

New Records and Synonymies of Hawaiian Bivalves (Mollusca)¹

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Our present understanding of the Hawaiian bivalve fauna stems from Dall, Bartsch & Rehder's (1938; hereinafter DBR) exhaustive survey and Kay's (1979) reanalysis of the fauna. Although previous studies (notably Conrad 1837 and Pilsbry 1917–1921) described several species, DBR were the first to comprehensively treat the fauna, recognizing 190 Recent and fossil species, of which they described 137 as new. Their survey was also noteworthy in that it considered the vast majority of the species encountered to be endemic to Hawaii. They named every Hawaiian species known in the fauna that was not already described from a collection made in Hawaii, with 3 exceptions: *Navicula* [= *Arca*] *ventricosa* (Lamarck, 1819), *Quidnipagus palatam* Iredale, 1929 and the introduced *Venerupis* (*Ruditapes*) *philippinarum* (Adams & Reeve, 1850). Kay (1979) published the first and only major overhaul, synonymizing many putative endemics with species described from other localities and even each other, and adding 16 species not included in DBR. Ongoing studies indicate that the majority of DBR's species are not endemic to Hawaii: many are junior synonyms of widespread Indo-West Pacific taxa (and often of each other), others, although validly named, also occur elsewhere. As with opisthobranchs (Gosliner & Darheim in review), the history of the Hawaiian bivalve fauna will be one of decreasing endemicity as the fauna receives more study. The anomalously high endemicity of Hawaiian bivalves (Kay & Palumbi 1987) is simply a taxonomic artifact.

The present paper is the first in what is planned to be a series of studies revising the Hawaiian bivalve fauna. Here I bring together 27 recent records, synonymies and generic reassignments encountered in the literature, using Kay's (1979) fauna as a starting point². I also add 6 new records, provide documentation for 3 new synonymies needed for other studies, and remove one species from the fauna. The distribution of all species treated is noted. All new records here reported are of adventive species, and although their USNM labels are varied, all appear to be based on surveys by Lt. Cdr. Henry Ryder of ship bottoms in Pearl Harbor between 1950–1951, deposited at the USNM ex the A.E. Mehring collection. Abbreviations: USNM: United States National Museum of Natural History; DMNH: Delaware Museum of Natural History; MCZ: Museum of Comparative Zoology, Harvard Univ.; BMNH: The Natural History Museum, London (formerly British Museum (Natural History)); ZMC: Zoological Museum, Copenhagen; UGI: University of Guam Invertebrate Collection.

Summary of status changes discussed in this paper

Previously published generic reassignments:

Present combination	From
<i>Adipicola pacifica</i> (DBR, 1938)	<i>Terua</i>
<i>Adipicola crypta</i> (DBR, 1938)	<i>Terua</i>
<i>Cosa waikikia</i> (DBR, 1938)	<i>Limopsis</i>
<i>Laevichlamys irregularis</i> (Sowerby, 1842)	<i>Chlamys</i> originally from <i>Pecten</i>
<i>Globivenus toreuma</i> (Gould, 1850)	<i>Venus</i>

1. Contribution No. 1996-002 to the Hawaii Biological Survey.

2. New records documented in Burch (1995) and Burch & Burch (1995) in the *Records of the Hawaii Biological Survey* for 1994 are not included below. Moretzsohn & Kay (1995) provide an updated checklist, but only add 2 new records and note 2 nomenclatural changes for bivalves. As some of these changes are problematic, they are all reviewed below.

