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RECENT LITERATURE

Edited by Robert C. Beason

RESEARCH TECHNIQUES

(see 25)

BEHAVIOR

(see also 5)

1. Juvenile dispersal of the Great Tit (*Parus major*). [Zur Jugendstreuung der Kohlmeise (*Parus major*)]. H. Huddle. 1995. Vogelwarte 38:1–9. (German, English summary.)—The dispersal of Great Tits banded as nestlings was monitored from 1968–1993. During the first 15 weeks, 80% of male and female recaptures were within 500 m of their natal home. Females dispersed farther than males with 33% of females and 20% of males moving more than 500 m within the first year. Nineteen percent of juvenile males and 29% of females moved 500–1000 m. There was little dispersal thereafter. Siblings were more similar in the distance and direction they moved than nonsibs. [Rüstermark 2, D-45134 Essen, Germany.]—Robert C. Beason.

2. Blood parasites and dominance in captive blackbirds. P. J. Weatherhead, K. J. Metz, D. Shutler, K. E. Muma, and G. F. Bennett. 1995. J. Avian Biol. 26:121–123.—The notion that haematozoa parasites influence the evolution of secondary sexual traits in birds rests on the assumption that parasites actually reduce host fitness. Yet, evidence for this assumption is equivocal. One problem in assessing parasitism costs is that infected individuals may alter their behavior to reduce the cost of being parasitized (e.g., an infected male might avoid competitive interactions with other males). In this paper, Weatherhead et al. examine dominance relationships relative to parasite loads in Red-winged Blackbirds (*Agelaius phoeniceus*) and Brown-headed Cowbirds (*Molothrus ater*) kept in aviaries and forced to compete for food. They posited that if haematozoa infections are costly, infected birds should be subordinate to uninfected birds to avoid the cost of fighting. Based on blood smears collected either (1) when birds were placed in the aviary or (2) just before their release, birds were classed as either parasitized or unparasitized. Data from 41 birds sampled at both periods indicated that captivity had no consistent effect on an individual's parasite status. Among redwings, unparasitized males won significantly more interactions than parasitized males in one of two studies, whereas no difference was found among females. Wing-length measures in redwings indicated that the relationship between dominance and parasite load was not confounded by body size differences. Unparasitized male cowbirds (females were not tested) won more than twice the number of interactions than parasitized males, but the difference was not significant (perhaps owing to small sample sizes). Thus, the relationship between dominance and parasite status was variable. The authors speculate that this variation was due in part to variation in environmental conditions that affect the cost of being parasitized. [Dept. of Biology, Carleton Univ., Ottawa, ON K1S 5B6, Canada.]—Jeff Marks.

FOOD AND FEEDING

(see also 22, 24, 26)

3. Occurrence and density of Mallard and Green-winged Teal in relation to prey size distribution and food abundance. P. Nummi, J. Elmberg, H. Pöysä and K. Sjöberg. 1995. Ann. Zool. Fennici 32:385–390.—The availability of prey size classes was compared to their frequency in the diets of Mallards (*Anas platyrhynchos*) and Green-winged Teal (*Anas crecca*) in 60 lakes of Finland and Sweden. The habitat surrounding the lakes varied from broad-leaved deciduous forest (southern Sweden) to northern coniferous forest (northern Finland). There were no significant differences in the size distribution of potential prey in lakes occupied by Mallards, teal or both. Mallards preferred the largest sized prey (12.6–20 mm) and rarely took the smallest sized prey (0–2.5 mm), but their selection was not influenced by the relative abundances of the prey. Teal took prey in proportions more similar to their abundances, but became more selective as prey abundance increased. The densities of both

species were correlated with the densities of their food, and with each other. The authors concluded that there was little or no interspecific competition between these species. Although the authors' conclusions appear to be consistent with their analyses, a more through presentation of their data would have been more convincing. [Dept. of Applied Zoology, P.O. Box 27, FIN-00014, Univ. of Helsinki, Finland.]—Robert C. Beason.

4. Predation risk and the cost of being fat. A. G. Gosler, J. J. D. Greenwood, and C. Perrins. 1995. Nature 377:621–623.—Great Tits (*Parus major*) were captured and weighed in the Wytham Woods, Oxfordshire by the Edward Grey Institute from 1951–1993 between Oct. and March. Body mass was adjusted for size (based on wing length), time of day, and mean ambient temperature on the day of capture. Analyzing 5,194 observations, with 100 from before 1965, the authors conclude that Sparrowhawk (*Accipiter nisus*) predation had a significant effect on the tits' body sizes. Tit body size increased when Sparrowhawk populations declined in the late 1950s and 1960s as a result of organochlorine pesticide poisoning. Following regulation of pesticides, sparrowhawks increased rapidly and recolonized many areas during the 1970s and 1980s. Correlated with this increase in Sparrowhawk populations was a decrease in the body size of the tits. The authors conclude that predation risk is a major cost in determining the optimal fat levels of small birds because increased fat loads reduce maneuverability. The changes in mean mass between 1969 and 1993 was primarily (90%) due to individual birds reducing their fat loads. Consequently, the response to predation did not result from selection against fat birds, but from a decrease in the amount of fat stored by tits resulting from the trade-off between the risk of starvation versus the risk of predation. [Edward Grey Inst. of Field Ornithology, Dept. of Zoology, South Parks Rd., Oxford OX1 3PS, U.K.]—Robert C. Beason.

SONGS AND VOCALIZATIONS

(see 8, 27)

NESTING AND REPRODUCTION

(see also 20, 34)

5. Extra-pair paternity and male characteristics in the Pied Flycatcher. O. Ratti, M. Hovi, A. Lundberg, H. Tegelstrom, and R. V. Alatalo. 1995. Behav. Ecol. Sociobiol. 37:419–425.—Although Pied Flycatchers (*Ficedula hypoleuca*) are generally considered to be monogamous, numerous studies have reported that extra-pair copulations (EPCs) do occur in this species at a rate estimated by Alatalo of about 29%. In order to determine the influence of male coloration (perhaps an indicator of male quality) on female choice of EPC males with whom they mate, the authors studied a population of Pied Flycatchers nesting in nest boxes in central Finland during the 1990 breeding season. Blood taken from 223 nestlings and 72 adult flycatchers was used in DNA fingerprinting to determine the extent to which extra-pair fertilizations (EPFs) were actually accomplished. Twenty-four offspring (11%) from 8 of 36 broods (22%) had more than three mismatched DNA bands; moreover, these nestlings shared a large proportion of bands with their putative mothers, suggesting that these findings are not the result of intraspecific brood parasitism. No measured male traits (determined from logistic models) were correlated with the number of EFCs a male achieved, nor did male coloration have any effect on the presence of extra-pair young (EPY) in his nest. The probability that a nesting pair had EPY in their nest, although not correlated with any male or female morphological trait, was significantly linked to low band-sharing coefficients between the two. No difference was detected in clutch size, laying date, young fledged, or hatching success between pairs with EPY and those without. The authors suggest that pairs that were genetically less similar were more apt to engage in EPFs and that females may have been avoiding outbreeding. On the other hand, simple incompatability between genetically dissimilar mates may have resulted in females seeking more EPCs. [Dept. of Biology, Univ. of Jyvaskyla, Yliopistonkatu 9, FIN-40100 Jyvaskyla, Finland.]—Danny J. Ingold.

