

BOOK REVIEW

Lebendgebärende Halbschnäbler - Untersuchungen zur Verbreitung, Morphologie, Systematik und Fortpflanzungsbiologie der lebendgebärenden Halbschnäbler der Gattungen *Dermogenys* und *Nomorhamphus* (Hemirhamphidae [sic]: Pisces). [English translation of title: Livebearing halfbeaks - investigations on distribution, morphology, systematics and reproduction biology of the livebearing halfbeaks of the genus *Dermogenys* and *Nomorhamphus*. (Hemirhamphidae [sic]: Pisces)]. By Manfred Brembach. 1991. Published by Verlag H. Hieronimus & J. Schmidt, Solingen, Germany, 201 pp., ISBN 3-927889-00-8; DM 39.00.

This 'monograph' is apparently an unmodified version of a doctoral thesis submitted in 1989. It includes some valuable observations on halfbeaks (noteworthy are the differences in the shape of the anal fin rays in different populations of what has earlier been referred to as *D. pusilla* and information on reproductive biology) but their real value, however, is obscured by a catalogue of mistakes and conceptual shortcomings. Everyone who has tried to identify specimens of *Dermogenys* knew that a revision of the genus was badly needed. Regretably, this book does not solve this problem; it even renders the issue more difficult.

The text itself is poor and verbose. The layout is poor; much space would have been saved by suppressing the complicated and unnecessary variety of headings, by deleting all the superfluous text and duplications, and by using a presentation following present standards in systematic ichthyology. Most of the illustrations are sub-standard: maps 1 on p. 29 and 6 on p. 41 would be a shame for a careful publisher ['Teluk', given as the name of a sea, actually is the Indonesian word for bay or gulf]; the tails of many illustrated specimens have been cut off without reason (pp. 15, 63, 169, 171, 175, etc.); drawings of developmental stages are crude drafts, etc.

The organization of the text is chaotic; after the introduction we find chapters on distribution and ecology, morphology, meristic analysis, reproductive biology, discussion, summary and finally systematics, and, following the literature cited, the list of material examined. The lack of organization of the book will be annoying for those readers interested primarily in the systematics of halfbeaks.

For example, if one is interested in *D. pusillus borneensis*, it will be necessary to read pp. 49 to 117 to sieve bits about its morphology (mixed with other species), p. 137-138 to know how the author justifies its recognition as a distinct subspecies (but nowhere a discussion on why it is not a full species), a mention that a holotype will have to be designated [actually, none is designated], p. 167 for a description consisting of two photographs (one labelled *D. p. borneensis*, the other *D. sumatranus*), one drawing and 18 words (including a misplacement of the type locality Pontianak in NW Borneo [it is in SW!]), and p. 198 for a list of material examined. Furthermore, part of this material (ZMA 112.571) is called *D. orientalis* on p. 32, *D. pusillus* on p. 113, and *D. p. borneensis* on p. 167, while RNHL 10435 (for RMNH) is called

Book Reviews

D. sumatranus on p. 199, *D. pusillus* on p. 112, and both *D. p. borneensis* and *D. sumatranus* on p. 167. The text of the figure on p. 114 includes material listed as RMNH 10453 from Sumatra which is not listed among the material examined; it is probably the same as 10435; if so, then the figure on p. 114 contradicts the description on p. 113 and shows a completely different morphology than the photograph of the same fin ray of the same material on p. 167. And as the outline of the diagnostic fin rays are retouched on all photographs, it is difficult to accept the author's diagnostic characters.

Figures and text are difficult to follow because Brembach uses 3-letter abbreviations of populations whether discussing populations or species. The reader must constantly refer to the Material Examined to refresh his memory on what the author is discussing.

Misspellings occur consistently throughout the text: *brachynopterus* for *brachynopteris*, Hemirhamphidae for Hemiramphidae, Henning for Hennig, use of the older Dutch spelling Towoeti and Makassar for the present Towuti and Ujung Pandang, use of 'Mantana Lake' for Lake Matano, etc. Type categories without status according to nomenclature rules are used: material examined frequently includes holotype, a single paratype, paratypoids and some more exotic categories like lectoparatypoids (pp. 198-200). Additionally, if checking with the actual specimens, one discovers that the numbers of specimens in the type series often disagree: for example, Brembach (p. 199) lists a holotype and 26 paratypes (12 males and 14 females), ZMH 7151-7153, for *D. megarrhamphus*, which is not possible: his original description (1982) included only mention that the description is based on 25 specimens (9 males and 16 females) which therefore are all syntypes. The jars actually contain 52 specimens (B. B. Collette, pers. comm.). Which then are the types ?

