

## Oiseaux d'Algeria-Birds of Algeria

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## Reviews



EDITED BY R. TODD ENGSTROM

*The following critiques express the opinions of the individual evaluators regarding the strengths, weaknesses, and value of the books they review. As such, the appraisals are subjective assessments and do not necessarily reflect the opinions of the editors or any official policy of the American Ornithologists' Union.*

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**Oiseaux d'Algeria—Birds of Algeria.**—Paul Isenmann and Aïssa Moali. 2000. Société d'Études Ornithologiques de France, Muséum National d'Histoire Naturelle, Bibliothèque, 55 rue Buffon, 75005 Paris, in collaboration with the Station biologique de la Tour du Valat, Arles, France. 336 pp., 115 color photographs, 210 maps. ISBN 2-9506548-8-6. Paper, €37.00.

**Oiseaux de Tunisia—Birds of Tunisia.**—Paul Isenmann, Thierry Gaultier, Ali El Hili, Hichem Azafzah, Habib Dlensi, and Michael Smart. English translation by Michael Smart. 2005. Société d'Études Ornithologiques de France, Muséum National d'Histoire Naturelle, Bibliothèque, case postale 51, 55 rue Vuffon, 75005 Paris ([www.mnhn.fr/assoc/seof](http://www.mnhn.fr/assoc/seof)). Published under the patronage of Les Amis des Oiseaux in collaboration with the Biological station de la Tour du Valat, Arles, France. 432 pp., 130 color photographs, 150 maps. ISBN 2-9506548-9-4. Paper, €38.00.—With the publication of these two books on the birds of Algeria and Tunisia, plus the recently published book on the birds of Morocco (Thévenot et al. 2003), information on the birds of the Maghreb is now easily accessible and well documented. Before these books, one had to rely largely on H. Heim de Balsac and N. Mayaud's *Les Oiseaux du Nord-Ouest de l'Afrique* (1962) and R. D. Etchécopar and F. Hüe's *Oiseaux du Nord de l'Afrique de la Mer Rouge aux Canaries* (1964). In recent decades, data on the birds of Algeria and Tunisia have also been available in field notes, tour lists, and unpublished manuscripts scattered across Europe and North Africa and often difficult to obtain, and in publications such as Ledant et al.

(1981) for Algeria and Thomsen and Jacobsen (1979) for Tunisia.

Algeria and Tunisia have a great variety of bird habitats and an avifauna of special interest to birdwatchers and ornithologists. Of the 406 species of birds recorded in Algeria, 214 nest there, including the endemic Algerian Nuthatch (*Sitta ledanti*), discovered in 1975; of the 395 species recorded in Tunisia, 193 nest there, including Moussier's Redstart (*Phoenicurus moussieri*), endemic to North Africa. The publication of these two books, detailing the avifauna of Algeria and Tunisia, is a welcome event.

These are similarly formatted books from the same publisher, with texts in both English and French. Outstanding color photographs enhance the front and back covers. Each of the books begins with acknowledgments, followed by contents; foreword; an introduction covering geography, habitats, and history of ornithology; a list of species with their status; biogeographical analysis; an annotated checklist with simple but useable maps for many nesting species; references; indexes giving scientific, French, and English names; and a gazetteer. Many colorful photographs are scattered in the text, adding to the books' overall attractiveness. The references are thorough, listing with complete titles all papers available to the authors up to the publication of each book. The reader is also directed to the extensive bibliography of Heim de Balsac and Mayaud (1962), covering some earlier papers those authors did not reference in their books on the birds of Algeria and Tunisia. Sequence and classification mainly follow Voous (1973, 1977), and the English and French names

follow the names now commonly used in the Western Palearctic and Afrotropical regions.

The foreword of *Oiseaux d'Algérie—Birds of Algeria*, which is printed in French only, is by S. Benyacoub, Director, Department of Ecology, University of Annaba, Algeria. This book's geography section has one map, which includes several major cities and shades of green, yellow, and tan representing habitats and altitudes in Algeria from the Mediterranean coast to the Sahara. Scattered in the text are three tables on status, faunal types of breeding birds, and numbers of breeding pairs of White Storks (*Ciconia ciconia*) in Algeria in 1995. This book also has comments on the MedWet collaboration for the wise use of wetlands throughout the Mediterranean; a list of birds newly recorded or having become extinct in Algeria since 1962; comparisons of the forest avifauna of Algeria, France, and Poland with those of Morocco and Tunisia; and discussions of time of breeding in Northwest Africa and on the Mediterranean and trans-Saharan migration systems. The species accounts vary in length, with all information combined into one or two paragraphs; details are given on taxonomy, status, distribution, habitat, reproduction, ringing recoveries, and diet. Each species account has a number that directs the reader to the voice of the species as recorded on Chappuis's (2000) CD, *African Bird Sounds*. The accounts lack page references for locating species distribution maps. The gazetteer is a welcome feature, especially for people not familiar with Algeria. To use the gazetteer, however, one also needs a major atlas at hand for the many localities not included on the map in the introduction of the book. Latitude and longitude would have improved the gazetteer.

