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Review–

Handbook of the Birds of the World, Volume 6, Mousebirds to Hornbills and **Volume 7, Jacamars to Woodpeckers** edited by Josep del Hoyo, Andy Elliott and Jordi Sargatal. Lynx Edicions, Barcelona, 2001 & 2002. Hardcover, pp. 589 & 613, 25 × 32 cm. $350 each.

These volumes, the latest in this monumental publishing venture, cover, in volume 6, 12 families in the Orders Coliiformes, Trogoniformes and Coraciiformes and, in volume 7, seven families in the Orders Galbuliformes and Piciformes. Volume 7 completes the coverage of the non-passerines. The only families in these volumes with Australian representatives are the Alcedinidae, the Meropidae and the Coraciidae, kingfishers, bee-eaters and rollers respectively. Other groups included that might be familiar to Australian readers, at least by repute, include the Hoopoe, hornbills, toucans and woodpeckers (Upudidae, Bucerotidae, Ramphastidae and Picidae respectively). The current volumes are in the format previously described (Debus 2001) and the production standards remain breathtakingly high: the quality of the materials used is uncompromising, reproduction of plates and figures is, to my eye, flawless and the text has obviously been subjected to the most rigorous editing such that even minor glitches are almost non-existent.

Starting with the fourth, each volume has included a Foreword on a particular topic and written by a leading expert in the particular field. Covered so far have been 'Species concepts and species limits in ornithology' in volume 4 and 'Risk indicators and status assessment in birds' in volume 5, while in the current volumes the topics are 'Avian bioacoustics' and 'Extinct birds' respectively. The last of these, by Errol Fuller, is given the full treatment: it covers 59 pages, introduces the subject of extinction at length, individually covers the species that have become extinct since 1600 including an illustration of each, discusses 'hypothetical species and mystery birds' and ends up with its own four-and-a-half page list of references. Included is a life-size photo of the egg of a Great Elephantbird, formerly of Madagascar, which only just squeezes onto one of the large pages of the book. This was a big egg, the largest known to man, and the largest of single-celled objects. The species may have survived to the mid 1600s.

Since these massive volumes are not the sorts of books that one reads through, I decided to concentrate on one family for the purpose of this review. The Picidae, or woodpeckers, is one of the larger avian families, with 216 species, and is distributed widely throughout the world: in fact the family is virtually cosmopolitan except that it is not represented in the Australasian region. It is given appropriately full coverage in volume 7. The family account fills 204 pages and includes 169 colour photos of the highest quality and beautifully reproduced. The account, which alone is the length of a decent-sized book, treats the family under the following headings: Systematics, Morphological Aspects, Habitat, General Habits, Voice, Food and Feeding, Breeding, Movements, Relationship with Man and Status and Conservation. The family account is followed by the species accounts, where each one is illustrated by one or more paintings, has its own distribution map, and information is given on its description, habitat, food and feeding habits, breeding, movements and conservation status. This is effectively a full monograph of a major bird family and its importance is enhanced by its being placed in its taxonomic context within the Class Aves. Many readers will need go no further for information on the woodpeckers for years to come.

This is no place to summarise such an extensive account of a large family, but here is a selection of interesting woodpecker facts.

Members of the family go by a variety of names as well as, of course, woodpecker. Also in the family are wrynecks, flickers, sapsuckers and the tiny piculets, no bigger than a thornbill.

The family is not only widespread but also abundant in terms of species. Up to 13 different species having been recorded in an area of only about 100 ha in both South America and South-East Asia. Given that woodpeckers are already highly specialised in ways that are similar for all species, how do they divide up the habitat? At an Asian study site one of the main ways was that they differed in body size and the species present covered the full range of sizes within the Picidae. Other ecological differences between the species related to their use of the habitat: some foraged close to the ground, others in the middle stratum of the forest and yet others kept to the highest branches; some specialised in the use of very small branches, or fallen logs or termite mounds, or favoured dense understorey or swampy areas, and so on. Common among the family is ecological sexual dimorphism: males and females of the same species may use their habitat differently as described.

Woodpeckers hammer with their bills on various substrates. Needless to say, many of their adaptations are related to this practice. They do this in the course of feeding to find wood-boring prey and also to excavate their nest-holes. In addition to these utilitarian functions, many species 'drum' on resonant substrates as a means of communication, this being additional to the hammering in the course of feeding or nest-excavation. These non-vocal sounds may act as territorial signals, cavity advertisement, pair bonding, etc. In a case observed in England, a Great Spotted Woodpecker selected one of three conical speaker horns of a public-address system at a racecourse as its 'drum'. The speaker it selected was the one that was pointing towards a rival woodpecker about 100 m away with only a tree to drum on. The latter's response to the extra loud signal from the metal speaker was described as 'pathetic' in comparison.

Many woodpecker species live in groups and are communal breeders. Sociality is most highly developed in the Acorn Woodpecker of the Americas, to the extent that this species' social system may be the most complex of any bird species. The Acorn Woodpecker's breeding system is described as co-operative polygynandry. While some breed in single pairs, groups of up to 15 adults occur, which contain up to ten non-breeding helpers, and comprise up to four reproductively active males and usually one breeding female, although in some groups a second breeding female is present. Each territory contains only one nest, one male fertilises most, but not all, eggs, and when two females are present both lay in the same nest. Group activity extends beyond breeding and is essential for the creation of the acorn stores used by the species to ensure a food supply through the winter. These stores may consist of up to 50 000 holes excavated in tree trunks and branches by the group members and each containing a single acorn. Such a big resource may take years to create by a group and also requires a group to defend and maintain it.

Woodpeckers are 'keystone species' in many terrestrial ecosystems. One of the major reasons for this is their role as hole-constructors — woodpecker holes are a central resource for many other birds, for mammals including bats, and for other animals including insects.

The Picidae is 'the only avian family that contains significantly fewer threatened species than would be expected even if that risk were randomly distributed' (p. 415). This may reflect the adaptability to modified habitats of most members of the family. Nevertheless, there are three critically endangered species, the Okinawa Woodpecker of Japan, the Imperial Woodpecker of Mexico and the Ivory-billed Woodpecker of south-eastern U.S.A. and Cuba. The first of these may have a population as small as 150 individuals in an extremely restricted range, and the others, the two largest species of all the woodpeckers, are probably already extinct.

Woody Woodpecker's laughing voice is intended to represent a real woodpecker's song. 'With a little imagination' this interpretation can be accepted.

The *Handbook of the Birds of the World* is to be completed in 16 volumes following a poll of readers conducted at the time of publication of volume 6. The 3000 responses to the poll indicated that readers were overwhelmingly in favour of dealing with the species in greater detail than would have been possible in the originally planned 12 volumes. This was also the preference of the editors so that is how it is to be. Start saving.

Reference

Debus, S. (2001), 'Review of del Hoyo, J., Elliott, A. & Sargatal, J. (Eds) (1999), *Handbook of the Birds of the World, Volume 5, Barn-owls to Hummingbirds*', *Australian Bird Watcher* **19**, 75–77.

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