*Previously published synonymies:***Senior synonym**

Botula fusca (Gmelin, 1791)
Botula fusca (Gmelin, 1791)
Lithophaga (*Leiosolenus*) *obesa*
 (Philippi, 1847)
Cryptopecten bullatus
 (Dautzenberg & Bavay, 1912)
Spondylus nicobaricus Schreibers, 1793
Spondylus violacescens Lamarck, 1819
Parahyotissa numisma (Lamarck, 1819)
Gari (*Gari*) *pennata* (Deshayes, 1855)
Gari (*Dysmea*) *occidens* (Gmelin, 1791)
Tellina (*Tellinides*) *ovalis* Sowerby, 1825
Tellina (*Scutarcopagia*) *scobinata* Linné, 1758
Venerupis (*Ruditapes*) *philippinarum*
 (Adams & Reeve, 1850)
Gastrochaena gigantea (Deshayes, 1830)
Gastrochaena inaequistriata Jousseume, 1923

*New synonymies:***Senior synonym**

Septifer (*Septifer*) *excisus* (Wiegmann, 1837)
Barbatia foliata (Forsskål, 1775)

Neopycnodonte cochlear (Poli, 1795)

Removed from fauna:

Spondylus cuneatus Reeve, 1856

Previously published reinstatement:

"*Chlamys*" *russata* (Reeve, 1853)
Pinna exquisita DBR, 1938

Previously published "new" records:

Lithophaga (*Leiosolenus*) *nasuta* (Philippi, 1846)
Neoaviculovulsa coralicola Okutani & Kusakari, 1987
Nanostrea exigua Harry, 1985
Pectinella aequoris Dijkstra, 1991
Fulvia (*Laevifulvia*) *ballieni* Vidal, 1994
Lyonsiella formosa (Jeffreys, 1881)

New records:

Septifer (*Septifer*) *bilocularis* (Linné, 1758)
Lopha cristagalli (Linné, 1758)
Hyotissa hyotis (Linné, 1758)
Chama lazarus Linné, 1758
Chama pacifica Broderip, 1835
Chama brassica Reeve, 1847

Junior synonym

Botula hawaiiensis DBR, 1938
Botula laysana DBR, 1938
Lithophaga hawaia DBR, 1938

Cryptopecten dalli DBR, 1938

Spondylus hystrix Röding, 1798
Spondylus tenebrosus Reeve, 1856
Ostrea thaanumi DBR, 1938
Heteroglypta kanaka Pilsbry, 1921
Dysmea vitrea DBR, 1938
Angulus hawaiiensis DBR, 1938
Tellina elizabethae Pilsbry, 1918
Tapes japonica Deshayes, 1853

Rocellaria hawaiiensis DBR, 1938
Rocellaria oahuana DBR, 1938

Junior synonym

Septifer vaughani DBR, 1938
Barbatia (*Abarbatia*) *hendersoni* DBR,
 1938
Ostrea laysana DBR, 1938

Systematic Treatment

Mytiloida: Mytilidae

Adipicola pacifica (DBR, 1938)

Terua pacifica DBR, 1938

Dell (1987) examined Habe's (1977a) record of this species and concurred that they are conspecific with the Hawaiian type, indicating that the species also occurs in Japan. Dell (1987) showed that *Terua* DBR, 1938 is a subjective junior synonym of *Adipicola* Dautzenberg, 1927.

Adipicola crypta (DBR, 1938)

Terua crypta DBR, 1938

Habe (1977a) recorded this species from Japan, but his record was based on adults compared with a juvenile representing the unique Hawaiian type. Thus Dell (1987) notes that the conspecificity of the 2 collections must await better material from Hawaii, as there are slight morphological differences between them. Generic reassignment by Dell (1987).

Botula fusca (Gmelin, 1791)

Botula hawaiiensis DBR, 1938

Botula laysana DBR, 1938

Wilson & Tait (1984) recognize but *Botula fusca* in their revision of the genus, and synonymize both Hawaiian nomina under this name.

Distribution: Red Sea and E Africa to Pitcairn, Hawaii, and W America, also W Atlantic (Wilson & Tait 1984).

Lithophaga (Leiosolenus) obesa (Philippi, 1847)

Lithophaga hawaia DBR, 1938

This large date mussel was described from Holocene or Pleistocene shells on Oahu, and has not been collected alive in Hawaii (Kay 1979). It was synonymized with the widespread *L. obesa* by Kleemann (1984).

Distribution: Red Sea and E Africa to the Society Is. and Hawaii (fossil) (Kleemann 1984).