The foreword of *Oiseaux de Tunisie—Birds of Tunisia* was written by Ali El Hili, who was responsible for organizing Les Amis des Oiseaux, which has been influential in the conservation and study of birds of Tunisia since 1975; this group hosted the 11th Pan-African Ornithological Congress in 2004. The introductory part of this book has three maps, covering physical, climatic and administrative features, a major improvement over the single map in the Algerian book. The section on habitat is especially good, with many attractive color photographs showing characteristic avian habitats of Tunisia. H. Azafzaf and also T. Gaultier are responsible for these photos, as well as many others of birds in the annotated checklist. Other new additions include a glossary; a section

on changes in breeding birds in the second half of the 20th century; a section (only in French, by Claudia Feltrup-Azafzaf) on the important bird areas; a table on number of species and individuals recorded in winter in the Gulf of Gabès; black-and-white sketches of an ibis, lapwing, and hoopoe by P. Vanardois; and an appendix by Ali El Hili (only in French) on ancient documents of birds in Tunisia.

The Tunisian species accounts generally contain more information than the Algerian accounts, with each account subdivided into sections (e.g., Breeding, Passage, Nesting Data, Recoveries). Each account also gives the page reference for the species distribution map, but not Chappuis's (2000) CD track number. The gazetteer is extensive, each locality being listed with its administrative area. These administrative areas are defined on the political map in the introductory part of the book, and one usually can find a locality. Still, latitude and longitude would have helped.

Of the two nations, Tunisia is especially attractive to birdwatchers and ornithologists. In recent years, Algeria has been less accessible for bird observations, but hopefully the publication of this new book on the birds of Algeria will encourage indigenous Algerians as well as visitors to study birds there.

The authors and the Société d'Études Ornithologiques de France have produced two excellent books, and birdwatchers and ornithologists interested in the birds of Africa should have them in their libraries. They represent a major addition to the knowledge of the birds of North Africa and will be key references for years to come. —EMIL K. URBAN, *Department of Biology, Augusta State University, Augusta, Georgia 30904, USA. E-mail: eurban@aug.edu*

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**Birds in Europe: Population Estimates, Trends and Conservation Status.**—BirdLife International. 2004. BirdLife Conservation Series, no. 12. BirdLife International, Cambridge, United Kingdom. xxiv + 374 pp., tables, text figures, maps, black-and-white line drawings, 7 appendices. ISBN 0-946888-53-1. Cloth, £30.00 (approximately \$57).—Effective bird conservation requires knowledge of distribution, relative abundance, and population trends at multiple geographic scales. Obtaining this information for a continental avifauna poses considerable challenges, especially in Europe with its 52 countries, numerous languages and cultures, and disparate resources available for monitoring bird populations within each country. Synthesizing the available information on the status and trends of all European birds into a single volume is an enormous yet essential task necessary to direct bird conservation activities across the continent.

The second compilation of the conservation status of European birds, *Birds in Europe* appears one decade after the first summary produced in 1994 (reviewed in *Auk* 114:310–311). Its format is similar to the 1994 publication and emphasizes changes in population status that occurred during 1991–2000. The summary is translated into 10 languages, but the remainder of the text is in English. The introductory chapters cover various topics, including the legal context for bird conservation within Europe, data

sources used in this report and their reliability, a lengthy discussion of the criteria used to assess conservation status, an overview of the results, and a list of conclusions and recommendations to guide bird conservation efforts during this decade.

Whereas the 1994 report discussed only species with unfavorable conservation status, species accounts in the current volume describe the conservation status for all 526 species that regularly occur in Europe. Each account consists of a brief paragraph summarizing population changes after 1990 and justification for assigning the appropriate conservation status to each species. Accompanying tables provide breeding population estimates and trends for each country and, for wintering waterbirds, similar information on winter populations. These data were obtained from four European bird-monitoring schemes and two large-scale databases to ensure that the most appropriate data were analyzed. A figure summarizes data quality used to assess conservation status, and a map depicts relative population sizes and trends within each country.

