



Book Review: Hawks, Eagles, & Falcons of North America; Biology and Natural History

By Paul A. Johnsgard. Smithsonian Institution Press, 1990. 403 pp. Hardcover, \$45.00.

By William L. Murphy

Johnsgard. For an in-depth review of Palmer's volume, see *Hawk Migration Studies* 16(1):24-25, Sept 1990.

Johnsgard's book is organized in the same manner as its sister volume, *North American Owls; Biology and Natural History*, also by Johnsgard (reviewed in the *Naturalist Review*, Winter 1989:3). Part one covers comparative biology, while part two details the natural histories of 31 species known to breed in continental North America. Specifically, part one examines 1) evolution, classification, and zoogeography (evolution and classification, breeding and ecologic distributions of North American hawks, winter distributions of North American hawks), 2) foraging ecology and foods (visual adaptations for foraging; interspecific differences in anatomy as related to foraging, foods, and foraging ecology), 3) comparative behavior (foraging and predatory behavior, migratory behavior and migratory movements, territorial and courtship behavior), 4) reproductive biology (breeding dispersion, home ranges, and breeding densities; nest site selection and nest building; egg laying and incubation; hatching and brood rearing; fledging and the postfledging dependency period; reproductive success), and 5) population biology and conservation (mortality rates and recruitment, population trends among North American falconiforms, management and current status of endangered species).

Also included are appendices containing a key to the species covered, a section on the origins of vernacular and scientific names, an extensive glossary, a section on field identification views and anatomical drawings, and a bibliography containing more than 1,000 citations.

Numerous references are provided to support the phylogenetic arrangement of the species covered. The arrangement is based on the assumed ancestral-to-current evolution, which itself is based in part on interspecific affinities. It is as follows: osprey, hook-billed kite, American swallow-tailed kite, black-shouldered kite, snail kite, Mississippi kite, bald eagle, northern harrier, sharp-shinned hawk, Cooper's hawk, northern goshawk, common black-hawk, Harris' hawk, gray hawk, red-shouldered hawk, broad-winged hawk, short-tailed hawk, Swainson's hawk, white-tailed hawk, zone-tailed hawk, red-tailed hawk, ferruginous hawk, rough-legged hawk, golden eagle, crested caracara, American kestrel, merlin, aplomado falcon, peregrine falcon, gyrfalcon, and prairie falcon.

For each species covered, Johnsgard provides 12 pieces of information: other vernacular names, distribution, North American and West Indian subspecies, description (adult [male, female], subadult, juvenile), measurements, weight, identification (in the hand, in the field), habitats and ecology, foods and foraging, social behavior, breeding biology, and evolutionary relationships and status.

It is obvious that far more information is available on some species of raptors than on others. In his preface, Johnsgard points out that the literature base on bald eagle, peregrine falcon, and osprey approaches 4,000 citations, whereas the literature base on tropical species such as gray, short-tailed, and white-tailed hawks, crested caracara, and aplomado falcon collectively totals fewer than 100 citations. In fact, the number of citations for the former three species nearly equals that for the other 28 species combined.

Concurrent with increased interest in hawks in recent years has been a welcome surge of publications on raptors. These books have ranged in topic from the basics, such as identification in Clark and Wheeler's *Hawks* and Dunne, Sibley, and Sutton's *Hawks in Flight*; through esoteric in Kerlinger's *Flight Strategies of Migrating Hawks* and Pennycuik's *Bird Flight Performance; A Practical Calculation Manual*; to book-length, single-species accounts in Cade *et. al's* *Peregrine Falcon Populations* and Hamerstrom's *Harrier, Hawk of the Marshes*. Although Brown and Amadon's *Eagles, Hawks, and Falcons of the World* (1968) was certainly comprehensive, what has been lacking is a single contemporary work containing raptor information exclusively for North America. More than 50 years have passed since Arthur Cleveland Bent published *Life Histories of North American Birds of Prey*, incorporating in a two-volume set virtually everything known at that time about North American raptors. Ironically, since 1988 two major works have been published that cover all aspects of every species of hawk, eagle, and falcon known to breed in North America. They are the *Handbook of North American Birds* (vol. 4 and 5) edited by Ralph S. Palmer and *Hawks, Eagles, & Falcons of North America; Biology and Natural History* by Paul A.

