Wilson Bull., 101(2), 1989, pp. 354–367

ORNITHOLOGICAL LITERATURE

A FIELD GUIDE TO HAWKS OF NORTH AMERICA. by William S. Clark and Brian K. Wheeler. Houghton Mifflin, Boston, Massachusetts. 1987:xii + 198 pp., 26 plates (24 in color), 42 pp. of black-and-white photographs. $13.95 (paper). HAWKS IN FLIGHT. By Pete Dunne, David Sibley, and Clay Sutton. Houghton Mifflin, Boston, Massachusetts. 1988:xviii + 254 pp., 92 black-and-white drawings, 78 pp. of black-and-white photographs. $17.95 (cloth).—Both of these books are very useful but irritatingly flawed works. My review will concentrate on the flaws. I wish that we had one excellent guide instead of two imperfect ones. I find it incredible that the first two field guides to the identification of North American hawks appear within a few months of each other, both by the same publisher, both by authors with long associations with Cape May, both with introductions by Roger T. Peterson, and that the senior authors of both books collaborated in a critique (Clark and Dunne, Amer. Birds 33: 909, 1979) of my paper on the identification of accipiters (Mueller, Berger, and Allez, Amer. Birds 33:236–240, 1979).

The two books differ considerably, with Clark and Wheeler (CW) emphasizing ". . . the latest in tried and proven field marks . . ." and Dunne, Sibley, and Sutton (DSS) favoring more subtle and subjective aids to identification: a bird could be identified ". . . because it *seemed* to have this feature or *tended* to exhibit this particular behavior . . . ." I hope that users of DSS will read and remember this because the uncertainty of identification is not stressed sufficiently in the species accounts. CW do not believe in caution; they simply and boldy state that their book,". . . should enable anyone, with a little practice, to accurately identify [*sic*] most flying and perched diurnal raptors when they are seen clearly."

Raptors rarely permit close and prolonged examination in the field, and the "field marks" are frequently variable and qualitative characteristics. The perception of these "field marks" is often largely in the eye of the beholder, and they may have limited basis in reality. Individuals vary in their perceptions, and, as DSS note in their discussion of the identification of accipiters, "even veteran observers do not always agree." I am unfamiliar with more than a few of the "field marks" depicted by CW and DSS. I delayed the completion of this review until I could check out some in museums, and, more importantly, in the field. These efforts have further convinced me that both books should be used with care. Space prohibits the discussion of all of the field marks that I have studied; a few examples should suffice to show the problems involved in the use of field marks in the identification of diurnal raptors.

A "black" or dark patagium is indicated as diagnostic for the Red-tailed Hawk (*Buteo jamaicencis*). The extent, position, and apparent darkness of this mark is highly variable, and it is often not nearly as obvious in juvenals ("immatures") as shown in Plate II of CW and certainly not as prominent as shown on p. 21 of DSS. Occasional "immature" Broad-winged Hawks (*B. platypterus*), and even a few Red-shouldered Hawks (*B. lineatus*), have diffuse patagial marks that appear to be more prominent to me than those of some young Red-tails. As another example of the problems involved, I will reopen my arguments with the senior authors on the identification of accipiters. CW simply states that Sharp-shinned Hawks (*Accipter striatus*) have square tails and that Cooper's Hawks (*A. cooperii*) have rounded tails. DSS allow that some sharp-shins have slightly rounded tails and that "1 in 80" Cooper's has a tail that seems slightly square. I accept the fact that Cooper's tails are more rounded than those of sharp-shins but continue to maintain that the dichotomy of round and square leads to misidentifications. CW present 5 photographs with a view of sharp-shin tails; two of these (8b and 9f) appear rounded to me, and the latter appears at least as rounded as any Cooper's in a photograph in either guide. Similarly, the sharp-shin

in the photograph on p. 191 of DSS appears to have a tail as rounded as that of any Cooper's in either book. CW indicates that Cooper's have squarish heads. Cooper's do have a pronounced tendency to raise the feathers of the nape when in the hand, or in enforced proximity to a human, but I have seen this behavior very rarely in the field, and then only when a Cooper's was struggling with large prey or being attacked by another bird. In short, this characteristic is useless in the field, as is the apparent position of the eye in the head. Both species have relatively small heads when the nape feathers are not raised, and the eyes are placed in about the same place in the head in both species. Both guides indicate that, in the adult plumage, the dark cap of a Cooper's contrasts more with the color of the back than that of a sharp-shin. DSS note that there is a less of a contrast in female Cooper's than in males. In actuality, the same is true of sharp-shins, and a dark cap is more of a character denoting sex rather than species, although Cooper's caps of each sex are darker than sharp-shin caps of the same sex. Further criticism of some of the characters used for identification in CW and DSS can be found in Mueller, Berger, and Allez (Amer. Birds 36:340–341; 1982), a rebuttal to Clark and Dunne (1979). To summarize: all characters useful for distinguishing between the two species are relative and not absolute. All characters aid in identification, but no simple combination of "field marks" provides for correct determination. The same holds true for most other species of raptors, particularly under the conditions under which they are usually observed.

CW has the advantage of color plates and accounts depicting all 39 species of Falconiformes that have been recorded in North America north of the Mexican border. The paintings and the verbal descriptions present considerably more detail about plumage characteristics than can be found in DSS. The distribution maps are useful, although they suffer from the generalizations necessary to construct such large scale maps and offer only a little more detail than the verbal account in the descriptions accompanying the plates or in the text. The book, 11.4 × 18.3 cm, easily fits in most pockets.