These accounts are followed by seven appendices. The first appendix is a large table summarizing the data provided in the species accounts. Remaining appendices provide various ancillary information, including occurrence of species by country, the protected status of each species in Europe, and information on the species assessment process used to produce this report.

Conservation status for each species was initially assessed using the International Union for the Conservation of Nature (IUCN) Red List Criteria to determine the potential for regional and global extinction; IUCN classifications of critically endangered, endangered, and vulnerable are familiar to most scientists involved in bird conservation. Species failing to meet any Red List Criteria were assessed against five categories of conservation concern (declining, rare, depleted, localized, and secure) developed by BirdLife International. Except for a handful of species considered data-deficient, each species is assigned, at least provisionally, to one of the IUCN or BirdLife categories. Each category is clearly defined, as is the quantitative approach for estimating European population trends used in these criteria.

The half-page devoted to each species provides a wealth of information. Population

sizes and trend estimates for each country are expressed as a range between minimum and maximum values, accompanied by literature citations where available, though much information was obtained through communication with ornithologists and birdwatchers in each country. Data quality is assessed as poor, medium, or good, providing a basis to compare how data quality changed since the initial report. Conservation status assignments were somewhat subjective, especially distinctions between provisional and nonprovisional assignments, but such subjectivity is probably unavoidable.

The liberal use of acronyms may annoy non-European readers. For example, frequent reference to tables or appendices is necessary to understand the differences between SPEC1, SPEC2, and SPEC3, where SPEC stands for a Species of European Conservation Concern, and to decipher the perplexing set of identifiers used for European/Global IUCN Red List Criteria. Despite these annoying acronyms, the important information summarizing population size, trends, and conservation status can be understood by anyone having minimal fluency in English.

So how are European bird populations faring? During the past decade, the number of species considered to have unfavorable conservation status increased from 38% to 43% of the avifauna. Only 14 species improved from unfavorable to favorable status, as compared with 45 species whose status changed to unfavorable. Species associated with agricultural habitats continue to do poorly, mirroring trends apparent in North America. These results indicate that existing bird conservation activities are ineffective in achieving the goal of halting biodiversity loss across Europe by 2010.

This book provides an authoritative and coherent summary of the status of European birds. Everyone contributing to its publication should be congratulated for their efforts. It serves as an indispensable reference for anyone involved in European bird conservation and concisely summarizes the current status of the European avifauna for those with a global perspective. These data provide a benchmark against which future population changes can be measured, especially important now that the highly pathogenic form of the H5N1 virus has infected wild bird populations in Europe

and could have a decidedly negative influence on population trends during the coming decade.—BRUCE PETERJOHN, *U.S. Geological Survey Patuxent Wildlife Research Center, 12100 Beech Forest Road, Laurel, Maryland 20708, USA. E-mail: bpeterjohn@usgs.gov*

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**Birds of South Asia: The Ripley Guide.**—

Pamela C. Rasmussen and John C. Anderton. 2005. Smithsonian Institution, Washington, D.C., and Lynx Edicions, Barcelona, Spain. 2 vols., 378 + 683 pp., 180 color plates, 2 color maps, and 1,430 small range maps. ISBN 84-87334-67-9. Cloth, \$95.00.—Just seven years after the first of a couple of significant illustrated guides to the birds of the Indian subcontinent, along comes another. The interval is just long enough that most traveling western birdwatchers will want to consider buying this new one. It is an outstanding work; and in addition to Pakistan, India, Bangladesh, and Sri Lanka, it includes Afghanistan and the Chagos Archipelago. It comes in two hardcover volumes: a *Field Guide* and a mass of detail entitled *Volume 2: Attributes and Status*.

The 378-page *Field Guide* weighs just under two pounds and requires a pocket 23 cm deep and, allowing for the guide's thickness, about 18 cm wide. The book is very well designed, except that, apparently for reasons of weight or size, the impressive contribution on voice has been included in the second volume. Ninety-five percent of the first volume is made up of 180 color plates, each with a facing page of maps and key field-identification points. The maps, mostly 2.5 × 2.5 cm, use five colors plus black and gray, as well as crosshatching and arrows. They are extremely well researched, based essentially on extensive databases of museum specimens and some records supported by photographs; by taking this route, Rasmussen leaves to critics the issue of which other sight records a field-guide author should assess and use when there is no national records committee. The remaining 18 pages include two title



pages, a list of plates, one page explaining the use of the guide, and a six-page "plate index to genera and group names." The end papers provide four keys that lead the user quickly to the plates. These two features substitute, in the field, for an index. John Anderton, the art director, made the front and back cover images and some 70 of the 160 plates. Eleven other artists took part; their names appear beside their plates in the plate list. The standard is uniformly high to very high, which suggests that Anderton and Rasmussen worked hard to ensure this. Most of the images capture the feel of the species that I know in the field, and space is made for depictions of juveniles and birds in flight for a good choice of species. The plates, especially for difficult species like the small leaf-warblers, show considerable attention to detail, reflecting the field and museum experience of Rasmussen and her team. Two species are included that have not hitherto appeared in a field guide: Serendib Scops Owl (*Otus thilohoffmanni* Warakagoda and Rasmussen, 2001) and Nicobar Scops Owl (*Otus alius* Rasmussen, 1998).

