May 20. Eggs are removed 85 per cent of the times that eggs are laid; they are taken the day before or day after the egg is laid.

**22. The Cowbird.** F. M. Jones. 1941. *Oölogist*, 58: 117. Eight distinctive pea-green Cowbird eggs were found in West Virginia from May 5 to June 18, the last egg at this date being "incubated 3 days." The author considers that the bird must have laid over twenty eggs. The evidence, however, can be interpreted as showing three clutches, the first from May 5-10, the second including May 18, the last ending about June 15. This agrees with my findings in Ohio (1937: 155).

**23. The Number of Eggs Laid by Cowbirds.** David E. Davis. 1942. *Condor*, 44: 10-12. A study of the sectioned ovaries of eleven individuals of *Molothrus bonariensis* and one each of *M. rufo-axillaris* and *Agelaioides badius* gave evidence that these birds lay eggs in clutches of 4-5 eggs. It is suggested that my data (*Trans. Linn. Soc. N. Y.* 4, 1937) might be interpreted to indicate that, instead of sets of 5-6 eggs at intervals of 6-12 days, sets might consist of only five eggs at intervals as short as three days. I still prefer my interpretation. Further observations in the field and in the laboratory are needed.

**24. Analysis of Losses in the Nesting of Birds.** S. C. Kendeigh. 1942. *Journ. Wildlife Management*, 6: 19-26. A vast amount of data from the fifteen acres of Dr. Baldwin's country home at Gates Mills, Ohio; the outcome of 2,725 nesting attempts of 51 species of birds from 1921-1939. An abundance of nest boxes was constructed; cats, red squirrels and black snakes were controlled. Success was high, but it is impossible to compare it with other studies, since nowhere are the *total number of eggs laid and total number of young fledged given*, from which the percentage of "reproductive efficiency" can be obtained. In Table 4 the percentages are given, but not the numbers; for birds with open nests these run from 29 to 58 per cent, but without the numbers we cannot judge whether the average would be more or less than 43 per cent found in the six studies involving 1,994 eggs reported in *Trans. Linn. Soc. N. Y.* IV, Table XVII. Upon my request Dr. Kendeigh sent the total number of eggs laid by sixteen species, ranging from nineteen with Cardinals to 6,763 in House Wrens. "The number of young fledged in all successful and unsuccessful nests may be calculated from columns 1 and 4 in Table 4." Using these figures and calculating the number of young leaving the nests, it was found that from 2,033 eggs of nine passerine species in open nests 964 young were fledged, or 47.7 per cent reproductive efficiency. If 122 eggs of Mourning Doves and Chimney Swifts are added, reproductive efficiency for 2,155 eggs in open nests of eleven species of altricial birds come to 46.9 per cent.

As to the five hole-nesting species, 5,561 young were fledged from 7,429 eggs, 74.8 per cent of success. Both these figures of reproductive success are somewhat high, due perhaps to the elimination of the worst natural enemies. With House Wrens 89 per cent of the nestings of the first brood were successful, and 80 per cent of the second. In House Wren nests the average daily rate of loss was 2.4 per cent during nest building, 2.2 during egg laying, 1.2 during incubation, and 0.5 during nestling life. A higher percentage of infertile and addled eggs were found with the House Wren when laid at temperatures below 58° F. and above 70° F. In successful nests, at medial air temperatures from  $5.3 \pm 1.6$  eggs failed to hatch; at higher and lower temperatures, from  $8.5 \pm 3.4$  to  $8.9 \pm 4.4$ .

No. 53 is an outstanding life history study.

#### TERRITORY

**25. The Role of Territory in Bird Life.** M. M. Nice. 1941. *American Midland Naturalist*, 26: 441-487. A history of the theory of territory is given from 1622 to the present time. Altum in 1868 presented the theory in detail, but his work was unknown outside of Germany. In 1920, Howard with "Territory in Bird Life" brought the matter to the attention of the ornithological world. Of the titles included in the bibliography 34 appeared before the publication of this book and 344 since then.

