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RECENT LITERATURE

Edited by Jerome A. Jackson

NOTICE

In this collection of literature reviews we begin a new practice. At the end of most reviews we will include the address of the senior author of the article being reviewed. This will facilitate requesting reprints and otherwise corresponding with authors.

BANDING AND LONGEVITY

(see 1, 44)

MIGRATION, ORIENTATION, AND HOMING

(see also 41, 44)

1. Some considerations about the migration of the Sardinian Warbler (*Sylvia melanocephala*). (Alcune considerazioni sulla migrazione dell'occhiocotto, *Sylvia melanocephala*.) M. Fraissinet, G. del Monaco, and M. Milone. 1988. Riv. Ital. Ornithol. 58:177–185.—This banding study examines the phenology of spring and fall migrations of *Sylvia melanocephala* based on capture/recapture of 1071 individuals. More birds were netted in fall. Differential migration of adults and juveniles, and origins of migrating birds (based on variation in wing length) are discussed. Analysis of subcutaneous fat scores suggest short-range migratory flight. [Dipartimento di Zoologia, Via Mezzocannone 8, 80134 Napoli, Italy]—Jerome A. Jackson.

POPULATION DYNAMICS

(see also 1, 7, 18, 30, 32, 44)

2. History of wading bird populations in the Florida Everglades: a lesson in the use of historical information. P. C. Frohring, D. P. Voorhees, and J. A. Kushlan. 1988. Colonial Waterbirds 11:328–335.—This commentary emphasizes the difficulties inherent in using historical information in establishing long-term population trends for colonial waterbirds. The authors trace the development of population estimates of wading birds in southern Florida. They begin with a recent quote from Newsweek magazine of 2.5 million wading birds for the Everglades in the 1930s, and then piece together evidence that this figure, along with many other published estimates, is probably substantially inflated. They point out that many estimates lump gulls, terns, and other non-waders in with wader estimates, and often fail to distinguish breeding birds from non-breeders or roosting birds. This makes comparisons with other historical or modern data difficult or impossible. The authors trace historical estimates back to the 19th century and point out their qualitative, often hearsay nature. These estimates were often used for polemical purposes such as stimulating public concern over the slaughter of birds for the millinery trade and promoting protection legislation. Quantitative estimates in the early decades of the 20th century often differed widely among observers, and there was confusion in distinguishing between egret and ibis numbers. In the 1930s and 1940s the pressure to establish a national park in the Everglades may have stimulated wardens and others to inflate estimates of wading birds to place the rookeries "high among the natural spectacles of America," and mitigate depression-induced cutbacks in personnel. These political and financial factors, together with the difficulty of getting accurate counts from the ground, cast doubt on the accuracy of the wader population estimates of the period. The National and Florida Audubon societies' ground and aerial surveys of the 1950s and 1960s provide the actual base-line data for nesting population trends for many species. The authors conclude that the historical numbers of the various water birds are simply unknown. They suggest that population and resource management analyses should treat historical information with great caution.

This paper provides an excellent case study in the problems associated with historical interpretation and should be read by anyone using historical information or interested in the history of ornithology. [Dept. of Biology, Univ. of Mississippi, University, MS 38677 USA]—William E. Davis, Jr.

3. **Monitoring puffin burrows on Dun, St. Kilda, 1977–1987.** M. P. Harris and P. Rothery. 1988. Bird Study 35:97–99.—St. Kilda harbors the largest Atlantic Puffin (*Fratercula arctica*) concentration in Britain—an estimated 250,000 pairs. Population levels on one of the islands, Dun, were first studied by fixed transects and counting of burrows, but have more recently been studied using permanent random quadrats. There are an estimated 40,000 pairs that nest there.

The island was divided into four strata for surveying, each yielding different burrow densities. The quadrats include 2.3% of the total area. Counts are made by two observers and no significant differences have been noted between results. Populations increased between 1977–1987 by 18% from 25,000 to 29,600 burrows. The lowest number of burrows was found in 1978. The increase has been marked by an increased density of burrows over the course of the study. [Institute of Terrestrial Ecology, Hill of Brathens, Banchory, Kincardineshire AB3 4BY, United Kingdom]—R. W. Colburn.

NESTING AND REPRODUCTION

(see also 12, 13, 16, 22, 30, 35, 41)

4. **Behavioural dynamics of intraspecific brood parasitism in colonial Cliff Swallows.** C. R. Brown and M. B. Brown. 1989. Anim. Behav. 37:777–796.—This well-planned and well-written study of individually marked Cliff Swallows (*Hirundo pyrrhonota*) documents the costs and benefits of an unusual reproductive strategy. Intraspecific brood parasitism occurs regularly in Cliff Swallows and a handful of other songbirds and waterfowl. Between 22 and 43% of Cliff Swallow nests in southwestern Nebraska were parasitized. Parasites laid eggs in the momentarily unattended nests of neighbors and maintained nests of their own. The nests of parasites fledged just as many young as those of non-parasites/non-hosts. In addition, approximately one-third of eggs laid in neighbors' nests fledged successfully, thus parasites benefited by producing more total young than non-parasites. Hosts suffered a significant cost of parasitism; they fledged fewer of their own young than did non-hosts/non-parasites (2.00 vs. 2.86).

The authors provide a noteworthy discussion of intraspecific brood parasitism as a strategy to minimize variance in reproductive success. Because chick loss due to storms and ectoparasites is common, unpredictable (and therefore not easily prevented), and harms all members of a nest, Cliff Swallows may benefit by putting eggs in more than one nest and thus maximizing the likelihood of at least one offspring surviving to independence. As predicted by this reasoning, colonies where reproduction was more uncertain had higher rates of parasitism than other colonies. [Dept. Biology, Yale Univ., P.O. Box 6666, New Haven, CT 06511 USA]—Susan L. Earnst.

5. **Intraspecific nest parasitism in the swallow *Hirundo rustica*: the importance of neighbors.** A. P. Moller. 1989. Behav. Ecol. Sociobiol. 25:33–38.—In order to test the extent to which nest guarding prevents nest parasitism in Barn Swallows, old swallow nests with and without dummy eggs were placed at different distances from active nests in 5 colonies in Kraghede, Denmark. Experimental nests were parasitized significantly more often than were active nests, although none of the marked eggs placed in old nests was removed by parasites. Those nests placed away from, rather than near, active nests were more vulnerable to parasitism (suggesting that close nests were to some extent guarded by nearby nest owners), and nests with eggs were parasitized significantly more often than were empty nests. The time in the nesting cycle in which nests were put up also significantly influenced whether or not they were parasitized. Nests put up during the egg-laying period were more vulnerable than those put up during the early incubation period, and nests put up during pre-laying were never parasitized. Aggressive responses by nesting females toward intruding individuals varied with time, and were most intense during the egg-laying period. The distance of an intruding female from an active nest also affected responses; close intruders

elicited aggressive responses more often than did those which intruded at a distance. Thus, in this study, nest guarding successfully reduced the frequency of intraspecific nest parasitism among swallows, and nesting asynchrony led to reduced parasitism especially when nests were placed close to those of other swallows. [Dept. Zoology, Uppsala Univ., Box 561, S-751 22 Uppsala, Sweden]—Danny J. Ingold.

6. **Nestling period variation in Jackdaw (*Corvus monedula*) in relation to brood size.** M. Soler. 1989. Bird Study 36:73–76.—Data on length of nestling period of 109 Jackdaw nests were collected between 1979 and 1983. These nests were found in clay cliffs in Hoya de Guadix. The mean nestling period was 32.4 days; significant differences were found between years but not between colonies. A highly significant correlation was found between the length of nestling period and the number of young fledged per nest, with larger broods having longer nestling periods. Chicks from larger broods received less food per chick than those in smaller broods. Therefore the length of nestling period probably depends on the relationship between food availability and brood size. [Departamento de Biologia Animal, Univ. de Granada, 18001-Granada, Spain]—Robin J. Densmore.