The second volume is 50% thicker than the first and contains 683 pages. The full-color end-paper maps are well chosen: physical geography in front, with shaded altitudinal zones, and with state names and boundaries superimposed, and habitat zones in the back, with rivers and a latitude-longitude grid superimposed in blue, and state boundaries in black. The species accounts take up pages 41–601; the jacket says that "over 2500 known and likely taxa of birds" are covered: the "possibles" are distinguished by gray backgrounds to the accounts. This works out to less than a quarter of a page each, so expect the print size to be small. An amazing amount of detail is packed in, including detailed descriptions with underlining and bold type used for emphasis, reliable range statements, and notes on habits, including voice; sonograms are provided for almost 900 species. There are 12 "major content contributors" listed on the title page; most are well known for their field experience with Asian birds. One, Bruce Beehler, is better known in connection with New Guinea birds; he contributes the appreciation of Dillon Ripley. Ripley made this work possible, first through his own collaboration with Salim Ali and others to create the stepping stones to this work (Ripley's own *Synopsis*, or check-list, and the Ali and Ripley handbook, both works that went into

revised editions), and later by attracting sponsors. Ripley's connections with the ornithology of this region were impeccable, and if he would have had just two regrets they would have been dying before this work could be finished and never having the time to do as much field work in the region as he would have liked.

The introduction to volume 2 is 25 pages and contains the necessary commentary on taxonomic treatment—necessary because this work makes numerous "splits," though some of those implemented have been proposed earlier. The case for saying that the application of the Biological Species Concept to the birds of this region has led to too much lumping of species is likely to receive wide agreement, and molecular studies will probably show that many smaller genera could be sensibly reintroduced. Rasmussen and her team put their field experience to good use in showing behavioral and habitat differences across range gaps between allopatric forms that were lumped, and one can be reasonably confident that their overall judgments of when to split and when not will prove sound. However, this reviewer is old-fashioned enough to believe that novel taxonomic arrangements, including reversions after lumping, should be presented in what was called "the primary literature" (I have sinned in this regard myself). This may seem unnecessary, and it has to do only marginally with peer review, but no field guide can give as much space to the detailed comparative information desirable when the treatments presented demonstrate reviews of satisfactory samples. Publishers in ornithology, in particular, finding a ready sale for their products, fail to sustain the "divide" and do science no service. Rasmussen is aware of this concern and promised this reviewer a determined effort to include enough information to be convincing; she is to be complimented for what she includes and for appendix 3, which draws together all that has changed. But on the whole, we are left with too little to judge by. Perhaps most in need of a follow-up are those species the author splits that range far beyond the limits of this book. These need to be explained in the context of their global ranges, specifying how the associated subspecies, from before the breakup, are to be redistributed. It would be helpful and appropriate to note those forms that are too weakly differentiated to warrant recognition. One imagines that the author

has the database on which to found major parts of these reviews, and they would benefit the conservation of Asian birds and all those who enjoy watching them and want to know to what species the population they are watching is best attributed.

The two volumes are sold as a set and I strongly recommend them, but I hope that a softcover edition, based on the first volume but expanded to include many sonograms, will be offered for sale in the region covered, where the price of the two volumes combined will be a significant obstacle to widespread use.—EDWARD C. DICKINSON, *Flat 3, Bolsover Court, 19 Bolsover Road, Eastbourne, East Sussex BN20 7JG, United Kingdom. E-mail: edward@asiaorn.org*

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**Return of the Peregrine: A North American Saga of Tenacity and Teamwork.**—Edited by Tom J. Cade and William Burnham. 2003. The Peregrine Fund, Boise, Idaho. 394 pp., many illustrations and photographs. ISBN 0-9619839-3-0. Cloth, \$59.50.—This book is a compendium of chapters and side-bars. Some are more technical than others, all are interesting and personal, and some also provide useful historical anecdotes. The authors were all directly involved in a huge effort (perhaps like none seen before) to understand the decline of a single bird species. The Peregrine Falcon (*Falco peregrinus*) was in danger of extirpation throughout much of its worldwide range. There was also the possibility of extinction. None of this was alarmism. *Return of the Peregrine* is also the encouraging story of a carefully orchestrated recovery.