DSS depicts only 23 species; missing are accidentals and those species of limited distribution in the southwestern United States and Florida. The 14.5 × 22-cm size of this book fits in few pockets. The large print and ample margins result in less than 75% of the words on a page than does the smaller CW. The black-and-white drawings in DSS are superb, much better than the wooden paintings in CW. Sibley has succeeded in capturing the "jizz" of flying hawks far better than the artist of any other field guide to North American birds. In comparison, I rank Wheeler's illustrations only slightly better than the worst (those of the National Geographic Society's Guide 1983) in spite of the generally excellent attention to details of plumage coloration. The paintings simply do not have the appearance of live hawks. The verbal descriptions in DSS are also markedly superior to those of CW. Dunne has a gift for describing hawks in flight; Clark is often confusing, misleading, and sometimes incomprehensible. For example, consider the following descriptions of the Turkey Vulture (*Cathartes aura*): "Turkey Vultures often bow their wings in a 'flex' until the tips almost meet." The illustration in Plate 1 shows the wings bowed downward in a continuous curve, an anatomical impossibility. Compare this with the description by DSS of presumably the same behavior: "Turkey Vultures also have the curious habit of drooping their wing tips and quickly straightening them in a sort of mock-flap. The arm remains rigid; the hands simply wilt and then snap back." Although an aerodynamically unlikely description, this is an apt characterization of a flight behavior that I have seen performed by Turkey Vultures; CW's description left me mystified. The behavior probably is a forceful downstroke of the primaries to gain air speed and lift and not a passive "wilt." CW states that Turkey Vultures ". . . are reportedly able to locate carrion by smell . . . ." This ability is much more certain than many things that CW assert without qualification. CW further states: "Turkey Vultures eat smaller prey than Black Vultures (*Coragyps atratus*) . . . ." Carcasses are not "prey."

Black Vultures are uncommon at small carcasses; where both species occur, Black Vultures outnumber Turkey Vultures at large carcasses or other concentrations of food.

Most of the photographs in DSS are good, and some are excellent. Many of the photographs in CW are poor, and some are wretched. In more than a few cases, the arrows point to "field marks" that cannot be seen in the photograph. The black-and-white photographs in CW were made from color slides. It is an exacting art to produce a good black-and-white print from an excellent color slide. The editors and publisher should be reprimanded for failing to invest in better processing of the photographs and for subjecting both the photographers and the users of this guide to an atrocity.

The illustrations of the five species of falcons in flight on p. 80 of DSS are mislabeled: C is a Prairie Falcon (*Falco mexicanus*), D is a Gyrfalcon (*F. rusticolus*), and E is a Peregrine Falcon (*F. peregrinus*). Broad-winged Hawks and Swainson's Hawks (*B. swainsoni*) have only three emarginated primaries, not four as indicated on p. 14 of DSS.

Plate 20 of CW shows an "immature" Golden Eagle (*Aquila chrysaetos*) in dorsal view without a white patch at the base of the primaries and secondaries. A separate painting of a wing on the plate shows this patch and the text on the facing page indicates that the patch is "sometimes" present. I assume that CW is following the usual perversion of field guides in using the term "immature" for raptors in the juvenal plumage instead of "juvenal" or the less preferable "juvenile." I have never seen a juvenal Golden Eagle that lacked the white at the base of the proximal primaries and adjacent secondaries on the dorsal surface, and I have been unable to find a reference in the literature that indicates the possibility of such a lack. The amount of white shown is variable, it is reduced with each molt, it may not be visible dorsally in the first basic ("subadult") plumage, and it disappears entirely by the time the definitive basic (adult) plumage is attained (Glutz, Bauer, and Bezzel, Handbuch der Vogel Mitteleuropas, Vol. 4, 1971; The Birds of the Western Palearctic, Vol. II, 1979; Palmer, Handbook of North American Birds, 1988).

The best field guide to raptors is for Europe (Porter, Willis, Christensen, and Nielsen, Flight Identification of European Raptors, 3rd Ed., 1981). DSS resembles Porter et al. except for the larger print and the inclusion of much material irrelevant to identification. I wish that DSS had not tried to entertain the reader with, e.g., a page of text on how the introduction of firearms, Bibles, and domestic chickens by European colonists had an impact on the Cooper's Hawk, and instead had imitated Porter et al. more closely. Porter et al. provides all of the information on a species, including illustrations, in 2–5 pages, a format that greatly facilitates comparing the descriptions of two similar species in the field. For example, Porter et al. provide more useful information for the three species of European accipiters in nine pages than DSS provide for the three North American species in 23 pages. The organization of CW also makes for difficult use in the field: there are two plates of accipiters, with very brief descriptions on the facing pages; eight pages of more detailed descriptions are separated by more than 50 pages from the plates. CW also contains considerable information of no use in identification, and some of this is in the species accounts, providing little more than additional pages to turn when one is trying to identify a bird. Generally, I found DSS easier to use than CW when I was trying to compare two species.

Both DSS and CW appear to be overexertions to produce sufficient pages to provide the appearance of a "book." DSS does this by stretching species accounts with verbiage unrelated to problems of identification which some may find entertaining when reading the book at home, but all will find annoying when trying to identify a hawk in the field. The abundant and large photographs are an expander that at least is of arguable value. CW uses a number of devices to expand to book size: repeated illustrations ("generic" silhouettes, topography of a bird), almost 20 absolutely blank pages, the etymology of scientific and common names and a glossary that is misnamed "Topography of a hawk" and largely repeats what can be

