

Case 3106***Remipes pacificus* Dana, 1852 (currently *Hippa pacifica*; Crustacea, Anomura): proposed precedence over *Remipes marmoratus* Jacquinot, 1846**

Christopher B. Boyko

Department of Invertebrates, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, U.S.A. and Department of Biology, University of Rhode Island, Kingston, Rhode Island 02881, U.S.A. (e-mail: cboyko@amnh.org)

Alan W. Harvey

Department of Biology, Georgia Southern University, Statesboro, Georgia 30460, U.S.A. (e-mail: aharvey@gasou.edu)

Abstract. The purpose of this application is to conserve the usage of the specific name of *Hippa pacifica* (Dana, 1852) for an Indo-Pacific sand or mole crab (family HIPPIDAE). The extant syntypes of *R. marmoratus* Jacquinot, 1846 are apparently specimens of *H. pacifica*. It is proposed that *R. pacificus* Dana, 1852 should take precedence over *R. marmoratus*. A lectotype is designated for *R. pacificus*.

Keywords. Nomenclature; taxonomy; Crustacea; Anomura; HIPPIDAE; *Hippa*; *Hippa pacifica*; mole crabs; Indo-Pacific.

1. Jacquinot (1846, pl. 8, figs. 22–26) introduced the name *Remipes marmoratus* for an illustration of a mole crab, based on an unknown number of specimens from an unspecified locality. The date of this publication has been variously given as ‘1852 or earlier’, 1853 or 1855, but Clark & Crosnier (2000, p. 416) have shown that the part containing plate 8 was published in July 1846. Later, Jacquinot & Lucas (1853, p. 97) described the species, citing four specimens from ‘Raffles-Baie (côte nord-ouest de la Nouvelle-Zélande)’. However, as originally pointed out by Filhol (1885, p. 408), ‘Raffles-Baie’ (Raffles Bay) is not in New Zealand, but on the Northern Territory coast of Australia. All four syntypes are in the Muséum national d’Histoire naturelle, Paris (MNHN Hi–84). Jacquinot & Lucas (1853, p. 98, footnote) pointed that there were errors in the drawing of *R. marmoratus* by Jacquinot (1846), remarking that ‘la figure 22 de la planche 8, représente ce filet [antenna] hérissé de longs cils; les quatre individus de cette espèce qui ont été déposés dans les collections du Muséum et sur lesquels nous avons fait cette description, ont tous au contraire ce filet interne [antennal flagellum] entièrement glabre’.

2. Dana (1852, p. 407) described *Remipes pacificus* (currently *Hippa pacifica*), based on an unknown number of specimens collected from ‘Island of Ovalau, Feejee Group; Sandwich Islands; Samoan Group?’. Dana (1852, p. 408) compared his specimens with Jacquinot’s (1846) figure and distinguished the two species by the fact that ‘the *Remipes marmoratus* of Hombron and Jacquinot . . . has the outer antennae

[= antennules] very much more slender than in the *pacificus*'. Dana (1855, pl. 25, figs. 7a-g) later figured *R. pacificus*, which does indeed appear specifically different from Jacquinot's (1846) figure of *R. marmoratus*. The only syntype of *R. pacificus* that appears to be extant is an alcohol-preserved female, 13.7 mm carapace length (CL), from the Sandwich Islands (= Hawaii), and deposited in the Museum of Comparative Zoology, Harvard University (MCZ 1406). No types are listed as being in the collections of The Natural History Museum, London (Evans, 1967), nor have we found type specimens in the collections of the United States National Museum. We think the prospect of locating other syntype material is unlikely since these three institutions are the only known repositories of Dana's type material (Evans, 1967). As MCZ 1406 is the only known syntype, and in excellent condition, we herein select it as lectotype for *R. pacificus*.

3. There has been confusion about the identity of *Remipes marmoratus* and its possible synonymy with one or more of the other nominal species of *Remipes*, much of which was caused by the assertion by Miers (1878, pp. 316–317) that most reported species of *Remipes* were based on a single variable taxon which he incorrectly called *R. testudinarius* Latreille, 1806 (= *Hippa adactyla* Fabricius, 1787; see Haig, 1970). This was only two years after he (Miers, 1876, p. 59) mentioned *R. marmoratus* in a list of the New Zealand fauna, although he had seen no specimens. After Miers (1878) authors correctly split the '*R. testudinarius*' group into separate species again, but had difficulty in placing *R. marmoratus*. It has been variously considered as a synonym of *R. testudinarius*, *R. pictus* Heller, 1861 or *H. adactyla*. De Man (1896, p. 462) did not cite *R. marmoratus* Jacquinot, 1846 in his revision of *Remipes* Latreille, 1806 (a junior subjective synonym of *Hippa* Fabricius, 1787), but indicated 'nur *R. marmoratus* White bleibt nun noch unverständlich.' White (1847, p. 58) listed the name '*R. marmoratus* n.s.' without description or figure reference, thus rendering it a nomen nudum.