The account may be perceived as one-sided, and it is—as the editors state. If one were to read only Peakall (1993) and this book, one might get the mistaken impression that the entire story of discovery of contaminant effects, species endangerment, and remediation in wild birds happened solely with the Peregrine Falcon. Work on other species of raptors—Osprey (*Pandion haliaetus*), Bald Eagle (*Haliaeetus leucocephalus*),

Golden Eagle (*Aquila chrysaetos*), American Kestrel (*F. sparverius*), Merlin (*F. columbarius*), and many others—as well as innumerable other bird species—played equally into the larger scenario. Yet no bird species, not even our national symbol, received as much attention and awe as the Peregrine Falcon. As to where the peregrine mystique comes from, it is easily understood by anyone who has direct experience of Peregrine Falcons. In conservation, we need this “magic” as much as we need the hard data. And nearly every ornithologist I know has a special attraction to some particular avian group. I believe this bond helps make avian conservation successful. Those devoted to Peregrine Falcons have expressed this as well as could be.

*Return of the Peregrine* is not a comprehensive story of conservation biology and ecotoxicology in the 20th century. But an inspiring case-history in 20th-century conservation it certainly is. Experiences with the Peregrine Falcon have led to many current efforts in conservation. For example, recovery of the California Condor (*Gymnogyps californianus*) has moved in the same directions, modeled largely on the Peregrine Falcon effort (see Snyder and Snyder 2000). Another outcome, in my opinion, is the emerging explanation of a widespread crash in numbers of vultures (*Gyps* spp.) on the Indian subcontinent (related to diclofenac, a widely used veterinary medicine; Oaks et al. 2004, Risebrough 2004, Anonymous 2005).

The collective perspective from the many diverse contributors to *Return of the Peregrine* is unique, and it represents their monumental contributions to a truly successful effort—from start to finish: population decline, problems identified, suitable techniques rapidly developed and refined, a restoration effort begun before it is too late, troubled populations beginning to recover, and finally, wild populations becoming self-sustaining again—next problem! If only it were that simple; but these advances do not happen overnight. They involve efforts and commitments over lifetimes, huge personal commitments, and long-term devotions to a cause. This book describes such a web of involvements regarding the Peregrine Falcon.

In the early 1960s, there was great concern about the population status of many bird species. The events chronicled in *Return of the Peregrine* happened when modern management approaches, now routine, were just emerging.

Developments around the Peregrine Falcon effort undoubtedly contributed importantly to these. But given the somewhat frightening degradation of conservation policies under present-day national guidance (Pope and Rauber 2004; see [audubonaction@audubon.org](mailto:audubonaction@audubon.org)), *Return of the Peregrine* is a must-read for encouraging our next generation of conservationists. Key elements in the still ongoing recovery were “tenacity and teamwork,” perpetual optimism, and a consistent, decade-after-decade “make it happen” attitude. As William Ruckelshaus (a hero in the book and USEPA Administrator in 1972, when DDT was banned) said,

When you're faced with seemingly insurmountable or intractable problems, you can either stew about them, convince yourselves that they can't be solved, or you can break them down into practical and solvable problems.

The book discusses the roles of such notable figures as Joe Hickey, Cade and Burnham, Derek Ratcliffe, Lucille and Bill Stickel, Bob Risebrough, Dave Peakall, and Ian Newton, just to mention a few. The recovery was also boosted by the pioneering efforts of the U.S. Fish and Wildlife Service and Canadian Wildlife Service. It was an international, multi-organizational effort. There were also the contributions of others in a “second generation” in the Peregrine Falcon recovery who expanded on the original efforts or started new research and conservation projects. Among them: Chuck Henny, Keith Hobson, Stan Temple, Lloyd Kiff, Brian Walton, Clayton White, and many others. The “pedigree” and outreach associated with the Peregrine Falcon recovery is long and wide.

