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Taxonomy and nomenclature of the genus Complicachlamys Iredale, 1939, and its species (Bivalvia, Pectinidae)

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The genus *Complicachlamys* Iredale, 1939, was created for four species, viz. *Pecten fulvicostatus* Adams & Reeve, 1848, *P. luculenta* Reeve, 1853 (with *P. dringi* Reeve, 1853, as junior synonym), *P. crouchi* E. A. Smith, 1892, and *Complicachlamys wardiana* Iredale, 1939. The latter was designated as type species. As the identity of *P. fulvicostatus, P. luculenta* and *P. dringi* has been subject to debate in the past, a critical examination of the remnant type material was carried out. The type material studied exists of holotypes of *P. fulvicostatus, P. crouchi, C. wardiana* and two samples, of three syntypes each, of *P. luculenta* and *P. dringi*. The two samples of syntypes comprise more than one species, thus lectotypes are designated in order to stabilize the names. The figured syntypes are selected as lectotypes, and as a consequence both *P. luculenta* and *P. dringi* become junior synonyms of *P. fulvicostatus*. *P. fulvicostatus* can be assigned to the genus *Semipallium* Jousseaume, 1928. The recently described *Semipallium barnetti* Dijkstra, 1989, is relegated to the synonymy of *Semipallium fulvicostatum*. The holotype of *P. crouchi* also belongs to *Semipallium*. One of the paralectotypes of *P. luculenta* probably belongs to *Chlamys lemniscata* (Reeve, 1853). The two paralectotypes of *P. dringi* belong to the type species of *Complicachlamys*: *C. wardiana*. The genus *Complicachlamys* is rejected and is relegated to the synonymy of the genus *Chlamys* Röding, 1798.

Key words: Bivalvia, Pectinidae, *Complicachlamys, Semipallium*, taxonomy, Indo-Pacific.

INTRODUCTION

Iredale has introduced many new species and genera for the Australian region as he believed it had a fauna distinct from that of the rest of the world. To a certain extent he was right, but many of his new taxa are well known Indo-Pacific genera and species. For a number of *Chlamys*-like species he created the genus *Complicachlamys* (Iredale, 1939: 362), its type species being *Complicachlamys wardiana* Iredale, 1939. The other species he included in this genus are *Pecten fulvicostatus* Adams & Reeve, 1848, *Pecten luculenta* Reeve, 1853 (with *Pecten dringi* Reeve, 1853, as junior synonym), and *Pecten crouchi* E. A. Smith, 1892. Although the identity of *C. wardiana* (generally considered to be confined to Queensland only) and *P. crouchi* (Red Sea, Mauritius and Reunion) rarely caused problems, the remaining three species are often misidentified. Dautzenberg & Bavay (1912: 16) are of the opinion that *P. fulvicostatus, P. luculenta* and *P. dringi* represent one species only. In Abbott & Dance (1982) specimens of one species are figured under the names *Semipallium wardiana* (p. 308) and *Chlamys luculenta* (p. 314) respectively. Dijkstra (1986: 26) considers *P. luculenta* a junior synonym of *P. fulvicostatus*, placing the species in the genus *Semipallium* Jousseaume, 1928. Further he recognizes *Complicachlamys wardiana* and *C. dringi* as distinct species. His *C. wardiana* corresponds with Abbott & Dance's *S. wardiana*, while his *C. dringi* corresponds with what Abbott & Dance consider to be *Chl. luculenta* (Dijkstra, personal communication). In dealers' lists we only encounter the shells under the names *P. luculenta* and *P. dringi*, which corresponds with the shells figured by Abbott & Dance, or sometimes refers to

specimens of *P. fulvicostatus*. Therefore a critical examination of the type material of these three species becomes necessary in order to solve the nomenclatorial problems of the species concerned. In November 1984 I visited the British Museum (Natural History), London (BMNH), to do so. Additional material of the species has been examined since. Below short descriptive notes are given for each of the type specimens of the taxa concerned, followed by a discussion on their validity as distinct species and their present status within the generic system.

MATERIAL

Pecten fulvicostatus Adams & Reeve, 1848
fig. 1

Pecten fulvicostatus Adams & Reeve, 1848: 74, pl. 21 fig. 11.