found in the illustrations including, e.g., such entries as "Leg. See Fig. 5." Fig. 5 indicates that the "leg" is the tarsus or, more properly, the tarsometarsus—the foot of a chicken, in common usage. The "leg feathers" of Fig. 5 appear to be largely those originating on the portion of the leg of which the femur is the skeletal element—the thigh of the chicken in your supermarket. CW also lists 24 pages of "References" compared to the modest 2.2 page "Bibliography" of DSS. I hardly expect a field guide to be a reference work, but CW begs to be examined as such. I have written only one paper on hawk identification (Mueller et al. 1979); this is cited in the brief bibliography of DSS but not in the extensive references of CW. DSS (appropriately) do not cite any of my other papers; CW cite five where I am sole or senior author. CW amplify their book with a nine page "Index to references by species and topic," permitting me to see why my five papers were selected for citation. Three are listed under "plumage." Mueller, Berger, and Allez (Bird-Banding 47:310–318; 1976) do present 0.6 pages on how to determine the age of Goshawks (*Accipiter gentilis*) in the hand, but is essentially useless for aging birds in the field. The same is true of the half page of plumage description of the Cooper's Hawk in Mueller, Berger and Allez (J. Field Ornithol. 52:112–126, 1981). The third paper (Mueller, Berger, and Allez, Wilson Bull. 93:491–499, 1981) contains absolutely no mention of plumage. All three papers deal with age and sex differences in measurements and not with description of plumages. My note on an isolated incident of a Rough-legged Hawk's catching fish (Mueller, Mueller, and Mueller, Wilson Bull. 78:470, 1966) is one of five references on the behavior of this species; several of the other references are of similar, dubious importance. My note presenting an aerodynamical hypothesis for similarities in the wing dihedral and flight behavior of Turkey Vultures and Zone-tailed Hawks (*B. albonotatus*) might be an appropriate listing, but the text in CW only mentions the other hypothesis, that Zone-tailed Hawks are mimics of the Turkey Vulture (Mueller, Condor 74:221–222, 1972). I did not find the list of references in CW very useful in trying to find support for statements in the text of the book; the list appears to be a random sample of some of the literature.

Both of these books are significant contributions to the art of hawk identification (field identification approaches becoming a "science" only when one recognizes one's limits as an "artist"). The color illustrations and verbal descriptions of the details of plumage characteristics in CW are useful hints (but only occasionally definitive field marks). The illustrations and verbal accounts in DSS are very useful in conveying the "jizz" of each species of raptor that permits a reasonable guess as to its identity when seen under the conditions that usually prevail in the field. If your finances or limits of transporting a library into the field limit you to one of the two books, DSS is the obvious choice. Neophytes will be attracted to CW because of its Peterson Guide imprimatur, its format, and its promises of relatively easy identification. DSS would serve them better in their efforts to become experts. Serious hawk watchers may wish to purchase Porter et al. (1981), as well as the two American guides, to help them identify the increasing number of exotics that escape from falconers. No guide will suffice to identify the hybrids produced by artificial insemination. For example, a hybrid Peregrine Falcon (*Falco peregrinus*) × Merlin (*F. columbarius*) exhibited by a falconer at the 1988 A.O.U. meeting had the general appearance of a giant male American Kestrel (*F. sparverius*).—HELMUT C. MUELLER.

DIVING BIRDS OF NORTH AMERICA. By Paul A. Johnsgard. Univ. Nebraska Press, Lincoln, Nebraska. 1987:xii + 292 pp., 32 colored plates, 56 figures, 36 tables, 28 range maps, 4 appendices, and numerous sketches. $45.00.—Almost 70 years have elapsed since Bent (U.S. Natl. Mus. Bull. 107, 1919) published his monograph on the loons, grebes, and auks—

groups then "linked" closely by taxonomists. In the intervening period, many studies of the biology of these birds have been published, taxonomists have isolated the auks from the other groups, and even a common ancestry of the loons and grebes has been debated. Although Palmer (Handbook of North American Birds, Vol. 1, Yale Univ. Press 1962) compiled the information on loons and grebes 25 years ago, Paul Johnsgard's book is the first attempt at a modern synthesis of these groups together. As the author points out in his preface (p. xi), this artificial "lumping" seems justified because "such coverage would emphasize the impact of convergent and parallel evolution better than would dealing with the patterns of adaptive radiation within a single phyletic group as has been the typical approach of my earlier books."

The book consists of six summary chapters (74 pp.), 31 species accounts (198 pp.), and four appendices (11 pp.). Johnsgard's coverage of the North American literature is reasonably comprehensive, up to about 1983, and several important European and Asian papers are included. However, publication proceeded at a time when several other syntheses of the auks were coming out, and although some of these were cited, they were not summarized because of his publication deadline. Thus, parts of the book are already out of date.

In the first chapter, Johnsgard addresses the controversy surrounding the evolutionary relationships among and within the loons, grebes, and auks by examining the fossil record and morphological variation, but he only alludes to current electrophoretic and DNA-DNA hybridization studies. Evidence that suggests that loons and grebes are monophyletic is compared with that which argues for convergence in their similarities. The author notes that, while some workers support a charadriiform origin of loons, others favor an origin from the penguins and tube-nosed swimmers. With no consensus, Johnsgard's gut reaction is a charadriiform ancestry, but he indicates this with a question mark in his "hypothetical evolutionary dendrogram" (Fig. 1 in the book). A charadriiform ancestry of the auks, specifically larid, is accepted despite the inability of recent workers to identify the closest charadriiform relatives of the group (see Strauch, Auk 102:520–539, 1985). The "dendrogram" is confused further. Interpreting the fossil record, the author concludes wrongly that *Nautilornis,* from the Eocene of Utah, is the earliest known aleid fossil. He overlooked Feduccia and McGrew (Contrib. Geol. 13:49–61, 1974) who showed that *Nautilornis* actually is referable to the genus *Presbyornis,* now known to be a charadriiform near the ancestry of the Anseriformes (Olson and Feduccia, Smithson. Contrib. Zool. 323:1–24, 1980). Finally, the author summarizes long-held ideas concerning the zoogeography and relationships within the alcids that now must be modified because of newly discovered fossils from the Atlantic (Olson, Avian Biol. 8:79–238, 1985).

The recurrent theme of Chapter 2 is relative size, shape, and flying/diving performance. The specializations that characterize these groups for locomotion on, under, and above water are compared in the context of the evolutionary development of underwater locomotion, wing-propelled in the auks and foot-propelled in the loons and grebes. Overlooked is Olson's (1985) evidence that suggests that loons also are specialized for wing-propelled underwater locomotion. The information in this chapter especially is discussed at a simplified level, and the author frequently refers rather subjectively to aspects of relative size. For example, he states (p. 20) that ". . . wing shape of grebes varies from moderately long to distinctly short and elliptical," and ". . . supported by a long and fairly weak ulna."

