RECENT LITERATURE

Edited by BERTRAM G. MURRAY, JR.

BANDING AND LONGEVITY

1. Capturing Black-billed Magpies with circular live traps. D. E. Alsager, J. B. Stenrue, and R. L. Boyles. 1972. *J. Wildl. Manage.*, **36**(3): 981-983.—The authors describe and figure a trap with which *Pica pica* was captured more successfully than in square or rectangular traps. They suggest that the absence of sharp corners on the trap was the source of the increased efficiency of the trap.—Roger B. Clapp.

2. Bibliography on methods of analyzing bird banding data. D. R. Anderson. 1972. *Spec. Sci. Rept.—Wildl. No. 156*, Bureau of Sport Fisheries and Wildl., Wash., D. C., 13 p.—This bibliography lists 192 titles and is directed primarily toward estimations of population size and survival. In his introduction, Anderson briefly remarks on recent statistical work pertaining to his topic and recommends a series of papers for reading by those of us who are not familiar with recent developments in population analysis. This paper clearly should be part of the library of any bander who wishes to analyze his data with the best techniques available.—Roger B. Clapp.

3. Modifications of the cannon net for use with Cowbird studies. K. A. Arnold and D. W. Coon. 1972. *J. Wildl. Manage.*, **36**(1): 153-155.—The principal modification was the use of monofilament netting rather than more heavy commercial netting. Only two rockets were needed for the vehicle mounted net which averaged a catch of 98 birds (ca. 80%) in seven of the feeding flocks of *Molothrus ater* on which the technique was tested.—Roger B. Clapp.

4. Recent Saskatchewan banding of the White Pelican. C. S. Houston. 1972. *Blue Jay*, **30**(1): 24-27.—Through 1964 a total of 4,159 *Pelecanus erythrorhynchus* were banded at various lakes, and 309 (7.4 per cent) had been recovered. This brief paper maps the 120 recoveries obtained from 1,868 birds banded by Houston since 1954. Most birds evidently migrate south along the central flyway and winter along the Gulf of Mexico, but a small proportion, particularly those from Crane Lake, the southwesternmost banding locality, might migrate along a more western route and winter along the Pacific coast of Mexico and south to El Salvador.

Several longevity records are also given, one pelican having been found dead 12 years and three months after it was banded as a flightless young bird.—Roger B. Clapp.

5. Longevity in a captive Sparrow Hawk. E. Kuyt. 1972. *Blue Jay*, **30**(3): 197.—A *Falco sparverius* banded as an almost fully-feathered nestling on 24 July 1960 near or at Yellowknife, Northwest Territories, died in captivity on 18 April 1971, nearly 11 years after banding by my calculation. (The author states that the bird was "almost 12 years old.") Strangely enough, the bird was reportedly captured as an adult on or about 1 July 1960, a conflict in the banding data that the author was unable to resolve.—Roger B. Clapp.

6. Bird-banding at Powdermill, 1971, and ten years reviewed. R. C. Leberman and M. H. Clench. 1972. *Powdermill Nature Reserve* (Carnegie Museum, Pittsburgh) *Research Report No. 30*, 42 p.—This report summarizes the activities of this busy and productive long-term banding station. Besides the usual information, such as banding totals by species by year, returns, and recoveries, the authors have included age records, accounts of the more interesting recoveries, a report of research in progress, and a selected bibliography of papers using Powdermill data. Research continues on criteria for determining age and sex of live birds, differential migration (geographical, seasonal, sexual), and pneumatization of skulls, although no data are presented in this report. Also included is a bar graph indicating the times of peak banding activity for each species.—Bertram G. Murray, Jr.

7. A difference in band loss from male and female Red-billed Gulls *Larus novaehollandiae scopulinus*. J. A. Mills. 1972. *Ibis*, **114**(2): 252-255.—Yet another problem has arisen to plague banders attempting to determine survival and population structure of gulls. In a study conducted on the Kaikoura Peninsula, New Zealand, Mills found that females lost a much higher proportion of bands than did males, irrespective of band type or composition. Depending on the composition of the bands, 89-95 per cent of the butt end bands on females were lost over a period of 9-10 years as opposed to 29-49 per cent for males. Survival of lock-on bands for the same period was much greater (a loss of 24 per cent for females versus one per cent for males).—Roger B. Clapp.

8. Use of the cannon-net in Ring-billed Gull colonies. W. E. Southern. 1972. *IBBA News*, **44**(3): 83-93.—This paper discusses the technique by which Southern and his associates banded 6,189 adult and subadult *Larus delawarensis* in Michigan colonies from 1963 through 1971. Information is given on the construction or purchase of needed apparatus, on use of the net, and on precautions necessary to prevent undue disturbance of colonies. Southern's remarks should prove most useful to anyone who intends to initiate a cannon-netting operation.—Roger B. Clapp.