Six types of territory are distinguished: mating, nesting and feeding ground; mating and nesting, but not feeding ground; mating station only; restricted to narrow surroundings of nest; winter territory; roosting territory. These types are not rigid; some birds belong to one type in one place and to another in another; some birds are difficult to assign to a type. "With such a broad concept of territory, non-territorial birds are rare, the Cowbird and some Parakeets being our chief examples."

"Territorial behavior is based primarily on a positive reaction to a particular place and a negative reaction to other individuals. Conditioning to an area puts an animal into the best stimulus situation; the support from the familiarity of the environment enables it to be dominant there. In the case of the nesting territory, the male's fighting reactions are intensified through his instinct to protect his mate, nest and young. Territory serves as a device for regulating despotism and a safeguard against interference in the nesting cycle. It also serves in many cases to bring the sexes together and to assist in the formation of sexual bonds."

**26. Red-wing Observations of 1940.** Ernst Mayr. 1941. *Proc. Linn. Soc. N. Y.*, 52-53: 75-83. Observations of territory establishment and defence by *Agelaius phoeniceus* in several swamps. Two of three males were polygamous. Contrary to Darling's hypothesis that "on account of mutual stimulation, breeding starts earlier in larger colonies than in smaller ones", it was found that laying "started earlier in several smaller colonies than in a large one", because of ecological conditions. In territorial encounters driving away was effected by "threatening postures (with showing of the red shoulder patches)" (p. 79).

**27. Birds and Their Reflections.** K. A. Hindwood. 1941. *Proc. Roy. Soc. N. S. Wales*, 1940-41: 20-29. Instances of birds, mostly Australian, attacking their reflections, in particular male and female Blue Wren (*Malurus cyaneus*) and Magpie Lark (*Grallina cyanoleuca*). A male Grey Thrush (*Colluricincla harmonica*) brought "butter, insects, crumbs and brightly-colored petals" to his image. "He mates normally and brings his mate to witness the show, but she has never shown any great interest." The sexes differ in bill color, and somewhat in coloring of the underparts, but the male's behavior was apparently courtship in contrast to the territorial animosity usually shown. Some birds died from their mistaken jealousy. Interesting pictures are shown of the species mentioned above.

See Nos. 17, 20, 34 and 53 for other references to territory.

#### BIRD BEHAVIOR

**23. The Fishing Activities of Double-crested Cormorants on San Francisco Bay.** Geo. A. Bartholomew, Jr. 1942. *Condor*, 44: 13-21. Interesting article based on detailed observation of fishing technique of *Phalacrocorax auritus*, especially in the large flocks where the birds form a long narrow line at right angles to their movements. They swim rapidly, dive to get fish, and fly to catch up again. In small flocks, the manner of fishing is different; swimming is slower, and instead of a line, the birds form a circle.

**29. Studies on the Flock Organization of the White-throated Sparrow, *Zonotrichia albicollis*.** J. P. Wessel and W. H. Leigh. 1941. *Wilson Bulletin*, 53: 223-230. The most aggressive bird was a female. In other groups males were sometimes top birds, in one this was true of a female and in another of a single-testis bird. In all groups the bottom bird was a female. "In general there is a correlation between position in the social order and time of feeding and bathing. The alpha birds generally feed first. In none of the experiments did the low birds bathe at any time during the observations." They remembered each other after absences of eleven and seventeen days. Peck-right was found in flocks of 3, 5 and 6 birds. There were two triangles in the six bird flock.

**30. Honeyeater and Ants.** P. A. Bourke. 1941. *Emu*, 41: 163-164. A Lewin Honeyeater (*Meliphaga lewini*) picked up large ants (*Campanotus*), held them a second or two, placed them under its wings and ate them. A Rufous Whistler (*Pachycephala rufiventris*) anted, but dropped the ants to the ground.