7. **The breeding biology of Razorbills on the Isle of May.** M. Harris and S. Wanless. 1989. Bird Study 36:105–114.—Breeding biology data were collected on the Isle of May, Firth of Forth, Scotland for Razorbills (*Alca torda*) from 1982 to 1987, and for Guillemots (*Uria aalge*) from 1981 to 1987, in order to determine if similar population parameters and sensitivities to the same environmental factors exist between the two species. The mean annual Razorbill adult survival over 5 winters was 88.8%. Birds generally kept the same mate and nest site each year. Laying of first eggs usually occurred between 28 April and 3 May. Relaying sometimes occurred if eggs were lost, but not if chicks were lost. The mean incubation period was 34.3 days, with no significant difference between years. Annual breeding output varied from 0.55 to 0.77 young per pair, with no significant difference between years.

Adult survival for Guillemots from 1982 to 1987 was higher (93.4%) than that of Razorbills (88.8%), though not significantly. Guillemots generally started breeding a few days before Razorbills. The timing of breeding was influenced by sea temperature, with birds usually laying earlier in years when water was relatively warm. Guillemot breeding success over 6 years was significantly higher (0.78 young/pair) than that of Razorbills (0.66 young/pair). High breeding success for both species occurred during the same years. Although no significant correlations were found between various measures of the two species' breeding biology, 6 of 7 comparisons were positive, suggesting broad similarities in the population trends between Razorbills and Guillemots. [Inst. of Terr. Eco., Banchovy, Kincardineshire AB3 4BY, United Kingdom]—Robin J. Densmore.

8. **Nest box use by Eastern Bluebirds and their competitors in Vermont.** S. G. Parren. 1989. Sialia 11:83–87.—During the nesting seasons of 1986–1987, 379 bluebird nest boxes were examined in both northern and southern portions of Vermont, including clearcut areas in the Green Mountain National Forest. Eastern Bluebirds (*Sialia sialis*) used 21% of the boxes, Tree Swallows (*Tachycineta bicolor*) 35% of them, House Wrens (*Troglodytes aedon*) 13% of them, and House Sparrows (*Passer domesticus*) 2% of them. Bluebirds nested successfully (as defined by at least one nestling fledged) 72% of the time, and there was no correlation between nest success and the presence of fence posts within 10 m of boxes. Tree Swallows nested successfully 75% of the time, and House Wrens were successful 65% of the time.

In order to determine whether nests were used by more than one species within a nesting season, and if nest boxes were used during consecutive years, an additional 123 nest boxes were examined in 1988 (also included were observations at 16 boxes in 1985). Thirty-five percent of these 518 boxes were used by more than one species during a single nesting season. Most commonly, bluebirds and swallows used the same box, in which each species attempted to nest first about half of the time. Bluebirds reused the same nest box during consecutive years 45% of the time, and swallows were nest-site tenacious 64% of the time. Pairs of both species that nested in the same box during consecutive years experienced a greater (although not significant) nest success rate than did pairs that returned to nest in different boxes. These data suggest that the placement of nest boxes may influence the reproductive success of bluebirds and swallows.

Competitive encounters between bluebirds and swallows contributed to nest failures among them. Moreover, House Wrens invaded several boxes, and either removed the bluebird or swallow eggs before building a new nest, or built over old ones. Nest predation, especially by raccoons, was suggested as an important component resulting in nest failures. [RR 1, Box 605, Hinesburg, VT 05461 USA]—Danny J. Ingold.

9. Goshawk breeding habitat in lowland Britain. Anonymous. 1989. Br. Birds 82: 56–67.—Goshawks (*Accipiter gentilis*) were extirpated from Great Britain during the nineteenth century, but have recently become re-established from escaped (or released) birds of falconers. This study examined the breeding biology of this slowly increasing population. The Goshawks occupied extensive tracts of mixed woodlands. Territory size varied from 600 to 1400 ha. The closest nests were 1 km apart, but the distance between most nesting pairs was 1.5–2.4 km. Their nests were generally placed at heights exceeding 15 m in large trees within mature, open forests. Conifers were the preferred nest sites, particularly larch (*Larix* sp.) and Douglas fir (*Pseudotsuga menziesii*), but a few nests were also placed in deciduous trees. Nests were infrequently used for two successive years, although pairs usually constructed their nests in close proximity to the previous attempts. In addition to providing detailed information on Goshawk breeding biology, guidelines for the conservation and management of these nesting populations were provided. [% Fountains, Park Lane, Blunham, Bedford MK44 3NJ, United Kingdom]—Bruce G. Peterjohn. [Editor's note: The authors of this paper chose to remain anonymous to protect the locality of the birds studied.]

BEHAVIOR

(see also 4, 5, 8, 36, 41)

10. Ethological sketches. (Etologicheskii zarosovki.) V. V. Ivanitskii. 1988. **Priroda** 9:34–41. (In Russian.)—The House Sparrow (*Passer domesticus*) and the Spanish Sparrow (*P. hispaniolensis*) hybridize in the Mediterranean region, but not in other overlapping parts of their ranges. The reason usually given for this is ecological isolation: around the Mediterranean, both species live near humans, but elsewhere the Spanish Sparrows are not synanthropic, while House Sparrows are. Is this the full explanation? What is the case in Soviet Central Asia, where the Spanish and the Indian Sparrow (arguably synonymous with House Sparrow) are not ecologically isolated (they nest in mixed colonies) but do not interbreed?

Around Dushanbe, Indian/House Sparrows nest under house eaves, in cliff burrows, and in trees; the Spanish Sparrows nest only in trees. They maintain their species identity via differences in courtship behavior, especially that of the males. An Indian Sparrow male claims more than one fork in the tree branches. He divides his time between defending the borders of his territory from neighboring males, and displaying for females while moving from fork to fork within the territory. An interested female will come into the territory and follow the male from fork to fork, mimicking his display poses. The male's behavior in her presence differs from his "bachelor" behavior more in its intensity than its complexity. When the pair bond has been established, he goes with her when she leaves the territory, and takes over the nest-building she begins.

A male Spanish Sparrow claims one fork, and occupies himself building the beginnings of a nest. When a potential mate arrives, he begins an energetic, almost frenetic display in the fork. The female strives to displace him there, sometimes resorting to pulling him off the perch by his tail. The roles are reversed, with the male now trying to sit in the fork, but less resolutely than the female had. The "status quo" is re-established only when she flies off, and the contest to occupy the nest foundation resumes when she returns. When they have established their pair bond, the male seldom accompanies his mate on sorties from the territory but labors alone to finish the nest.

Ivanitskii suggests that these ethological isolating mechanisms do not function in the Mediterranean for several reasons. One is that both species are synanthropic there. Another is that the House Sparrow claims only one perch (not an expanse of tree branches so often as a cramped niche in a human structure), as does the Spanish. Neither species migrates there, so pair formation can be a lengthier, less intense process, and more than one brood can be raised in the longer nesting season. The patchy distribution of both species in small, relatively isolated populations varying by the preponderance of one race or another can result in difficulty finding a mate of one's own species and hence in mixed pairs producing hybrid young. But because courtship displays themselves for Mediterranean sparrows are not described, a reader is left wondering about the interspecies differences so obvious and so effective in Central Asia: how do similarity of territory-holding (one perch vs. several), longer breeding season, and paucity of mates overcome them?—Elizabeth C. Anderson.

11. Nest defence by Song Sparrows: methodological and life history considerations. P. J. Weatherhead. 1989. Behav. Ecol. Sociobiol. 25:129–136.—This experimental field study tested six predictions from life history theory concerning the intensity of nest defense in passerines. Five of the six predictions were supported.