6. Egg size in the Great Tit *Parus major*: individual, habitat and geographic differences. P. Hõrak, R. Mänd, I. Ots, and A. Leivits. 1995. Ornis Fennica 72:97–114.—Two neighboring breeding Great Tit populations from contrasting environmental conditions (poor urban v.

rich rural) in southeast Estonia were examined to determine the effects of factors affecting egg dimensions. Comparisons of egg size and shape were evaluated using four parameters: length, breadth, volume and sphericity, or egg shape index. A graphics digitizer was utilized for estimating egg dimensions and volume. Egg volume was calculated from the contour using trapezoidal integrations, thereby eliminating the influence of individual differences in egg shape. Analysis of individual eggs revealed that all egg traits were significantly correlated with each other except for shape and size, although egg length and breadth correlations were low. Egg size variation was found to be highly heritable, but the physiological condition of the laying female also was found to be a contributing factor in both populations. All females laying large eggs were found to be in better condition in the nestling stage. This suggests that egg size might be useful in examining individual phenotypic quality. No seasonal changes were found in egg sizes in the rural populations, while the urban populations demonstrated a seasonal decrease in egg size, suggesting at least in poor habitat, egg size is a reflection of the female condition The authors suggest that this phenomenon is most probably the result of poor phenotypic quality among late breeders. Egg and clutch size tended to be positively correlated among Great Tit populations, possibly indicating that both these variables are proximately food-limited in some populations, although a simultaneous increase in egg and clutch size may be a byproduct of latitudinal trends in both body and clutch size. [Animal Ecology Section, Inst. of Zoology and Botany, Univ. of Tartu, Vanemuise St. 21, Tartu EE-2400, Estonia.]—Sue Bennett.

7. The Red-backed Shrike *Lanius collurio* in southeastern Sweden: breeding biology. V. Olsson. 1995. Ornis Svecica 5:101–110.—This paper is a report on a 38 year study (1956–1994) on the breeding biology of Red-backed Shrikes in Gryt, southeastern Sweden. The birds at this site demonstrated a high degree of adaptability in regards to nest site choice and nest construction. The typical nesting habitat of open meadows and shrub rich pastures have been declining and are being replaced with contemporary spruce plantations. In the 20 year period of 1959–1979, only 5.6% of nests were located in young spruce, compared to 9% in the study years of 1980–93. The author noted several negative effects of nesting in young spruce, with the most profound being an increase in the predation rate. Nest loss was high (19.8%) regardless of site, with the majority of the loss attributed to predation. Mean clutch size was 5.3 eggs when all layings were considered. Overall, clutch size decreased markedly through the course of the summer. The average fledging rate for all nests was 3.4. Of those nests from which at least one young fledged, the fledging rate was 4.3. Juveniles remained in the vicinity of the nest site up to one month post-fledging, after which they generally departed, often still together with and attended by the adults. Over the study period, this population experienced no population decline, contrary to what was occurring in the northern region of this birds' breeding area. The author suggests that the northern region populations may be more susceptible to bouts of bad weather. At this study site, substantial differences in breeding success in favorable versus unfavorable springs were noted. The extent to which losses along the migration route contribute to the overall population decline remains unknown because little is known about mortality outside of Sweden. [Stigarvägen 1, 611 65 Nyköping, Sweden.]—Sue Bennett.

8. Song rate as a signal for nest site quality in Blackcaps (*Sylvia atricapilla*). M. Hoi-Leitner, H. Nechtelberger, and H. Hoi. 1995. Behav. Ecol. Sociobiol. 37:399–405.—Since singing birds must divide their time between singing and foraging and since foraging time is partially a reflection of food abundance, song output should serve as an honest measure of both male quality and territorial quality. In a previous study the authors found that females did indeed prefer males with higher song outputs even when there was no correlation between high song rate and the degree to which males later participated in incubation and the feeding of offspring. In this study the authors examined Blackcaps for two breeding seasons near Winden in eastern Austria in an attempt to determine whether song output in males can be used by females to asses nest site quality and predation risk. Although 11 of 23 Blackcap nests (48%) were destroyed by various predators, females with successful nests chose males with higher song outputs during the premating and nesting phases significantly more often than did females with depredated nests ($P < 0.03$). Successful nests were characterized by higher vegetation density than depredated nests and a strong positive correlation was

detected between vegetation density around nests and song rate in unmated males. Males with higher quality territories in terms of nest-site cover were more apt to defend them against conspecifics; these same successful males use higher, more conspicuous song posts surrounded by less vegetation than did males with unsuccessful nests. Partial correlation analyses revealed that female preference for nest sites was not related to vegetative characteristics but rather significantly correlated to male song rate ($P < 0.05$). These data demonstrate that not only do females prefer males with higher song rates, but that males with higher song rates control territories in which the risk of predation is lower. [Konrad Lorenz Institut für Vergelichende, Verhaltensforschung, Savoyenstr. La, 1160 Vienna, Austria.]—Danny J. Ingold.

9. Protecting nest boxes from snakes (and other climbing predators). L. D. Wood. 1996. Sialia 18:7–10.—The author describes his success with a variety of bluebird-box predator control devices, some of which are fairly convential (PVC pipe and wheel bearing grease), but one that is apparently novel in the bluebird literature. About 0.3 m below each nest box the author attaches a 1.3 m square piece of heavy duty 2 cm mesh, galvanized steel hardware cloth to the PVC pipe surrounding the nest-box pole. This barrier fans out like an umbrella beneath the nest box and prevents all potential predators from climbing the nest-box pole more than two-thirds of the way up. Most notably, this device deterred large rat snakes (*Elaphe obsoleta*) which were capable of circumventing a similar protective steel cloth barrier about 0.8 m square in size. [2800 James Dr., Alexandria, VA 22303, USA.]—Danny J. Ingold.

10. Intraspecific brood parasitism in two tit *Parus* species: occurrence and responses to experimental parasitism. B. Kempenaers, R. Pinxten, and M. Eens. 1995. J. Avian Biol. 26: 114–120.—Intraspecific brood parasitism is relatively rare among birds with altricial young. Based on frequent nest inspections, DNA fingerprinting, and a literature survey, the authors determined that intraspecific brood parasitism does not occur in Blue Tits (*Parus caeruleus*) or Great Tits (*P. major*). To determine whether the lack of brood parasitism results from effective antiparasite strategies in the hosts, the authors experimentally parasitized 75 Blue Tit nests and 51 Great Tit nests (using plastic eggs painted to mimic tit eggs) before and during egg laying. Blue Tits accepted mimetic eggs readily, incubating 93% of those provided. Great Tits accepted 67% of the mimetic eggs; the remainder either were covered with nest material (18%), deserted (12%), or had disappeared (4%). The deserted nests may have been abandoned before the experiments, and predators were thought to have taken the eggs that disappeared. Both species accepted 100% of the eggs added just before (within 2 days) and during laying. The authors conclude that neither species parasitizes conspecifics (or if they do, hosts use defenses other than egg rejection). Potential reasons for this apparent lack of parasitism are that (1) females of both species aggressively defend nest holes during laying (a direct observation), and (2) females do not benefit from laying in a neighbor's nest (a bit of arm-waving). [Dept. of Biology, Queen's Univ., Kingston, ON K7L 3N6, Canada.]—Jeff Marks.