"Egocentric behavior" is defined (p. 26) in Chapter 3 as "those categories of individual survival and maintenance behaviors that are exclusive of . . . aggressive, sexual, and parental behaviors." Thus comfort movements are described although only sunbathing behavior in grebes has been studied quantitatively. The suggestion that Western Grebes (*Aechmophorus occidentalis*) become flightless while nesting is intriguing. The indication (pp. 33, 34) that Ancient Murrelets (*Synthliboramphus antiquus*) feed their young at sea has not been reported

previously, to my knowledge, and the author does not cite a source. Such behavior, however, has been observed in the closely related Craveri's Murrelet (*S. craveri*) (DeWeese and Anderson, Trans. San Diego Soc. Nat. Hist. 18:155–168, 1976). Dive/pause ratios are examined for several species but the author questions their use for measuring diving stress directly. Implicitly, more research on this subject is needed, with complete sequences of dives to known depths and prey of known abundance and dispersion.

Much of the tabulated information on diets in Chapter 4 is of limited value because only the families of the prey groups, i.e., fish, crustaceans, etc. are listed and the species that have been preyed upon are not indicated. Prey of different sizes taken in different seasons and localities are lumped. Information compiled in Tables 14 and 18 apparently confirms for loons and grebes, despite sparse data, what is established for auks, namely, that the smaller species tend to feed on plankton and other invertebrates and the larger species on fish. The correlative evidence the author presents in Chapter 1 purporting to demonstrate the relationship between oceanic productivity levels and the distribution of major alcid colonies is too simplistic. The availability of appropriate nesting stations, patchiness of food resources in the sea, etc., surely must be considered.

Pair-forming and copulatory behaviors (Chapter 5) are best known among the grebes. In the case of the loons and most auks much uncertainty still exists about the mechanisms of pair bonding, although monogamy seems to prevail. The tendency for nest-site tenacity to promote long-term mate fidelity is an important observation that deserves more attention (see also Morse and Kress, Auk 101:158–160, 1984). Vocal communcation, apparently especially important in the loons, is poorly documented. The elaborate displays of pairing and paired grebes are species specific, and their taxonomic utility is well known.

Life history and reproductive success data for loons and grebes are sparse, and European papers are used to round out Chapter 6. The more intensively studied auks receive the most attention. Loons and auks are long-lived, enjoy high annual adult survival, and lay clutches of 2 and 1–2 eggs, respectively, but the alcids exhibit highly variable nestling periods that continue to intrigue biologists. The shorter-lived grebes lay larger, more variable clutches, generally hatch their young asynchronously, and divide their broods and care for them for extended periods. Johnsgard's interpretations in this chapter are couched in terms of the influence of food supply, especially during the breeding season. For example, he suggests (p. 74) that the 2-egg clutches most guillemots (*Cepphus* spp.) lay is a "gamble" that pays off occasionally when 2 young are reared. Ainley's (Pacif. Seabird Grp. Bull. 13:16, 1986) long-term study of the Pigeon Guillemot (*C. columba*) seems to bear this out—2 young are reared in years when pelagic schooling fishes are available.

The bulk of the book consists of the species accounts which complement nicely, and provide the basis for, the earlier chapters on comparative biology. The Pacific Loon (*Gavia pacifica*) and Clark's Grebe (*A. clarkii*), recognized recently by the 35th Supplement (1985) to the A.O.U. Check-list, are mentioned in footnotes (p. 4) but not treated separately. Surprisingly, the author neither summarizes the recent accounts of the Great Auk's (*Pinguinus impennis*) biology nor addresses the current debate as to why this species became extinct.

Taxonomy ostensibly follows the 6th edition (1983) of the A.O.U. Check-list, but the spelling of many scientific and common names do not conform to it, and some generic names are misspelled (e.g., *Pinguinus,* pp. 8, 9; *Ptychoramphus,* pp. 6, 41; *Cyclorrhynchus,* p. 8). For each species, a list of vernacular names is followed by the ranges summarized and mapped for each North American subspecies. The Pacific Loon's breeding range in British Columbia (Campbell et al., Can. Field-Nat. 99:337–343, 1985) is omitted, and it is mapped in northeastern Alberta instead of northwestern Saskatchewan. Western Grebes do not breed in southeastern Alaska (p. 141), and some of the largest colonies of the Crested

Auklet (*Aethia cristatella*), north of the Pribilof Islands, are mapped (p. 235) but not summarized. The range maps of the Atlantic (*Fratercula arctica*) and Horned (*F. corniculata*) puffins (pp. 253, 259) are inverted. Breeding and wintering adults, downy young, and, in some species, juveniles of each species are described; measurements of presumably adults (from live or dead birds?) and eggs are followed by body weights from the literature. Estimated egg weights are used in many accounts even when published data were available. Thorough sections follow on "Ecology and Habitats," "General Biology," "Social Behavior," "Reproductive Biology," "Evolutionary History and Relationships," and "Population Status and Conservation." Molts, migrations, and overwintering biology clearly require further study. As elsewhere, errors and misleading statements exist. Logging of coastal old-growth forest may be the major, not "lesser," threat (p. 198) to the Marbled Murrelet (*Brachyramphus marmoratus*). Incubation shifts of 72 hours are reported for the Ancient Murrelet, not Marbled Murrelet (p. 205).

The appendices are of limited value. The key (App. II) to the species is designed for identifying living or recently dead adults in alternate plumage. It worked for skins of loons and most grebes (keys to the Western and Clark's grebes are inverted), but problems arose with the alcids. The "total culmen length" (="exposed culmen" used elsewhere?) of the Marbled Murrelet is under, not "at least 25 mm," even in the Asiatic subspecies *perdix*. "Underparts" of the Least Auklet (*A. pusilla*) are white in juvenal and basic plumages but not in the alternate plumage. The black-and-white sketches of a downy loon and some of the auks do not reveal the subtle differences in pattern that exist among the species and thus cannot be used to identify them. The "head profiles" show different plumages, but the outmoded terminology oversimplifies the complex plumage generations characteristic of these species. Estimates (individuals? pairs?) of the sizes of the "major" auk colonies in North America (App. III) do not list all of the species, and serious students will have to consult the catalogs listed on p. 274 for extended information on colony sizes, species composition, and census methods. The index lists only scientific and common names. Finally, the painting by John Felsing, Jr. on the dust jacket is attractive, but the direction of the action is wrong. Horned Puffins pursued by a Gyrfalcon (*Falco rusticolous*), in real life, would fly toward the ocean, with the falcon in pursuit, not land on or remain standing on a boulder.