The type material of this species consists of a holotype specimen only (BMNH 1950.11.14.31), which measures 24.5 x 21.6 x 5.7 mm (height x width x depth). It was collected in the Sulu Sea (Southern Philippines). Basically the shell is dirty white, decorated on its proximal half with brown spots and snow-white markings, towards its edges it is pinkish. There are 11 pronounced (primary) ribs that are bright yellow, some less pronounced (secondary) ribs are irregularly placed between the primary ribs. Fine riblets cover the whole disc, the ribs included. Although the shell is thoroughly cleaned, remnants of a fine reticulated microsculpture are still visible at certain places, which originally must have covered the whole shell. Internally the valves are yellow near the top.

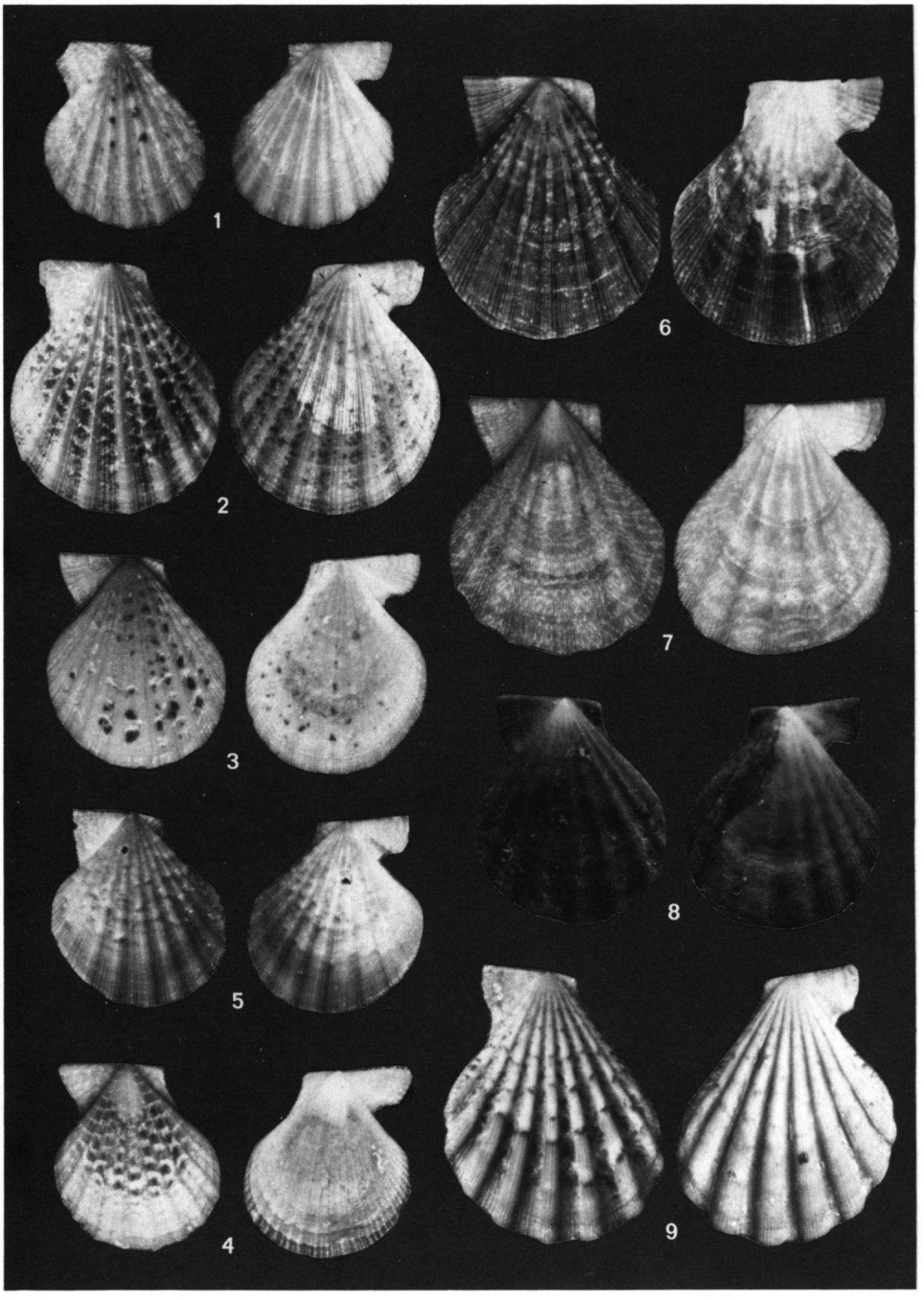
Pecten luculenta Reeve, 1853 (February)
figs. 2-4

Pecten luculenta Reeve, 1853: species 59, pl. 16 fig. 59.

The type material of this species consists of three syntypes from Bathurst Island, North Australia.