11. Nest and egg crypsis in the ground-nesting Stone Curlew *Burhinus oedicnemus*. J. C. Solís and F. de Lope. 1995. J. Avian Biol. 26:135–138.—Stone Curlews lay cryptic eggs whose camouflage may be enhanced by the material they add to the nest. In this study, the authors removed nest material to determine whether (1) nest material matched the nest substrate, (2) birds consistently used the same types of material at a specific site, and (3) birds chose substrates that matched the color of their eggs. All material was removed from 22 nests soon after clutch completion and again 48 h later. Material was tallied and assigned to one of 7 size classes. Nest material was compared with material found in 4 random samples within 2 m of each nest. Egg color and nest substrate color were compared with a Munsell color chart. Both the density and the size of material inside nests was different than that at nearby random sites. Nests had a higher density of material (the authors failed to state whether nest material averaged larger or smaller than surrounding material). Stone Curlews rebuilt their nests with similar amounts and sizes of material, further supporting the notion that they were selective in their choice of material. Four colors of sand occurred in the study area, and in every case measured, the background color of eggs had the identical hue as the sand in which the birds nested. Moreover, eggs and nesting substrate did not differ signifi-

cantly in darkness or in chroma. Thus, for all clutches, egg color and substrate tended to match. Considering chroma and darkness, hatching success was significantly higher when eggs matched the nesting substrate than when they did not. Avian predators took a much higher proportion of eggs at non-matching nests than at matching nests. On balance, this study provided convincing evidence that selective use of nest material and choice of nesting substrate improved crypsis of Stone Curlew eggs. [Estación Biológica de Doñana, C.S.I.C., El Rocío, Almonte, Huelva, Spain.]—Jeff Marks.

12. Effects of habitat quality on the breeding phenology and reproductive success in Blue Tits (*Parus caeruleus*). [Einfluß unterschiedlicher Habitatqualität auf Brutphänologie und Reproduktionserfolg bei Blaumeisen (*Parus caeruleus*)]. M. J. Stauss and E. Glück. 1995. Vogelwarte 38:10–23. (German, English summary.)—A comparison was made of the effect of habitat on reproduction in the Blue Tit in the Schönbuch Nature Park near Tübingen, Germany. Nest boxes were monitored in two woodlots, one deciduous trees and the second mixed conifers and deciduous trees. Females using nest boxes in the deciduous woods were larger (heavier and had longer wings) than birds nesting in the mixed woods. The deciduous woods females began laying earlier, laid larger clutches, and had higher reproductive success than birds nesting in the mixed woods. However, there were no differences in weight or survival between young in the two habitats for their first 8 days of growth. After that time, young in the deciduous forest had a higher survival rate, but no difference in weight. Consequently, the fitness of the individuals nesting in the mixed forest was lower than those nesting in the deciduous forest. The differences in nestling survival are attributed to differences in food availability. [Abt. Verhaltenphysiologie, Beim Kupferhammer 8, D-72070 Tübingen, Germany.]—Robert C. Beason.

MIGRATION ORIENTATION, AND HOMING

(see 14)

HABITAT USE AND TERRITORIALITY

(see also 1, 3, 8, 12, 18, 33)

13. Differences in bird species richness and abundance among three successional stages of aspen-dominated boreal forests. J. Schieck, M. Nietfeld, and J. B. Stelfox. 1995. Can. J. Zool. 73:1417–1431.—Bird populations were surveyed in young, mature, and old aspen forests in Alberta. Bird species richness and abundance were highest in old forests, lowest in mature forests, and intermediate in young forests. Each nesting/foraging guild tended to follow the same pattern. This was contrary to the predictions of the researchers, who had hypothesized that canopy and cavity birds would exhibit a stronger response to old forests than lower strata birds. The observed pattern of species richness and abundance was attributed to a bimodal pattern of vegetation structure, as young and old forests contained the highest densities of shrubs and large snags. Also, old forests contained the highest densities of coniferous trees, large-diameter trees, and downed woody material. Given the obvious importance of old forest to birds (two-thirds of the bird species were most abundant in old forest), the authors argue that stands of old aspen should be retained in managed forests. They also maintain that natural forest processes such as fire produce a landscape mosaic that differs fundamentally from landscapes altered by human disturbances such as logging. [Wildlife Ecology Branch, Alberta Environmental Centre, Vegreville, AB T9C 1T4, Canada.]—Scott W. Gillihan.

14. Seasonal distribution of Siskins *Carduelis spinus* in the northern Alps: a long-term study from Bavaria. [Die Phänologie des Erlenzeisigs *Carduelis spinus* am Nordrand der Alpen: Langfristige Beobachtungen aus Bayern.] E. Bezzel. 1995. Ornithol. Beob. 92:147–166. (German, English summary.)—The seasonal changes in distribution of the Siskin were studied by daily checks of a lowland study area (800 m) and bimonthly on transects a study area at 1440 m for 15 years. Premigratory movements and early dispersal occurred from mid-June to early Sept. in almost every year, with breeding birds remaining until October in some years. Migration peaked between mid-Sept. and early November. The number of overwintering birds varied considerably between years, but was not correlated with the numbers present

during the premigratory season. In some years distinctive bouts of immigration could be distinguished. Unlike the fall migration, there was no distinctive spring migration. The overall trend between 1966–1994 was that migration occurred earlier in later years. During late summer and early autumn, the primary food was the seeds of herbs, with tree seeds (alder and birch) becoming more important in late autumn. Spruce seeds were especially important in winter. [Bayer. Landesanstalt für Bodenkultur und Pflanzenbau, Inst. für Vogelkunde, Gsteigstr. 43, D-82467 Garmisch-Partenkirchen, Germany.]—Robert C. Beason.

15. Pattern of territory establishment in males, territory quality and floaters in a marginal population of Black Redstart *Phoenicurus ochruros*. R. Andersson. 1995. Ornis Svecica 5:143–159.—The influences of territory quality and of a floating population on the pattern of territory establishment in Black Redstarts was examined in 1983–1994. The study area was in southwestern Sweden. Male-male competitions were studied through the removal of a singing male from its territory. Overall, 22 males were removed from 9 optimal and 5 suboptimal territories. Some males (15) were placed in cages for about 4 days, while others were removed and released either on their territory (5 birds), or 16–35 km (10 birds) away in various directions. Seven males were removed without having been caged. The results of male removal demonstrated that both adult and second year males are capable of establishing, defending and preserving optimal territories as soon as it is possible. The floating population size was estimated to be 26% of the total based on: (1) the proportion of occupied territories where surplus males were temporarily observed; (2) the proportion of unmarked males involved in territory conflicts; (3) the proportion of color-banded males that disappeared from the ringing site within one week; (4) the proportion of territories reoccupied by new males after the territory owner was removed. Territory quality was classified by (1) percentage of years with occupation; (2) percentage of years with breeding and (3) percentage of fledged young in relation to the mean number of successful broods. Territory occupation was found to be variable and only 15% of the territories were occupied by a singing males each year. Territories judged to be optimal were found to be occupied the earliest and usually by adult males. Reoccupation of optimal territories was found to occur earlier than on suboptimal territories. Adults established territories more quickly than second-year birds. Overall, a large proportion (73%) of territories were established by new males. Eighteen percent of the males showed between year territory fidelity. The influence of the floating population appeared to be marginal. [Adjunkstvägen 1, S-432 50 Varberg, Sweden.]—Sue Bennett.