The book begins with up-to-date references to Rosen (1964), Rosen & Parenti (1981), and Whitehead *et al.* (1984). But then, inexplicably, Brembach goes back to Weed (1933) for the list of genera to be included in the family. The list contains several generic names which have been placed in synonymy in a series of papers by Collette which Brembach lists in his Literature Cited (*Farhians* = *Hemiramphus*, *Ardeapiscis* = *Reporhamphus*, Collette, 1974a; *Odontorhamphus* = *Hyporhamphus*, Collette, 1974b). Several valid genera are omitted (*Melapedalion*, *Oxyporhamphus*) and one genus that is included (*Belonion*) is not a halfbeak at all but a Belonidae as shown in the title of the original description (Collette, 1966).

Recent information has frequently been overlooked, for example information on reproductive biology of *Hemirhamphodon* (Roberts, 1989). This lack of up-to-date references culminates in the subchapter entitled 'Excursion: geology of Sulawesi' which is based on the 'detailed work of van Bemmelen (1949)'. It entirely escaped the author that however good van Bemmelen's work might have been for his time, geology has since witnessed the rise of plate tectonics and that, not surprisingly considering its geographic position, Sulawesi is a key element for understanding the tectonic evolution of the area. The author overlooked such basic works as Hamilton (1979) or detailed summaries as Whitmore (1981, 1987) and Whitten *et al.* (1987). This chapter on the geology of Sulawesi includes statements like (p. 43; my translation) 'In the area of these lakes [Towuti and Matano] nickel and other heavy metals are exploited in large quantities in open mines since many years. This area can only be entered with special permission, which makes a systematic exploration much difficult. While flying over the area, the author saw with his own eyes the confirmation that the fauna and flora of this area, but especially that of the large lakes, are increasingly endangered by the rigorous open mining and the resulting heavy metal washes'. This statement makes no sense (what has this to do with

Geology?) and is made on unsubstantiated information (how can the fauna and flora of several lakes be found to be endangered just by flying over the area?), not to mention that it is in disagreement with my own experience of the area. Of course any mining operation has an impact on nature, but impact on the lakes is not among those which can be seen from a plane just by flying once over an area. The threats are rather the introductions of exotics by immigrants, locally increased turbidity, and deforestation.

The author lacks clear concepts on many important issues, starting with such definition problems like the meaning of 'meristics' (the chapter entitled Meristics includes 25 pages of morphometric data and only 6 of meristics) to end with the practice of taxonomy. For example, names which have been placed in synonymy by Mohr (1936) are accepted as such and their validity is not checked before describing new taxa (*D. brachynotopus*, *D. sumatrana*, *D. siamensis*).

The keys include information which are not always self-evident and often contradict the following text. *Dermogenys vogti* belongs to a group supposed to have (couplet 3, p. 154) the lower jaw 5-8 times in SL and a physis always present in the anal fin of mature males; on p. 170 we discover that the lower jaw of *D. vogti* is 8.0-9.6 times in SL and that no males have been examined. On p. 154, *D. megarrhamphus* is said to have 14-16 anal rays, while on p. 159 it has 14-18. The length of the lower jaw in *D. montanus* is about 7 times in SL on p. 155 and on p. 161 it is 4.5-6.1 for males and 6.0-8.4 for females. In *Nomorhamphus hageni*, females have no fleshy appendage at tip of lower jaw on p. 173 while it is apparently missing in both sexes on p. 178 and figure of p. 177; the same appendage is present in both sexes in *N. sanussii* on p. 173, while it is present in males and virtually absent in females on p. 188. *Nomorhamphus r. ravnaki* has head length from 3.2-3.2 [sic] times in SL on p. 183 and 2.9-3.3 on p. 184; this is supposed to distinguish it from *N. r. australe* in which this proportion is given as 3.1-2.9 [sic] on p. 184 and 2.7-3.45 on p. 186. According to the key p. 179, in *N. l. snijdersi*, the pelvic origin is about midway between caudal base and posterior margin of eye, while the photograph of the holotype and one paratype p. 181 shows it much behind, possibly midway between pectoral base and caudal base. Brembach (p. 191) counted 18 dorsal rays in the types of *Hemirhamphodon chrysopunctatus* (a species he described in 1978), while Anderson & Collette (1991) found that the holotype and five paratypes have 17-19, the other paratypes belonging to another species, *H. tengah*, with only 12-15 rays.