MIGRATION, ORIENTATION, AND HOMING

(See also 4, 12)

9. Ecological features of European Sparrowhawk migration. (Ekologicheskie osobennost migratsii yastreba-perepelyatnika.) L. Belopolskii. 1972. *Ekologiya*, **3**(2): 58-63. (In Russian.)—Analyses of 10 years of *Accipiter nisus* migration at the Courish Spit, Baltic coast, 1958 to 1968, are summarized. A total of 795 were trapped and banded, 93.2 per cent of all raptors captured there. There were 71 (8.9 per cent) recoveries, compared with only 1.5 per cent for passerines. The general direction was southwest. The average male migration distance was 1,328 km, of females, 927. Greatest distances were 2,660 and 1,850 km, respectively. In addition to local populations, breeding birds of the Finnish, Leningrad, and Novgorod regions, 65° 28′ and 58° 37′ N, were caught also. Spring migration begins in late March, is highest in late April, and tapers off in June. Fall migration starts in late July, is highest in mid-October, and ends in mid-November. The crest of movement accompanies or closely follows the peak of general passerine migration. Data indicate the winter ranges of the sexes do not coincide.—Leon Kelso.

10. Homing of pigeons after extirpation of their cochleae and lagenae. H. Wallraff. 1972. *Nature, new. biol.*, **236**(68): 223, 224.—In consideration of the possibility that the cochlea, and its terminal part, the lagena, might be responsive to pressure and low frequency waves, and thus afford spatial orientation, bilateral removal of these elements was performed on homing pigeons. Returns to home stations from releases up to 150 km by experimental birds showed that cochleae and lagenae take no part in distance navigation.—Leon Kelso.

POPULATION DYNAMICS

(See also 24)

11. Effect of a catastrophic hailstorm on bird populations. D. D. Dow. 1972. *Emu*, **72**: 22-23.—An unusual storm resulted in the deaths of 41 Black-winged Stilts (*Himantopus himantopus*), about 20 per cent of the local population, and the destruction of five active nests of the Noisy Miner (*Myzantha melanocephala*).—Bertram G. Murray, Jr.

12. Size, migration pattern, and structure of fall and early winter blackbird and Starling populations in western Oklahoma. S. V. Goddard. 1971. *Wilson Bull.*, **83:** 371-382.—Populations of Cowbirds (*Molothrus ater*), Red-winged Blackbirds (*Agelaius phoeniceus*), and Starlings (*Sturnus vulgaris*) were monitored by roost counts and road counts during the late summer, fall, and winter months of 1964-65 and 1965-66 on the Washita National Wildlife Refuge. Road counts averaged about 50 per cent of roost counts which were assumed to be the actual population size. Early September populations in both years were larger than local reproduction could have produced. The populations increased irregularly to peaks of 250,000 individuals in early November 1964, and 913,000 in mid-December 1965, after which they declined to 15,000 in early January 1965 and 5,000 in late February 1966. Total population levels given in Tables 3 and 4 are somewhat misleading because they are sums of weekly observations and do not account for birds that might have been counted more than once. Species composition and age and sex ratios varied in parallel between years. The emerging pattern is one of a constantly changing and very large population in the area. The blackbirds ate about two-thirds of the sorghum crop in observation fields and all of that grain grown by several local farmers. Damage is highest in those years when wet weather delays harvest until late October when the birds are reaching peak concentrations. Grain consumption by blackbirds forced waterfowl to seek food outside the refuge and exposed them to greater than normal hunting pressures. Comparison of these data with observations from other areas of the Southeast and northern Mexico would provide a much clearer understanding of the dynamics of blackbird populations in the nonbreeding season.—Paul B. Hamel.

NESTING AND REPRODUCTION

(See also 16, 17, 21, 24, 27)

13. Breeding success and territorial behavior of male Boat-tailed Grackles. O. B. Kok. 1972. *Auk*, **89:** 528-540.—Kok has attempted an analysis of factors contributing to the breeding success of male *Cassidix* (*Quiscalus*) *mexicanus* and used sexual selection theory to interpret the findings. Based upon detailed observations of nine males his analysis tests seven variables as possible correlates of breeding success: number of nests, territory size, per cent time on territory, average number of flights per hour, average number of songs per hour, song duration, and median number of terminal phrases per song. Only the number of nests is significantly correlated with fledging success. The other results, although inconclusive, would repay further investigation because they are based upon a small sample of breeding males. In addition to the small sample used, the chief deficiency of this paper is the questionable use of ordinal data. Kok compiles an "overall performance level" sum of ranking values for the seven variables and uses this as his index for comparing males. It is not clear how he assigned the ranks and subsequently obtained the sums of ranks. Summing ranks for different variables yields meaningless results because the differences between ranks cannot be assumed equal for all variables. An examination of his Table 1 indicates that the intervals between adjacent ranks are comparable neither within nor between variables. He suggests that because of the highly aggressive context of full song in grackles, the number of solicitation calls per hour would be another appropriate vocalization to examine in relation to breeding success.—Paul B. Hamel.