First, as predicted, parental Song Sparrows (*Melospiza melodia*) defended young with higher reproductive value (i.e., older young) more intensely. Similarly, nest defense intensity has been shown to increase throughout the nesting attempt in several other species. However, critics have argued that repeated exposure to the threatening stimulus, rather than an increase in the young's reproductive value, may have accounted for these results (Knight and Temple 1986. Anim. Behav. 34:887). Weatherhead was able to distinguish between these possibilities by presenting the stimulus to different individuals at different frequencies. Parents increased defense intensity throughout the attempt, regardless of the number of previous exposures to the stimulus. Furthermore, after parents were repeatedly exposed to the stimulus during the first nesting attempt, their defense intensity dropped back to original values at the beginning of the second attempt and then increased as expected.

Second, as predicted in a species with age-independent mortality, parental age did not affect the intensity of nest defense. Third, contrary to the prediction that defense intensity should have increased as renesting became less likely, Song Sparrows did not defend late nests more vigorously than early nests, perhaps because late broods were less likely to survive anyway. Fourth, as predicted in a species with more uncertainty of paternity than of maternity, males defended the nest less vigorously than did females. And finally, as predicted, larger broods were defended more vigorously than smaller broods, and the defense intensity of mates was highly correlated.

This thorough study exemplifies the fruitfulness of applying life history explanations in animal behavior and ornithology. [Dept. Biol., Carleton Univ., Ottawa, Ontario K1S 5B6, Canada]—Susan L. Earnst.

12. Food shortage influences sibling aggression in the Blue-footed Booby. H. Drummond and C. G. Chavelas. 1989. Anim. Behav. 37:806–819.—This experimental manipulation of Blue-footed Booby (*Sula nebouxii*) chicks tests the hypothesis that the senior chick becomes more aggressive towards the junior chick, and therefore more likely to commit siblicide, as a result of food deprivation. The alternate hypothesis proposes that a shortage of food does not affect the senior chick's aggressiveness, but rather increases the junior chick's vulnerability to aggression.

The results clearly support the hypothesis that senior chicks become more aggressive when food-deprived. After senior and junior chicks' necks were taped to prevent ingestion, senior chicks pecked junior chicks up to 349 to 549% more often than before. Parents never interfered in sibling aggression. Both chicks begged more frequently and were fed more frequently by both parents. In young broods (those less than 6 weeks of age), the senior chick received 37 to 57% more attempted parental feeds than the junior chick. Both increased pecking and differential feeding were less severe in older broods, probably because older juniors were more coordinated and thus able to escape aggression.

This article is appealing because it presents a realistic experimental manipulation in a natural setting and attempts to distinguish among alternate hypotheses. However, be prepared for a verbose introduction and discussion. [Centro de Ecologia, Universidad Nacional Autonoma de Mexico, AP 70-275, 04510 Mexico D.F., Mexico]—Susan L. Earnst.

13. An experimental study of paternal behavior in Red-winged Blackbirds. L. A. Whittingham. 1989. Behav. Ecol. Sociobiol. 25:73–80.—Brood sizes of breeding Red-winged Blackbirds (*Agelaius phoeniceus*) were altered and parental behavior was observed at nests in Livingston County, Michigan during two breeding seasons in order to determine the extent to which: (1) female status (primary vs. secondary status in which a female attending the first nest to hatch young was considered primary) influenced male parental investment, and (2) brood size and demand for food influenced male parental investment. In 1986, at nests where males were not feeding nestlings and brood sizes were increased, all males began feeding nestlings. At nests where males were already feeding nestlings and brood size was reduced, all males ceased feeding young. Primary females whose broods were reduced did not continue to receive male assistance, whereas all females whose broods were supplemented, regardless of status, received increased assistance. Male-assisted nests had increased fledging success in 1986. In 1987 no females at control nests received male assistance, and of 7 nests in which broods were increased from 3 to 5 nestlings, males initiated feeding nestlings at only two. During both years, male assistance was strongly associated with nestling numbers and age (males fed only at nests with 3 or 4 nestlings, and only nestlings that were 4 days old or older). Fledging success in 1986 did not differ significantly between male-assisted and male-unassisted nests (although male-assisted nests produce on average 3 more offspring). Unassisted females in 1987 fledged significantly more young than unassisted females in 1986. These data suggest that the ability of unassisted females to raise nestlings depends on food availability between and within nesting seasons, and consequently determines the importance of males to fledging young. [Museum of Zoology, Univ. of Michigan, Ann Arbor, MI 48109 USA]—Danny J. Ingold.

14. Results of dyeing male Yellow-headed Blackbirds solid black: implications for the arbitrary identity badge hypothesis. S. Rohwer and E. Roskaft. 1989. Behav. Ecol. Sociobiol. 25:39–48.—The authors blackened the yellow heads and chests of several territorial adult male Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) in Grant County, Washington, in order to determine whether male-male or male-female interactions were affected by such a change. There was no significant difference in the number of control and blackened males that were able to regain their territories after having been removed from them for several hours, regardless of whether or not replacements occupied their territories during their absence. Furthermore, there were no significant differences in the time-energy budgets of control versus blackened territorial males, although blackened individuals elicited song from significantly fewer territorial males they passed over. Finally, no differences in harem sizes were detected between the groups.

The most surprising observations made during this experiment were of blackened males that had reestablished themselves on their territories, and then subsequently took over the territories of other males (usually relinquishing their own territories in the process). Five of 12 blackened males evicted other males, whereas none of the 11 control males did so. These data suggest that good fighters among the blackened males benefited in territorial encounters with normal colored birds by having been particularly distinctive. The authors refer to this idea as the arbitrary identity badge hypothesis. They discuss possible reasons for differences in their results versus those obtained from similar experiments conducted on Red-winged Blackbirds (*Agelaius phoeniceus*). [Burke Museum DB-10, Univ. of Washington, Seattle, WA 98195 USA]—Danny J. Ingold.

15. Observations at a Wren roost. B. D. Harding. 1989. Br. Birds 82:48–52.—The winter roosting behavior of Winter Wrens (*Troglodytes troglodytes*) was studied in a residential yard in eastern Great Britain. They roosted in House Martin (*Delichon urbica*) nests under the eaves of a building where they were protected from winter weather. During January and February, numbers of roosting wrens varied between 4 and 28. These fluctuations were not correlated with any detectable changes in weather conditions. Only six or fewer wrens occupied the roost during March and April. Their behavior before entering this roost was also described. This study adds to the growing literature documenting the use of communal roosts by this species in Europe. [6 Braydeston Ave., Brundall, Norwich NR13 5JX, United Kingdom]—Bruce G. Peterjohn.

16. Experimental studies on the preference for different nest types in the Kestrel (*Falco tinnunculus*). (Experimentelle Untersuchungun zur Nistplatzpraferenz des Turmfalken (*Falco tinnunculus* L.) M. Reifinger. 1989. Egretta 32:1–11 [German, English summary].—This study of captive birds involved 21 yearling Kestrels that were raised for the first two weeks of life in nest boxes. After the first two weeks, 11 Kestrels were raised in nest boxes, and 10 were raised in platform nests. On reaching sexual maturity, the falcons were kept in cages which provided both types of nest sites for each pair. Of those that showed sexual activity, all that had been raised in nest boxes selected nest boxes, and 4 of 6 that were raised on platform nests also selected nest boxes. The author uses these data to suggest that the species has an innate preference for cavity nests. [Nestroygasse 10/1, A-1140 Wien, Austria]—Jerome A. Jackson.