**31. Roosting Habits of the Chesnut-backed Chickadee and the Bewick Wren.** Laidlaw Williams. 1941. *Condor*, 43: 274-285. A total of 135 observa-

tions were made from June 28, 1940 to March 31, 1941 at five roosting places of *Penthestes rufescens* and three of *Thryomanes bewicki*; photographs are given of sleeping birds and roosting sites. "All the chickadee roosts were close under the eaves of buildings." A female's roosting time averaged 21.5 minutes before sunset, some ten minutes before that of her mate. (These birds were paired in November, started building March 9, the female first roosted in the nest box on March 18 and laid the first egg March 24.) The wrens roosted on the sides of buildings and underneath "a canopy of fallen dead needles on a Monterey pine bough." The average time of a female wren's roosting was about sunset, while that of a male was 12.3 minutes after sunset. Males of both species accompanied their mates to their roosts, then left to roost elsewhere. The wrens gave harsh "territorial" notes before going to roost, although no other birds were present. Light measurements were made in candles per square foot by a Weston Model 650 Universal Exposure Meter directed "as nearly toward the zenith as possible as standard reading places where the light from the sky was unobstructed" (p. 274). It was found "that the birds tended to come to roost at somewhat higher light intensities in rainy weather" (p. 284).

**32. Some Observations on Roosting Birds.** M. H. Dunsheath and C. C. Doncaster. 1941. *British Birds*, 35: 138-148. Observations on roosting places, manner of roosting, height of the roost, and wakefulness of a number of common species. Sometimes several Wrens (*Troglodytes t. troglodytes*) were found roosting together, once as many as nine being found in an old Song Thrush's nest only an inch below the tile roof of a farm building.

**33. The Instinctive Nature of Nest Sanitation.** Stuart Smith. 1941. *British Birds*, 35: 120-124. When the author opened up a Yellow Wagtail's (*Motacilla flava flavissima*) nest for photographic purposes, the male parent picked up and carried away small balls of lime within a foot of the nest. A description is given of various parent birds prodding the young "to induce defecation", and also tugging at down on the nestlings' back.

**34. Habitat Selection Among Higher Vertebrates and its Relation to Intraspecific Variation.** Alden H. Miller. 1942. *American Naturalist*, 76: 25-35. Habitat selection "might appropriately be called perception of adequate environment" (p. 29). It depends on an "automatic, instinctive reaction . . . to a few key aspects of the environment." Olive-sided Flycatchers (*Nuttallornis mesoleucus*) normally nest on the Pacific coast in "forests of tall, fairly open coniferous trees"; recently they have "invaded the plantings of tall eucalyptus in the cool coastal belt"; apparently here the key aspect was the height of the trees. "This instinct is just as much a part of the vital equipment of the species as a structural adaptation."

"Song Sparrows have broken up into about 28 races on the North American continent, whereas Lincoln's Sparrows [of the same genus] have divided into but three. The Lincoln's Sparrow, apparently through habitat selection, adheres to a more sharply circumscribed environment than do the Song Sparrows, whose selecting instincts have permitted pioneering of somewhat diverse situations, thus opening up to the species new geographic areas and new possibilities of adaptational adjustment. Establishment of numerous geographically and ecologically isolated colonies of the Lincoln Sparrow has been thwarted by the rigid adherence to a certain type of fresh-water marsh" (p. 33).

Habitat selection involves learning as well as instinct. "Habits and associations with respect to environments and particular landmarks are passed on non-genetically from generation to generation. Cultures or societies are formed in higher vertebrates, as indeed in humans, and temporary barriers are set up." In the case of corvids, "Instinctive is the tendency towards gregariousness and returning to familiar habitats and roosts, but the particular societies and roosts to which each group is limited are a matter of learning" (p. 35).

For other references on bird behavior see Nos. 8, 9, 12, 35, 48, 50 and 53.