14. The breeding biology of the Black-legged Kittiwake in Newfoundland. J. E. Maunder and W. Threlfall. 1972. *Auk*, **89:** 789-816.—This excellent article explores in depth those aspects of Kittiwake (*Rissa tridactyla*) reproductive biology that can be measured, for example incubation and fledging periods, mortality, egg size and weight, nestling weight, and tarsal length. The embryology of the species is also dealt with at length. Ecology and behavior are mentioned only briefly in sections on topography of the nest site, food and feeding, and mortality. However, the article is a valuable reference for future ecological and behavioral research with this species.—Edward H. Burtt, Jr.

15. The biology of the American Kestrel in central Utah. D. G. Smith, C. R. Wilson, and H. H. Frost. 1972. *Southwest. Nat.*, **17**(1): 73-83.—This study is based primarily on 31 nests observed in the Utah Valley, Utah County, from March 1967 through July 1970. For 103 eggs in 22 nests clutch size varied from three to six eggs ($\bar{x}$ = 4.7), and hatching, fledging, and overall nesting success were respectively 67, 72, and 49 per cent. The ratio of female to male nestlings was 62: 38. Data are also presented on nest site selection and tenacity, homerange size and population density, incubation and fledging periods, care and feeding of the young, and food habits, primarily of the young.

Although this paper presents some useful data on the breeding biology of *Falco sparverius*, one wonders why certain data apparently obtained by the authors were not presented. For example, the authors indicate that fledging success of males was slightly less than that of females but do not give specific figures. No mention is made of the presence or absence of any difference in hatching or fledging success for clutches of different size, nor of nesting success in relation to temporal (or, for that matter, any other) factors. Prolixity in papers is undesirable but so is inordinate brevity.—Roger B. Clapp.

BEHAVIOR

(See also 13, 14, 15, 23, 25)

16. Flocking and annual cycle of the Pinon Jay *Gymnorhinus cyanocephalus*. R. Balda and G. Bateman. 1971. *Condor*, **73**(3): 287-302.

17. Flocking associates of the Pinon Jay. R. Balda, G. Bateman, and G. Foster. 1972. *Wilson Bull.*, **84**(1): 60-76.—It is doubtful that one could select an American bird as prevalent over so wide an area, actually as little studied, and yet so ecologically significant, as the species researched here. Strikingly, the sharp reversal in knowledge and previous belief is developed in that area where Merriam's "Life Zones" took their impetus. The primary surprise is the finding that despite the apparent irregular nomadism and flocking habits of this jay, it really lives in an integrated and complex flocking pattern the year round. Also, contrary to this species name, Ponderosa Pine (*Pinus ponderosa*) forests are much frequented and utilized for foraging and nesting. A high degree of sociality colors their behavior in general. Gregarious in foraging and nesting, with communal care of nest colonies and young, they have communal warning and defense behavioral patterns. Sympatry with its anatomically close relative, the Clark Nutcracker (*Nucifraga columbiana*), stimulated search for possible food storage habits like those of the Eurasian *Nucifraga caryocatactes*, with resulting discovery of elaborate storage procedure in both American species. However, *N. columbiana* has a definite sublingual pouch (dissected and diagrammed for this study by W. Bock) and carries pine seeds as far as 28 km (15 miles) for storage, whereas *Gymnorhinus*, having no pouch, stores them in the breeding area, or no more than two-thirds of a mile from the source (in the flock observed here). "Nutcrackers descended the slopes of the San Francisco Peaks in late August to collect piñon seeds and carry them up the mountains to about 10,500 ft., where they were cached. During this period of seed collecting the nutcracker opened the green cones in such a manner that in poor light it was impossible for us to distinguish nutcrackers from Piñon Jays. The jays and nutcrackers worked on the piñon cones in close association, yet no aggressive interactions were noted" (1972, p. 67). "This energy consuming event occurs at a time in the jay's yearly cycle when no other drastic energy demands are being made on the bird" (1971, p. 297). Does the available energy and food evoke the event, or is it the reverse? And does the event and the habit evoke the sublingual pouch, found in such remotely removed forms as Alcidae and Fringillidae? The richness of results from this series of studies defies adequate analysis here; one can but recommend it to all bird students' attention, with the news that it will carry on into the future.—Leon Kelso.

18. Concerning birds that store food. A. Chisholm. 1972. *Victorian Naturalist,* **89**(1): 20. An Australian crow, *Corvus coronoides,* carries meat or bread in a sublingual pouch, digs a hole, dumps items therein, covers them with earth, and covers that with *Poinciana* twigs.—Leon Kelso.