I am not sure for whom this book was written. Many of the photographs, some by the author which include birds in captivity, lack the visual quality one associates with a coffee-table book. Although each species account has a section on "identification" in the field and in the hand, the book is too bulky for birdwatchers to use in the field. Much published information on these groups is summarized, apparently for the professional, but generally at a simplified level, and almost no new information is presented. Serious students of alcids have available other more exhaustive, up-to-date treatments of the topics covered. The 14 pages of references, nevertheless, will assist those initiating new research. The many errors and misleading statements in the text demand caution by readers who may use it as a reference book. University undergraduate, museum, and field station libraries should have this book, and ornithologists in general and students of loons and grebes in particular will find it useful, but students of alcids less so.—SPENCER G. SEALY.

SPECIATION AND GEOGRAPHIC VARIATION IN BLACK-TAILED GNATCATCHERS. By Jonathan L. Atwood. Ornithological Monographs no. 42. 1988. 74 pp., 38 text figs., 15 tables. $10.00 ($8.00 for A.O.U. members). (Frank R. Moore, Asst. to AOU Treasurer, Dept. Biological Sciences, Univ. Southern Mississippi, Hattiesburg, MS 39406-5018 U.S.A.)—The gnat-

catcher genus *Polioptila* is a small, well-defined group of species of similar appearance. In such a genus, species level problems are inevitable—but now there is one fewer. Reversing an incorrect lumping of years ago, this paper definitively separates two species of gnatcatchers with mainly black tails currently treated in most literature as a single species, and clarifies the English as well as the scientific nomenclature. *Polioptila melanura* Lawrence, 1857, the Black-tailed Gnatcatcher, occurs in the Sonoran and (disjunctly) Chihuahuan desert regions of the southwestern United States and northern Mexico. *Polioptila californica* Brewster, 1881, the California Gnatcatcher, is restricted to southwestern California and Baja California. A third "sibling" (but white-tailed) species, *P. nigriceps,* the Black-capped Gnatcatcher of northwestern Mexico, was included in the study for comparative purposes.

Atwood's taxonomic decision is based primarily on behavioral and ecological evidence. The mainly allopatric species come into contact regularly in a small area in northeastern Baja California, where assortative mating occurs. In that area, *melanura* can be distinguished by its brighter (whiter) breast color. Much of the ecological (habitat) difference is related to geographical separation. There are minor differences in breeding biology, and there are differences in vocalizations.

The basic taxonomic work is accompanied by an extensive (nearly half the text) univariate and multivariate analysis of morphological character variation. Univariate analyses showed consistent patterns of intraspecific geographic variation in morphological characters. Sonoran and Chihuahuan desert populations of *melanura* differ markedly in some characters and are treated as subspecies, *melanura* in the Chihuahuan Desert, and *lucida* in the Sonoran. Both *nigriceps* and *californica* show north-south clinal variation in many characters; the latter consists of two subspecies, *californica* in the north and *margaritae* in the Cape Region of Baja California. Actual statements of morphological differences between the species, or between populations within the species, are scattered throughout this section and can be picked out only with careful reading.

Populations from islands in the Gulf of California were not included in the statistical analysis, primarily because of small sample size, although some mainland populations with equally small or smaller samples were included. Also, mean values from those populations tended to "obscure" (read "screw up") patterns of variation based on mainland samples. This exclusion is unfortunate, because eventual recognition of subspecies is based on this analysis, and at least one such insular population (on Isla Tiburón) has been named as a subspecies (*curtata*) of *melanura*; there is no way to judge its validity in the context of other intraspecific variation, but Atwood recognizes it tentatively.

Although I accept the taxonomic conclusions of this study and admire the thoroughness of the statistical analysis, some aspects of this monograph bother me. Aside from mean values for a few characters, there are no data. For example, although Chihuahuan Desert samples of *melanura* are said to be longer winged, longer tailed, and heavier than Sonoran desert samples of that species, there are no tables that give ranges of measurements, standard deviations, etc., that would help the reader judge the degree of overlap or independently assess the geographic variation. Thus, accepting Atwood's statements about the patterns of variation becomes an exercise in faith. Although light on data, the paper is very heavy on statistical treatment. This tells a lot about what one can do with data, but tells relatively little about the birds.

Patterns of variation in a few characters are mapped after a fashion. The entire range of means in a character—for all three species—was divided into fifths, and the symbol for an individual population indicate into which fifth it falls. I'm not sure I see the point of that; I would rather know how a population fits variation in its species, not the species complex. Patterns in other characters are tabulated in similar fashion, showing the number of populations in selected areas of each black-tailed species that fall into each fifth of the range of

variation for that species. I find it difficult to get much useful information from any of this. Is this ornithology or numerology?

Vocalization playback experiments were conducted on all three species and suggested that differences in vocalizations might serve as an isolating mechanism for the black-tailed species. There is no indication, however, whether these experiments were done in the area of contact or on allopatric populations. Because vocalizations were presented with visual models, morphological as well as vocal differences may have influenced the results.

The final di-, tri- or quadri-chotomous key "correctly identified 97 percent of the specimens that were examined with 90 percent accuracy." Aside from the ambiguity of that statement, the key leads to a mainland (not the insular) race of *melanura* but only to the species *californica.* With bad luck the key will leave you at 5C, "Not as above . . . unknown."

In summary, I am glad to have a definite statement that *melanura* and *californica* are specifically distinct. I wish I had been told that in a shorter paper. The rest of this monograph, including brief sections on species concepts and biogeography, leaves me with a funny unsatisfied feeling. Did the author not make a point, or did I miss it? Probably you should get it and read it, and judge for yourself. I suspect this will be a much cited paper, one that you should be familiar with.—RICHARD C. BANKS.