16. Songbird use of gallery woodlands in recently cleared and older settled landscapes of the Selva Lacandona, Chiapas, Mexico. I. G. Warkentin, R. Greenberg and J. S. Ortiz. 1995. Conserv. Biol. 9:1095–1106.—How have 3 decades of conversion of neotropical forests to cropland, pasture or second-growth scrub affected long-term stability of forest cover and integrity of bird populations? Approximately 28% of native forest cover remains in the study area, mostly as fragments of arroyo (or streamside) vegetation in agricultural ecosystems. The long-term mean annual conversion rate is 2% (presumably of baseline) which means 14 yrs until no native forest cover remains. Two areas were sampled for bird abundance and habitat characteristics: a recently settled (10 yrs) area south of the Montes Azules Biosphere Reserve (Chajul) and an older (20–35 yr) settlement north of the reserve (Damasco). Habitat was characterized from Landsat TM images (Jan 1989, Feb 1990). Species abundance and diversity were determined with dry season (Jan to Mar) point count samples in 1991 and 1992. Six habitat types were identified (Chajul gallery, forest, shade and scrub; Damasco gallery and scrub). Habitat in Chajul was mainly intact old-growth forest; that in Damasco was >80% converted from broadleaf forest. Bird species diversity and density did not vary across habitats, but richness in shade woods increased above that in remnant gallery forests as sampling effort increased. More resident forest specialists were found in Chajul than Damasco; the list of common migrants were similar. The authors conclude that management of arroyo vegetation to include at least some trees with an understory (whether primary or second-growth) will be important to winter survival of forest birds. [Smithsonian Migratory Bird Center, National Zoological Park, Washington DC 20008, USA.]—Kristin E. Brugger.

17. Landscape characteristics of fragmented shrubsteppe habitats and breeding passerine birds. S. T. Knick and J. T. Rotenberry. 1995. Conserv. Biol. 9:1059–1071.—The rela-

tionship was studied of local and landscape-level attributes of fragmented shrubsteppe habitats in the Snake River Plains of southwestern Idaho to breeding distributions of Sage (*Amphispiza belli*) and Brewer's (*Spizella breweri*) Sparrows, Sage Thrashers (*Oreoscoptes montanus*), Horned Larks (*Eremophila alpestris*) and Western Meadowlarks (*Sturnella neglecta*). Bird presence was determined at 75 to 164 sites from 1991 to 1993 to identify breeding distributions. Local vegetation was characterized at 111 to 169 sites each year (100 × 400 m area around each bird count sites, sampled with 5-m frames). Landscape features were characterized with Landsat Thematic Mapper satellite data and semivariance functions. Habitat selection models for each species were developed with logistic regression. Presence of shrubsteppe species (Sage and Brewer's Sparrows and Sage Thrashers) was linked closely to local vegetation cover, patch size and spatial similarity of sites. Presence of grassland species (Horned Larks and Western Meadowlarks) was not affected by vegetative cover or landscape characteristics. The current problems of habitat fragmentation (invasion by exotic annual grasses such as cheatgrass, *Bromus tectorum*), and disturbance (wild fires) in the shrubsteppes of Idaho may lead to long-term population effects in shrub-obligate bird species. [Raptor Research and Technical Assistance Center, U.S. National Biological Survey, 3948 Development Ave., Boise, ID 83705, USA.]—Kristin E. Brugger.

ECOLOGY

(see also 6)

18. Effects of small-scale habitat disturbance on the ecology of breeding birds in a Vermont (USA) hardwood forest. R. A. Lent and D. E. Capen. 1995. Ecography 18:97–108.—Bird populations were surveyed and territories mapped in three plots containing small clearcuts and selection cuts, and results were compared to an undisturbed forest. Specifically, the authors sought patterns of bird distribution in relation to foraging strategy. Four species preferred disturbed areas, 11 preferred undisturbed areas, and 17 showed no clear preference. Eight species found on the experimental plots were absent from the control area; 4 were species that preferred disturbed areas and 4 preferred either edge habitat or conifer trees, which were absent from the control area. Species abundance ranks were similar in the disturbed and undisturbed areas. Using data collected on the disturbed plots, matrices of habitat preferences and foraging preferences were created and compared; no statistically significant correlations were found. The authors concluded that the pattern of bird distribution was explained better by the landscape pattern of patch juxtaposition than by interspecific differences in foraging strategies. The authors maintain that small forest openings embedded in undisturbed forest can provide habitat for early-successional birds without eliminating habitat for species preferring undisturbed forest. [Univ. of Vermont, School of Natural Resources, Burlington, VT 05405, USA.]—Scott W. Gillihan.

19. Species composition and community structure of summer birds in the Magellanic tundra complex. [Composicion especifica y estructura de la comunidad de aves de verano en el complejo de la tundra magallanica.] L. Guzman, A. Atalah and C. Venegas. 1985–86. Anales del Instituto de la Patagonia (Chile) 16:75–86. (Spanish, English summary.)—Guzman et al. conducted summer censuses of terrestrial birds in five localities of the Magellanic "tundra" (XII Region of Chile). They counted bird species numbers, estimated their abundances, and classified them by food habits (carnivorous, insectivorous and omnivorous; no strict herbivores were detected). Eleven of the 30 species identified accounted for 88% of all individuals observed (the residents *Aphrastura spinicauda, Scytalopus magellanicus, Turdus falcklandii, Cinclodes patagonicus, Phrygilus patagonicus, Curaeus curaeus,* and *Zonotrichia capensis* and the summer visitors *Sephanoides galeritus, Elaenia albiceps, Muscisaxicola macloviana,* and *Tachycineta leucopyga*). Guzman et al. also applied cluster analysis to their data and detected high similarity in bird species composition among the five localities examined. Although the title of this paper conveys the impression that habitat, food, and activity time will also be reported, none of this happens. [Inst. Patagonia, Univ. de Magallanes, Casilla 113-D, Punta Arenas, Chile.]—Fabian M. Jaksic.

20. Ice-free areas and their relationship with Antarctic nesting bird assemblages, Livingston Island, Antarctica. [Areas libres de hielo y su relacion con ensambles de aves nidifi-

cantes antarticas, Isla Livingston, Antartica.] I. Lazo, H. Nunez and J. Yanez. 1992. Serie Cientifica del Instituto Antartico Chileno 42:69–75. (Spanish, English summary.)—Lazo et al. described the summer nesting patterns of eight Antarctic bird species in eight microhabitats in ice-free areas of Livingston Island (Shetland Islands). The microhabitats recognized by the authors and their respective occupants were: sandy beach, *Larus dominicanus*; pebble beach, none; rock outcrops, *Macronectes giganteus, Pygoscelis antarctica,* and *Sterna vittata*; coastal terraces, *Sterna vittata*; moss-covered slopes, *Larus dominicanus* and *Catharacta lonnbergi*; rocky slopes, *Oceanites oceanicus* and *Fregetta tropica*; cliffs, *Macronectes giganteus* and *Sterna vittata*; rocky islets, *Phalacrocorax atriceps*. Five out of the eight species were found in a single microhabitat, speaking for a high selectivity of nesting site. Most of the nesting microhabitats were shared by two or three species, giving room to competitive interactions. Lazo et al. remarked that some species displayed temporal partitioning of the niche: When *C. lonnbergi* and *L. dominicanus* nested on moss-covered slopes, the former bred a month later than the latter. Another case suggested spatial partitioning of the niche: *M. giganteus* and *S. vittata* shared cliffs as nesting areas, but the former nested in bare rocky ground whereas the latter did on moss- and lichen-covered ground. Lazo et al. speculated that lack of microhabitat partitioning between *O. oceanicus* and *F. tropica* (both nested in crevices on rocky slopes) was either due to their use of those areas as shelters from predatory birds such as *C. lonnbergi* and *L. dominicanus,* or to favorable thermal conditions. All these phenomena were ultimately related to ice-free areas being a limiting resource for nesting, both spatially as well as temporally. The niche partitioning patterns detected may be the species' responses to such resource limitation, and could thus account for the community structure observed. [Dept. Ecologia, Univ. de Catolica, Casilla 114-D, Santiago, Chile.]—Fabian M. Jaksic.

