

## Atlas of the Breeding Birds of Arabia

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Atlas of the Breeding Birds of Arabia.-Michael C. Jennings, Ed. 2010. Fauna of Arabia, vol. 25. King Abdulaziz City for Science and Technology, Riyadh, Kingdom of Saudi Arabia; Saudi Wildlife Commission, Riyadh; and Senckenburg Forschungsinstitut und Naturmuseum, Frankfurt a.M., Germany. 751 pp. ISBN 9783929907834. Hardcover, ~\$301.00.—This attractive and wellproduced volume covers all the states of the Arabian Peninsula: Saudi Arabia, Yemen (including the Socotra Archipelago), Oman, United Arab Emirates, Qatar, Bahrain, and Kuwait. The Arabian Peninsula lies on the southern edge of the Palearctic Realm, and its breeding birds are mostly Palearctic, with a strong Afrotropical element in the southwest. About half of its Palearctic species are confined to the Saharo-Sindian Zone, which is a subset of the arid Eremian Zone extending from North Africa, across the Middle East, through Central Asia to Tibet and Mongolia (Kachkarov and Korovine 1942). A small portion of the breeding avifauna originates in the Indo-Malayan Realm. A majority of the endemic species are Afrotropical in origin.

The previous standard work on Arabian birds, Meinertzhagen's (1954) *Birds of Arabia*, was based largely on a nearly complete manuscript by G. L. Bates, who died before he could publish it. Meinertzhagen embellished it a great deal and published it as his own, giving little credit to Bates. These embellishments are being called into question because of Meinertzhagen's prolific propensity for prevarication, as detailed in Garfield (2007). Indeed, Jennings felt it preferable to ignore Meinertzhagen's

additions as well as later works that depended on them because there was no way to verify whether his observations were actually made in Arabia or simply made up. The late Charles Vaurie (pers. comm.), in a continuation of his interest in the birds of the Eremian Zone, began work on Arabian birds in the mode of his Tibet studies (Vaurie 1972), but unfortunately his papers related to this work cannot be found and it is not known how far he progressed.

The atlas maps are divided into 1,142 half-degree ( $30 \times 30$  minutes) squares. When Jennings began his surveying in 1984, many had no breeding bird records. Over the ensuing 25 years, he made 40 trips to various parts of Arabia to fill in the blanks. Still, there remain 106 squares for which there are no breeding records, mainly in the Empty Quarter (Rub al-Khali). Regular updates were posted on the Internet and in a newsletter, and nearly 500 collaborators provided unpublished records. Some 48 of the species accounts were contributed by 18 authors with expertise on the species covered. An extensive literature search covered nearly all the written record of Arabian birds, and several collections of Arabian birds were studied for distribution. Logistical and financial support was provided by the Saudi Wildlife Commission, Riyadh. After publication, the atlas project continues (www.qc16.dial.pipex.com).

The bulk of the atlas is devoted to the accounts of the 273 species proven to breed in the Arabian Peninsula and an additional 24 species that have probably bred or are likely to breed there. The 2- to 6-page accounts of each known breeding species consist of (1) a pen-and-ink drawing of the species; (2) a brief discussion of the species' world range and Arabian taxonomy; (3) its status in Arabia, including occurrence in each state, movements, seasonality, and an estimate of population numbers, as well as changes in numbers or distribution over time if known; (4) habitat; (5) breeding biology and timing; and (6) a map. The maps are slightly larger than half-page size at  $16.5 \times 13.2$  cm, usually one map per species (although there are 4 for Streptopelia decaocto to show its radical change in distribution and abundance in the past 50 years). The distribution and breeding records before and after 1984 are shown. Of the 273 breeding species, 20 are established exotics, mostly in the Arabian (Persian) Gulf states. The 24 species that are considered likely to breed are given brief accounts of 15-75% of a page. One breeding species, the Ostrich (Struthio camelus), was extirpated in the Arabian Peninsula in the 20th century.

The 127 pages of introductory material give a comprehensive picture of the Arabian Peninsula, its birds, and the atlas project. Topics covered include record collection, data sources, acknowledgments, endemism, nomadism, exotic species, climate and altitude, geology and topography, vegetation, habitats and habitat change, zoogeography, regional bird communities and habitats, conservation, and the breeding birds. Recent anthropogenic changes are discussed, such as manmade wetlands and extensive agricultural areas (often well irrigated) that provide new types of habitat for breeding birds. Appendix 1 is a useful table listing each of the 297 species covered by English and scientific name, zoogeographic assignment, estimated population size (pairs), notes on population, and size of the record base. Appendix 2 is a 10-page gazetteer for the 497 localities mentioned in the atlas by country, feature type, geographic coordinates, and atlas square. The bibliography lists 588 references.

The line drawings of the 273 breeding species drawn by 13 artists are mostly accurate and pleasing to the eye and often include vegetation or habitat to add context and flavor. Hanne and

Jens Eriksen provided the 70 excellent quarter-page color bird photos that grace the introduction, covering a broad selection of Arabian birds, including all the 11 Arabian Peninsula endemics and 8 of the 9 Socotra Archipelago endemics. The 34 color habitat photos, mostly by the author, give a good idea of the environment available to wildlife. The volume's illustrations, maps, and format on glossy paper add up to an attractive book. The page size (28.5  $\times$  21.8 cm) makes for a weighty tome (2.8 kg).

While it is true that Arabia is mainly desert, it has a wider variety of terrain than is generally realized. The Southwest Monsoon brings summer rains to the Mahra region of southwest Oman and southeast Yemen, and average annual rainfall in the highlands of Yemen is 1.5 m. The highest point in Arabia is 3,700 m, in Yemen, whereas Saudi Arabia attains an altitude of 3,000 m in the southwest and 2,580 m in the northwest, and Oman tops out at 3,000 m in the north. There are still forests in some of those mountains. Mangroves, albeit threatened, are present in coastal areas. I was privileged to visit Saudi Arabia three times in 1976-1977 for two months of field work, mostly in the mountains of the escarpment that runs the length of western Arabia, rising up from the Red Sea littoral. During one of those visits, I was told that Saudi Arabia's third largest export at that time was charcoal—who knew? I also had a couple of days in Bahrain in 1977 and two weeks in Oman in 1982. Watching tropicbirds fly by from a high cliff in Dhofar in southern Oman while Sperm Whales swam by below was thrilling, as was observing nesting Sooty Falcons on an islet off Muscat, Oman, as large rays and sea turtles swam in the sea below.

This thorough and impressive atlas, although expensive, is destined to be the standard work for many years to come and will be necessary for all those with an interest in Arabian birds.—Ben King, Ornithology Department, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024, USA. E-mail: kingbirdtours@earthlink.net.

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