Lithophaga (Leiosolenus) nasuta (Philippi 1846)

Lithophaga hawaia DBR, 1938, in part

Kleemann (1984: Fig. 19) records this species from Oahu on the basis of a single specimen found within one of the original lots (USNM 337461) of *Lithophaga hawaia* (see above).

Distribution: E Africa to the Line Is. and Hawaii (fossil) (Kleemann 1984).

Septifer (Septifer) bilocularis (Linné, 1758) **New state record**

This species is recorded from Pearl Harbor on ship bottom; whether it is established in Hawaii at present is not known.

Distribution: E Africa to the Mariana and Caroline Islands and Niue outside Hawaii (USNM and G. Paulay collection). Literature records from further east require verification, as juveniles of the species are easily confused with the more widespread and simi-

larly shaped and colored, but much smaller *Septifer cumingi* Récluz, 1849.

Material examined: USNM 699564 - mixed lot of 5 conjoined valves from two collections: 20 Jan. 1950 "boat bottom at Pearl Harbor" and 31 May 1950 "So. Pac. ship bottom at Pearl Harbor", respectively; both coll. Lt. Com. Henry Ryder. Note with specimens reads "Introduced? Palau" in H.A. Rehder's hand (A.R. Kabat, pers. comm.); basis for statement unknown.

***Septifer (Septifer) excisus* (Wiegmann, 1837)**

Tichogonia excisa Wiegmann, 1837

Septifer vaughani DBR, 1938; **new synonymy**

Septifer excisus can be immediately distinguished from other members of the genus by the notch in its septal shelf, from which its name presumably derives. It can be further distinguished from other Indo-West Pacific members of its subgenus by the strong beading on the ribs and the frequently raised posterior adductor scar. I have not seen the type(s) of *S. excisus*, but the interpretation here presented corresponds to the concept of other authors, starting with the first illustration of the species by Reeve (1857: pl. IV, Fig. 13) and Lamy's (1937) concept in the last revision of the group. This species is well represented in Pleistocene deposits on Oahu (Kosuge 1969). These fossils were initially identified as *Septifer kraussii* Küster by Ostergaard (1928), but differ from that species (which is closely related to, or is a variety of *S. bilocularis*, (Lamy 1937), by the above mentioned characters.

Distribution: Red Sea and E Africa to the Mariana Islands, fossils from Mangaia (Cook Is.); Henderson (Pitcairn Is.); Oahu (Hawaiian Is.)(Paulay in review).

Material examined: Recent: Marianas: USNM 595515 - Lagoon W of Saipan; USNM 595424 - Lagoon W of Saipan, ; USNM 617675 - Pagan I., 2000 yds S of B.M. on point forming Shomushon Harbor; USNM 620116 - Rota I.; USNM 248787 - Ladrone Is. (=Guam); USNM 487080 - Guam, Oca Pt.; USNM 487060 - Guam, Ritidian Pt.; USNM 248741 - Guam, Apra Bay; USNM 248743 - Guam, Apra Bay; USNM 248744 - Guam Apra Bay; USNM 853050 - Pago Bay, intertidal shallow grass beds behind reef crest; *Japan:* MCZ 44704 (mixed w/ *S. bilocularis*) - Tosa, Japan; MCZ 143226 - Oshima, Japan; MCZ 110602 (mixed w/ *S. bilocularis*) - Kashiwajima, Japan; USNM 344639 - Tosa, Japan; USNM 304298 - Kashiwajima, Japa, Japan; DMNH 20562 - exANSP 86291 - Kashiwajima, Tosa; *Philippines:* MCZ 22684 - Ulugau, Palawan; *Indonesia:* USNM 261289 - Java, Bantam, Keledjitan; *SE Asia:* USNM 762857 - Viet Nam, Chu Lai Bay, USA beach, Chu Lai; MCZ 238435 - Thailand, Rawai Beach, Phuket, 7°45'N; 98°19'E; *Indian Ocean:* USNM 836520 - Ile Picard, Passe Dubois, Aldabra, Seychelles, coral rock at sides of channel, 1-3ft; MCZ 188148 - Reunion Id.; AMNH 51636 - Mauritius. *Fossil:* USNM 495045 (holotype of *Septifer vaughani*), Wailupe Quarry, Oahu, Hawaiian Islands; USNM Invert. Paleo. no reg. #: Pitcairn Group: Henderson I., Paulay Sta. FHEN-13: ca. 1.3 km inland of N Beach, in fossil lagoon, Pleistocene; USNM Invert. Paleo. no reg. #: Cook Ids., Mangaia I., Paulay & Kohn Sta. G-11: ca. 1 km W of airfield, coastal terrace, ocean side of road, Pleistocene. USNM Invert. Paleo. no reg. #: Cook Ids., Mangaia I., Paulay & Kohn Sta. G-14: ca. 0.75 km W of airfield, coastal terrace, inland side of road, Pleistocene.