### PHYSIOLOGICAL EXPERIMENTS

**35. Sexual Behavior of Intersexual Domestic Fowl.** L. V. Domm and D. E. Davis. 1941. *Proc. Soc. Exp. Biol. & Med.*, 48: 665-667. Intersexual birds are "produced by the injection of estrogens into the eggs on or before the fourth day of incubation"; males develop into intersexes of varying degrees of femininity. They were tested with a rooster, a hen and a stuffed dummy; their behavior showed "gradations from essentially normal masculine copulatory patterns to neutral or inactive behavior, coinciding in general with the degree of masculinity of plumage." One of the most interesting portions of the paper is that describing the normal method of sex recognition with domestic fowls. "The sex of a newcomer is determined by behavior. The rooster 'waltzes,' . . . thereby inducing the newcomer to either squat or raise the hackle feathers. When a bird is introduced to a rooster, he at once pursues, seeking to determine its sex. If it is a receptive female, she squats for copulation. If, on the other hand, it is a male, it raises the neck hackle and thereupon begins a fight which settles its social rank in the group." This "waltzing" of the rooster has always been considered a "sex-invitation" (see No. 37); apparently it corresponds instead to Tinbergen's "First Reaction" of the Phalarope and Snow Bunting, (1939, *Trans. Linn. Soc. N. Y.* 5).

**36. The Sexual Behavior of Hormonally Treated Domestic Fowl.** D. E. Davis and L. V. Domm. 1941. *Proc. Soc. Exp. Biol. & Med.*, 48: 667-669. "Both androgen and estrogen, injected into capons, induced the masculine copulatory behavior but only androgen induced crowing and increased or induced the 'tidbitting' and 'waltzing'. In bilaterally ovariectomized poulards, androgen induced crowing and waltzing but did not induce the masculine copulatory behavior, while estrogen, on the contrary, induced the feminine squatting behavior. These results would seem to suggest that certain behavior patterns are common to both sexes of the fowl and may be induced by the appropriate hormone. The masculine copulatory behavior can be induced by both androgen and estrogen but only in genetically determined males." The poulards injected with androgens "violently pecked the normal female and the dummy", The term "tidbit" is used for the behavior when the rooster calls hens to a "real or imaginary morsel." "The 'tidbit' is considered a substitute activity frequently observed when the rooster is frustrated."

**37. Induction of Mating Behavior in Male and Female Chicks Following Injection of Sex Hormones.** G. K. Noble and A. Zitrin. 1942. *Endocrinology*, 30: 327-334. Two day chicks injected with testosterone propionate crowed forty hours afterwards; fifteen-day chicks injected with sex hormones showed complete sex behavior.

### ECOLOGY AND NUMBERS

**38. A Wildlife History of Faville Grove, Wisconsin.** A. S. Hawkins. 1940. *Trans. Wisconsin Acad. Sci. Arts and Letters*, 32: 29-65. A painstaking reconstruction from early records and from recollections of pioneers of primitive conditions and a comparison with the present status. A very interesting, but depressing record of the flora and fauna for the past 100 years—a sad tale of impoverishment due to settling of the lands and reckless abuse of wildlife. Of 171 breeding birds present during the last century, 51 have been lost—30 per cent! Of game birds, Bobwhite were and are still uncommon; Ruffed Grouse, Prairie Chicken, Canada Goose, Wood Duck and Passenger Pigeon are now gone; the Pheasant and Hungarian Partridge are new and common. Welcome additions to the fauna are the Dickcissel, Tufted Titmouse, Red-bellied Woodpecker and Cardinal that have extended their range northward. "As in plants, the greatest gains have been made by 'weed' species, such as English sparrows, starlings, carp, Norway rats, and house mice" (p. 42).



**39. Spread of the Hungarian Partridge in Wisconsin.** Aldo Leopold. 1940. *Trans. Wisconsin Acad. Sci., Arts and Letters*, 32: 5-28. Some 5,000 *Perdix perdix* were introduced from 1908-1929 and have spread as far as 102 miles northwest. The furthest spread occurred in 1935-36. "The impulse to venture forth is born of adversity—either the adversity of too many neighbors, or the adversity of killing weather. Each adventure is a blind groping for pastures new, repeated until a favorable year and a good location happen to coincide and bring success." "The location of outthrusters is not selective, for they blindly invade sterile, wooded, marshy, or sandy terrain. Survival, however, is highly selective, and is confined to the richest agricultural soils."