21. Biological control of outbreak: exotic plantations and biodiversity. [Control biologico de plagas forestales: bosque artificial y biodiversidad.] R. P. Schlatter and R. Murua. 1992. Ambiente y Desarrollo (Chile) 8:66–70. (Spanish).—Schlatter and Murua reported the abundance of birds in pine plantations (*Pinus radiata*) and in native forests in the X Region of Chile. In pine plantations, they detected 50% (by acoustic censuses) and 65% (by visual censuses) of the number of species detected in native forests. The number of common bird species in pine plantations was 33% of that observed in native forests. Bird abundance followed the same trend: in ten censuses carried out in pine plantations, they yielded only 42% of total bird individuals detected in naive forests (with the same sampling effort). Dominance also was greater in pine plantations than in native forests. To determine whether it was possible to increase bird numbers in both pine plantations and native forests, Schlatter and Murua installed nest boxes at densities of 45–60/ha. Nest boxes were occupied chiefly by *Troglodytes aedon* in pine plantations and by *Aphrastura spinicauda* in native forests. A few nest boxes were used by *Glaucidium nanum,* rodents and marsupials. There were differences, also, between managed and non-managed pine plantations. The occupancy rate of nest boxes in the former was 85–93% and 57–79% in the latter. According to Schlatter and Murua, the explanation for this difference could be that birds were less attracted to non-managed pine plantations because they are darker and moister. [Inst. Zoologia, Univ. de Austral, Casilla 567, Valdivia, Chile.]—Fabian M. Jaksic.

22. The components of predation on small mammals in semiarid Chile: preliminary results. F. M. Jaksic, P. L. Meserve, J. R. Gutierrez and E. L. Tabilo. 1993. Revista Chilena de Historia Natural 66:305–321.—Jaksic et al. studied a vertebrate predator-mammalian prey system over a two-year period to determine whether predators displayed numerical and (or) functional responses to fluctuations in prey resources. Relative abundances and diets of owls (*Speotyto cunicularia, Bubo virginianus,* and *Tyto alba*), and of foxes (*Pseudalopex culpaeus*) were determined monthly over a two-year period, simultaneously with assessments of mammalian abundances (six species of rodents and one marsupial) at a semi-arid site in the IV Region of Chile. Mammal abundances reached maximum levels during the autumns of the two years, and declined during the respective springs, with summers and winters showing intermediate abundances. Except for the fox *P. culpaeus,* the three owls failed to demonstrate numerical responses to the changes in abundance of local small mammals. Except for *B. virginianus,* the remaining three predators did not increase their diet breadths consistently in response to reductions of mammal abundance. All predators showed strong prey prefer-

ences for some mammalian species, regardless of their abundance in the field, and thus failed to display functional responses, specifically prey switching. Comparison with similar studies suggested that numerical and functional responses are uncoupled components of predation on small mammals, occurring in all possible combinations. Jaksic et al. speculated that only when both responses were displayed simultaneously (a necessary but not sufficient condition), predators may effectively affect mammal abundance. [Dept. Ecologia, Univ. de Catolica, Casilla 114-D, Santiago, Chile.]—Fabian M. Jaksic.

23. Impact of the substitution of natural forests by *Pinus radiata* plantations on a bird assemblage in the Eighth Region of Chile. [Impacto de la sustitucion del bosque natural por plantaciones de *Pinus radiata* sobre una comunidad de aves en la Octava Region de Chile.] C. F. Estades. 1994. Boletin Chileno de Ornitologia 1:8–14. (Spanish, English summary.)—Estades conducted visual censuses of birds in four vegetational formations present in the basin of River Cayucupil, near the town of Canete, VIII Region of Chile: native open fields, native deciduous forests, juvenile pine plantations (*Pinus radiata,* mean age = 8 yr) and mature pine plantations (mean age = 20 yr). The respective numbers of species present during the nonreproductive period in each of these formations were 20, 21, 12, and 8. No species was present in the four formations simultaneously, but five (the insectivorous *Sylviortorhynchus desmursii, Aphrastura spinicauda, Anairetes parulus, Colorhamphus parvirostris,* and the omnivorous *Scelorchilus rubecula*) were present in the three forest types. Granivorous and carnivorous bird species were absent from pine plantations, but curiously enough four species (the omnivorous *Nothoprocta perdicaria, Scytalopus magellanicus,* and *Curaeus curaeus,* and the insectivorous *Leptasthenura aegithaloides*) were observed only in pine plantations. In my opinion, these species should have occurred either in the native forest or in the open fields, and thus I think that this is just a censusing artifact. Unfortunately, Estades did not report absolute bird numbers, and thus it is not feasible to find out whether those species in pine plantations were more or less abundant than in native forests or open fields. [Dept. Manejo Rec. Forest., Univ. de Chile, Casilla 9206, Santiago, Chile.]—Fabian M. Jaksic.

24. Diet and prey selection of *Speotyto cunicularia* in a semiarid locality of Chile throughout seven years (1987–1993). [Dieta y selectividad de presas de *Speotyto cunicularia* en una localidad semi-arida de Chile a lo largo de siete anos (1987–1993).] H. Torres-Contreras, E. Silva-Aranguiz and F. M. Jaksic. 1994. Revista Chilena de Historia Natural 67:329–340. (Spanish, English summary.)—On a seasonal basis, these authors quantified the diet of *Speotyto cunicularia* throughout seven years in a semiarid locality (Auco) of the IV Region of Chile. They assessed prey selectivity by comparing mammalian prey in the diet with that estimated by live-trapping in the field. The main numerical component of the diet was insects (79%), specifically families in the order Coleoptera (Tenebrionidae, Scarabaeidae, Carabidae, and Curculionidae), and to a lesser extent, arachnids (11%). Vertebrates accounted for only 10% of the total number of prey, but their biomass and energy content largely exceeded that of insects and arachnids. Among mammals (6% of total prey), the rodents *Phyllotis darwini, Akodon olivaceus* and *Oryzomys longicaudatus,* and the marsupial *Marmosa elegans,* were the most frequent and constant in the diet of the owl. There was a consistent and significant ($P < 0.05$) underconsumption of *Akodon longipilis, Chinchilla lanigera, Octodon degus,* and *P. darwini.* However, there was a marginally non-significant ($P < 0.07$) overconsumption of *M. elegans.* Underconsumed mammals exceeded 45 g on average, whereas overconsumed ones did not exceed 28 g (with a single exception). Thus, there seems to be a maximum critical prey size that *S. cunicularia* is capable of handling. Amphibians made up only 4% of total prey, whereas reptiles and birds appeared only as trace elements ($\ll$1%). During fall and winter an increase in the consumption of insects generally occurred, whereas during spring and summer an increase in the consumption of arachnids and vertebrates was noted. These results indicate that *S. cunicularia* is a seasonally opportunist predator. [Dept. Ecologia, Univ. de Catolica, Casilla 114-D, Santiago, Chile.]—Fabian M. Jaksic.