Arcoida: Arcidae

***Barbatia foliata* (Forsskål, 1775)**

Arca foliata Forsskål, 1775

Barbatia (Abarbatia) hendersoni DBR, 1938; **new synonymy**

Barbatia hendersoni was described from emergent sediments on Pearl Harbor grounds; additional apparently subfossil material was dredged from Pearl Harbor. These are probably of Pleistocene or Holocene in age, and the species is not known to live in the Hawaiian Islands today (Kay 1979). The holotype perfectly matches specimens of

Barbatia foliata (lectotype at ZMC; designated by Kilburn & Rippey 1982: 215–16, figured p. 216). There has been some confusion in the literature between this species and the similar *Barbatia decussata* (Sowerby, 1833) (see Oliver 1992); *B. foliata* can be distinguished by its larger size, dorsoventrally narrowed anterior, alternating large and small ribs, and distinct habitat. While *B. foliata* tends to nestle among corals and often lives conspicuously exposed on the reef, *B. decussata* lives cryptically: attached to the undersides of rocks. The nestling habit of *B. foliata* typically leads to a wide, central, abraded area, a feature clearly visible on the holotype of *B. hendersoni* and implying a similar habit. *Barbatia decussata* ranges from the Red Sea and E Africa to the Tuamotus; it is not known in Hawaii (Kay's (1979) synonymy of *B. oahua* DBR under *decussata* is in error).

Distribution: E Africa and Red Sea to Tuamotus and Line Is, Hawaii (fossil) (USNM).

Material examined: USNM 427768 (holotype of *B. hendersoni*) - "Owan [?] outcrop in the road that leads from the main route into Pearl Harbor Grounds", Bartsch & Henderson!; USNM 48450 - Pearl Harbor, dredgings; USNM 341286 - Pearl Harbor; USNM 484274 - Pearl Harbor dredgings. The last 3 lots were studied in 1990 and could not be relocated in 1995.

Arcoida: Philobryidae

Cosa waikikia (DBR, 1938)

Limopsis waikikia DBR, 1938

As pointed out by Hayami & Kase (1993), DBR's species belongs to the philobryid genus *Cosa*, not in the Limopsidae. *Cosa waikikia* is a characteristic inhabitant of the bizarre minute bivalve fauna of reef caves and crevices.

Distribution: Indonesia, S Japan, Ryukyus, Bonin, Palau, ?Samoa, Marshalls, Hawaii (Hayami & Kase 1993, in press, G. Paulay collection).

Pterioida: Pinnidae

Pinna exquisita DBR, 1938

This species was reinstated by Rosewater (1982) after the discovery of additional specimens. Rosewater (1961) had synonymized it under *Pinna muricata*, and it was not recognized since.

Distribution: Hawaii (Rosewater 1982).

Pterioida: Malleidae

Neoaviculovulsa coralicola Okutani & Kusakari, 1987

As noted in Moretzsohn & Kay (1995) this species was recently described from deep water off Midway Is.

Ostreoida: Entoliidae

Pectinella aequoris Dijkstra, 1991

Described from Indonesia, Fiji, and Hawaii (Dijkstra 1991).