**40. Fall and Winter Mortality among Hungarian Partridges in Bottineau and McHenry Counties, North Dakota.** M. C. Hammond. 1941. *Journ. Wildlife Management*, 5: 375-382. Known mortality factors were automobiles, elevated wires, and predators. The average count per covey was 12.62 in September 1938, and 10.11 in February 1939; 10.07 in September 1940 and 8.21 in February 1941. "Even during periods of deep snows and extremely low temperatures, all partridges examined [killed by accident] were in very good physical condition, while pheasants in the same localities were often found to be thin and sometimes, apparently, were starving," (p. 376).

**41. A Raptor Tally in the Northwest.** Aldo Leopold. 1942. *Condor*, 44: 37-38. One raptor was counted to each ten miles of daylight travel through Utah, Nevada and Oregon, July 20 to Aug. 8, 1941. From none to 98 were seen per day. Vultures were omitted and also owls seen at night. There were five concentration areas, all on refuges, all had good stands of grass. "These were the only areas of well grassed open country we saw. Most of the intervening terrain was overgrazed and devoid of perennial grasses, and it was devoid of raptors." Surely a shocking situation. An extraordinary concentration of Short-eared Owls was found in Oregon; 320 were seen in sixteen miles of night driving, gathered to feed on a high population of mice. The raptors were: 87 Sparrow Hawks, 58 Marsh Hawks, 106 Buteos, 37 Short-eared Owls, only 1 Burrowing Owl, 3 Goshawks, 1 Duck Hawk, 1 Prairie Falcon.

**42. An Analysis of Waterfowl Hunting at Lake Carl Blackwell, Payne County, Oklahoma.** F. M. Baumgartner. 1942. *Journ. Wildlife Management*, 6: 83-91. From 1,000-5,000 waterfowl have frequented this artificial lake (made in 1937) in the fall, 2,000 wintered. Wood Ducks have nested in the drowned trees. The north half is a sanctuary. During the hunting season, 2,086 waterfowl were brought to bag, "probably an equal number were killed, directly or indirectly." A list of eighteen species is given; Green-winged Teal, Redhead and Ruddy were shot out of proportion to their numbers. Several hundred Coot and probably fifty mergansers were also shot, but not brought in. It is estimated that "2.8% of the ducks that stopped at the lake were killed by hunters."

**43. Ornithological Observations in Southern India.** (Observations on Ornithologiques dans le Sud de l'Inde.) J. Berlioz. 1940. *L'Oiseau*, 10: 298-333. Two biological extremes were visited, humid equatorial and desert regions; in both the town birds were the same: House Crows (*Corvus splendens*), Black Kites (*Milvus govinda*)—both habitual parasites of human habitations, Mynahs (*Acridotheres tristis*), and Collared Parakeets (*Psittacula krameri*), besides Sparrows (*Passer*) and White-rumped Swifts (*Micropus affinis*). Almost everywhere there is destruction of native habitats for raising tea or for industry—a discouraging picture.

**44. Ticks Affecting Birds' Eyesight.** Ruth H. Thomas. 1941. *Auk*, 58: 590-591. Of 1,253 birds banded in Arkansas, twenty were infested with ticks around the eyes; some the bander was able to save, others were blinded.

**45. Eleventh Annual Black Brant Census in California.** James Moffitt. 1941. *California Fish and Game*, 27: 216-233. A total of 61,339 *Branta bernicla nigricans* was counted on the California coast Feb. 10, 1941; this is somewhat above the 10-year average of 57,344 birds, but "19 per cent less than the 1940 result of 75,412 brant." Black Brant showed changes in habits, due to the eelgrass shortage, such as feeding on golf courses and pastures, as well as on pickle-weed. "The brant's winter range on the Pacific and Atlantic coasts of North America corresponds with the distribution of eelgrass" (p. 228).