25. Density estimates for a spiny-scrub assemblage of birds by means of transects and focal point stations. [Estimacion de la densidad de una comunidad de aves de espinal mediante transectos y estaciones puntuales.] C. F. Estades. 1995. Boletin Chileno de Ornitologia 2:29–34. (Spanish, English summary.)—Estades compared the censusing techniques of fixed- and variable-band transect and of focal point station (with fixed- or variable-radius). He

found that transect techniques in comparison to focal point techniques: (a) detected 14 versus 11 out of 16 bird species present in a spiny scrub of the Reserva Nacional Lago Penuelas, V Region of Chile; (b) that some species were detected exclusively by one or the other technique; (c) that the estimated density and its standard deviation were smaller using the transect technique. Comparing fixed- versus variable-band or radius, Estades found that the former decrease monotonically density estimates for birds as the band or radius increases, whereas the latter does not affect those estimates. [Dept. Manejo Rec. Forest., Univ. de Chile, Casilla 9206, Santiago, Chile.]—Fabian M. Jaksic.

26. Diet of *Zonotrichia capensis* (Emberizidae) and *Diuca diuca* (Fringillidae): effect of seasonal variation in trophic resources and species richness of granivorous birds in central Chile. [Dieta de *Zonotrichia capensis* (Emberizidae) y *Diuca diuca* (Fringillidae): efecto de la variacion estacional de los recursos troficos y la riqueza de aves granivoras en Chile central.] M. V. Lopez-Calleja. 1995. Revista Chilena de Historia Natural 68:321–331. (Spanish, English summary.)—During 1987, Lopez-Calleja conducted a seasonal study of the most common passerine species at Rinconada de Maipu (Metropolitan Region of Chile). Out of 26 species detected throughout one year, *Z. capensis* and *D. diuca* were the most abundant (25.5% as yearly average, both species combined) and they resided year-round at the study site. Four wintering visitors (*S. luteola, Phrygilus fruticeti, P. gayi,* and *P. alaudinus*) accounted for 22% of the passerine assemblage from April to August. The two resident and dominant species (numerically speaking) were essentially granivorous, although they ate small quantities of insects throughout the year, particularly *Z. capensis* during spring of 1987. The four wintering visitors were almost strictly granivorous. In 3 out of 4 seasons, *Z. capensis* did not show selectivity for seeds of *Erodium cicutarium,* but it preferred those of *Opuntia* sp. (also in 3 out of 4 seasons). The opposite pattern was displayed by *D. diuca.* The former species in general did not eat seeds 0.3–2.5 mm and tended to select larger seeds (2.6–5.0 mm); the latter species behaved similarly. The four wintering visitors differed among them: *Sicalis luteola* "avoided" *Erodium* seeds (relative to their availability), did not select those of *Opuntia* and was indifferent to seed size. *Phrygilus fruticeti* selected *Erodium* seeds, was indifferent to *Opuntia* seeds and preferred those of larger size (2.6–5.0 mm). *Phrygilus gayi* showed the opposite pattern with respect to seed identity and did not show preference for seed size. *Phrygilus alaudinus* "avoided" *Erodium,* preferred *Opuntia,* and selected small seeds (0.3–2.4 mm). Lopez-Calleja also assessed niche relationships among the species just mentioned. *Phrygilus fruticeti* and *Z. capensis* had the largest representation of food items per stomach. The largest food niche breadths were those of *P. gayi* and *Z. capensis,* and the smallest that of *P. alaudinus.* The highest diet similarity was that between *Z. capensis* and *P. fruticeti,* and the lowest between the latter and *S. luteola.* The two permanent residents had an intermediate (51%) diet similarity. [Dept. de Biologia, Fac. Ciencias, Univ. de Chile, Casilla 653, Santiago, Chile.]—Fabian M. Jaksic.

POPULATION DYNAMICS

(see 29)

SYSTEMATICS AND PALEONTOLOGY

27. A new species of *Phylloscopus* warbler from Sichuan Province, China. P. Alström and U. Olsson. 1995. Ibis 137:459–468.—The authors first encountered this species on Emei Shan, Sichuan Province, China, in 1987. Although it was morphologically similar to two sympatric species, Blyth's Leaf Warbler (*Phylloscopus reguloides*) and White-tailed Leaf Warbler (*P. davisoni*), its song and calls were unfamiliar. At least 20 singing males were located in another area on Emei Shan in 1992, and audio recordings were obtained for both songs and calls. Three males were captured, examined, measured and photographed, and blood samples were collected. One of the three was preserved as a specimen. Slight but significant morphological differences exist between these specimens and other *Phylloscopus* species. However, the vocal repertoire is unique. Mutual lack of response to song playback between the new species and both *P. reguloides* and *P. davisoni* suggests that they are reproductively isolated. [Kungsgatan 3, 462 33 Vänersborg.]—John A. Smallwood.

28. Darwin's contribution to the knowledge of Chile's terrestrial vertebrates. [La contribucion de Darwin al conocimiento de los vertebrados terrestres de Chile.] F. M. Jaksic and I. Lazo. 1994. Revista Chilena de Historia Natural 67:9–26. (Spanish, English summary.)—Charles Darwin's contribution to the knowledge of Chilean terrestrial vertebrates (including birds) is analyzed from two perspectives: his taxonomic contributions and his natural history contributions. Jaksic and Lazo state that: (a) Darwin collected numerous bird specimens, 14 of them resulting in new species or subspecies, two of which represented new genera (*Agriornis* and *Pyrocephalus,* both still valid). (b) Darwin himself described three bird species that occur in Chile, one of which still remains valid (*Progne modesta*), the other two having been passed to synonymy. (c) Darwin was dedicated seven vertebrate species present in Chile, which thus carry the binomial name darwini; none of them is a bird. (d) Darwin described natural history observations of about 40 bird species that he saw or collected along his errands in Chile, most of them in the Patagonian, southern, and central parts of the country. Curiously, the taxonomically most spectacular findings of Darwin in Chile, Darwin's Rhea (*Pterocnemia pennata*) does not honor its discoverer neither in its scientific or Spanish vernacular name. [Dept. Ecologia, Univ. de Catolica, Casilla 114-D, Santiago, Chile.]—Fabian M. Jaksic.

EVOLUTION AND GENETICS

(see also 4, 27)

29. Genetic structure among subpopulations of the Eastern Wild Turkey (*Meleagris gallopavo silvestris*). M. D. Boon, and O. E. Rhodes. 1996. Am. Midl. Nat. 135:168–171.—Blood samples from 72 adult and juvenile Wild Turkeys (36 female, 36 male) captured at the Savannah River Site in Aiken County, South Carolina were studied to determine if significant genetic subdivisions occurred among small, localized populations. Starch gel electrophoresis was used to resolve 12 biochemical loci from the turkeys captured at four different study sites (between 6 and 30 km apart) in January and February 1994. Five of these loci were polymorphic with two alleles per locus. Differences in the genetic constitution of birds from the different sites were determined to be significant using both allele-frequency analyses ($P < 0.01$) and F-statistics ($P < 0.005$). The authors contend that these data support the idea that examination of the genetic structure of this species should begin at the family or breeding-group level; moreover, it appears that gene flow among turkey populations in close proximity is low and that such populations are susceptible to genetic drift. [Dept. of Forestry and Nat. Resources, Purdue Univ., 1159 Forestry Bld., W. Lafayette, Indiana 47907, USA.]—Danny J. Ingold.