The hypothesis on the phylogeny of the group p. 145-149 is merely a series of ad hoc theories derived from unrigorous analysis and does not deserve comment, but some of the systematic and nomenclatorial results are probably better addressed here in order to correct them as soon as possible, so that mistakes are not repeated in the literature.

Dermogenys is a feminine noun and some specific names have to be emended as follows: *D. philippina*, *D. montana*, *D. pusilla*, *D. burmanica*, *D. sumatrana*.

***D. brachynotopus* Bleeker, 1853.** Brembach mentioned (p. 17) that Mohr (1936) considered it as a synonym of *D. pusilla* but nowhere is this critically examined. The type locality, the Hoogly River, is not in Burma as assumed p. 14 but in India. Material in ZSM received from Calcutta seems to show that a distinct species occurs in India, for which *D. brachynotopus* (if really a *Dermogenys*) might be the valid name.

***D. pectoralis* Fowler, 1934.** This nominal species from Bubuccan, the Philippines, has been overlooked.

***D. pusilla* van Hasselt, 1823.** Fig. F6 (p. 114) shows an apparently obvious difference between Malayan and Javanese material: in specimens from the Malay Peninsula, the terminal element of the modified anal ray (Brembach's spiculus) is segmented while it is unsegmented in the Javanese ones. Examination of further material may show that more than one species is involved.

I consider both *D. pusilla borealis* and *D. p. borneensis* to be valid species (but their names are not valid; see *D. sumatrana* and *D. siamensis*): the differences between them and *D. pusilla* are at least as important as those between them and all other species of the genus as each exhibits unique characters. Brembach nowhere presents evidence that they would be more closely related to *D. pusilla* than to any other species.

***D. montana* Brembach, 1982.** A clear, unambiguous diagnosis or explanation is still needed to demonstrate that this taxon is distinct from *D. orientalis*. The 12 metre waterfall (p. 147) separating them in such a geomorphologically active area as the Bantimurung karst is difficult to accept as a barrier without further discussion. At least it did not act as such for *Telmatherina ladigesi*, *Nomorhamphus ravnaki* and juveniles of the sea-going *Anguilla* sp., all of which occurred both above and below the fall in 1988 (pers. obs.).

***D. orientalis* Weber, 1894.** Brembach indicates the type locality as 'Palopo, area of Maros, S. Sulawesi' [Palopo actually is at the NW corner of the Gulf of Bone, quite remote from Maros]. This cannot be the type locality. Weber had 3 series of syntypes from Luwu (a regency in which Palopo is situated), a stream near Maros, and stream La Palupa near Tempe and, as no lectotype has been designated, there cannot be a type locality.

***D. siamensis* Fowler, 1934.** In his description of *D. pusilla borealis*, Brembach wrote (p. 166) [my translation, trying to preserve the original syntactic flavour]: 'This subspecies is possibly a parallel description of *D. siamensis* Fowler, 1934. The type material bears, according to data from the named author, the numbers ANSP 59860-59877. This type material could not be controlled by the author, as a loan failed. The illustration in the named work shows a female. If the type material includes males must remain an unanswered question. According to Mohr (1936), this is a parallel description of *D. orientalis*, what is completely justified according to the vague and superficial diagnosis of Fowler. It appears therefore to make little sense to make live again as a new subspecies this already introduced species, without knowing if the decisive criterion (the modification of the second andropodium ray) is fulfilled'. On p. 137, he had written: 'Of course, the question should be answered how much the new subspecies corresponds with the already proposed species *D. siamensis*. [...]. As it is not known about the type material if it also includes males and therefore the structure of the important diagnostic copulation organ is unknown, it is opportune, in agreement with the international nomenclature rules, to neglect the name *D. siamensis* which otherwise has not been used'. To suggest that a major institution such as ANSP would not loan some paratypes is suspicious. The type material is certainly available and includes at least 5 males and 6 females (B. B. Collette, pers. comm.).