The figured syntype (BMNH 1984046/1) is also the specimen described. It measures 41.0 x 34.9 x 10.3 mm. It is basically yellow, decorated with brown spots and light yellowish markings. There are 11 primary ribs with some secondary ribs irregularly placed in between. Riblets cover the whole disc, the ribs included. Inter-

Figs. 1-9. Lateral views of the left and right valves of "*Complicachlamys*" species. 1-3. *Semipallium fulvicostatum* (Adams & Reeve, 1848); 1, holotype of *Pecten fulvicostatus* Ad. & Rve (BMNH 1950.11.14.31), Sulu Sea, Philippines, h.24.5 x w.21.6 mm; 2, lectotype of *Pecten luculenta* Reeve, 1853 (BMNH 19844046/1), Bathurst Island, North Australia, h.41.0 x w.34.9 mm; 3, paralectotype of *P. luculenta* Rve (BMNH 1984046/2), Bathurst Island, North Australia, h.30.3 x w.25.8 mm; 4, *Chlamys* cf. *lemniscata* (Reeve, 1853)?, paralectotype of *P. luculenta* Rve (BMNH 1984046/3), Bathurst Island, North Australia, h.24.5 x w.21.9 mm; 5, *Semipallium fulvicostatum* (Ad. & Rve), lectotype of *P. dringi* Reeve, 1853 (BMNH 1950.11.14.28), Bathurst Island, North Australia, h.31.6 x w.29.2 mm; 6-8. *Chlamys wardiana* (Iredale, 1939); 6, paralectotype of *P. dringi* Rve (BMNH 1950.11.14.29), Bathurst Island, North Australia, h.43.4 x w.37.7 mm; 7, paralectotype of *P. dringi* Rve (BMNH 1950.11.14.30), Bathurst Island, North Australia, h.33.0 x w.28.8 mm; 8, holotype of *Complicachlamys wardiana* Iredale, 1939 (AMS C90373), Hayman Island, Queensland, Australia, h.29.0 x w.25.2 mm; 9, *Semipallium crouchi* (E. A. Smith, 1892), holotype (BMNH 1892.9.25.1), Mauritius, h.46.1 x w.38.7 mm.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nally the valves are orange near the top, yellow in the centre. Remnants of a fine reticulated microsculpture are still visible.

The syntype measuring 30.3 x 25.8 x 8.5 mm (BMNH 1984046/2) has a completely intact basal microsculpture, that consists of a fine reticulated pattern that covers the whole shell (the ribs included). It is basically white, with brown spots and snow-white markings on its proximal half of the disc, internally yellow near the top, and very closely resembles the holotype of *P. fulvicostatus* in the configuration of the ribs.

The smallest syntype measures 24.5 x 21.9 x 7.5 mm (BMNH 1984046/3). It is basically white, with brown and snow-white spots and markings on the proximal half of the disc. Between the riblets fine grooves are visible; the fine reticulation as observed in the other two syntypes seems to be absent. There are 10 primary ribs with secondary ribs in between, but the latter are distributed more regularly than those in the other two syntypes. The ribs on the right valve are very tall, in contrast to the other two syntypes that have broad ribs.

Evidently the syntype sample of this species consists of more than one species. In order to fix the name it seems appropriate to me to select the figured syntype (BMNH 1984046/1) as lectotype.

Pecten dringi Reeve, 1853 (August)
figs. 5-7

Pecten dringi Reeve, 1853: species 152, pl. 33 figs. 152a,b.

The syntype material examined of this species consists of three specimens from Bathurst Island, North Australia. The syntype (BMNH 1950.11.14.28) figured (and described) as fig. 152b is a beached pair of valves, measuring 31.6 x 29.2 x 7.9 mm. The basic colour of this specimen is purple, with darker spots and lighter streaks on the proximal half of the disc. There are 11 primary ribs, with some irregularly placed secondary ribs in between, in the same configuration as observed in *P. fulvicostatus*. Fine riblets cover the whole disc, the ribs included. A fine reticulated microsculpture is partially visible. Internally a orange-yellow blotch is present near the top.

The other figured syntype (Reeve, 1853: fig. 152a) was not found in the BMNH during my visit.

The largest (non-figured) syntype (BMNH 1950.11.14.29) measures 43.4 x 37.7 x 11.2 mm. It is basically dark purple with 9 prominent ribs, secondary ribs are absent. Fine riblets cover the disc, the ribs included. Between the riblets fine concentric lamellae are present that are imbricately arranged. Internally the valves are lighter purple with a tinge of yellow near the top.