**46. Eelgrass Depletion on the Pacific Coast and Its Effect upon Black Brant.** James Moffitt and Clarence Cottam. 1941. *U. S. Fish and Wildlife Service, Wildlife Leaflet No. 204*: 1-26. A detailed account with a long bibliography on the disappearance by disease of *Zostera marina*. "More than 90 per cent of the plant growth abruptly died out on the coasts of the north Atlantic Ocean from 1931 to 1933, and its recovery was slow and sporadic until 1939. Since that time recovery has been encouraging, the best improvement being in areas of reduced salinity. . . . The depletion of eelgrass on the North American coast of the Atlantic had a very serious effect upon sea brant, causing a reduction of perhaps 80 per cent in the entire population wintering in the region. Since 1938 a gradual decrease in the abundance of eelgrass has been in evidence on the Pacific coast of the United States. . . . It is doubtful, however, that the situation will become as serious as that which developed in the East from 1931 to 1938, because of the more gradual and less virulent attack of the eelgrass disease on the west coast, and because rock grass, which is fairly common in favorable rocky habitats, is known to be an acceptable substitute for eelgrass in the diet of the brant" (p. 21).

#### BIRDS AND THEIR FOOD

**47. Notes on the Food of the California Clapper Rail.** James Moffitt. 1941. *Condor*, 43: 270-273. Examination of 18 stomachs of *Rallus o. obsoletus* showed that the exotic horse-mussel (*Modiolus demissus*) constituted 66 per cent of the animal food. This Rail is a "threatened species", greatly reduced in numbers in the last fifty years, with a "spotty" distribution on San Francisco Bay.

**48. On Piping Plover Feeding.** J. T. Nichols. 1941. *Proc. Linn. Soc. N. Y.*, 52-53: 130. Several *Charadrius melodus* were noted "treading" in the water with one foot, obviously "to start small amphipods or what not into active movement at the surface within range." "It would be interesting to know how common such action is with plover. Apparently at least one other shorebird feeds in this manner, since E. H. Forbush (1912) describes observing the Solitary Sandpiper (*Tringa s. solitaria*) stirring up algae at the bottom of a ditch or pond with the rapid and gentle movement of one foot." On June 6, 1939 as I was sitting in the woods above Wintergreen Lake, Augusta, Mich., a Killdeer (*Oxyechus vociferus*) alighted on the shore; probed for a second or two, then looked about. As it stood there it lightly paved the soft mud with one foot, then the other. This was new behavior to me; never before had I watched a Killdeer completely at ease.

**49. Crows (Carrying Off) Potatoes and Maize.** (Krähen (*Corvus corone* L.), Kartoffeln (*Solanum tuberosum*) und Mais (*Zea mays*)). W. Vogt. 1941. *Ornithologische Beobachter*, 38: 141-142. Carrion Crows in Switzerland were seen carrying off potatoes in their bills, also half of a corn cob.

**50. Predation of Boat-Tailed Grackles on Feeding Glossy Ibises.** A. Sprunt, Jr. 1941. *Auk*, 58: 587-588. Flocks of *Plegadis f. falcinellus* feed on crayfish in Florida and are attended by large numbers of *Cassidix mexicanus westoni*. Whenever an ibis would get a crayfish, it would spring into the air, followed by three or four grackles that would usually get the prey. "Sometimes, these battles would take place a few feet above ground, sometimes as much as

fifty, sixty or a hundred, but only in the rarest instances did the ibis succeed in getting away with its catch!" "It would seem that the ibises could easily have swallowed their catch on the ground."

