1974

Review of Curassows and related birds

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Curassows and related birds.—Jean Delacour and Dean Amadon. 1973. New York, Amer. Mus. Nat. Hist. xv + 247 pp., 30 col. pls., 69 drawings, 15 maps, 13 photos. $20.00.—To contemplate the appearance of a new book dealing for the first time with an exhaustive coverage of an entire avian family is to evoke an excitement that is all too rare an occurrence for most ornithologists. This excitement is enhanced when the bird group is one of the least studied and yet, evolutionarily speaking, most significant of the galliform families, and when the authors are as well known and highly respected as Delacour and Amadon. Anticipation reaches its apogee when the contributing artists are as competent as Albert E. Gilbert, George M. Sutton, and David Reid-Henry. After reading the book, one may truly say it has been worth the wait.

The artwork demands to be considered first, for it is this which initially dazzles the senses. A combination of large (9 × 12″) page format, high quality paper, and a superb job of color printing provides the vehicle for a truly stunning visual treat. In spite of the fact that the cracids are described by artist Gilbert as "somber-toned" birds, he managed to portray them with a technicolor brilliance, aided in large part by the choice of appropriate associated vegetation, especially bromeliads. In most of his plates (and in my opinion the most effective ones) the background is left white, while in a few the forest canopy or interior is realistically depicted. Field sketches and photographic records made during three field expeditions allowed for this extraordinarily accurate vegetational setting for the birds. The birds themselves are depicted similarly well. I have compared several of his paintings with color photos I have taken of captive birds, and convinced myself that in posture, plumage details and soft part colors it is hard to find serious fault with Gilbert's plates. My photos of *Penelopina nigra* suggest a grayer and less conspicuously patterned female plumage than he has shown, but the male is close to perfect. I consider Gilbert's plate of cracid chicks one of the most interesting and valuable of all. I have looked in the past without success for color renditions of the natal plumages of various Cracidae, and was delighted that the young of seven species (including one by G. M. Sutton) should be included. Not only are they valuable for showing intrafamilial variation in down patterns, but all of them also illustrate portions of the highly distinctive "juvenal" plumages of this group. Not only do juvenile cracids lack the distinctive whitish shaft-streaks typical of other New World Galliformes, but also, at least in *Crax* and *Penelopina,* sexual dimorphism may appear with the first pennaceous plumage. Kenneth Parkes contributed some comments in the section on plumage and molt on the apparent virtual suppression of a typical galliform juvenal plumage in cracids, but the problem is certainly worthy of additional attention. Comparison with the situation in megapodes is also obviously in order.

The four plates by G. M. Sutton are in his characteristic soft portrait style and, while lacking the high color saturation and feather detail of Gilbert's plates, have a distinctive charm of their own. The presumably extinct White-winged Guan is effectively illustrated by David Reid-Henry, on the basis of one of the three known specimens. All told, adults of all of the 44 species recognized by the authors are illustrated in color, and both sexes are illustrated in species having marked sexual dimorphism. And in addition to the numerous labelled figures by Gilbert, his decorative head drawings and field sketches pepper the open space of the book in a most delightful way. This is no doubt a reflection of the fact that he was able to help design the book, a perogative that few artists are able to enjoy. With the appearance of this book, Gilbert has certainly established himself in the front ranks of our American bird artists, and the American Museum of Natural History must indeed be proud of having produced such a visually satisfying book.

The text by Delacour and Amadon is divided, in the manner of several recent monographs, into a preliminary section on comparative biology and second section dealing with individual species accounts. It is not made clear as to the relative contributions of the two authors, but one suspects from the organization and content that Amadon did most of the writing. The contributions of Charles Vaurie are also evident throughout. Originally invited to be a third author, Vaurie's distributional and taxonomic work has already been published in a series of preliminary Novitates papers and a museum bulletin (1968, 138: 131–259). Thus the specimen measurements and distribution maps are generally taken directly from Vaurie's studies, with minor modifications resulting from new distributional information or different taxonomic interpretations of generic and specific limits.

In the section dealing with comparative biology, the authors summarize information on the evolutionary relationships within the Cracidae and comment on the position of the cracids within the Galliformes. There is a chapter on general behavioral characteristics and "habits," one each on plumage and molt, on wattles and other male display features, on tracheal variations, on aviculture and conservation, and three chapters on reproductive behavior. A final chapter is a summary of field notes made by Amadon during a Venezuelan field trip, intended to portray a feeling for the joys and frustrations of trying to observe cracids in their native habitats.