The fourth syntype (BMNH 1950.11.14.30) measures 33.0 x 28.8 x 8.6 mm, and is less prominently ribbed than the largest syntype discussed above. It is also a lighter shade of purple, and is decorated with fine lighter markings. It has 9 ribs, secondary ribs are absent, and the disc is covered with fine riblets, the interstices with concentric lamellae that are imbricately arranged.

As the syntype lot consists of more than one species it seems best to designate the (still extant) figured and described specimen (BMNH 1950.11.14.28) as lectotype.

Complicachlamys wardiana Iredale, 1939
fig. 8

Complicachlamys wardiana Iredale, 1939: 362, pl. 5 figs. 25, 25a.

The holotype specimen of this species (AMS C 90373) measures 29.0 x 25.2 x 6.3 mm. It originates from Hayman Island, Queensland (Australia). It is brown with a

slight purplish shade and it exhibits 9 prominent ribs. Fine riblets cover the disc, the interstices show fine concentric lamellae that are imbricately arranged. Internally the valves are purplish.

CONCLUSIONS

The holotype of *P. fulvicostatus*, and lectotypes of *P. luculenta* and *P. dringi*, represent one species only that belongs to what in the literature is generally believed to be the genus *Semipallium* Jousseaume, 1928, viz. *Semipallium fulvicostatum* Adams & Reeve, 1848. This species can be defined by (1) 11 primary ribs (rarely 10 in additional examined material), (2) irregularly situated secondary ribs, (3) irregular darker coloured and white/cream spots and markings on the proximal half of the disc, (4) a yellow or orange spot internally near the top, (5) a top angle of 80°-90°, and (6) fine riblets covering the whole disc. The fine shagreen microsculpture (when damaged only the reticulate basal portion of the vesicles that give the valves the shagreen appearance is visible) covers both valves completely, and is typical for all *Semipallium* species. The recently described *Semipallium barnetti* Dijkstra, 1989 (Dijkstra, 1989: 16 and figures), like the holotype of *S. fulvicostatum*, collected in the Sulu Sea (Punta Engano, Mactan Island, Philippines) is a junior synonym of *S. fulvicostatum*. The holotype of *S. barnetti* differs in colour of the shell. However, this is not sufficient to distinguish it as a different species, as I have seen purple, pink-red, brown and yellow specimens from the same locality. I have seen additional material of *S. fulvicostatum* from Indonesia, Moluccas, Philippines and northwestern Australia, that varies from elongate specimens like the holotype of *P. fulvicostatus* and the lectotype of *P. luculenta*, to more circular specimens like the lectotype of *P. dringi*. In the material from Indonesia and the Molluccas this variation is largest among specimens of the same locality.

The holotype of *Pecten crouchi* E. A. Smith, 1892 (Smith, 1892: 255, fig.) (fig. 9) also belongs to *Semipallium* as it clearly shows the peculiar shagreen microsculpture as mentioned above.

The smallest paralectotype of *P. luculenta* represents a species belonging to the genus *Chlamys* Röding, 1798. It is more regularly spotted and marked than *S. fulvicostatus* on its proximal half. The ribs on the right valve are not as broad as in this species; primary and secondary ribs are regularly distributed over the disc. Although I do not know its exact identity at this instance, it very well might represent a young *Chlamys lemniscata* (Reeve, 1853).

Basing himself mainly on the colour Reeve undoubtly thought that his figured syntype (now lectotype) of *P. dringi* belongs to the same species as the paralectotypes. As shown in the discussion of the type specimens, this is not the case. Apparently these specimens would be without a name, if it was not that Iredale had described his specimens from Hayman Island as *Complicachlamys wardiana* Iredale, 1939. Both the forms with strongly developed ribs and with the less pronounced ribs are found in northern and western Australia. In Indonesia and Queensland the shells more often have less strongly developed ribs, a character which was incorrectly used to discriminate between specimens from here and western Australia. The holotype of *C. wardiana* in contrast to the majority of specimens from Queensland is rather strongly ribbed. Therefore I consider the less strongly ribbed form frequently found among the strongly ribbed form in northern and western Australia only an ecological variant of *Complicachlamys wardiana*, a phenomenon also encountered in *Volachlamys hirasei* (Bavay, 1904), a species from Japan. Intermediates are present in large quantities in the material examined.

I reject the genus of *Complicachlamys* as being distinct from *Chlamys* s.s., as the microsculpture is not significantly different (microsculpture, squamae excepted, present between the ribs only), so that *Complicachlamys* now is relegated to the synonymy of *Chlamys* Röding, 1798.

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