## BOOKS

**51. The Handbook of British Birds, Volume V. Terns to Gamebirds.** H. F. Witherby, F. C. R. Jourdain, N. F. Ticehurst and B. W. Tucker. 1941. H. F. & G. Witherby Ltd., 326 High Holborn, London, W. C., England. 356 pp. 21/. The last volume of this superb set has now appeared. It treats the Gulls, Terns, Auks, Rails, and Gamebirds. It also includes 27 pages of Additions and Corrections, which bring the volumes up to date to March 1941, the Systematic List (see No. 52), and Indices. Throughout the work the plan is as follows: under each bird are given—Habitat, Field characters and general habits, Voice, Display and posturing, Breeding—including nest, eggs, breeding-season, incubation (length and by which parent), fledging—Food, Distribution, Migrations—often with maps and giving results of banding—, Distribution Abroad, detailed Description, Characters and allied forms. Excellent plates in color by M. A. Kockock illustrate practically all possible plumages.

This set is undoubtedly the highest achievement yet made in a treatise on the birds of a country, for it gives a maximum of dependable information in succinct form on the *living bird*. It may well serve as a model and an inspiration for ornithological work in the rest of the world. I wish that in our country, instead of lavishing time and money on elaborate State books that are handsome to look at, but really do little to advance our knowledge, that field students would get together to work for a *real handbook* that would give *definite* information on fundamental problems, not hearsay nor guesses nor errors repeated for a hundred years.

Mr. Witherby writes me that "in the Handbook we included and treated fully 170 birds also included in the A. O. U. Check List and besides them there are 30 others with nearly allied subspecies on your list." So for many of our own birds the Handbook of British Birds has amassed more information than we can find in any one volume in any American work. The price of the set is 5 pounds; with the rate of exchange it comes to a little over \$23.00. American dollars to England will help win the war. This Handbook in our Universities, libraries and studies of serious students of life history problems will be an invaluable asset.

**52. A Check List of British Birds.** With a Short Account of the Status of Each. (Revised Edition). Compiled from "The Handbook of British Birds." H. F. Witherby. 1941. London. Witherby. 78 pp. 5/. A very convenient small book with scientific and English names and a brief statement as to status. The fact that every other page is blank makes it suitable for "reference notes, local lists, labelling, etc." A total of 520 forms is listed, of which 219 "breed or have bred in the present century", 82 are "regular winter-visitors and passage-migrants" and 238 are "occasional and irregular visitors," while one, the Great Auk, is extinct.

**53. The White-crowned Sparrows (*Zonotrichia leucophrys*) of the Pacific Seaboard: Environment and Annual Cycle.** Barbara D. Blanchard. 1941. *Univ. California Publ. Zool.*, 46 (1): 1-178. \$2.00. An outstanding paper, combining field observation and laboratory technique, life history study and histological examination of collected specimens. Two races of white-crowns winter in the Berkeley region, *nuttalli* being resident, while *pugetensis* breeds in Puget Sound. Elsewhere (*Wilson Bulletin*, March, 1942) I have reviewed the portions on morphological differences between the two races and the studies of the gonad cycles; here I will give some of the highlights on life history. Colored bands were used on both races on their breeding territories.

The annual cycle of the Nuttall Sparrow is divided into four periods: base level of fall and winter; rising tide of territorial and sexual instincts; reproduction; and

subsidence. During the first period birds stay on their territories of 0.9 to 1.7 acres; mates keep together, calling *eep*. There is "more or less passive limitation of pairs to their breeding areas in winter, with almost complete tolerance of sojourning strangers" (p. 16). A female defending a bush of pyracantha berries from a neighbor male sang as loudly as he. The "song of the female is identical in pattern with that of the male but is usually fainter, more rapidly uttered, and often incomplete." The immatures are sedentary; they are "individuals foraging on common ground, unified only by fright." Their song is weak and hesitating; the earliest adult song from a juvenile came Nov. 10, the latest immature song was heard Jan. 9; most sing "adult song by early or middle January, when the establishment of territory begins."