The authors' taxonomic treatment is essentially that proposed by Vaurie, with the exception of a few genera (*Pipile*, *Mitu*, *Pauxi*) that are not recognized, and a number of differences in species limits, especially in the chachalaca genus *Ortalis*. In both treatments the chachalacas are listed first and are now regarded by Delacour and Amadon as the most primitive, the guans are next, and included in the same tribe (Penelopini). The curassows represent the opposite end of the family and are recognized as a second tribe Cracini. Unlike Vaurie, who erected a special tribe for the monotypic Horned Guan (*Oreophasis*), Delacour and Amadon include the species within the Penelopini. As admitted by the authors, one could also argue that the highly crested, arboreal, and ornamented curassows are actually the more primitive, and that the duller, uncrested and more terrestrial chachalacas are the derived type. Indeed, it is suggested that the ancestral Cracidae were arboreal rather than terrestrial. It is further interesting that in curassows only the female broods the chicks and does not regurgitate food, while in guans and chachalacas both sexes care for the young and regurgitation does occur.

Separate chapters deal with reproductive behavior in the chachalaca, guan, and curassow groups. Interestingly, in spite of the abundance of cracid crests, wattles, knobs, and other male display features, the authors believe that monogamy is the rule in all the Cracidae, suggesting that these diverse structural characteristics are the product of selection for species recognition rather than the result of sexual selection. Considering the high degree of allopatry within congeneric taxa, this poses difficult problems. The authors suggest that sympatry of congeners is relatively prevalent in Penelope, but also occurs in *Crax* (if considered *sensu lato*). And yet, the seven allopatric species of *Crax* (*rubra*) show a remarkable variation in male soft part color and shape, which fit no clear-cut pattern of satisfying possible needs for reproductive isolation. Armchair ethology will apparently not solve such problems, and comparative studies on behavior and vocalizations are certainly needed.

A useful review of differences in tracheal anatomy and associated vocalizations is presented; this section was one of the first that I read in detail. Structural sexual dimorphism is found in the trachea of both chachalacas and curassows. Yet in the guans, there is little or no sexual dimorphism present, and the trachea shows great interspecific variation in the degree of its elongation. The authors are unable to decide whether the associated sounds are strictly of syringeal orgin and as such are resonated only by the trachea, or whether adjunct "air sacs" might be involved. They suggest that in the bushy-crested curassows (*Crax, sensu stricto*) some inflection of the neck does occur during booming, and perhaps the esophagus provides a resonating chamber that supplements or substitutes for the relatively short tracheal loops in these species. Two species of this group lack booming calls and exhibit only slightly looped tracheas; these two (Wattled and Yellow-knobbed) have prolonged whistling notes. Yet even in the Wattled Curassow the male's trachael length is reported as 390 mm long (the lengths of species having more strongly looped tracheae are not reported), which could resonate sound frequencies of less than 1000 Hz. Spectrograms presented by the authors for the "booming" species of *Crax* suggest that fundamental

frequencies of perhaps as low as 100 Hz may be produced in these forms. It seems unlikely that, even if it acted acoustically like a closed-pipe instrument, the trachea of such species could be long enough to resonate these frequencies, and thus an adjunct resonating chamber is presumably present. Hopefully the appearance of the book will stimulate somebody to analyze cracid vocalizations and tracheal anatomy more closely.

The sections dealing with separate species accounts are preceded by keys to genera and species (derived from those by Vaurie); a key to the tribes and supergenera is indicated but was seemingly inadvertently omitted. Each species account includes a statement of range and description, and a narrative account of "habits," nesting, and records of the species in captivity when appropriate. These are generally interestingly written, and include extensive quotations from published accounts or unpublished observations.

A final section provides a reference to original citations for scientific names, a glossary for determining the meanings of both scientific and vernacular names, and a bibliography with approximately 400 abbreviated literature citations or other sources. Regrettably, there is no index.

All told, the book represents a happy mesh of authoritative writing, superb artistic talents, and excellent book production techniques. It is easily worth its price, and since it has been produced in a limited edition, interested purchasers should order the book soon. Incidentally, the proceeds on the book go to the American Museum of Natural History, since the two authors have contributed their work. When ordered from the museum by mail, an extra dollar should be included for postage and handling.—PAUL A. JOHNSGARD.