WATERFOWL: AN IDENTIFICATION GUIDE TO THE DUCKS, GEESE, AND SWANS OF THE WORLD. By Steve Madge and Hilary Burn. Houghton Mifflin Company, Boston, Massachusetts. 1988. 298 pp., including 47 color plates, 152 range maps, and 25 unnumbered black-and-white text figs., $35.00.—This book by two Britishers is a guide to the semiaquatic birds typically known as waterfowl in North America and wildfowl in Britain and other European countries. However, coverage includes the Family Anseranatidae (the Magpie Goose, *Anseranas semipalmata,* of Australia) but excludes the Family Anhimidae, the screamers (genus *Chauna*) of South America. Considering its worldwide coverage, it is compact (ca 16 × 24 cm), well designed and printed, and with a small but readable text printed with narrow margins to maximize space use on a heavy grade paper. It will be useful in the museum or at the zoo, but its hard cover will need protection in the field for the wet weather often associated with waterfowl.

The book is divided into two sections, a sparkling array of 47 color plates illustrating all species and selected subspecies, and a systematic section made up of species treatments. The plates by Hilary Burn include many plumages and sometimes color variants, and remind one of the coverage established by F. H. Kortright's "Ducks, Geese and Swans of North America" (Wildlife Management Institute, Washington, D.C., 1942) where identification in the hand or at close range was expected. Illustrations are bright, colorful, and distinctively rendered for identification while being quite detailed and artistic. Many of the outstanding bird artists of the world have found waterfowl their greatest challenge and their chief failure. Burn has done an exceptional job, and although each person who knows a certain species may find fault, they are overall the best collection of waterfowl paintings in a guide book.

The text by Steve Madge is separated from the paintings so that the range maps and commentary could be opposite the color plates. But this is where the arrangement is disconcerting, for many of the range maps are out of sequence with the paintings on the opposite page. This is a product of the fact that the species are numbered, and the range maps are given numerically, whereas the paintings are not in the same order. To assist the less experienced reader, the numbers should either have been deleted and the range maps arrayed to match the plates, or the species arranged on the plates in sequence—probably the more difficult challenge.

The species treatments in the text average nearly a page of small text and seem up-to-

date but general—as would be expected in a guide. They include field identification, description of the "bare parts," measurements, geographic variation, habits, habitat, distribution, populations (status), and a few key references. References are listed in an abbreviated bibliography at the end of the text and include compendia and original citations. A glossary at the end seems short and not very helpful for those familiar with terms such as sympatric, holarctic, etc., but it will aid the bird-watching public in clarifying abbreviated descriptions and ranges.

The taxonomic arrangement and the sequence of species will be the most disruptive aspect of the book for many readers, since it follows a recent paper (Livezey, Auk 103:737–754, 1986) that makes major changes in species grouping in tribe and adds numerous subfamily names not characteristic of 20th-century taxonomic treatments. Several tribes are thereby deleted, and earlier generic names such as *Olor, Nomonyx,* and *Mergellus* are resurrected. This will not affect the usefulness of the book for identification, but many readers will be surprised to find new scientific names for familiar species as well as changes in tribes; e.g., many species previously in the Tribe Cairinini (perching ducks) are included with several aberrant forms like the Blue Duck (*Hymenolaimus malacorhynchos*), Pink-eared Duck (*Malacorhynchus membranaceus*), and Torrent Duck (*Merganetta armata*) in the Subfamily Tadornini. This subfamily should have been divided into two tribes, but a subheading is missing on page 163 so that all the shelducks and sheldgeese seem to be in the Tribe Sarkidiornini (Comb Duck [*Sarkidiornis melanotus*]) rather than the Tadornini. Other species of the former Cairinini tribe are placed among the dabbling ducks (Anatini). A systematic list would have been helpful; the Table of Contents could have served this role if modified.

Use of this classification system must have been a difficult choice for the author, who made a concerted effort to have data, references, and approaches up-to-date. Arrangements of species in the color plates suggest that the acceptance of this ordering was made after the plates were finished. Madge expressed the hope that this would be the system to be followed for many years, but, unfortunately, two recent papers demonstrate that this is not to be: Sibley et al. (Auk 105:409–423, 1988) and Madsen et al. (Auk 105:452–459, 1988).

Vernacular names tend to be those from "official" regional check-lists and guides, presumably to be useful to local bird watchers. Thus, Hardhead is used for the Australian (White-eyed) Pochard (*Aythya australis*) but Johnsgard's (Ducks, Geese and Swans of the World, Nebraska, Lincoln, 1978) terminology is used for the Australasian Shoveler (*Anas rhynchotis*). This could be confusing in viewing a large, labeled waterfowl collection.

Guides to groups of birds are less common than guides to birds of regions, but waterfowl have had a large following among both aviculturists and hunters. All worldwide guides seem to have had their origins in England. One of the oldest was by Frank Finn (Wildfowl of the World, Hutchinson, London, 1921), with most species listed but only a few illustrated with black-and-white photos. Peter Scott's outstanding illustrations in the comparative "Key to the Wildfowl of the World" (Wildfowl 2, Plates 1–23, 1949) was reprinted in black-and-white, bound, and sold for use at the Wildfowl Trust at Slimbridge. It was soon followed by "A Coloured Key to the Wildfowl of the World" (Royle & Sons, London, 1957), which has been available from various publishers for many years. A more general descriptive work by O. J. Merne (Ducks, Geese and Swans, Hamlyn, London, 1974) lacked the detailed illustrations useful in species identification. It was superceded by a good photographic treatment (Soothill and Whitehead, Wildfowl of the World, Blandford, Poole, 1978).

Madge and Burn have assembled the most complete and compact guide to waterfowl of the world now available. I recommend the book for all who wish to identify and compare waterfowl, their ranges, and their general characteristics over several broad geographic areas. It will work well for specific areas such as North America or Europe, but other guides will do those areas in greater detail. World travelers with a special interest in waterfowl will find the book extremely useful.—MILTON W. WELLER.