In the second period, the male—in January—drives off other birds with song and pursuit; then if he is mated, song ceases. Loud singing, chasing and fighting lasts 22–28 days (this is when immatures and mateless birds get mates); there is then an interval of 46–58 days before song again appears at the start of incubation. The female shows no territorial jealousy except in cases of polygamy. "Her weak song, which continues until nesting time, is not used for advertisement or warning" (p. 20). She does not join in fights and rarely in chases; she usually trills and postures vigorously, "a little apart from the conflict." With the male "Song may express . . . defiance or warning to territorial rivals, the longing for a mate, sexual excitement, concern for territorial boundaries (accompaniment of patrol), eagerness for the female's return to her eggs, and fright or physical shock."

As to reproduction, the female builds and the male watches. One female objected to the observer approaching the nest site six days before real work started. First year females average 3 eggs per set, older females 3.29 eggs. The female incubates for twenty minutes and leaves for seven minutes; the male does not call her off. The male's attention is shifted "to the territory, which he guards by loud, continuous singing and patrol." The young leave at ten days; they are fed till 32–35 days old and then chased and fought by the parents. They wander until the post-juvenile molt, then settle down. Sometimes three broods are fledged.

As to the Puget Sound Sparrow, its breeding behavior is similar, but not so leisurely; there is overlapping of broods and the young become independent at the age of 25–28 days. They take up territory, pair and fledge three broods in four months, while the Nuttall Sparrow does the same in 6.3 months. In the winter there is no tendency to remain paired, but birds do return to the same foraging and roosting spots year after year. "The flocks of Puget Sound Sparrows show a continuous simultaneity, a common responsiveness, producing true flock reactions" (p. 39).

More than half the volume is devoted to a detailed study of the male gonad cycle, which should be read in full and carefully studied. The two races of white-crowns, exposed to the same environmental influences during the winter, show markedly differing rates of gonadal development. This is a notable study, full of valuable first-hand observations.

**54. The Grebes. Studies of Waterfowl in British Columbia.** J. A. Munro. *Occasional Papers of the British Columbia Provincial Museum*, No. 3: 1–71. Five of the six North American Grebes inhabit British Columbia. "The purpose of this paper is to present (a) a summary of their known distribution and seasonal movements in the Province, (b) a contribution to the study of moults and plumages in the case of two species [Horned and Eared] and (c) life history observations of interest to the ecologist." A great deal of information along these lines is given for the five species. In a general discussion of "Factors Restricting Increase of Grebes", it is pointed out that although grebes lay from two to seven eggs, very few young appear to be raised. "It is believed that in some years at least the total of young surviving is less than the total of breeding pairs" (p. 59). There is some loss of eggs through crows and some through flooding, but

probably more loss comes through mortality of the young. "For the first few days of life young grebe are weak swimmers, so feeble that on open water after they have tried to escape by diving several times it is an easy matter to capture them by hand. At this stage some become entangled in floating algae or submerged vegetation and have not the strength to extricate themselves. Wind, rough waters and heavy rains are other causes of loss. In comparison with young ducks of the same age they are relatively helpless and much less able to overcome the normal hazards of the nesting ground. Parent grebes carry the young on their backs but in other ways exhibit little evidence of care for them, so different from the energy with which female ducks of some species defend their broods" (p. 61).

Young grebes one-fifth to one-quarter grown are often found dead on the nesting grounds, apparently as a result of head injuries. It is suggested that they may have been fatally struck by adults when attempting to climb on their backs, this habit having persisted "even though the parents have become less tolerant." Many Holboell's and Western Grebes die from the effects of internal parasites. "While destructive factors operate upon the young to such an extent that a very small percentage are raised, there is compensation in the probable longevity of healthy adults. They have few natural enemies and "are not subject to loss through hunting." Thus an optimum population appears to be maintained from year to year" (p. 63).

**55. "America, My Country." Our People's Heritage.** National Audubon Society, 1006 Fifth Ave., N. Y. 48 pp. A plea for vigilance in defending what is left to us of our once vast heritage of wilderness and wild life. When geologists tell us "for hundreds of millions of years to come, the earth will continue to be a comfortably habitable abode for creatures like ourselves" (Mather 1941), what is there going to be left of interest and variety, of beauty and unspoiled nature in this inconceivably long stretch of years to come?