19. A study of diurnal activity rhythm and feeding habits of *Aythya fuligula*. C. Folk. 1971. *Prirodoved. pr. Ustavu CSav., Brne.* **5**(12): 39 p. (In English.)—The Tufted Duck was studied on several ponds of western Moravia at Chekhin for four seasons (1967 to 1970) by visual and telescopic observation. They were active only by day, feeding 61 per cent, preening and bathing 10 per cent, swimming 15 per cent, and sleeping and resting 13 per cent of the time. Modes of feeding were: diving, 54 per cent, and on surface, six per cent. Length of dives correlated with depth of food, sex (males, 24.8 seconds; females, 18.8), and locality (in Chekhin, 18 seconds; in Moravia, 21). Dives averaged 108 per hour. Sleep varied with season: May-June, 8 to 10 per cent; April, 28 per cent; September, 24 per cent of the time. Notes on courtship and other behavior and on food analyses of 58 stomachs are given.—Leon Kelso.

20. On the use of cavities as holding "tools" by the Great Spotted Woodpecker. 1. Mode of insertion of food items by adults. (Contribution. a l'etude de l'utilisation de cavites comme "outils" de contention par le pic epeiche (*Dendrocopos major*). 1. La technique d'immobilisation des objets alimentaires par le pic adulte.) B. Muckensturm. 1971. *Rev. Comport. Anim.,* **5**(4): 227-232, 235-236. (In French with English and German summaries.)—Mode of fixation in holes was observed in the laboratory. Unhulled pistachio nuts were placed in niches of accommodating size and in position for the bill to strike the hull suture when opening it. Each bird used a preferred cavity, which was cleaned of fragments after feeding.—Leon Kelso.

21. Seasonal change in the breeding behavior of the male Red-winged Blackbird. F. W. Peek. 1971. *Wilson Bull.,* **83:** 383-395.—This is a well-designed and well executed four-year study of the territorial behaviors of male Redwings. Peek conducted three tests on the birds in a marsh in Pennsylvania. Individuals in a population of marked birds were removed completely, surgically muted, or their epaulets darkened. Success of muted and epaulet-colored males in maintaining territory after mating but not before mating indicates an important territorial function for song and song-spread display. Vacated territories were most often occupied by unestablished males prior to mating but by established males after mating. The beauty of this piece of work is marred by a far too crowded Figure 4 in which he attempted to summarize the entire study.—Paul B. Hamel.

22. Recognition of nest, eggs, nest site, and young in female Red-winged Blackbirds. F. W. Peek, E. Franks, and D. Case. 1972. *Wilson Bull.,* **84:** 243-249.—Female Red-winged Blackbirds (*Agelaius phoeniceus*) recognize nestlings 10 days old and older, but do not appear to recognize younger nestlings, eggs, or the nest itself. The interpretation is reasonable based on previous studies with nonpasserines (e.g., C. G. Beer *Adv. in the Study of Behavior,* **3:** 27-74, 1970).

Recognition develops just before the nestlings leave the nest. But this is also the time that the young begin to vocalize. This means that exchanges of vocal nestlings between nests only three m apart, as these are, are not exchange experiments where the criterion for recognition is rejection of strange young, but are choice tests where the female chooses between two groups of vocalizing nestlings. It is interesting that the female never rejects young, but follows vocalizing young when the choice exists. The sensitivity of choice tests and exchange tests might be very different. This problem is not mentioned by the authors. In two nests 10- and 11-day-old young were removed and put a few meters away. No nestlings replaced them. The situation is comparable to the first flight of the young and probably causes the female to search for her young, as she would normally do in this situation.

They never make clear their operational definition of recognition. The interpretation is further confounded by small sample sizes and an utter lack of controls. —Edward H. Burtt, Jr.

ECOLOGY

(See also 14, 15, 16, 17)

23. On the biology of the Pycnonotidae of Gabon. (Recherches sur la biologie des Pycnonotides du Gabon.) A. Brosset. 1971. *Biologia Gabonica*, 7(4): 423-460. (In French with English summary.)—The main novelty of this article, which is of small-book caliber in detail, penetration, and importance, is a thin plastic plate record of the voices of 14 of 22 species of Bulbuls studied by the author in an African equatorial forest. Of these species, *Andropadus latirostris* is the most abundant, apparently equaling in numbers the aggregate of all other local species of birds. One hundred and nine nests of 11 species were observed from date of discovery through the departure of young or destruction by predators. As a result of predation only one fledged young was raised per two nests in the most abundant species and only one fledged young per four or five clutches in the other 10 species. The author points out the apparently severe restrictions to reproduction, including small clutches (one to three eggs), which results in a slow turnover of adult population in what he regards as a stable and long-established environment where species show no propensity to invade niches other than their own.

Species of insectivorous genera, *Bleda, Criniger, Phyllastrephus, Boepogon,* and *Nicator,* forage through undergrowth in polyspecific groups during two periods per day. Those of the frugivorous genera, *Andropadus, Thesceloscichla, Chlorocichla,* and *Ixonotus,* associate monospecifically and forage in about eight periods per day.