*Return of the Peregrine* describes a movement that has also involved many public and private organizations; central among these were the Raptor Research Foundation (founded in 1966) and The Peregrine Fund. Many federal and state governmental agencies had critical roles in keeping the entire effort afloat, especially through the federal and state Endangered Species acts. There were also many important private sources of funding. Thousands of people (really more like tens of thousands) were involved in one way or another. In their entirety, the contributors were an unlikely but united mix of scientists, politicians, policymakers, volunteers, birdwatchers, wildlife artists, falconers, and egg collectors. Lots of politicking, handshaking, and public-relations

activities brought it home. The effort aroused enthusiasm and support from presidents, senators and congressmen, agency directors and managers, corporate heads, and movie stars. Thousands of volunteer naturalists sat for hours on end observing, recording data, protecting hack sites and newly occupied eyries, and caring for captive birds. Many of those volunteers have since become biologists themselves. Incredibly, everybody embraced this cause as if it were a national goal—and maybe it was.

Most readers will not go through this book cover-to-cover, but will come back to it again and again. The paintings and drawings that illustrate the book are excellent. Quotations and picture-narratives succinctly summarize many of the key ideas in the written narratives. The stories are often written in the author's voice, as if that person were talking; this makes for enjoyable, easy reading. However, one has to be patient with some of the inevitable redundancy inherent in a compendium of this type. Many of the articles contain useful and valuable reference data along with authoritative insights and analyses (e.g., Newton's chapter 20) and the book is loaded with interesting historical facts. I especially appreciated Burnham and Cade's reproductions of Clayton White's maps of North American Peregrine Falcon distribution over time (chapter 21). Those three maps speak volumes. Chapter 19, by a notable group of authors, gives accounts and anecdotes of notable individual Peregrine Falcons, aptly illustrating the personal affection that raptor researchers and enthusiasts have for “their birds.”

I hope the publishers have printed enough copies. This compendium needs to be in the libraries of conservationists, ornithologists, and bird-lovers. It nicely brings the science and the passion of nature conservation together, as it should be. There is no end to this story.—DANIEL W. ANDERSON, *Department of Wildlife, Fish, and Conservation Biology, University of California, Davis, California 95616, USA. E-mail: [dwanderson@ucdavis.edu](mailto:dwanderson@ucdavis.edu)*

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**The Gyrfalcon.**—Eugene Potapov and Richard Sale. 2005. Yale University Press, New Haven, Connecticut. 288 pp. ISBN 0-300-10778-1. Cloth, \$45.—Latest in what has been a distinguished Poyser series of monographs on birds of prey, this book is mainly a descriptive biology of the Gyrfalcon (*Falco rusticolus*)—the largest of falcons, circumpolar in distribution, and with unique adaptations to life in harsh Arctic environments. The first nine chapters treat paleobiography and systematics; identification and colors; distribution; population; habitat and landscape preferences; food and feeding habits; breeding cycle; dispersal, seasonal movements, and winter distribution; and competitors, commensals, and conspecifics. The final two chapters deal with man and falcons and threats and conservation.

Because neither author has done much original research on the Gyrfalcon, their book is mainly a review of the literature, though they present original research on morphometrics and plumage variations based on extensive examination of museum skins. By far the most important contribution of this book is its comprehensive summary of the Russian literature on the Gyrfalcon, much of which

occurs in rather obscure sources. Being Russian, with a developing ability to communicate in English, Potapov is qualified to bridge the two languages, but he needed more help than he evidently got from his editors and coauthor in smoothing out rough passages of text. Even so, it is exciting to read details about the natural history of the Gyrfalcon from the first-hand accounts of Russian field workers searching out the vast expanses of the Russian and Siberian northlands for this rare falcon. The ~500 references include no fewer than 162 Russian titles (translated). Finnish and Scandinavian languages are also well represented and, overall, the list of titles is a rich compendium of the world literature on the Gyrfalcon.

Unfortunately, the book was not well edited and contains many errors—omission of words, tandem duplication of the same word, misspellings (including authors' names and scientific names), and confusions resulting from poor use of English. The legends for some figures and plates lack sufficient information to allow the reader to interpret what the depicted data are supposed to represent (see especially figs. 2.1, 2.2, and 2.3 and plates 3–7 dealing with plumage color and pattern). In all, I found more than 260 errors and confusions in 280 pages of text and references. Clearly, the manuscript for this book needed meticulous copyediting, which it did not receive.