4. Haig (1974) mentioned *R. marmoratus* as a possible synonym of *Hippa pacifica*. She stated that she had examined the type material of *R. marmoratus*, consisting of four soft-shelled specimens, and observed that '... although I did not compare them critically with material of *Hippa pacifica*, I noted that they agree in the number of setiferous pits near the lateral margin of the carapace and in having a two-segmented flagellum' (Haig, 1974, p. 182). Recognizing that the illustration of *R. marmoratus* was published before the description and probably earlier than 1852 ('18[?]' in her synonymy list), she suggested that 'Should careful comparison of the two species prove them to be synonymous, the unused name *marmoratus* might have to be suppressed to insure the stability of *pacificus*' (Haig, 1974, pp. 182–183). Since Haig (1974), *marmoratus* has been treated as a questionable synonym of *H. pacifica* (Haig, Murugan & Balakrishnan Nair, 1986, p. 290; Boyko & Harvey, 1999, p. 401).

5. During a recent visit to the Muséum national in Paris, one of us (C.B.B.) examined the four syntypes of *Remipes marmoratus*. They are highly decalcified, making determination of sex difficult, but there appear to be two males (9.2–10.3 mm CL) and two females (8.4–10.2 mm CL). Examination of the specimens confirms Haig's (1974) observations, and also shows that Jacquinot's (1846) illustration is incorrect as to the shape of the antennules; they are identical to those found on typical *H. pacifica*, including the lectotype (MCZ 1406). All evidence therefore indicates that *R. marmoratus* and *H. pacifica* are synonymous.

6. The species was listed under the specific name *Hippa pacifica* or *Remipes pacificus* in *Zoological Record* 17 times between 1864 and 1998. This number is undoubtedly an underestimate of the number of times this species was cited in species lists and other papers during this period (e.g. Efford, 1972; Haig, 1974; Bauchau, 1985; Haig, Murugan & Balakrishnan Nair, 1986; Ramos & Rios, 1995). *H. pacifica* is the most widely distributed member of the family HIPPIDAE, and is the most frequently collected and studied member of its genus. Not only has *H. pacifica* been cited numerous times in taxonomic (e.g. Haig, 1974) and regional survey papers (e.g. Ramos & Rios, 1995), but it is also an important experimental animal that is used in studies of intraspecific competition and intertidal zonation (e.g. Haley, 1982), sex reversal (Wenner, 1972), color change (e.g. Bauchau & Passelcq-Gerin, 1987), various aspects of population biology (Wenner, Ricard & Dugan, 1987) and reproductive biology (Matthews, 1956). In contrast, the species was listed under the specific name *marmoratus* in *Zoological Record* only once between 1864 and 1998, and that was more than a century ago as a synonym of *R. testudinarius* (see Miers, 1878). Nomenclatural stability will not be served by replacing the name *Hippa pacifica* by the binomen *H. marmorata*.

7. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to give the specific name *pacificus* Dana, 1852, as published in the binomen *Remipes pacificus*, precedence over *marmoratus* Jacquinot, 1846, as published in the binomen *Remipes marmoratus*, whenever the two are considered to be synonyms;
- (2) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *pacificus* Dana, 1852, as published in the binomen *Remipes pacificus* and as defined by the lectotype designated in para. 2 above, with the endorsement that it is to be given precedence over the name *marmoratus* Jacquinot, 1846, as published in the binomen *Remipes marmoratus*, whenever the two are considered to be synonyms;
 - (b) *marmoratus* Jacquinot, 1846, as published in the binomen *Remipes marmoratus*, with the endorsement that it is not to be given priority over *pacificus* Dana, 1852, as published in the binomen *Remipes pacificus*, whenever the two are considered to be synonyms.

Acknowledgements

We thank Nguyen Ngoc-Ho, Muséum national d'Histoire naturelle, Paris, for assistance during the first author's visit, Ardis Johnston, Harvard University, for the loan of the specimen of *Remipes pacificus*, and Paul Clark, The Natural History Museum, London, and Alain Crosnier, Paris, for assistance regarding the publications of Jacquinot.

References

- Bauchau, A.G. 1985. Les espèces du genre *Hippa* recueillies sur les plages septentrionales de la Papouasie-Nouvelle Guinée (Crustacea, Decapoda, Anomura). *Indo-Malayan Zoology*, 2: 309–318.
- Bauchau, A.G. & Passelcq-Gerin, E. 1987. Morphological color changes in anomuran decapods of the genus *Hippa*. *Indo-Malayan Zoology*, 4: 135–144.