Their nests, located where least available to arboreal predators, are open but loosely structured, allowing rain to drain through them. A commensal fungus binds the sticks together. The incubation period, 13 to 14 days, and care of young in the nest, 11 to 14 days, are shared by both sexes. Feeding visits to young are relatively few, but food portions per trip are large. Many other details enrich this remarkable study.—Leon Kelso.

24. Latitudinal variation in breeding productivity of the Rough-winged Swallow. R. E. Ricklefs. 1972. *Auk*, **89:** 826-836.—Over 20 years ago Lack (*Ibis*, **90:** 25-45, 1948) noted that birds nesting at high latitudes lay larger clutches. Ricklefs (*Smiths. Contrib. Zool.*, **9:** 1-48, 1969) showed that birds nesting at higher latitudes also have higher nesting success. This does not necessarily mean that recruitment of first-year birds into the adult population is different at different latitudes, although the data certainly suggest that this might be so.

In this paper Ricklefs shows that the proportion of young Rough-winged Swallows (*Stelgidopteryx ruficollis*) in the post-breeding, adult population is four times greater at high latitudes than near the equator. Although clutch-size variation is not a significant factor in the Rough-winged Swallow, Snow's work (*Brit. Birds*, **49:** 174-177, 1956) with the Blue Tit (*Parus caeruleus*) suggests that in this species geographical variation in annual recruitment might depend on clutch-size. Thus, different factors affect productivity in different species.—Edward H. Burtt, Jr.

WILDLIFE MANAGEMENT AND ECONOMIC ORNITHOLOGY

(See also 12, 28)

25. Passive deterrence of raptors and corvids. (Effarouchement passif des rapaces et corvides.) B. Legrand. 1971. *Revue Forestiere Francaise*, **23**(4): 431-435. (In French.)—Glass spheres with a shiny metallic sheen, 30 cm diameter, were exposed on elevated places and found effective in repelling Rooks (*Corvus frugilegus*) and Magpies (*Pica pica*) for three months. After five months the effect wore off. Repulsion of raptors was reported also. However, other trials of this method in other parts of Europe have found it futile.—Leon Kelso.

CONSERVATION AND ENVIRONMENTAL QUALITY

26. Mercury contamination of the environment in Sweden. A. Johnels. 1969. *Chemical Fallout,* **1969:** 221-241.—In an analysis of mercury content of biological materials, mainly from Sweden, feathers of museum specimens of Goshawk (*Accipiter gentilis*) showed low and constant levels for the years 1815 to 1939. With coming of use of alkylmercuric compounds (of MeHg) for seed dressing in 1940, mercury content increased "10-20 fold." Data are also given for other birds and mammals.—Leon Kelso.

27. DDE thins Screech Owl eggshells. M. A. R. McLane and L. C. Hall. 1972. *Bull. Environ. Contam. Toxicol.,* **8**(2): 65-68.—An experimental study conducted at Patuxent Wildlife Research Center revealed that 10 ppm of DDE in the diet of *Otus asio* caused a 12 to 13 per cent decrease in eggshell thickness.—Roger B. Clapp.

28. Aftercare of oil-covered birds. J. L. Naviaux. 1972. National Wildlife Health Foundation (450 Boyd Road, Pleasant Hill, Calif. 94523). Illus., 52 p., about $3.50.—This is a revision and expansion of the same title reviewed in *Bird-Banding,* **43**(1): 77, 1972. This apparently substitutes for a book projected in the above review but has not appeared. The critical contribution in this revision is the finding of an effective method of cleaning oiled birds, "which left the birds completely clean, water repellent and ready to be released within three days. The method utilized the solvent Chevron Isoparaffin 150, a highly purified light hydrocarbon solvent, with no aromatic constituents." The trenchant point is their research on feather biochemistry which reveals that total cleaning of the plumage suffices; that is all; no attempt to replace natural feather oils and waxes with artificial synthetic mixtures, which, as in past experience, might worsen the situation. "Totally cleaned feathers are water repellent and the natural oils appear to return to feathers on their own, mostly through the preening process. This seems to occur within a relatively short period of time, during which we have noted no harmful effects from their temporary absence." I might add that if there is anything on which biological science has been dragging its feet, it is functional feather physiology, and the above is an example of what has been missed.—Leon Kelso.

PARASITES AND DISEASES

29. A partial list of the parasites of the Ruffed Grouse. P. V. Vanderschaegen. 1972. *Passenger Pigeon,* **34**(2): 70-73.—Based on a literature search, this paper lists protozoa, tapeworms and flukes, nematodes, and arthropods. Although the author admits that the list is probably not complete, it should be useful to those interested in the parasites of *Bonasa umbellus.*—Roger B. Clapp.