Chapter 1, with Olga Potapova as senior author, presents an interesting paleogeographic theory to explain how the proto-Gyrfalcon population became geographically isolated from the ancestral Saker (*F. cherrug*) or Saker-Gyrfalcon common ancestor as a result of an uninhabitable barrier of larch forest that spread across Eurasia, separating the northern tundra grasslands from the southern steppes, starting around 9,000 BP. One problem with this explanation is whether or not the genetic and phenotypic differentiations between Gyrfalcons and Sakers could have taken place in less than 10,000 years BP. Wink et al. (2004) estimated—from interspecific genetic distances ranging from 0.4% to 2.0% among falcon species in the *Hierofalco* group, which includes the Saker and Gyrfalcon—that this amount of differentiation would have occurred in a period of 200,000–1,000,000 years BP. They further pointed out that among other bird families, such small genetic distances indicate taxonomic differentiation at no more

than the level of subspecies. In that regard, as Potapova et al. point out, the Gyrfalcon and Saker breeding populations remain totally allopatric, unless the much-discussed "Altai Falcon" in the mountains of central Asia represents a hybridized population of the two forms. Also, in captivity the two forms are fully fertile at least through the  $F_3$  to  $F_4$  generations, which indicates an absence of reproductive isolating mechanisms. The accumulating data point to the likelihood that the Gyrfalcon and Saker are allopatric populations of the same species (Cade et al. 1998); even so, it is difficult to understand how the differences between them could have accumulated in less than 10,000 years. Work on other groups of avian species involving estimates of species divergence times based on molecular systematics and "clocks" indicate that most recent species divergence events occurred from 1 to 5 million years ago and that late Pleistocene isolations caused by glaciation and associated climate-induced changes in biomes occurred too recently to account for speciation events (Klicka and Zink 1997).

Ever since publication of the 10th edition of *Systema Naturae* (Linnaeus 1758), argument has raged over the correct binomial for the Gyrfalcon (Hartert 1915, Lönnberg 1931, Dementiev 1960, Banks and Browning 1995). At least since the 11th century, the Gyrfalcon was known in Latin treatises on natural history and falconry as *giro-falco* or *gyrofalco* (and other variations), and in his 10th edition, Linnaeus (1758) described a bird of prey under the name *Falco gyrfalco*. His verbal description is marginally adequate to fit the Gyrfalcon, but he also referred to a picture of a Northern Goshawk (*Accipiter gentilis*) published under the name *F. gyrfalco* in his earlier work, *Fauna Svecica* (1746), thereby invalidating the use of this name for the Gyrfalcon, according to Lönnberg (1931). A name having page priority (first use) in the 10th edition (Linnaeus 1758) is *F. rusticolus*, but the diagnosis accompanying this name is less clearly referable to the Gyrfalcon than that of *F. gyrfalco* and should be rejected as a *nomen dubium* according to Potapov and Sale. Hartert (1915), the *de facto* "first reviser" of the Gyrfalcon's nomenclature (not Lönnberg [1931], as the authors state), became convinced that *rusticolus* is the correct name, and it is the one that has been in most general use in the post-Linnaean period, except in Russia, where several authorities, notably

Peter Pallas and G. P. Dementiev, continued to use *gyrfalco*. Potapov and Sale lead us through the modernized but still byzantine International Code of Zoological Nomenclature (4th edition, 1999) in an effort to prove that the Russians are right. One hopes their arguments are convincing and that the International Commission will one day validate the historical and most apposite name, *Falco gyrfalco*.

One of the potential strengths of this book is that Potapov personally examined more than 1,800 museum specimens from 10 major collections, certainly the largest series ever studied. These specimens come from all parts of the Gyrfalcon's circumpolar range, though more than 48% come from Greenland and more than 23% from Iceland. Furthermore, only 402 specimens were collected during the nesting season and can be more or less reliably assigned to a breeding range. The mensural data were analyzed to determine sexual differences in size (figs. 1.2–1.5), but geographic differences are treated poorly and often rely on previously published analyses (e.g., Table 1.4). With their large data set, the authors missed an opportunity to re-examine published generalities about geographic trends (e.g., a decrease in size from south to north in Greenland, the reverse of Bergman's rule [Salomonsen 1951]; a trend of size increase from west to east across Eurasia [Dementiev 1960]).

The most difficult part of the book, in chapter 2, deals with colors and color patterns. The plumage of the Gyrfalcon shows such a high degree of individual variation that researchers have long struggled to explain its taxonomic, geographic, and biological significance. In the immediate post-Linnaean period, strikingly different variants were considered separate species: white birds belonged to *F. (Hiero-falco) candicans*, gray birds on Iceland were *F. islandus*, and J. J. Audubon named the dark birds of Labrador *F. labradorus*, and so on. As it became evident that all these forms were capable of interbreeding and producing intermediate variants, many of the species names were redesignated as subspecies. In the 1930s through 1950s, Danish researchers, working mainly with Greenlandic Gyrfalcons, developed their popular "trimorphic" explanation based on their recognition of white, gray, and dark (brown) "color phases." Their concept involved a combination of subspecies designations and the recognition of more-or-less distinct color phases, which

others later transformed into "morphs," forms that are supposed to be disjunctively different from each other (Flann 2003). The whole system from north to south was described as a "trimorphic ratio cline" (Salomonsen 1951).