- Boyko, C.B. & Harvey, A.W.** 1999. Crustacea Decapoda: Albuneidae and Hippidae of the tropical Indo-West Pacific region. In Crosnier, A. (Ed.), *Résultats des Campagnes Musorstom*, vol. 20. *Mémoires du Muséum national d'Histoire naturelle*, **180**: 379–406.
- Clark, P.F. & Crosnier, A.** 2000. The zoology of the Voyage au pôle sud et dans l'Océanie sur les corvettes l'*Astrolabe* et la *Zélée* exécuté par ordre du roi pendant les années 1837–1838–1839–1840 sous le commandement de M. Dumont-D'Urville, 1842–1854: titles, volumes, plates, text, contents proposed dates and anecdotal history of the publication. *Archives of Natural History*, **27**: 407–435.
- Dana, J.D.** 1852. Crustacea. part 1. *United States Exploring Expedition, during the years 1838, 1839, 1840, 1841, 1842, under the command of Charles Wilkes, U.S.N.*, vol. 13. viii, 685 pp. Sherman, Philadelphia.
- Dana, J.D.** 1855. Crustacea. *United States Exploring Expedition, during the years 1838, 1839, 1840, 1841, 1842, under the command of Charles Wilkes, U.S.N.*, vol. 13 (Atlas). 27 pp., 96 pls. Sherman, Philadelphia.
- Efford, I.E.** 1972. The distribution of the sand crabs *Hippa strigillata* (Stimpson) and *Hippa pacifica* (Dana) in the eastern Pacific Ocean (Decapoda, Anomura). *Crustaceana*, **23**: 119–122.
- Evans, A.C.** 1967. Syntypes of Decapoda described by William Stimpson and James Dana in the collections of the British Museum (Natural History). *Journal of Natural History*, **1**: 399–411.
- Filhol, H.** 1885. Recherches zoologiques, botaniques et géologiques faites à l'île Campbell et en Nouvelle Zélande. *Académie des Sciences. Recueil de Mémoires . . . relatifs à l'observation du passage de Vénus sur le Soleil* (Zoologie), vol. 3, part 1. 576 pp. Gauthier-Villars, Paris.
- Haig, J.** 1970. The status of *Remipes testudinarius* Latreille, and designation of a neotype for *Hippa adactyla* J.C. Fabricius (Decapoda, Hippidae). *Crustaceana*, **19**: 288–296.
- Haig, J.** 1974. A review of the Australian crabs of family Hippidae (Crustacea, Decapoda, Anomura). *Memoirs of the Queensland Museum*, **17**: 175–189.
- Haig, J., Murugan, T. & Balakrishnan Nair, N.** 1986. *Hippa indica*, a new species of mole crab (Decapod, Anomura, Hippidae) from the south west coast of India. *Crustaceana*, **51**: 286–292.
- Haley, S.R.** 1982. Zonation by size of the Pacific mole crab, *Hippa pacifica* Dana (Crustacea: Anomura: Hippidae) in Hawaii. *Journal of Experimental Marine Biology and Ecology*, **58**: 221–231.
- Jacquinet, H.** 1846 [July]. Crustacés, part 19, pls. 5, 8 in Hombron, J.B. & Jacquinet, C.H. (Eds.), *Voyage au pôle sud et dans l'Océanie sur les corvettes l'Astrolabe et la Zélée: exécuté . . . pendant . . . 1837–1840, sous le commandement de M.J. Dumont d'Urville, capitaine de vaisseau . . . sous la direction supérieure de M. Jacquinet, . . . Zoologie*. Gide, Paris.
- Jacquinet, H. & Lucas, H.** 1853. Crustacés. Pp. 1–107 in Hombron, J.B. & Jacquinet, H. (Eds.), *Voyage au pôle sud et dans l'Océanie sur les corvettes l'Astrolabe et la Zélée; exécuté . . . pendant . . . 1837–1840, sous le commandement de M. J. Dumont d'Urville, capitaine de vaisseau . . . sous la direction supérieure de M. Jacquinet, . . . Atlas d'Histoire Naturelle, Zoologie*, vol. 3. Gide, Paris.
- Man, J.G., De.** 1896. Bericht über die von Herrn Schiffscapitän Storm zu Atjeh, an den westlichen Küsten von Malakka, Borneo und Celebes sowie in der Java-See gesammelten Decapoden und Stomatopoden. Vierter Theil. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und der Biologischen Tiere*, **9**: 459–514.
- Matthews, D.C.** 1956. The origin of the spermatophoric mass in the sand crab, *Hippa pacifica*. *Quarterly Journal of Microscopical Science*, **97**: 257–268.
- Miers, E.J.** 1876. *Catalogue of the Stalk- and Sessile-eyed Crustacea of New Zealand*. 136 pp., 3 pls. Jansen, London.
- Miers, E.J.** 1878. Revision of the Hippidea. *Journal of the Linnean Society of London, (Zoology)*, **14**: 312–336, pl. 5.
- Ramos, G.E. & Rios, R.** 1995. Los 'reculambai' o 'canchunchos' (Crustacea: Decapoda: Hippoidea: Hippidae y Albuneidae) de la costa del Pacífico de Colombia. Pp. 92–109 in Cantera, J.R. & Restrepo, J.D. (Eds.), *Delta del Rio San Juan, Bahías de Malaga*

y *Buenaventura, Pacífico Colombiano*, vol. 2. Colciencias, Universidad EAFIT y Universidad del Valle.

Wenner, A.M. 1972. Sex ratio as a function of size in marine crustacea. *American Naturalist*, **106**: 321–350.

Wenner, A.M., Ricard, Y. & Dugan, J. 1987. Hippid crab population structure and food availability on Pacific shorelines. *Bulletin of Marine Science*, **41**: 221–233.

White, A. 1847. *List of the Specimens of Crustacea in the Collection of the British Museum*. 143 pp. British Museum, London.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).