PHYSIOLOGY AND DEVELOPMENT

(see 31)

MORPHOLOGY AND ANATOMY

30. Cross-beaked Western Bluebirds. E. Eltzroth. 1996. Sialia 18:3–4.—Two Western Bluebird (*Sialia mexicana*) nestlings were discovered in their nest boxes with severe beak deformities during the 1994 breeding season in Benton County, Oregon. In both instances the nestlings were cross-beaked with the upper mandible pointing to the left and the lower mandible to the right. The nestlings came from boxes about 10 km apart (one in April and one in August) making it unlikely that they had the same parents (the adults were unbanded). Both nestlings died in captivity within a year of their hatching and no apparent reason for the abberations was determined. [6980 NW Cardinal Dr., Corvallis, OR 97330, USA.]—Danny J. Ingold.

PLUMAGES AND MOLTS

31. Sparrows increase their rates of tissue and whole-body protein synthesis during the annual molt. M. E. Murphy and T. G. Taruscio. 1995. Comp. Biochem. Physio. 111A:385–396.—Annual avian molt results in the deposition of proteins, mainly keratins, equal to 25% of a bird's total protein mass. In this study using radioactive labeled amino acids on White-

crowned Sparrows (*Zonotrichia leucophrys*), the authors tested the hypothesis that some of the energetic costs of molt was from a generalized increase of protein turnover in the whole body. The fractional synthesis rate (FSR: the amount of protein synthesized during a specific time period as a fraction of the total protein in a specific tissue) was significantly higher in liver, muscle and the whole body (excluding the integument) throughout the 24 h cycle compared to nonmolting sparrows. Neither tissue protein contents nor differences in feeding habits could account for the differences in the FSR between molting and nonmolting birds. Instead, the differences appear to result from protein turnover within the tissues. Molting sparrows synthesized 260 mg of body protein (excluding keratins) more than nonmolting sparrows daily. This increase in protein synthesis in molting birds was at least 3.5 times the amount of protein synthesized and deposited (75 mg) daily during the most intensive times of molt. The authors conclude that the increased rate of total protein synthesis contributes significantly to the energetic costs of molt in birds. [Dept. of Zoology, Washington State Univ., Pullman, WA 99164-4236, USA.]—Robert C. Beason.

PARASITES AND DISEASES

(see also 2)

32. Intestinal helminths of Mottled Ducks, *Anas fulvigula maculosa*, from the East Texas Gulf Coast. J. L. Schmid, N. O. Dronen and M. H. Sweet. 1995. Southwest. Nat. 40:325–327.—The intestines of 13 Mottled Ducks obtained from duck hunters between November and January 1990–1992 were examined in order to determine parasite load and diversity and to compare the findings with those from a similar study on Mottled Ducks in Florida (*A. fulvigula fulvigula*) published in 1972. Eighteen species of helminths including eight cestodes, seven digeneans (trematodes), two nematodes, and one acanthocephalan were recovered from the ducks. Cestodes were found in all hosts with a mean intensity of 173 (3–510) and a mean of three cestode species per duck. Eleven ducks were infected with at least one trematode (mean intensity of 49) and an average of one trematode species per duck was detected. Only two ducks were infected with nematodes (one species each) and five individuals were infected with one acanthocephalan species (*Polymorphus acutis*). The most abundant helminths found in Mottled Ducks were *Echinocotyle* spp., *Microsomacanthus hopkinsi* (both cestodes), and *Echinoparyphium flexum* (trematode). Nine species of helminths found in Texas Mottled Ducks were not reported in Florida ducks; similarly, nine species of helminths found in Florida ducks were not found in individuals from Texas. The authors attribute differences in parasite diversity between the Texas and Florida subspecies to ecological differences between the geographical regions. [Dept. of Wildl. and Fisheries Sciences, Texas A&M Univ., College Station, TX 77843, USA.]—Danny J. Ingold.

WILDLIFE MANAGEMENT AND ENVIRONMENTAL QUALITY

(see also 9, 16, 21, 23, 36)

33. Effects of forest fragmentation on understory hummingbirds in Amazonian Brazil. P. C. Stouffer and R. O. Bierregaard, Jr. 1995. Conserv. Biol. 9:1072–1084.—Hummingbird abundance (as measured by mist netting) was recorded for 9 years after experimental manipulation of terre firme forest near Manaus, Brazil. Five 1-ha and four 10-ha fragments were studied prior to and after isolation. Three species (*Phaethornis superciliosus, P. bourcieri* and *Thalurania furcata*) were nearly equally abundant prior to isolation. Abundance of the latter 2 did not change after isolation, yet *P. superciliosus* became twice as common. Five additional species, typically found only above net level, were recorded after isolation. Although no data were provided to describe spatial contexts of the fragments, food sources before and after isolation, or individual bird identities, the authors conclude that these understory hummers can persist in fragmented forests after isolation. [Biodiversity Programs, NHB-106 Smithsonian Inst., Washington, D.C. 20560, USA.]—Kristin E. Brugger.

34. Bird abundance and nesting success in Iowa CRP fields: the importance of vegetation structure and composition. M. P. Patterson and L. B. Best. 1996. Am. Midl. Nat. 135: 153–167.—Bird abundance and use, as well as vegetative structure, were studied on Conservation Reserve Program (CRP) and row-crop land in Marshall County, Iowa during three

breeding seasons from 1991–1993. Grass cover on CRP land consisting mostly of smooth brome (*Bromus inermis*; found in 66% of vegetative samples) was considerably more abundant than forb cover. Alfalfa (*Medicago sativa*) was the most common CRE forb (occurring in 27% of vegetative samples). Principle component analysis revealed that CRP plots, which were managed on an individual basis by different farmers, differed from each other in terms of vegetative composition and structure. Thirty-three bird species were recorded on CRP land during the three-year period versus 34 species in row-crop fields. Sedge wrens (*Cistothorus platensis*), Dickcissels (*Spiza americana*), Grasshopper Sparrows (*Ammodramus savannarum*), Bobolinks (*Dolichonyx oryzivorus*), Western Meadowlarks (*Sturnella neglecta*), and Red-winged Blackbirds (*Agelaius phoeniecus*) were significantly more abundant in CRP fields than in row crops, while Horned Larks (*Eremophila alpestris*) and Vesper Sparrows (*Pooecetes gramineus*) were more abundant in row-crop fields. Total mean bird abundance in CRP fields was almost four times greater than that of row-crop fields. Red-winged Blackbirds were the most abundant species in both habitats. Species diversity in CRP fields varied with vegetative composition and structure. Dickcissels and Common Yellowthroats (*Geothlypis trichas*), for instance, were most abundant in fields with tall vegetation and a high percentage of forbs, while Bobolinks and Grasshopper Sparrows were more common in fields with reduced vertical cover and a greater grass canopy. Sixteen bird species nested in CRP fields (the most abundant of which was the Red-winged Blackbird), while only two species (Vesper Sparrows and Horned Larks) were found nesting in row-crop fields. Predation accounted for over 50% of all nest failures in both CRP and row-crop habitats and large mammals such as red foxes (*Vulpes vulpes*), raccoons (*Procyon lotor*), and striped skunks (*Mephitis mephitis*) were responsible for 89, 88, and 85% of the predation on Grasshopper Sparrows, Red-winged Blackbirds, and Dickcessels respectively. Because of their greater bird abundances and numbers of nesting species, the Conservation Reserve Program has likely contributed to an increase in the abundance of many bird species in central Iowa. The data suggest that CRP fields provide better nesting habitat for grassland birds than do waterways, roadsides, and other peripheral habitats associated with Iowa croplands. [Dept. of Animal Ecology, Iowa State Univ., Ames, IA, USA.]—Danny J. Ingold.