ECOLOGY

(see also 6, 9, 10, 15, 25, 26, 33, 39, 41, 43)

17. **Density and habitat choice of birds nesting in poplar plantations.** (Densita' e scelta dell'habitat degli uccelli nidificanti in pioppeti coltivati.) G. Bogliani. 1988. Riv. Ital. Ornithol. 58:129–141. [Italian, English summary.]—This study involved censusing birds in a 143-ha area, 81% of which was covered by poplar plantations that were sprayed regularly with pesticides and under which the ground was plowed four times per year. The census revealed a broad assemblage of species, but notably (and understandably!) lacked species which feed or nest primarily in the shrub layer of forests. Age of plantation stands varied, but 58.3% of the area was in plantation stands greater than or equal to 7 years old. Numbers of many passerines were low, and the author suggests that this may have been due to lack of structural diversity in the habitat or to the use of pesticides. The four most abundant species were the Ring-necked Pheasant (*Phasianus colchicus*; 4.89 territories/10 ha), Eurasian Crow (*Corvus corone*; 3.21 territories/10 ha), Nightingale (*Luscinia megarhynchos*; 2.30 territories/10 ha), and the Blackcap (*Sylvia atricapilla*; 1.95 territories/10 ha). The results are biased by inclusion of areas of natural vegetation (where many species nested) in the census, although this bias is discussed. [Dipartimento di Biologia Animale, Univ. di Pavia, P. Botta 9, 27100 Pavia, Italy]—Jerome A. Jackson.

WILDLIFE MANAGEMENT AND ECONOMIC ORNITHOLOGY

(see 8, 16, 17, 35, 43)

CONSERVATION AND ENVIRONMENTAL QUALITY

(see also 2, 3, 9, 17, 32, 33, 43)

18. **Status of the Kirtland's Warbler, 1988.** J. A. Weinrich. 1989. Jack-Pine Warbler 67:69–72.—The count of singing male Kirtland's Warblers (*Dendroica kirtlandii*) for the 1988 nesting season was 215, an increase of 24% from the previous year's count of 167 males. The increase is attributed to a net increase in suitable habitat. [Michigan Dept. of Natural Resources, Houghton Lake Wildlife Research Station, P.O. Box 158, Houghton Lake Heights, MI 48630 USA]—Malcolm F. Hodges, Jr.

19. **Bringing back the Trumpeter Swan.** R. S. Gale. 1989. Utah Birds 5:1–13.—The history of the decline of Trumpeter Swans (*Cygnus buccinator*) is detailed here, as are efforts to restore the species. Trumpeters have increased somewhat, but are still not completely out of danger. Unless the species can spread out from its current areas of concentration and reduce its dependence on supplemental feeding, it is subject to possible localized outbreaks of disease and climatic disasters. In an epilogue, just such an incident is described, which resulted in the death of 50–100 Trumpeter Swans. Current management practices are discussed, and prospects for the species are mentioned. Methods for distinguishing this species from Tundra Swan (*C. columbianus*) are reviewed in detail—Malcolm F. Hodges, Jr.

20. **Electric power lines: a cause of mortality in *Pelecanus crispus* Bruch, a world endangered bird species, in Porto-Lago, Greece.** A. J. Crivelli, H. Jerrentrap, and T. Mitchev. 1988. Colonial Waterbirds 11:301–305.—The authors report on 28 Dalmatian Pelicans killed on their wintering grounds from October 1985 through November 1986 in

collisions with a 1.7-km power line located between an island roost and a lake where the birds foraged. An additional 21 birds were found dead beneath the power line between 1983 and 1985 although systematic searches of the area were not conducted. Of the 28 birds killed, 26 were immature, 18 of which were first year birds. Color bands indicated that the birds were from colonies in Greece and Bulgaria. All the mortality occurred from late September through early March, although pelicans, including immature birds, were present throughout the year. The authors suggest that fatal collisions with power lines occurred in bad weather and reduced visibility of winter storms. Immature birds constituted a fluctuating proportion of the Porto-Lago pelicans, but constituted about a quarter of the population which averaged more than 150 birds on the censuses made during the period when the fatalities occurred. The authors calculated that winter loss of 28 birds may have reduced the number of 1988 breeding pairs in several colonies by up to 3.5%. This is a serious loss since the world population of Dalmatian Pelicans is only 530 to 1380 breeding pairs, and its numbers are steadily declining. There are several other power lines in the Porto-Lago area, but only the line directly between the roost and the feeding grounds produced a major problem. It was dismantled in November 1986, and no further fatalities have been reported. [Station Biologique de la Tour du Valat, Le Sambuc, 13200 Arles, France]—William E. Davis, Jr.

21. Pollutant burden of a Great Northern Diver, *Gavia immer*. C. F. Mason and S. M. Macdonald. 1988. Bird Study 35:11–12.—This article reviews findings of pollutants in a juvenile Common Loon found in a drainage ditch near Cley-Next-to-Sea, Norfolk, U.K., 13 November 1985. This loon weighed 1684 g (normal range 3600–4480 g). Liver organochlorine load levels were low—20.17 mg/kg lipid, compared to five previously found dead loons in Britain. Reference is made to levels of DDE, DDT, and PCBs from birds found in the Shetland Islands, Mississippi, and Alberta.

Available data suggest that Arctic Loons (*Gavia arctica*) and Red-throated Loons (*G. stellata*) have higher concentrations of organochlorine residues than Common Loons. Mercury levels (9.19 mg/kg liver) for the immature Common Loon reported here were within the range of those of 12 oiled birds from the Shetlands (1.1–70 mg/kg) and those of five birds from Ontario (7.6–9.5 mg/kg). The level of mercury in this young bird was already 20% of that reported to result in decreased breeding success in Ontario.

Chlorinated hydrocarbon data were available for only 77 loons of all species in North America and Europe. Fewer data are available on heavy metals. Decreased fecundity has been reported in Scotland and Scandinavia for Arctic Loons. The authors encourage increased analysis of loon tissues for heavy metals and chlorinated hydrocarbons. [Dept. of Biology, Univ. of Essex, Wivenhoe Park, Colchester CO4 3SQ, United Kingdom]—R. W. Colburn.

22. Organochlorine residues in Great Blue Herons from the northwestern United States. R. E. Fitzner, L. J. Blus, C. J. Henny, and D. W. Carlile. 1988. Colonial Waterbirds 11:293–300.—The authors report on concentrations of organochlorine residues in eggs and tissues of Great Blue Herons (*Ardea herodias*) collected from 1977 through 1982 from breeding colonies in the states of Idaho, Nevada, Oregon, and Washington. Sixty eggs were analyzed for DDT, DDE, PCBs, and other contaminants. DDE was found in all eggs, PCBs in 52, and 10 other organochlorines were detected in concentrations too low to allow statistical comparison. In liver samples of 13 prefledglings, DDE was found in 7 and PCBs in 2. In 5 subadult samples no DDE was detected, but PCBs were found in 4. Both contaminants were found in the brains of 6 adults found dead, and in all samples of whole body hatchlings found dead on the ground. Mean eggshell thickness in 60 eggs from the seven colonies was 4 to 13% thinner than pre-1947 samples, and thinning correlated significantly with DDE and PCB residues, with DDE accounting for 26% of the variation. However, organochlorine levels were well below levels associated with either reproductive failure or mortality in herons. The authors considered reproductive success satisfactory at the two colonies where it was monitored, with a mean of 2 young fledged per nest, and the egg showing the greatest thinning (23%) was from a nest where 2 young fledged. Some of the differences in organochlorine concentrations among colonies may reflect pesticide burdens acquired on wintering grounds. [Battelle Northwest Labs, P.O. Box 999, Richland, WA 99352 USA]—William E. Davis, Jr.

PARASITES AND DISEASES

(see 4, 19)

PHYSIOLOGY

23. Energy metabolism and body temperature in 13 sunbird species (Nectariniidae). R. Prinzinger, I. Lubben, and K.-L. Schuchmann. 1989. Comp. Biochem. Physiol. 92A:393–402.—The present study extensively examines the metabolism, conductance, and regulation of body temperature of 13 species in the family Nectariniidae. As Old World, passerine equivalents of hummingbirds, sunbirds provide interesting research material for studies of very small birds. The sunbirds include some of the smallest passerines in the world and are strikingly similar to hummingbirds both in behavior and morphology. Like many birds of less than 15 g body mass, sunbirds go into partial hypothermia at low ambient temperatures, particularly at night. Conductance of sunbirds is lower than expected as a result of the decrease in body temperature. True torpor was not observed in any sunbird. Resting metabolic rate of sunbirds is within the range of theoretically expected values. The authors use an unusual method for measuring the energy use of these birds. Birds to be tested were placed in relatively large (8.7 L) chambers containing perches and a nectar feeder. Metabolism was monitored for relatively long periods (24 h over 4–6 consecutive days). The paper contains a great amount of data and unusually fine graphics. [AG Stoffwechselphysiologie, Institut für Zoologie, Universität Frankfurt, Siesmayerstrasse 70, D-6000 Frankfurt/Main 1, Federal Republic of Germany]—C. R. Blem.

