

The Gyrfalcon.—Eugene Potapov and Richard Sale. 2005. Yale University Press, New Haven, Connecticut. 284 pp., 42 black-and-white and 48 color illustrations. ISBN 0-300-10778-1. \$45.00 (cloth).

The Gyrfalcon (*Falco rusticolus*) is arguably one of the world's most impressive raptors. It is large, fast, and haunts remote landscapes—traits that have made it a favorite among falconers for centuries. Moreover, one of three color morphs is a brilliant white, adding to the allure of this arctic icon. The authors compile a vast amount of information from studies scattered across the northern hemisphere and present an up-to-date review of this magnificent bird.

The book is organized into 11 Chapters, Appendix, Glossary, References, and Index. In addition to acknowledgments, the Preface includes a short but very interesting discussion on the lofty status accorded to Gyrfalcons by Danish royalty during the 1700s. The chapters collectively cover material expected of a species-level review: paleobiogeography and systematics; identification and colors; distribution; population; habitat and landscape preferences; food and feeding habits; breeding cycle; dispersal, seasonal movements, and winter distribution; competitors, commensals, and conspecifics; man and

falcons; and threats and conservation. In addition to six tables and 20 figures, the book contains 28 striking color plates. The Appendix is simply a list of common and scientific names of plants and animals mentioned in the text, and the Glossary contains terms that are probably unfamiliar to most lay readers. The References section is a tour de force of international citations, many of which are relatively obscure and not readily identified by computer database searches.

The level of detail within chapters varies, naturally, with our knowledge of specific facets of Gyrfalcon biology. The first chapter introduces this extraordinary bird through paleobiogeography, systematics, and nomenclature. The authors speculate on Gyrfalcon evolution and offer a color figure highlighting presumed ranges of closely related falcons from 20 000 to 2000 bp. Admittedly, the authors' conclusions are speculative, yet they are valuable because they provide a framework for future research on falcon systematics. I agree with their statement that "...the story behind the species nomenclature is exciting" (p. 16) and I learned much about the Code of Zoological Nomenclature and how interpretation of a painting by one of Linnaeus's teachers caused some of the confusion regarding the species' scientific name. This section reads like a detective novel, with pieces of evidence discovered, analyzed, and finally rejected or saved. Based on their extensive review, the authors conclude that the scientific name of the Gyrfalcon should revert from present-day *Falco rusticolus* to *F. gyrfalco*.

The second chapter concerns identification of Gyrfalcons, a clear favorite of the authors because they devote many pages and color plates to the topic. Here the reader learns that unambiguous field identification is often difficult, particularly in Asia where Gyrfalcons coexist with Sakers (*Falco cherrug*) and Northern Goshawks (*Accipiter gentilis*). The remainder of the chapter analyzes UV reflectance of plumage and the barring and spotting patterns on white, gray, and black color morphs. This section will not lend itself easily to lay readers because the discussion of statistical techniques, such as principal components and redundancy discriminate analyses, is superficial. Moreover, the significance of the figures accompanying the text is difficult to appreciate because the reader is forced to flip back and forth among pages to decipher the many acronyms on figure labels.

The next three chapters focus on Gyrfalcon distribution and abundance at landscape and local scales. The authors report data by country and correct several mistakes perpetuated in the literature, for example, that Gyrfalcons breed throughout the Kamchatka Peninsula. The chapter on population size is the shortest in the book (10 pages) and demonstrates that we have much to learn about population status if we are to manage this globally protected species effectively. A maximum world population estimate of approximately 12 000 pairs contains significant uncertainty because systematic surveys are lacking throughout the remote range of the species. The close ecological relationship between Gyrfalcons and ptarmigan (*Lagopus* spp.) is high-

lighted, although consensus on whether these species cycle together is proving elusive, an unsurprising result given the complexity associated with predator-prey interactions. In the chapter on habitat use, the authors propose four ecological subgroups based on nesting habitat: timberline and gentle mountains, flat tundra, dense forests, and coastal cliffs. This section reports detailed information study by study, and would have benefited from greater synthesis.

Four chapters consider ecology and behavior, beginning with diet. Again, most information is presented study by study. Nearly 10 pages describe Gyrfalcon hunting behavior, the depth of which will likely be of interest only to the most ardent raptor enthusiast. In the next chapter, most of the text on breeding cycles is nicely summarized in a figure comparing Gyrfalcons and ptarmigan. A few line drawings or photos would have complemented the lengthy descriptions of courtship displays and postures. Few data are presented on postfledging movements and survival because, obviously, this information is very difficult to obtain on a widely dispersed, low-density species that inhabits wilderness. For the same reasons, knowledge of Gyrfalcon dispersal and seasonal movements is incomplete. The final ecological chapter discusses the nesting relationships between Gyrfalcons and other raptors, Common Ravens (*Corvus corax*), and other birds.

The chapter on the close association between humans and falcons is a worthwhile addition to the book. It focuses on the status of birds of prey in religion and the sport of falconry. The latter section provides useful background relevant to Gyrfalcon conservation because of the constant worry of illegal harvest for falconry. Finally, in the chapter on conservation and management, the reader learns of direct threats to Gyrfalcons, which include incidental capture in arctic fox (*Alopex lagopus*) traps, persecution, illegal harvest, and declining prey populations. Although Gyrfalcons are afforded the maximum international protection possible through CITES, within-country trade and take are more loosely regulated and managed. For a species distributed throughout the Arctic and subarctic, it is odd the authors make no mention of the potential impacts of global warming on Gyrfalcons and ptarmigan.

The primary strength of this book is that the authors have compiled information from many obscure references from all parts of the species' range into one source. The amount of assembled Russian literature alone is truly impressive. The authors' speculations and tentative conclusions also provide a platform from which to initiate research, particularly on survival and movements. However, the highly descriptive writing style is tedious in some places, and the book would have benefited from additional effort devoted to synthesizing information across studies. Moreover, sample sizes are often omitted from figures, only Russian references are translated into English, and the reference section contains many stylistic inconsistencies. In summary, this book is most suitable for falconers or ornithologists interested in raptors or arctic and subarctic species. As such, the book's distribution among

personal bookshelves will be limited, but it certainly should be included in university libraries as a major reference on the Gyr Falcon.—MARCO RESTANI,

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