VOICES OF THE WRENS. FAMILY TROGLODYTIDAE. By J. W. Hardy and Ben B. Coffey, Jr. ARA-2 (revised), ARA Records, P.O. Box 12347, Gainesville, Florida 32604-0347, 1988: Monaural cassette, normal bias tape (approx. 40 min/side). $10.00—J. W. Hardy continues to render a valuable service to the ornithological community with the production of recordings at the Bioacoustic Laboratory of the Florida State Museum. These productions, which today number eleven, are comprehensive surveys of the vocalizations of entire groups of birds. Hardy's monographs provide amateur ornithologists with examples of vocal variation within and across groups and are of value to the professional who wishes to conduct an initial comparison of closely related forms for taxonomic and behavioral purposes. In addition, the recordings provide documentation of the vocalizations of many groups that exist in ecologically endangered regions. This is certainly true for the wrens in the recording under review here, as over 70% occur in the New World tropics.

The first collection of wren vocalizations appeared as an LP record in 1977 ("The Wrens," reviewed by Stuart Keith, Wilson Bull. 90:148–150). That edition featured 43 of the then-recognized wren species. The revision has increased the number of species to 71, with all but three presently recognized species represented (omitted are: Niceforo's Wren [*Tryothorus nicefori*], the Gray Wren [*T. griseus*], and the Tepui Wren [*Troglodytes rufulus*]). Thirty-eight new recordings appear on the cassette tape; 31 are of species not in the first edition, and seven replace recordings of species on the LP. The wren vocalizations included in this production were obtained by more than 20 recordists. A nucleus of 30 recordings was made by Ben Coffey (the next largest contribution by any one recordist consisted of five recordings). The quality of the recordings, with few exceptions, is good. This is rather remarkable considering the number of contributors and the difficulty of obtaining some recordings. After careful comparison, both by ear and by analysis with a digital spectrum analyzer (Kay DSP Sona-graph Model 5500, Kay Elemetrics Corp., Pine Brook, NJ), we concluded that the cassette production compares well with the original LP format.

However, there are some noticeable differences between the two editions. Narration on the cassette is restricted to voicing the common and scientific name of each species. This is in contrast to the LP where commentary was extensive, providing information about habitat and vocal behavior as well as species identity. For the revised edition, some of this information has been placed in a small, folding brochure accompanying the cassette. Here each species is listed with its distribution and data supporting the recording (location, date, and recordist). Most, if not all, of the recordings now reside in an archive, and it would have been appropriate to include the archive identity and archive number with the text accompanying each recording.

Omitted from the brochure, except for a few remarks following the species list, are some of the more valuable comments on the LP, especially those on habitat which were originally given for all species. More critical is the omission of information on the number of birds vocalizing in any cut. Duetting and group chorusing are especially common in tropical wrens. Without reference to the LP, we were not always certain when duetting occurred on the cassette, especially if the duet was antiphonal. Approximately 14 species were noted to be duetting on the LP, yet only one is so indicated in the text remarks accompanying the cassette. For the Rufous Wren (*Cinnycerthia unirufa*), not represented on the LP, we were certain that duetting was involved only after consulting Dr. Hardy.

The text is further marred by organizational and production problems. Remarks relegated to a separate section in the brochure certainly would have been more valuable if incorporated in the species listing. Furthermore, the species list in the brochure lacks any indication of where side A ends and side B begins. Most annoying is the brochure's nearly illegible print size.

Despite these shortcomings, we recommend this cassette to all with an interest in the vocal behavior of this most accomplished group of songsters. Dr. Hardy reports that a recordist has come forward with a sample of the previously unknown song of the Tepui Wren. We can only hope that the remaining two unrecorded wrens will soon be added and that a final, third edition of the "Voices of the Wrens" will appear.—SANDRA L. L. GAUNT AND ANDREW D. THOMPSON, JR.

BIRDS TO WATCH. The ICBP World Checklist of Threatened Birds. By N. J. Collar and P. Andrew (eds.). ICBP Technical Publication No. 8, Cambridge, U.K. 1988:xvi + 303 pp. £9.50 (For U.S. and Canada order from Smithsonian Institution Press, Washington, D.C.).—Over the last two decades the ICBP has published several lists of endangered and threatened bird species. The Red Data Book, in loose-leaf form, appeared from 1964–1971, with a second loose-leaf edition in 1978–1979. This last was later converted to a hard-back book. More recently, the Red Data Book has been expanded into a series of four volumes embracing different geographical regions. A volume on Africa (Collar and Stuart, 1985; see review, Wilson Bull., 99:736–737, 1987) has appeared and one on the Americas is in preparation. These compilations have been criticized on the grounds that the effort in preparing these detailed summaries precluded rapid transmission of information on a subject where changes are occurring rapidly. The present publication is an attempt to bring out the vital information quickly in less elaborate form. It is hoped to have updated versions at regular intervals.

After a brief introduction outlining both the purpose of the publication and the criteria used in establishing the list, the main portion of the text gives the World Checklist of Threatened Species, which lists 1029 species (over 11% of the world's avifauna). The 1978–79 edition of the Red Data Book had listed only about 290 species. Each species is discussed in a paragraph of 5–10 lines outlining the recently known status of the bird and some remarks about the threat facing it. The information is about as up to date as is possible, and there are numerous entries giving the 1988 status of species.

There are two useful appendices. The first lists the threatened birds by geopolitical unit, and the second lists 637 additional species which are "Near-threatened." A Bibliography in 25 pages of small type is included.

Indonesia with 126 species and Brazil with 121 species are the geopolitical units with the most threatened species. The United States and Canada have 15. The family Psittacidae with 71 species on the threatened list and 29 on the additional list is the taxon with the largest number of endangered species.

If there is an underlying theme that runs throughout the book it is the destruction of habitat, particularly forest. For species after species, this is listed as the main threat the species faces. In many cases of little known island species, it is reported that no forest remains on the island concerned. Many other species may face this threat in the future. A large number of species, particularly in the tropics, are either known from only a few specimens (often only one) or else have not been reported for many years.