30. Beetle mites (Acariformes, Oribatei) of birds' nests in the Donets region. (Pantsirnye kleshchi gnezd ptits na territorii donetskoi oblasti.) N. Yaroshenko and V. Kharchenko. 1972. *Vestnik z.,* **6**(3): 20-23. (In Russian, English summary.)—In 1970, 47 nests of 11 bird species, mostly passerines, were examined for parasite infestation. Altogether 7,660 individual arthropods of 16 major groups were recovered. Among them, in 30 nests were 337 (4.4%) oribatid (beetle) mites, including 57 larvae and nymphs, comprising 35 species of oribatids of 22 families and 25 genera; 8 species were intermediate hosts for cestode worms (Anoplocephalidae). Nests located in buildings sheltered very few oribatids or other arthropods; those placed near or on the ground were more heavily infested. In 12 Bank Swallow (*Riparia riparia*) nests 2,622 were found; in one nest of House Martin (*Delichon urbica*), 1,697; one of Wheatear (*Oenanthe oenanthe*), 559; one of Kingfisher (*Alcedo atthis*), 473. The overall total included 2,450 Gamasid, and 602 Tyroglyphid mites.—Leon Kelso.

PHYSIOLOGY AND PSYCHOLOGY

(See also 10, 27, 28)

31. Mortality of Mallards exposed to gamma radiation. R. Abraham. 1972. *Radiation Research,* **49**(2): 322-327.—On young *Anas platyrhynchos,* several sets of experimentals and controls of 20 birds each, an "LD level of 704 R was calculated for 4-month old captive Mallards. Fifty-five percent of all deaths occurred within the first 16 hrs postirradiation." All deaths that did occur were within 18 days. Rate and number of deaths were the same in game farm and wild groups. Radiation resistance showed no correlation with weight, sex, age, or state of captivity. Autopsies showed intestinal and mesentery tissue hemorrhaging.—Leon Kelso.

32. The effect of biological signals on heart beat in birds. (Vliyanie biologicheskikh signalov na chastotu serdechnykh sokrashchenii u ptits.) V. Anisimov. 1972. *Vestnik Mosk. Univ., Otdel. Biol.,* **27**(2): 101-103. (In Russian, English summary.)—Certain acoustic frequencies, of about 800 Hertz, caused tachycardia or accelerated heart rate in birds, particularly in the pigeon (*Columba livia*) in these tests. As measured by electronic instruments, a gradual accommodation or decline of the effect occurs after prolonged repetition. The distress calls of House Sparrows (*Passer domesticus*) and Jackdaws (*Corvus monedula*) were much more stimulative than those of Zebra Parakeets (*Melopsittacus undulatus*). A communal interspecific responsiveness to sound is discussed.—Leon Kelso.

33. Energy balance during the rearing of Chaffinch nestlings. (Energeticheskii balans pri vykarmlivanii ptentsov zyablika.) T. Dolnik. 1972. *Ekologiya,* **3**(4): 43-47. (In Russian, English summary.)—The energy metabolism involved in the feeding of young *Fringilla coelebs,* 7 to 11 days of age, fed by hand and by parents, in cages and in the wild, was analyzed, in the Courish Spit, Baltic coast study area. Methods of handling and mathematics involved are detailed at considerable length. Energy expenditure by adults feeding 4 to 5 young in the wild is about 8 kcal per day. If the area of nest territory and frequency of feeding trips to the nest are taken into consideration, adults expended about 8 kcal per day of 17 active hours to supply 4 to 5 young about 69 kcal of food energy. This approximated 8 kcal of food gathered and supplied per 1 kcal of energy expended. For four 9-day young, for example, the male and female made 72 and 91 visits, respectively, daily for a total distance of 114 km. Operating energy exceeded energy at rest by 2 to 3 kcal, the effective work energy thus being about 4 to 5 kcal per 1 kcal expended. The amount expended for adults themselves per day about equaled that supplied the young. In cages with food available, effectiveness was about 16 kcal per 1 kcal of effort. The main food in the wild, Chironomid flies and larvae, afforded about 5 to 6 kcal g dry weight.—Leon Kelso.

34. Pigeon's milk. (Le lait de pigeon.) R. Ferrando, R. Wolter, C. Fourlon, and M. Morice. 1971. *Annales de la nutrition et de l'alimentation,* **25**(3): 241-251. (In French, English summary).—More than a mere soup of the foods eaten, the milk is rich in protein, lysine, and methionine. Total moisture content plus content by dry weight of nitrogen, phosphorus, sodium, and potassium do not vary significantly during the three days of milk feeding following hatching. Cellulose varies day to day 0.8 to 0.61 per cent; mineral matter, 1.2 to 1.82 per cent; calcium, 0.12 to 0.31 per cent. The subjects studied however were not the common pigeon, but the toy or fancy strains, "Carneau" and "Lynx."—Leon Kelso.