A unique resource that Johnsgard tapped is the Audubon Christmas Count statistics, from which he extrapolated relative winter state or provincial density indices (average number seen per count) for many species. These indices allow the reader to determine quickly principal wintering grounds, an activity that would otherwise be difficult, especially for widespread species. For example, it takes just a second to see that although bald eagles occur throughout the continent during the winter, the highest densities are in British Columbia (61 per count) and the central Mississippi region (15 to 18 per count).

To me the real value of a book such as this is its integration and use of widely dispersed, diverse data. By and large, I think that Johnsgard succeeds in analyzing the available data and expressing his findings clearly and concisely, although some passages seem cut-and-paste. Perhaps more important than how easily the prose flows is the fact that Johnsgard points out areas where the answers are as yet unknown and where field work remains to be conducted.

I love learning weird facts, and this book provides a lot of them. One of my favorite sections is "Evolutionary Relationships and Status," the last topic for each species. I found it interesting to learn, for example, that the nearest relatives of the sharp-shinned hawk perhaps are the African rufous-breasted sparrowhawk and the Eurasian sparrowhawk, which comprise "a fairly clear nuclear superspecies, to which several other forms including [the sharp-shinned hawk] might well be added." Such global tie-ins make for mind-expanding reading.

Also in the "amazing facts" category are the estimates of North American hawk populations. We may have over 2.4 million American kestrels and half a million each of broad-winged and Swainson's hawks but only 200 pairs of common black-hawks, 50 pairs of gray hawks, 10 to 20 pairs of hook-billed kites, and few or no aplomado falcons.

Did you know that the continental distribution of Cooper's hawk looks like a doughnut? It is readily apparent from the range map that they do not fare well in treeless plains. I could go on, for this book is packed with such interesting tidbits.

Several comments that Johnsgard makes will stay with me for some time, as will the puzzling habits he reveals about certain species. For example, why do zone-tailed hawks prefer to nest on steep north-facing slopes? Why do they shun east-, west-, or south-facing slopes, or those with a milder grade? What makes red-tailed hawks so adaptable to such a wide variety of prey while snail (Everglade) kites seemed doomed to dwindle while sticking to their rigid diet of escargot? Why is the sharp-shinned hawk population declining while that of the broad-winged hawk, which shares much of the same prey base and habitat, apparently increasing slightly?

On a lighter note, Johnsgard shared my feelings when he wrote, 'Much the most interesting aspect of [Harris' hawk's] breeding biology is the tendency for simultaneous polyandry that it often exhibits.' Whoa! Give this book an "R" rating.

I found only a few shortcomings of note, none devastatingly serious. The author stresses that this is not an identification guide, so why are 12 pages of small pen-and-ink drawings included under "field identification views and anatomical drawings"?

More importantly, although the range maps are generally excellent and fascinating, I had trouble interpreting many of them in which shading was used to demark a range. The range map of the prairie falcon is a good example; the shading of the wintering range reproduced so poorly that I had to read the text to determine where the shading should have been. I think that including a key to shading and patterns would have been a great idea; interpreting terms such as "wide hatching," "cross-

hatching," and "narrow hatching," proved to be quite a challenge.

But these criticisms are minor compared to the positive aspects of the book and to the great amount of accessible information it contains. It is a beautiful, well-bound volume that looks like it will last for years. The Smithsonian Institution Press is to be commended for publishing such works and is to be encouraged, through our purchase of books such as Johnsgard's, to continue its fine tradition. In summary, I think that Johnsgard has made yet another significant contribution to ornithology. In fact, one wonders which group of birds he will choose to study next.

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