MISCELLANEOUS

35. Assessment of the Chilean ornithology and compilation of the scientific literature published from 1970 to 1992. [Diagnostico de la ornitologia en Chile y recopilacion de la literatura cientifica publicada desde 1970 a 1992.] I. Lazo and E. Silva. 1993. Revista Chilena de Historia Natural 66:103–118. (Spanish, English summary.)—Lazo and Silva built on a previous assessment of the status of ornithology in Chile, that of Schlatter (published in 1979), which was current up to 1970. Since that last review, 22 years later, 386 papers on Chilean ornithology had been published. The bulk of this production was by Chileans (n = 325 authors), but there was a significant number of papers published by foreigners (n = 113), mainly U.S. citizens. Nearly 40% of the total production was published in English, mainly in U.S. ornithological journals (150 papers). On average, 17 ornithological papers were published yearly, with little variation in output (SD = 1.1, n = 22 yr). A tally of thematic areas covered in the entire data set showed an emphasis on distribution, interspecific interactions, and food habits (56% of the papers). Areas relatively neglected were anatomy/physiology, song, feathers and molting, diseases and parasites, and migration, each represented by about or less than 1% of the total production. Terrestrial birds were the most studied (50% of total papers), followed by coastal marine (16%), and waterbirds (14%). A small (6%) but sustained production referred to Antarctic birds. In their assessment over this period, Lazo and Silva remarked that three trends were evident: (a) an increasingly professional approach to ornithology, (b) a stronger theoretical emphasis, and (c) an important output by new and younger ornithologists. I find this to be a most valuable piece on the status of Chilean ornithology, and a treasure chest of collected references on Chilean birds. [Dept. Ecologia, Univ. de Catolica, Casilla 114-D, Santiago, Chile.]—Fabian M. Jaksic.

BOOKS AND MONOGRAPHS

36. Bird conservation: the science and the action. J. Coulson and N. J. Crockford, eds. 1995. Ibis 137 supplement 1–250. A number of people in the United Kingdom who have an

interest in birds believed that there was a gap between the science of ornithology on one hand and bird conservation on the other. In an attempt to increase communication among scientists and conservationists, the British Ornithologists' Union organized its 1994 annual meeting with the Royal Society for the Protection of Birds, the UK Joint Nature Conservation Committee, the Wildfowl and Wetlands Trust, and the British Trust for Ornithology. The conference was attended by 220 ornithologists representing 23 nations on six continents. This supplementary issue constitutes the proceedings of that meeting.

The issue begins with a preface and the concluding remarks, which include the recommendations adopted by the delegates to the conference. These include recognition of habitat loss and degradation as the primary cause of species decline, and the need to address declines at an early stage, when recovery is more likely. The merits of predictive models, as well as traditional natural history studies, are discussed. Although long-term ecological studies are ideal as the basis of conservation strategies, urgency frequently requires data to be gathered on shorter time scales. Several recommendations focused on strategies for building collaborative relationships among academics, conservationists, and policy makers.

A total of 34 papers are published in this issue: British ornithology and conservation: from past to future, by Nicholson and Crick; Some new approaches to conservation monitoring of British breeding birds, by Greenwood, Baillie, Gregory, Peach, and Fuller; Population dynamics of the Grey Partridge *Perdix perdix* 1793–1993: monitoring, modelling and management, by Potts and Aebischer; The response of bird populations to habitat loss, by Dolman and Sutherland; Diagnosing causes of bird population declines, by Green; Consequences of habitat loss and change to populations of wintering migratory birds: predicting the local and global effects from studies of individuals, by Goss-Custard, Caldow, Clarke, Durell, Urfi, and West; Impacts of disturbance on migratory waterfowl, by Madsen; Buzzards *Buteo buteo* and Ravens *Corvus corax* in the uplands of Britain: limits to distribution and abundance, by Gibbons, Gates, Green, Fuller, and Fuller; Disease and the abundance and distribution of bird populations: a summary, by May; The interaction between the parasites and predators of Red Grouse *Lagopus lagopus scoticus,* by Dobson and Hudson; Habitat fragmentation: island v landscape perspectives on bird conservation, by Wiens; Habitat fragmentation and population extinction of birds, by Simberloff; Why small cold-blooded insects pose different conservation problems to birds in modern landscapes, by Thomas; Modelling animal populations in changing landscapes, by Pulliam, Liu, Dunning, Stewart, and Bishop; Plant species' response to climate change: implications for the conservation of European birds, by Huntly; The landscape ecological approach in bird conservation: integrating the metapopulation concept into spatial planning, by Opdam, Foppen, Reijnen, and Schotman; A method of assessing seabird vulnerability to surface pollutants, by Williams, Tasker, Carter, and Webb; The Nene *Brtitita scandvicensis* Recovery Initiative: research against extinction, by Black; Management of threatened bird species: evaluation of the hands-on approach, by Cade and Temple; The restoration of the Mauritius Kestrel *Falco punctatis* population, by Jones, Heck, and Lewis; The conservation of critically endangered flightless birds in New Zealand, by Clout and Craig; Bird conservation in Siberia: a summary, by Syroechkovski and Rogacheva; Bird fauna of northeast Asia: a summary of the unique biodiversity and the priorities for conservation, by Andreev; Recovering endangered species and restoring ecosystems: conservation planning for the twenty-first century in the United States, by Martin; Recovery action for threatened species—an Australian perspective, by Male; Action Plans for United Kingdom and European rare, threatened and internationally important birds, by Williams, Holmes, and Kirby; The conservation of migratory birds: the Bonn Convention and the African/Eurasian Waterbird Agreement: a summary of progress and prospects, by Boere; The North American Waterfowl Management Plan and Wetlands for the Americas programmes: a summary, by Patterson; Bird conservation and the U.K. Biodiversity Action Plan, by Sharp; The role of the statutory bodies in ornithological conservation within the U.K., by Galbraith, Grice, Mudge, Parr, and Pienkowski; Revising the British Red Data List for birds: the biological basis of U.K. conservation priorities, by Avery, Gibbons, Porter, Tew, Tucker, and Williams; Extinction risk assessment for birds through quantitative criteria, by Mace and Collar; A global view of priorities for bird conservation: a summary, by Bibby; and Looking forwards in the rear-view mirror: an assessment of the meeting, by Ulfstrand. [Dept. of Biological Sciences, Univ. of Durham, South Road, Durham City DH1 3LE, United Kingdom.]—John A. Smallwood.