35. The effect of continuous gamma radiation of chick embryos upon their gonadal development. F. Mraz and M. Moody. 1972. *Radiation Research,* **50**(2): 418-425.—Subjected to continuous gamma radiation of 3.4, 1.8, and 1.0 Roentgens per hour intensity, at varied intervals during 20 days of incubation, developing chick embryos showed suppressed gonadal development; suppression was total in both males and females two weeks after hatching. Male gonads were more resistant during the early, female gonads more so at later stages of incubation.—Leon Kelso.

MORPHOLOGY AND ANATOMY

(See also 10, 14)

36. Structural features of nucleus magnocellularis in the owl auditory system. (Strukturnye osobennosti magnotsellyulyarnogo yadra slukhogo analizatora sov.) L. Barsova. 1972. *Vestnik Mosk. Univ., Otdel Biol.*, **27**(3): 20-25. (In Russian.)—Quantitative and structural proportions of the main neural center of hearing (nucleus magnocellularis) are analyzed in seven owl species of varied acuity of hearing and compared with that of the Tawny Eagle (*Aquila rapax*), Buzzard (*Buteo buteo*), Nightjar (*Caprimulgus europaeus*), Common Pigeon (*Columba livia*), and Common Eider (*Somateria mollissima*). Number, form, and distribution of neurons vary within broad limits. Nucleus morphology corresponds to two groups into which birds fall: those (chiefly owls) capable of passive or stationary location of prey, and the others.—Leon Kelso.

37. Types of muscle fibers in the extraocular muscles of birds. A. Maier, E. Eldred, and R. Edgerton. 1972. *Exp. Eye Res.*, **13**(3): 254-265.—Since the avian eye muscle fibers have contractile properties comparable to those demonstrated in mammalian eye muscles, a functional requirement presumably exists for both phasic and more static positioning of the eyeball, despite the fact that the highly mobile neck in birds has taken over the function of directing vision. In owls extraocular muscles have become vestigial (Abraham and Stammer, *Acta Biol.*, **12**: 87, 1966.)—Leon Kelso.

PLUMAGES AND MOLTS

(See 28)

ZOOGEOGRAPHY AND DISTRIBUTION

(See also 9)

38. The avifauna of the southern Appalachians: past and present. J. P. Hubbard. 1971. *In* The distributional history of the biota of the southern Appalachians. Part III: Vertebrates (Perry C. Holt, ed.). Virginia Polytechnic Institute and State Univ. Blacksburg, *Res. Div. Monogr.*, **4**: 197-232.—Hubbard traces the history of the avifauna in the mountains from northern West Virginia to northern Georgia through the Tertiary to the present. His data are the botanical fossil record, the skimpy avian fossil remains, census information from 14 local avifauna, and a knowledge of the broader distribution of North American birds. There are no real surprises. Interesting is the fact that there is no evidence of endemism in this region, especially since endemism has occurred in 12 other North American areas of smaller size and comparable ecological diversity.—Bertram G. Murray, Jr.

39. White-crowned Sparrow gambelii race ratio in northern Ohio. M. B. Skaggs. 1972. *IBBA News*, **44**(2): 44-47.—Sixteen (1.34 per cent) of 1,197 *Zonotrichia leucophrys* banded in Lake and Cuyahoga counties from 1941 through 1971 were identified by Skaggs as belonging to the race *gambelii*. Perhaps other banders have useful information on the incidence of this well-marked subspecies in the mid-west and east.—Roger B. Clapp.

SYSTEMATICS AND PALEONTOLOGY

(See 40)

EVOLUTION AND GENETICS

(See also 13)

40. Hybridization in the avian genus *Myzantha*. D. D. Dow. 1972. *Mem. Queensland Mus.*, **16**: 265-269.—An apparent hybrid *M. melanocephala* X *M. flavigula* was captured and observed before it escaped, and two others were discovered being fed by six Noisy Miners and one Yellow-throated Miner but were not caught. Although hybridization in the Meliphagidae is rarely reported, Dow believes it might be more widespread than is generally believed.—Bertram G. Murray, Jr.

FOOD AND FEEDING

(See also 14, 15, 16, 17, 18, 19, 20, 23, 34)

41. Prey of Barn Owls (*Tyto alba*) in Dade County. L. N. Brown and R. G. Pscion. 1972. *Fla. Nat.*, **45**(2): 63.—Cast pellets were collected in December 1970 from a roost site surrounded by an urban habitat. The pellets contained a minimum of 345 animals. Of these, 182 (53 per cent) were Cotton Rats (*Sigmodon hispidus*) and 135 (39 per cent) were House Mice (*Mus musculus*). The Cotton Rats and other species taken [12 Rice Rats (*Oryzomys palustris*), 11 Least Shrews (*Cryptotis parva*), 2 Short-tailed Shrews (*Blarina brevicauda*), and 3 birds] seldom occurred near the roost site suggesting that the owls were flying daily some five miles to the edge of the city to forage.—Roger B. Clapp.