24. Assimilation efficiency in birds: a function of taxon or food type? G. Castro, N. Stoyan, and J. P. Myers. 1989. Comp. Biochem. Physiol. 92A:271–278.—One of the most important factors in avian nutrition is the efficiency with which energy is extracted from ingested food. "Assimilation efficiency," as used in this paper, is a bit of a misnomer. Assimilation is seldom really measured in birds. Instead, most studies define "assimilation efficiency" (AE = coefficient of utilization, metabolic energy coefficient, or energetic efficiency—I prefer the latter) as $100 \times (F - E)/F$, where F = energy content of food and E = energy content of excreta (feces + urine). Since the urine represents energy assimilated while the feces do not, assimilation is not accurately quantified (nor need it be for the purposes of most studies). Measurement of AE is significant in understanding how birds deal with food items. This paper points out quite rightly that food composition is more important than the taxonomic group involved. Foods high in fat and carbohydrates usually have higher AE values than those high in protein or fiber. [The Academy of Natural Sciences, 19th and the Parkway, Philadelphia, PA 19103 USA]—C. R. Blem.

25. Metabolism in Malleefowl (*Leipoa ocellata*). D. T. Booth. 1989. Comp. Biochem. Physiol. 92A:207–209.—Malleefowl are large (2 kg) birds of the arid regions of southern Australia. As is found frequently in birds of xeric habitat, Malleefowl have low standard metabolic rates. They otherwise show little physiological adaptation to their arid environment. [Dept. Zool., Univ. Adelaide GPO Box 498, Adelaide 5001, Australia]—C. R. Blem.

26. Effect of wind and air temperature on metabolic rate in Verdins, *Auriparus flaviceps*. M. D. Webster and W. W. Weathers. 1988. Physiol. Zool. 61:543–554.—One of the few studies of the effects of wind on the energetics of small birds, this paper quantifies the costs of wind on the daily energy requirements of winter Verdins. [Dept. Avian Sciences, Univ. Cal., Davis, CA 95616 USA]—C. R. Blem.

27. Energy metabolism: errors in gas-exchange conversion factors. James A. Gessaman and Kenneth A. Nagy. 1988. Physiol. Zool. 61:507–513.—Measurements of energy metabolism by means of respirometry depend upon use of appropriate energy equivalents for conversion of oxygen uptake or carbon dioxide release to energy terms. This paper establishes that the error in such calculations can be either unacceptably high or comfortably low, depending upon the conditions and the food habits of the animal involved. This is a possible "citation classic" for those of us inclined toward studies of gas exchange in birds and other animals. [Dept. Biol. Ecol. Center, Utah State Univ., Logan, UT 84322 USA]—C. R. Blem.

28. Do birds possess brown adipose tissue? S. Saarela, R. Hissa, A. Pyörnilä, R. Harjula, M. Ojanen, and M. Orell. 1989. Comp. Biochem. Physiol. 92A:219–228.—Several reviews and a variety of primary research papers have pointed out the lack of nonshivering thermogenesis in birds. However, some birds do possess adipocytes similar to those within brown adipose tissue, the primary site of nonshivering heat production in mammals. Recent claims that birds have brown adipose tissue are examined in this paper. The authors conclude that avian adipose tissue resembles white adipose tissue more than brown and that fat is not a thermogenic tissue in birds. [Dept. Zool., Univ. Oulu, SF-90570, Oulu, Finland]—C. R. Blem.

MORPHOLOGY AND ANATOMY

(see 1, 28)

PLUMAGES AND MOLTS

29. First-year plumages of Audouin's Gull. E. Mackrill. 1989. Br. Birds 82:73–77.—While some plumages of Audouin's Gull (*Larus audouinii*) have been described in considerable detail, descriptions of their first-year plumages tend to be vague or inaccurate. As their populations have increased during the past decade, the characteristics of these first-year plumages are becoming better understood. This article provides detailed descriptions of first basic and first alternate plumages, based on observations of individuals in Morocco and southwestern Spain. No attempt was made to distinguish these plumages from the comparable plumages of similar gulls. [Welton-le-Marsh, Spilsby, Lincolnshire PE23 5SY, United Kingdom]—Bruce G. Peterjohn.

ZOOGEOGRAPHY AND DISTRIBUTION

(see also 10, 44)

30. Coastal Great Blue Heron and Great Egret colonies of the Michigan Great Lakes. W. C. Scharf. 1989. Jack-Pine Warbler 67:52–65.—A survey of nesting colonies of Great Blue Herons (*Ardea herodias*) and Great Egrets (*Casmerodias albus*) on islands, peninsulas, and coastlines of the Great Lakes adjacent to Michigan was taken in 1987 and compared to a census conducted in 1977. Vegetation associated with nesting colonies (nest tree sizes and types, understory density) was quantified for some colonies, as was substrate. Data were gathered via aerial and ground counts.

Heronries in the Michigan Great Lakes increased 61.7% from 1977–1987. There were fewer unused nests in 1987 colonies, and several new colonies, with only two colonies entirely abandoned. Most of the growth was in colonies on islands and shoreline along the Upper Peninsula. In growing heronries in oak-maple-hickory forests with deep, rich soils, nests per tree increased, while heronries in aspen forests with shallow soils grew by using more trees. The former habitat type characterized more southern colonies, and the latter more northern ones. Understories varied greatly.

Using both ground and aerial counts was found to be the most reliable method of censusing nests. The relationship between colony location and location of foraging areas is discussed, as is the effect of increasing populations of nesting Double-crested Cormorants (*Phalacrocorax auritus*) on nesting herons and egrets. Recommendations are made for maintaining health of these colonies. [Dept. of Biology, Northwestern Michigan College, Traverse City, MI 49684 USA]—Malcolm F. Hodges, Jr.

31. The breeding birds of Alcatraz Island: life on the rock. W. I. Boarman. 1989. Western Birds 20:19–24.—Casual observations from May–August 1981 and April–July 1982 comprise the data base for this study of the breeding birds of Alcatraz Island in San Francisco Bay. A total of 101 species have been recorded on or near the island. Five species were confirmed as breeders: Black-crowned Night-Heron (*Nycticorax nycticorax*), Mallard

(*Anas platyrhynchos*), Western Gull (*Larus occidentalis*), Pigeon Guillemot (*Cepphus columba*), and White-crowned Sparrow (*Zonotrichia leucophrys*). Eleven other species may have attempted to breed during this time though were not confirmed breeders. This study could be used as baseline data for potential research opportunities on Alcatraz. [Dept. Biol. Sci., Rutgers Univ., Piscataway, NJ 08854 USA]—Lori A. Willimont.

32. **The return of Sandhill Cranes to Iowa.** J. Dinsmore. 1989. Iowa Bird Life 59:71–74.—Data on 61 occurrences of Sandhill Cranes (*Grus canadensis*) in Iowa were analyzed over the period 1970–1988. During the first half of the 1980s, there were an average of 4.2 reports per year, which increased to a mean of 7.5 reports per year from 1985 to 1988. Reports occurred in all months except June and August. There were 40 reports in spring, 1 in summer, 14 in fall, and 10 in winter. Most reports were of a single bird, which suggests that birds sighted in Iowa are stragglers. There were a few reports of flocks of Sandhill Cranes, the largest of which consisted of 250 birds. The increased frequency of sightings in Iowa is probably due to both an increase in actual occurrences and more birders in the field making reports. Cranes sighted in Iowa may be stragglers from large flocks which pass through Nebraska on their way to arctic nesting grounds, birds that nest in northwest Ontario and migrate southwestward through Minnesota, or strays which nest in Wisconsin, Michigan, Minnesota, and Canada. The author discusses the possibility of Sandhill Cranes nesting in Iowa within the next few years. [4024 Arkansas Dr., Ames, IA 50010 USA]—Robin J. Densmore.