Cade (1960) and Vaurie (1961) concluded that there are no clear geographic patterns of variation that justify designation of subspecies. Cade et al. (1998) and Flann (2003) further pointed out that too many intermediate variants exist between white and gray, and between gray and dark, to justify use of the concepts "polymorphism" and "morph" to describe this variation, because by definition morphs must be phenotypically and genetically disjunct from each other.

Potapov and Sale open their discussion of plumage variation with a consideration of "the true colour of Gyrfalcons" and provide original data on the reflectance spectra of various plumage regions for white, gray, and dark "morphs," with emphasis on the possibility of ultraviolet reflectance and its biological significance. They assume that Gyrfalcons have visual capability in the ultraviolet (UV) range as some other birds do, though there is no proof. The reflectance spectra reveal that the "white" parts of feathers reflect only from wavelengths of 450–500 nm in the red, near-green, and green parts of the spectrum and are not really white; there is no UV reflectance from any part of the feathers; and thus, even if they have UV vision, Gyrfalcons cannot be using ultraviolet patterns in their plumage as signals for social behavior.

There follows some rambling discussion about the color of snow, which is highly UV reflective (no data provided), and the color of white prey such as ptarmigan, Arctic hare, and collared lemming. The biological significance of the presence or absence of UV reflectance is not really explained. Apparently, a white prey with no UV reflectance would be visible as a "shadow" against a snowy background by a predator with UV vision, and vice versa.

By categorizing and analyzing the plumage characters of 1,310 specimens of adult Gyrfalcons into 26 color and pattern codes (table 2.1 and plates 3–7), the authors claim to have demonstrated that instead of the classical three color morphs, there are in fact two color morphs ("pure white" and "melanistic") and two pattern morphs (regularly and irregularly barred feathers). Nothing is said about where the gray birds fit into this overall scheme of

variation. Data from the plumage codes were subjected in some unexplained way to principal component analysis (PCA; fig. 2.2), and from this analysis the authors conclude that there are (page 57) "consistent color patterns on various parts of the body which form clusters," which suggests that belief in "the existence of continuous variation in Gyrfalcons is probably incorrect." They allow, however, that (page 58)

there is probably a continuum of intergradation from white to black (of white to dark background of feathers, or absent to high-intensity pigmentation of the pattern), but it works on the individual axes of the three-dimensional plots of patterns that we have generated, and thus results in the discrete patterns we see in Gyrfalcons.

The entire explanation of color patterns (pages 54–58) is extremely confused, and not enough information is provided about how the authors carried out their PCA to allow readers to form their own judgment of what the data in figure 2.2 mean. Moreover, in plates 3–7, which depict representative examples of "plumage codes" for various parts of the body, the percentages for subtypes of the various codes do not add up to the total percentage of the code under which they are subsumed, often by a substantial difference. It is unclear whether these differences result from miscalculations or from something not apparent in the way these percentages are presented.

Instead of shedding light on the complicated plumage variation of the Gyrfalcon, these authors have added to the existing confusion created by the continued use of the term "morph" to categorize plumage variants of this species (Flann 2003). In their glossary, the authors define "colour morph" without reference to discontinuity between the variants. Visual inspection of the plumage categories shown in plates 3–7 appear to confirm that the variations in color and pattern are continuous.

The chapter on "man and falcons" is based largely on the classic anthropological writings in Shternberg (1925, 1936), and while interesting, much of it is not directly relevant to the Gyrfalcon. The other principal source is G. P. Dementiev's (1960) fine essay on involvement of the Gyrfalcon in the medieval culture of falconry in czarist Russia and Europe. The depiction of Emperor Frederick II of Hohenstaufen in

Russian garb, holding a modern hood with braces (fig. 10.1), is rather bizarre. The book ends optimistically and calls attention to the value of harsh and remote environments as protective factors for some species, even for one as sought-after as the Gyrfalcon, which still thrives in most parts of its range.

To summarize, this is a rather unfortunate book. Among other faults, the pictures and maps are poorly produced. The work serves as the only adequate review of the world literature on one of the most interesting and charismatic birds; but the inquiring reader is likely to be disappointed by lack of synthesis and summary of the many details presented, and the often difficult text must be read with care.—TOM J. CADE, *The Peregrine Fund*, 5668 Flying Hawk Lane, Boise, Idaho 83709, USA. E-mail: [tcade@peregrinefund.org](mailto:tcade@peregrinefund.org)

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