42. A preliminary analysis of the feeding habits of Barn Owls at Irish Grove Sanctuary. D. S. Lee, A. Worden, and B. Rothgaber. 1972. *Md. Birdlife*, **28**(1): 27-28.—This short paper primarily presents an analysis of collections in March 1971 of 75 pellets of *Tyto alba* from a site in the sanctuary in Somerset County and of 124 pellets from two sites near Dover in Kent County (the title of the paper notwithstanding). In both samples the Meadow Vole (*Microtus pennsylvanicus*) was the species most frequently captured, comprising 143 of 215 (66.5 per cent) individuals in the former sample and 181 of 200 (90.5 per cent) individuals in the latter sample. Thirty-two Rice Rats (*Oryzomys palustris*), 19 Least Shrews (*Cryptotis parva*), and 14 Red-winged Blackbirds (*Agelaius phoeniceus*) found in the Somerset County sample reflected the owls' utilization of a nearby *Spartina* marsh. In the Dover County sample, which lacked such habitat, none of the other (ca. seven) species taken accounted for more than three per cent of the total number consumed.—Roger B. Clapp.

43. A note on the food habits of Barn Owls in Klamath County, Oregon. C. Maser and E. W. Hammer. 1972. *Murrelet*, **53**(2): 28.—The authors analyzed 157 pellets of *Tyto alba* collected 9.5 miles northwest of Bonanza in March 1970. Three species accounted for nearly 95 per cent of the 332 individuals found in the pellets. These were the Mountain Vole (*Microtus montanus*), 188 individuals or 56.5 per cent; Northern Pocket Gopher (*Thomomys talpoides*), 70 or 21.1 per cent; and Deer Mouse (*Peromyscus maniculatus*), 56 or 16.9 per cent.—Roger B. Clapp.

SONG AND VOCALIZATIONS

(See 13, 22, 23, 32)

BOOKS AND MONOGRAPHS

44. *The Behavior of Spotted Antbirds.* E. O. Willis. 1972. *A. O. U. Ornithol. Monogr.*, **10**: 1-162. $6.00.—Walking through the Panamanian rain forest of Barro Colorado Island, one sees Spotted Antbirds with colored leg-bands —a few of an amazing total of 498 banded by Willis in his study of *Hylophylax naevioides*. All aspects of this field study are superlatives with observations over a 10-year period (1960-71). Records of 1,194 supplanting attacks, notes from 120 nests, and other data are included. In his thoroughness Willis has used a variety

of modern field techniques, producing a well illustrated monograph with sonograms, excellent sketches, and numerous photographs. Color seems unnecessary for Plate 2.

The text of the monograph includes two basic forms of writing: descriptive presentations of the behavior of the species and discussions of the ethological significance of the findings. The latter discussions will certainly be of interest to a broader audience than the more numerous pages of description.

The behavioral descriptions are superb in their detail, and written with an informal tone, as Willis has literally lived with the antbirds for years. He thus speaks of avian relationships with a parental pen, such as the "son and grandson" of male YBXR (p. 22)! Although one sometimes feels the presence of minutiae, the descriptive sections as a whole are characterized by their excellence. The text includes sound data on such topics of interest as nest predation (over 90 per cent), territorial size (yielding 8 g of antbird per hectare), and interactions with migrant species (crowding of the antbirds). A wealth of quantitative data is also found in the tables of the last one-half of the book, covering a wide variety of foraging parameters (perch diameters and foraging positions).

As suggested above, however, the real ecological and ethological thoughts are presented in the discussions. It is here that the monograph might evoke discomfort in readers with a familiarity of the behavioral literature. I will provide only two examples, with the knowledge that real scrutiny will be provided by other ethologists. Willis attacks the concept of displays derived from conflicting drives (p. 25) but leaves one unconvinced because of the brief discussion, with neglect of much of the research in this area. Further, a discussion of polygamy and sexual dimorphism (p. 92) wanders through the avian world to anthropological analogies with hyper-sexed Bedouins of Arabia. The ideas are interesting but not sufficiently refined or supported as presented.

Aside from such objections, the discussions are certainly recommended reading to all students of bird behavior, with particular respect to the good summary of the biology of mixed species flocks (p. 135-147). Praise of the discussions will include an appreciation of Willis' effort to complete his outstanding behavioral study with a continued analysis of its significance. This represents a professional responsibility that has often been neglected by others.

Technically the monograph clearly maintains the fine tradition of the A. O. U. series in spite of a few citations that could be improved, and a binding cover that disintegrated in a week of reading.

This study is a valuable reference for persons interested in bird behavior, or avian ecology in the tropics. For those working with neotropical birds, it is a "must."—Charles F. Leck.