33. **The Mississippi Kite in the environmental history of the southern Great Plains.** E. G. Bolen and D. L. Flores. 1989. Prairie Nat. 21:65–74.—This paper traces the Mississippi Kite (*Ictinia mississippiensis*) through history from its description in 1806 by Peter Custis and again in 1811 by Alexander Wilson. Unique feeding habits and diet were described in the early 1800s, but its habits have changed due to man's habitat alterations. Mississippi Kites are now associated with shelterbelt and settled areas rather than only with riparian habitats. [Dept. Bio. Sci., Univ. of N.C. at Wilmington, Wilmington, NC 28403 USA]—Lori A. Willimont.

SYSTEMATICS AND PALEONTOLOGY

(see also 19, 42)

34. **Taxonomic considerations of some species of birds breeding in Sicily.** (Considerazioni tassonomiche su alcune specie di uccelli nidificanti in Sicilia.) A. Priolo. 1988. Riv. Ital. Ornithol. 58:105–124 [Italian, English summary.]—The concept of subspecies is receiving new attention in Italy. This paper is a literature review of the subspecies of 31 birds breeding in Sicily. These include a broad assemblage of passerines and non-passerines. No quantitative data are provided, but the author is suggesting a more analytical approach and reevaluation of current taxonomy. [Piazza Duca di Camastra 25, 95126 Catania, Italy]—Jerome A. Jackson.

EVOLUTION AND GENETICS

(see also 10, 11, 13, 14)

35. **Coloration in New World orioles: tests of predation-related hypotheses.** N. J. Flood. 1989. Behav. Ecol. Sociobiol. 25:49–56.—Traditionally sexual dichromatism in birds has been attributed to sexual selection; however, some workers hold that coloration in birds is strongly influenced by selection pressures associated with predation. The author studied Scott's Orioles (*Icterus parisorum*) in the Big Bend area of west Texas, and Altamira Orioles (*I. gularis*) in the Mexican state of Tamaulipas in order to test the "Predator Deflection Hypothesis." This hypothesis suggests that the conspicuous appearance of some birds (usually males) serves to draw the attention of potential predators away from more cryptically-colored birds (usually females and/or young). Both male Scott's and Altamira orioles are brightly colored, as are female Altamiras. However, male Scott's Orioles, in their first potential breeding season, exhibit delayed plumage maturation and resemble the more cryptically-colored females. This allowed the author to compare nest predation rates of

Scott's Oriole pairs with brightly-colored males to pairs with cryptic males. No significant differences between the predation rates on nests of cryptic vs. conspicuous males were detected in either 1982 or 1983, contradicting the Predator Deflection Hypothesis. Additionally, males and females of both species were almost always equally aggressive to predator models placed near their nests (the response of brightly-colored Altamira females relative to the male response was even consistently weaker than the response of cryptically-colored Scott's females). These results do not support the idea that bright coloration in the genus *Icterus* evolved as a result of predation-related selection pressures. [Dept. Zoology, Univ. of Toronto, 25 Harbord St., Toronto, Ontario M5S 1A1, Canada]—Danny J. Ingold.

36. Male traits expressed in females: direct or indirect sexual selection? K. E. Muma and P. J. Weatherhead. 1989. Behav. Ecol. Sociobiol. 25:23–31.—Colored epaulets in female Red-winged Blackbirds (*Agelaius phoeniceus*), although duller than those in males, could function in intrasexual competition for breeding opportunities with males (direct sexual selection). On the other hand, their existence may stem only from a genetic correlation with a trait selected for only in males (indirect sexual selection). To test these hypotheses, the authors conducted a series of experiments near Kingston, Ontario, in which they presented both wild male and female red-wings with models of female red-wings which possessed epaulets varying in their degrees of brightness. In addition, numerous female red-wings were captured and examined during consecutive breeding seasons. Older females tended to have brighter epaulets than younger individuals, and females with brighter epaulets tended to initiate nesting earlier than those with duller plumages (these observations weakly support both hypotheses). However, males observed at the nest allocated their assistance independently of their mate's plumage.

When females were presented with models, the occurrence of their attacks was independent of both the model's plumage and their own. When males were presented with models, they showed a clear lack of preference for the model's plumage when attempting to copulate with them. These results suggest that bright plumage in female Red-winged Blackbirds is not functional, but rather is due to a genetic correlation with the trait in males. [Dept. Biology, Carleton Univ., Ottawa, Ontario K1S 5B6, Canada]—Danny J. Ingold.

FOOD AND FEEDING

(see also 24)

37. Diets of five species of desert owls. C. W. Barrows. 1989. Western Birds 20: 1–10.—The diets of five species of owls from southern California deserts were determined from the contents of regurgitated pellets. The five species studied were: Common Barn-Owl (*Tyto alba*); Great Horned Owl (*Bubo virginianus*); Long-eared Owl (*Asio otus*); Western Screech-Owl (*Otus kennicottii*); and Burrowing Owl (*Athene cunnicularia*). The 3 sympatric species, Long-eared Owls, Common Barn-Owls, and Great Horned Owls were found to have similar predatory capabilities and preferences. [53277 Avenida Diaz, La Quinta, CA 92253 USA]—Lori A. Willimont.

35. Diet of Redwings (*Turdus iliacus*) wintering in olive groves of Southern Spain. (Alimentacion del zorzal alirrojo (*Turdus iliacus*) durante su invernada en olivares de jaen (sur de España).) M. Soler, J. A. Perez-Gonzalez, E. Tejero, and I. Camacho. 1988. Ardeola 35:183–196. (Spanish, English summary, table captions.)—Redwings are the dominant species wintering in olive groves of southern Spain. Stomach contents of 88 Redwings from 1980–1984 were analyzed. Vegetable matter made up 85.7% of the total biomass, with olive fruits (*Olea europaea* var. *europaea,* contributing 97% of the vegetable biomass. Coleoptera (51.3%) and larvae (15.5%) accounted for most of the animal matter. [Dept. Bio. Animal, Ecol. & Gen., Univ. of Granada, 18001 Granada, Spain]—Lori A. Willimont.

39. Tree trunk arthropod faunas as food resources for birds. A. T. Peterson, D. R. Osborne, and D. H. Taylor. 1989. Ohio J. Sci. 89:23–25.—The composition and abundance of surface arthropod faunas were studied with respect to tree trunk characteristics in a beech (*Fagus grandifolia*)-sugar maple (*Acer saccharum*) forest in southwestern Ohio. Despite a highly uneven distribution of arthropods within this forest, live surface-dwelling arthropods became less abundant as winter approached, while coccoons and egg masses remained fairly stable. There was no difference in arthropod faunal composition between these tree species. The absence of correlation between faunal composition and tree trunk characteristics suggested that tree surface features offered few reliable clues concerning their arthropod resource levels. Since only two species of trees were studied, whether or not these findings are applicable to all species in this midwestern deciduous forest community remains to be determined. [Dept. Zoology, Miami Univ., Oxford, OH 45056 USA]—Bruce G. Peterjohn.