The type locality of *D. p. borealis* is Bangkok [yes, Bangkok is considered to be in the boreal area]; that of *D. siamensis* is the Mae Nam Ping river in Chiang Mai (and not a locality without precise information as stated by Brembach, p. 33). I have not examined the types, but males from a large series I collected at the type locality have well developed serrae along the anterior margin of the second anal ray. Therefore *D. p. borealis* is a junior subjective synonym of *D. siamensis*.

***D. sumatrana* (Bleeker, 1853).** The type locality of *D. sumatrana* is stated by Bleeker to be Lake Maninjau, Sumatra; that of *D. p. borneensis* is Pontianak, Borneo. Information about the morphology of the second anal ray of *D. sumatrana* is not available now (one of the two syntypes is a female and the whereabouts of the second are not known, B. B. Collette, pers. comm.) and will probably not be before fresh material is collected at the type locality. In Brembach's system, a single species, *D. p. borneensis*, is definitely known to occur on Sumatra (but see above for details on the confusion about names, catalogue numbers, and shape of the second anal ray). Therefore I do not currently see reasons for not recognizing *D. sumatrana* as the name to be used for the species occurring on Sumatra and Borneo, of which *D. p. borneensis* has tentatively to be treated as a junior synonym.

***N. australis* Brembach, 1991.** The illustrations and information on *N. r. ravnaki* and *N. r. australis* seem to indicate that they are distinct species. *Nomorhamphus* being a masculine noun, *N. australe* has to be emended in *N. australis*.

***N. liemi* Vogt, 1978.** As mentioned above (see comment on keys), the only morphological character distinguishing *N. l. snijdersi* from the nominal subspecies does not agree with what can be extracted from the illustrations of the types of both taxa. It is therefore presently impossible to accept them as distinct. There is no clear discussion giving arguments on why these two populations (?) from almost the same locality are considered taxonomically distinct. The only statement I find in the discussion, p. 139, has apparently no biological meaning (or at least it is a semantic enigma to me): 'The situation of the species/populations of the southern arm [of Sulawesi] is only the beginning of a solution, as we still have to count with new discoveries. Grouping of the newly discovered populations into species and subspecies is done under this reservation, but has on the other hand to take into account that, with the new [sic! actually published in 1978, 13 years earlier] description of *N. l. liemi* and *N. l. snijdersi* a taxonomic reality has been created'.

Publications making new names available are among the very few things in systematics which cannot be overlooked, even if they may be substandard, misleading or wrong. Therefore I think that the earlier the most obvious mistakes are corrected, the smaller their chances of appearing repeatedly in the literature. This doctoral thesis may have been worthy of publication but only after a critical review by competent specialists, followed by a thorough correction of the manuscript.

Acknowledgments. - I thank Bruce B. Collette, Peter K. L. Ng, Tyson R. Roberts and Tony Whitten for commenting on this manuscript; this does not imply that they share my opinion on all or part of it.

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Book Reviews

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Maurice Kottelat

Zoologische Staatssammlung, Münchhausenstrasse 21

D - 8000 München 60, Fed. Rep. Germany.

Present address: Case postale 57, 2952 Cornol, Switzerland.

BOOK REVIEW

FAO SPECIES CATALOGUE. VOL. 13. MARINE LOBSTERS OF THE WORLD. An annotated and illustrated catalogue of species of interest to fisheries known to date. L. B. Holthuis. 1991. FAO Fisheries Synopsis No. 125, Volume 13, viii+292 pp. ISBN 92-5-103027-8. Published by the Food and Agriculture Organization of the United Nations, Rome.

Lobsters are one of the most important food crustaceans, and the world harvest is probably some 200 000 tons each year. Many species command very high market prices, and their importance in fisheries is substantial. The present volume by the Food and Agriculture Organisation on the commercial lobsters of the world is probably the most impressive compilation on lobsters ever assembled. The author, one of the foremost carcinologists of the 20th century and its leading lobster expert, has certainly done an excellent job putting the book together.

The present book deals with three infraorders (Astacidea, Palinuridea, Thalassinidea), 10 families (Thaumastochelidae, Nephropidae, Polychelidae, Glypheidae, Palinuridae, Scyllaridae, Synaxidae, Thalassinidae, Upogebiidae, Callianassidae), 33 genera and 149 species. Although