The Psittacidae, and to a lesser extent some others, are chiefly threatened by the wild bird trade which flourishes despite the increasing amount of legislation against it. On the other hand, no species is currently threatened by overzealous collecting.

There are a few less dark (I hesitate to say bright) spots in this picture. The Mauritius Kestrel (*Falco punctatus*) and the Chatham Island Robin (*Petroica traversi*) have both responded to intensive management and have increased in numbers.

This is a valuable and informative publication.—GEORGE A. HALL.

ANNOTATED CHECKLIST OF THE BIRDS OF KENTUCKY. By Burt L. Monroe, Jr., Anne L. Stamm, and Brainard L. Palmer-Ball, Jr. The Kentucky Ornithological Society (9101 Spokane Way, Louisville, KY 40241). 1988:xi + 84 pp. $6.00.—With a broad longitudinal range and elevations ranging from the lowlands of the Mississippi Embayment in the west to the high country of the Cumberland Mountains in the east, Kentucky has been blessed with a rich avifauna. For many years Robert Mengel's classic, "The Birds of Kentucky" (1965), has been the benchmark for the study of the state. Now the Kentucky Ornithological Society has brought out an updated list incorporating the numerous additions and changes of the last 25 years. Mengel had recognized 296 species for the state. The present list contains 340 species, eight of which are either extinct or extirpated in the state.

After an eight-page introduction which gives a map of the state and its avifaunal regions and defines the terms used, the main portion of the text is a standard set of species accounts. The annotations are very detailed and include references, mostly in "The Kentucky Warbler." For those species which have an endangered or threatened status, both on the state and federal level, that status is given. A Hypothetical List of ten species is appended, and a novelty for this type of checklist is a list of ten "What will be next . . . ?" species, species that can be expected to occur within the state in the near future.

Part 2 of the booklet consists of the usual set of bar graphs summarizing the seasonal occurrence and abundance. One feature not usually found on such graphs is the inclusion of dates for out-of-season records and those species of casual occurrence.

This compilation should be very useful not only for Kentucky birders but also for people in neighboring states.—GEORGE A. HALL.

BRIEFLY NOTED

AN EAGLE IN THE SKY. By Frances Hamerstrom. Nick Lyons Books, 31 West 21st St., New York, 10010, 1988:xxv + 142 pp. Black-and-white photos and sketches. $10.95 (paperback).—This reprint of a book originally published in 1970 recounts the author's experiences with two captive golden Eagles (*Aquila chrysaetos*). In her usual delightful style, Dr. Hamerstrom recounts her attempts to breed one captive female and to rehabilitate and release a tick-infested eagle taken from a nest.—G.A.H.

INVERNADA DE AVES EN LA PENINSULA IBERICA. By José Luis Tellería (Ed). Sociedad Española de Ornitologia, Monografia No. 1 (Facultad de Biologia 28040) Madrid, 1988:208 pp. 2400 ptas (£12) paperback. (In Spanish and Portuguese with English summaries.)—This work presents 14 papers on the wintering of birds in the Iberian Peninsula originally given at a symposium held in December 1987. Included are discussions of both waterbirds and landbirds, with three papers on conservation problems.—G.A.H.

EARLY AMERICAN WATERFOWLING:1700s–1930. By Stephen M. Miller. Winchester Press, New Century Publishing Co., Brooklyn, N.Y., 1986:xv + 279 pp., 16 col. plates, many black-and-white photos and drawings. $27.95.—A collection of accounts of duck hunting by a variety of authors illustrated with photos of duck hunters, duck decoys, and sketches from gun catalogs.—G.A.H.

The following publications are available from the Publications Unit, U.S. Fish and Wildlife Service, Room 148 Matomic Building, Washington, D.C. 20240.

CHEMICAL CHARACTERISTICS OF PRAIRIE LAKES IN SOUTH-CENTRAL NORTH DAKOTA—THEIR POTENTIAL FOR INFLUENCING USE BY FISH AND WILDLIFE. By George A. Swanson,

Thomas C. Winter, Vyto A. Adomaitis, and James W. LaBaugh. U.S. Fish and Wildlife Service Technical Report 18, 1988:44 pp.—G.A.H.

DEMOGRAPHIC CHARACTERISTICS OF A MAINE WOODCOCK POPULATION AND EFFECTS OF HABITAT MANAGEMENT. By Thomas J. Dwyer, Greg F. Sepik, Eric L. Derleth, and Daniel G. McAuley. U.S. Fish and Wildlife Service, Fish and Wildlife Research 4, 1988:29 pp.—G.A.H.

ANNOUNCEMENTS

HAWK MOUNTAIN-ZEISS RAPTOR RESEARCH AWARD

The Hawk Mountain Sanctuary Association awarded its 1989 research grant to Suzanne M. Joy, a M.S. candidate at Colorado State University. Her project is entitled "Nest-site characteristics and foraging behavior of Sharp-skinned Hawks in mature aspen and conifer habitats."

The Hawk Mountain Sanctuary Association is now accepting applications for its thirteenth annual award to support student research on birds of prey. Support for this award is provided by Carl Zeiss Optical, Inc. Up to $2000 in funds are available and will be awarded to one or two recipients. To apply, a student applicant should submit a brief description of his or her research program (five pages maximum), a *curriculum vitae,* a budget summary including other funding anticipated, and two letters of recommendation to Dr. James C. Bednarz, Hawk Mountain Sanctuary Association, Rte. 2, Kempton, Pennsylvania 19529, USA. The deadline for applications is 15 November 1989. The Association's board of directors will make a final decision in February 1990. Only undergraduate and graduate students in degree-granting institutions are eligible to apply. The awards will be granted on the basis of the project's potential to improve understanding of raptor biology and its ultimate relevance to the conservation of raptor populations. The funds are no longer restricted to studies in North America and applications from anywhere in the world will be considered.

This issue of *The Wilson Bulletin* was published on 23 June 1989.