SONGS AND VOCALIZATIONS

40. Squeal call of the Hen Harrier at winter roost. R. Harold. 1989. Br. Birds 82:93–96.—Winter vocalizations of Hen Harriers (*Circus cyaneus*) are largely confined to chattering notes given at or near communal roosts. Females also give a shrill squealing call, usually associated with antagonistic behavior near these roosts. These calls were mostly given when harriers attempted to displace roosting individuals, but were occasionally made during pre-roost gathering. Similar calls were also heard during encounters between harriers and European Sparrowhawks (*Accipiter nisus*). These calls were described, and a sonogram was provided. Whether or not similar calls are regularly made by harriers elsewhere in their extensive range remains to be determined. [Warden's House, Ramsey Heights, Huntingdon, Cambridgeshire, United Kingdom]—Bruce G. Peterjohn.

BOOKS AND MONOGRAPHS

41. The birder's handbook: a field guide to the natural history of North American birds. P. R. Ehrlich, D. S. Dobkin, and D. Wheye. 1988. Simon & Schuster, Fireside, New York. xxx + 785 pp., numerous line drawings by S. Naeem. $24.95 (hardcover), $14.75 (paperback).—This book is an absolute must for anyone interested in birds. It is, as its cover states, "The essential companion to your identification guide." It contains no plates or drawings to aid in field identification (it does reference the page or plate number for the currently available major field guides), but rather begins where the usual field guides end, and presents information primarily on the breeding biology and foraging ecology of each bird species.

The layout of the book has the highly condensed species treatments, two per page, on left-hand pages; essays on a wide variety of avian topics are on the right. The treatments cover the roughly 650 regularly nesting Northern American species (not including Hawaiian species or exotics for which essays are, however, presented). These descriptions include a line of annotated symbols which describe breeding and foraging biology, such as the nest type and location, number and marking of eggs, type of breeding system, who incubates, length of time till fledging, primary and secondary foods, and foraging behavior, etc. Then follows a text paragraph which elaborates on the previous condensed information line and adds notes on displays, conservation, or other interesting aspects of the species' biology. The treatment concludes with a list of the essays which pertain to the species and a few key references.

The approximately 250 essays are a veritable text book of avian biology. They encompass such diverse topics as dominance hierarchies, DNA-hybridization, island biogeography, bird banding, optimally foraging hummingbirds, anting, sexual selection, bird droppings, and biographical sketches of 31 bird biologists. They are located in the text across from appropriate species when possible, but there are often several essays relevant to the same species, and some essays are two or three pages long. The essays are, however, indexed in each species account, and they have been topically indexed in an appendix. The essays are clearly written, accurate, and point out areas where information is unknown or equivocal. They make fascinating reading.

The appendices include the essays on Hawaiian bird biology, feral birds, and pelagic birds—presumably because these topics were not covered in the species treatments. In addition there is an important essay on DNA and passerine classification. The bibliography includes some 1600 references and alone is worth more than the modest cost of this book.

On the negative side, although the book generally follows the taxonomic order of the

A.O.U. *Check-list,* the species treatments are a continuous listing without taxonomic order and family designation. Presumably one can get this information from the referenced field guides. The authors do, however, include references to superspecies complexes. The use of symbols and the frequent abbreviations may put some users off initially. The authors have attempted to compensate for any difficulty with the symbolic style and make it "user friendly" by printing the symbols, abbreviations, and definitions on the inside of the front cover, and a key to the species treatments inside the back cover. An hour or so of practice should eliminate any real confusion. The book appears to be well edited, although surprisingly a number of the references presented in the species treatments are missing from the bibliography.

On the positive side, the book contains an enormous wealth of information presented in an easily usable format. Some readers would probably prefer to have the essays located separately from the species treatments, but I rather like the integrating nature of the mixture. The book encourages the bird watcher to record observations of behavior and breeding biology in a systematic way so that the natural history data base for North American bird species can be extended. The book could be entitled "Beyond listing," and should promote an expanded interest in birds for thousands of bird watchers.

The book is not a field guide, but rather a handbook which does not easily fit into a pocket, but should fit into the glove compartment of every bird watcher's car. I bought a second copy so that I could have one in my library and one to beat up in the field. This book facilitates bringing new dimensions of interest to the bird watcher, and is invaluable for the professional as well.—William E. Davis, Jr.

42. The known birds of North and Middle America: Part I. A. R. Phillips. 1986. Privately printed (can be obtained from Dept. of Zoology, Denver Museum of Natural History, City Park, Denver, CO 80205, USA). lxi + 259 pp., 9 text figures, 2 color plates by Anne Pulich. $60 (hardcover).—This is a truly "different" book, fundamentally divided into three parts, with a highly polemical 61-page introductory section followed by a treatment of the systematics of the Oscine families Hirundinidae, Corvidae, Laniidae, Paridae, Aegithalidae, Remizidae, Sittidae, Troglodytidae, Cinclidae, Pycnonotidae, Timaliidae, and Mimidae, with the Certhiidae placed in *Familia incertae sedis.* A series of brief appendices by other authors comprise the third portion of the book.

The extensive introductory remarks present the strongly held views of the author about the status of ornithology, collecting, "modern" techniques, and just about everything else. Phillips pulls no punches, and his attacks on persons and a wide range of organizations are blunt, sometimes repetitive, and stinging. Most readers will find the polemical nature of the introductory materials discomforting, and eventually will find themselves either personally, or as a member of some organization, under attack. Phillips does not trust sight records, in many places promotes collection of vagrants and the expansion of museum collections, and blasts bird watchers. We see this bias early as he explains the book's title (p. xvii), "Another reason for stressing *known* birds is the ever-increasing flood of erroneous information being published. This is of many kinds, but a large part stems from the game of bird golf ("listing" or "ticking" birds), which places a premium on misidentifications," and (p. xviii), "Only True Believers who never collect birds, nor (in some cases) even *study* them in collections, claim Infallibility." He laments the passing of ornithology as a "serious science," harking back to the days of Ridgway when it was not encumbered by (p. xx), ". . . modern competitive and commercial aspects (tours, 'projects,' etc.)," and when a few individuals worked for, ". . . the then non-political, honest, fore-runner of the present U.S. Fish and Wildlife Service." He attacks ecology and current granting policies (p. xix), "Granting agencies supported primarily ecological research (which drifted farther and farther from reality), picayune projects to 'prove' idle theories, biochemical errors, other exciting discoveries such as laborious, impressive 'scientific' proof (by expensive machinery, profiting industry) that chests of *Passer* skins are tinged with the exact color of the soils in which (as known to observant housewives and children, but not to the National Science Foundation and its modern researchers) they dust-bathe; thus proving 'rapid adaptive evolution'; and similar absurdities." Sarcasm abounds throughout the book, and few are spared. Phillips launches a special vendetta against the A.O.U. Check-list Committee (p. xxvii): "For further mirth and merriment, note the universal acceptance of the 1983 A.O.U. 'Check-list,' with all its contradictions. . . ." He has no use for (p. xx), ". . . teaching silly modern fads, theories, and statistics." He refers to those opposed to collecting as (p. xl), ". . . the unthinking fanatic 'conservationists' who blindly believe we can preserve birds simply by opposing the direct killing of *individuals* . . . ," and finally, while discussing life on Earth, blasts mankind in general, "If nuclear politicians and militarists do not wipe most of it out, the modern plague—today's over-abundant rat or dinosaur, unthinking, greedy, stressed, desperate *Homo sap.*—bids fair to . . . ." He decries the de-emphasis of subspecies, blasts the ornithological literature of today, and basically shuns anything that would be classified as "modern" science. Nevertheless, if not completely put off by the sarcastic and abusive nature of this material, most readers may find kernels of truth buried in the polemics. It is, perhaps, healthy to have a curmudgeon force us to rethink positions which, in many cases, have taken on the air of complacency and "truth." Certainly, there is not much which most consider modern which is not challenged by this book. In general, Phillips gives careful literature citations to support his contentions so that an interested reader can check out his accusations.

The second section of the book consists of about 200 pages of references, systematics, distribution, and migration data on the 13 families of birds. In addition Phillips includes keys to the North and Middle American species of the Hirundinidae (swallows etc.), and two genera of Troglodytidae (wrens). Phillips attempts to bring the work of Ridgway and Hellmayr up to date. He provides a series of references for each family, and in the species accounts he provides English, Spanish, and French common names, breeding and winter distribution, and migration notes, as appropriate. Phillips considers subspecies very important, and thus they are given careful treatment, including a discussion of synonyms, characterizations, ranges, and often wing, tail, and bill measurements. He includes descriptions of 23 new subspecies of his own, as well as 3 by J. Dan Webster, and 8 by Amadeo M. Rea. The appendix dealing with geographic variation in *Certhia americana* was also contributed by Webster, and the remaining appendices by Rea. The somewhat polemical nature of Phillips's writing style continues in the systematics section with "erroneously" or "dubiously" reported sections for many species. A typical caustic remark concerning winter reports of Purple Martins (*Progne subis*) states (p. 6), "There are also the usual out-of-season 'sightings' . . . in Texas, where talented 'birders' are also wont to see these endless wonders which somehow elude less exuberant ornithologists." Phillips often gives the source of "erroneously reported" birds, but no explanation of why he considers them erroneous (presumably lack of specimens in many cases). Many citations in his "Remarks" or "Erroneousely reported" sections refer to one of the A.O.U. Check-lists, and highlight his many disagreements with the committee. He also has some strong disagreements with the International Commission on Zoological Nomenclature.

Phillips's work seems careful, thorough, and well-documented, and hence should be carefully examined by anyone working with any of the included taxa, particularly at the subspecific level. The book is remarkably free of typographical errors, although the table of contents does not have all the figures and plates located properly. The subject and author index was correct for those entries I checked. The inclusion of abbreviated reference citations in the text was not to my liking. I would much prefer a references section which includes titles for the references. I think that the book would have benefited from elimination of repetition in the polemical statements. Every ornithologist should read the introductory material, and those working on systematics should have a copy in their library. There is an outrageous tone to much of the book, but to dismiss it on that account would be a mistake. After initial feelings of resentment, I found the book rather refreshing and certainly most interesting reading. I am not trained in systematics but I suspect that under the polemical surface the book contains some pretty good science.—William E. Davis, Jr.

43. Bird conservation, 3. J. A. Jackson (editor). 1988. University of Wisconsin Press, Madison. viii + 177 pp. $17.50 (hardcover), $12.95 (paperback).—This volume is the third in a series begun in 1983 by the U.S. Section of the International Council for Bird Preservation (ICBP). The first volume dealt with birds of prey and the second with endemic island birds. This volume focuses on North American forest ecosystems and their birds. As the editor points out in the Preface, the book deals with selected forest ecosystems and emphasizes endangered species and avifaunal changes. Jackson states that many of the more serious problems facing forest birds result from human population pressures, industrial pollution, and forest management practices which promote short-rotation monocultures to maximize economic gain.

The first chapter, "The influence of silvicultural activity on Ponderosa Pine forest bird communities in the southwestern United States" by J. D. Brawn and R. S. Balda, reports on historical changes in ponderosa forests and evaluates different silvicultural practices using breeding-bird census data on plots ranging from clearcut to old-growth forest. The authors suggest that habitat modification can influence avian community structure, and that a shift to clearcutting practices and the demand for cheap fuel wood pose threats to this forest ecosystem. "Breeding birds and forestry practices in the Ozarks: past, present, and future relationships" by K. C. Smith and D. R. Petit presents an in-depth history of forestry practices in the Ozarks and associated changes in avian community structure. "Bird communities in oak-gum-cypress forests" by J. G. Dickson points out the drastic reduction which has already occurred in this forest type, and stresses the need to protect the remainder from destruction. "Large-scale changes in bird populations of Douglas-fir forests, northwestern California" by M. G. Raphael et al. incorporated breeding bird data from different seral stages. The authors predicted that, although no species are likely to be eliminated from this forest type, as the forest becomes dominated by younger timber there will be major changes in abundance.

The fifth chapter, "Cavity-nesting birds of North America: past history, present status, and future prospects" by C. S. Adkisson, breaks with the general pattern of this book by covering the problems encountered by cavity-nesting birds in all of the North American forest ecosystems. Adkisson concludes that management goals should include the maintenance of forest heterogeneity, and protection of old forest patches to provide cavities, and protection of large tracts for particularly vulnerable species such as the Spotted Owl (*Strix occidentalis*) or the Red-cockaded Woodpecker (*Picoides borealis*). The concluding chapters, "Birds of the southern Appalachian subalpine forest" by G. A. Hall, and "The southeastern pine forest ecosystem and its birds: past, present, and future" by J. A. Jackson, complete the coverage of forest ecosystems. Hall discusses the changes that are occurring in the subalpine forest due to insect infestations and possibly acid rain, and predicts catastrophic changes in the forest's tree composition. Jackson also presents a gloomy future for the southeastern pine forests. He argues that troubled species such as the Red-cockaded Woodpecker can tolerate selective cutting practices but that clearcutting practices are likely to be devastating. Forest fragmentation is a problem common to many of the forest ecosystems.

This *Bird Conservation* series has undergone some substantial changes since 1983. The "Bird conservation news and update" section has dropped from 30 pages in volume 1, and 5 pages in volume 2, to 2 pages in this volume dealing with the status and conservation of woodpeckers by L. L. Short. The sections "Review of bird conservation literature," which were 14 page bibliographies in volumes 1 and 2, have been reduced to a single book review by C. D. Cooley in volume 3. These reductions may reflect the fact that the U.S. Section of the ICBP now publishes a newsletter for their membership. It seems reasonable that the news and update section be dropped in future volumes, and that the literature review section be strengthened or dropped.

The essays in this volume are a valuable contribution to the conservation literature. They underscore the need to attack conservation problems at the ecosystem or national level, the importance of biopolitics, and the complexity of the problems conservationists face. Important also is the historical perspective which the chapters provide, particularly in the chapters by Smith and Petit, Hall, and Jackson. The book suffers from the unevenness of presentation and quality which inevitably accompany compendiums of invited papers. But on the whole the quality is good, and for active conservationists the references alone are worth the modest price. This series of books, each focusing on an area important to bird conservation, can be useful to amateurs or professionals, and occupies an important niche in the conservation literature.—William E. Davis, Jr.

44. Birds in Ireland. C. D. Hutchinson. 1989. Irish Wildbird Conservancy, distributed by Buteo Books, Vermillion, South Dakota. 215 pp., numerous maps, graphs, and black-and-white line drawings. $55, hardcover.—This most recent volume on the birds of Ireland is the first to take advantage of the mass of data compiled by breeding and wintering bird surveys. *Birds in Ireland* emphasizes the past 20 years, essentially updating previous works by other authors. The format includes introductory pages on "Factors affecting the distribution of birds" which details the topography and climate of Ireland and identifies important wetland and seabird colony sites, discusses changes in agriculture and forest composition and extent, and the spread of urban habitats. Next comes a discussion of the history of Irish ornithology, placing special emphasis on the role of ornithology in bird conservation efforts. Hutchinson then draws attention to species whose status has changed in recent years. This introductory material (47 pages) is very well written and provides a foundation for the species accounts which comprise the remainder of the book.

Species accounts include distribution, status, ecology, migration, and other subjects of interest, varying from species to species with availability of information. Rather complex histograms detail the seasonal occurrence of selected species. Tables of counts per county provide details of relative abundance. The black-and-white sketches by John Busby are refreshing additions.

The two things that impressed me most about this book were (1) the very heavy reliance on sight observations and survey data, and (2) some of the data for North American species which have been recorded in Ireland. Among the latter are numerous records for 7 wood warbler species (Parulinae)—all of which were fall records, and several records of three emberizine sparrows—all of which were spring records. In short, the summary of data provided here for Irish birds is a must for birders travelling to Ireland, but is also fodder for ruminating ornithologists anywhere. This is a volume worthy of attention.—Jerome A. Jackson.