Ostreoida: Pectinidae

Laevichlamys irregularis (Sowerby, 1842)

Chlamys irregularis (Sowerby, 1842)

Waller (1993) recently erected *Laevichlamys* for 8 extant and 2 extinct pectinids from the Indo-West Pacific and West Atlantic.

Distribution: Seychelles to Tuamotus and Hawaii (T.R. Waller, pers. comm. 1987; Paulay 1988).

“*Chlamys*” *russata* (Reeve, 1853)

This species was reinstated into the fauna by Dijkstra (1987a) on the basis of specimens dredged by W.M. Thorsson; it is known only from the Hawaiian Islands.

Cryptopecten bullatus (Dautzenberg & Bavay, 1912)

Cryptopecten dalli DBR, 1938

Hayami (1984) in his revision of *Cryptopecten* DBR, 1938 showed that the type species of the genus, *C. dalli*, is synonymous with *Pecten (Chlamys) bullatus* Dautzenberg & Bavay 1912; Dijkstra (1987b) also concurred.

Distribution: Japan, Philippines, and Hawaii, with a doubtful record from the Nazca Ridge (E Pacific) (Hayami 1984).

Ostreoida: Spondylidae

Spondylus nicobaricus Schreibers, 1793

Spondylus hystrix Röding, 1798

As noted by both Lamy (1938) and Lamprell (1987), the senior synonym for the Hawaiian shell previously known as *S. hystrix* Röding is *S. nicobaricus*. Moretzsohn & Kay (1995) created some confusion in their updated checklist of Hawaiian mollusk, in noting *S. nicobaricus* as a new record for Hawaii (based on Lamprell, 1986 [sic, = 1987]), and in recording *S. cuneatus* Reeve, 1856 from Hawaii based on its synonymy with *S. hystrix* Reeve, 1856. The latter species is a junior homonym of *S. hystrix* Röding, and, according to Lamprell, synonymous with *S. cuneatus*. As noted by Kay (1979), however, the Hawaiian shells are of *S. hystrix* Röding, not Reeve, an identification with which I concur. Thus the record of *Spondylus cuneatus* in Hawaii is an error.

Distribution: Madagascar to Pitcairn Group and Hawaii (Lamprell 1987, Paulay 1989).

[*Spondylus cuneatus* Reeve, 1856]

Removed from fauna, see discussion above under *Spondylus nicobaricus*.

Spondylus violascens Lamarck, 1819

Spondylus tenebrosus Reeve, 1856

As noted by Lamy (1938), *S. violascens* is the senior synonym of *S. tenebrosus*, under which name this bivalve was previously known in Hawaii. Moretzsohn & Kay (1995) noted this synonymy as *S. violascens* Lamarck, a misspelling originating from Lamprell (1987).

Distribution: Indonesia to Pitcairn Group and Hawaii (USNM).

Ostreoida: Gryphaeidae

The following oysters described from the Hawaiian Islands are referable to this family rather than the Ostreidae: *Ostrea hanleyana* Sowerby, 1871, *Ostrea thaenumi* DBR, 1938, *Ostrea laysana* DBR, 1938, *Ostrea kauaia* DBR, 1938, *Ostrea kamehameha* Pilsbry, 1936.

Hyotissa hyotis* (Linné, 1758)*New state record**

Hyotissa hyotis is the largest extant species of Gryphaeidae. "This species does not seem to live in Hawaii now, but is fossil there, ± frequently reintroduced ... but does not become established" (H. A. Harry, *in litt.* with USNM 700474, June 1979). Harry's comments accompany two lots from Pearl Harbor ship bottoms at the USNM; his reference to Hawaiian fossils are certainly to *Ostrea kamehameha* Pilsbry 1936, a likely synonym. Whether the species has become established in Pearl Harbor or elsewhere in Hawaii, is not known.

Distribution: Red Sea and Madagascar to the Tuamotus, Galapagos and W America outside Hawaii (USNM).

Material examined: USNM 699996 - bottom of ship from So Pacific at Pearl Harbor, Henry, ex A.E. Mehring collection; USNM 700474 - Ship bottom, Pearl Harbor, Cdr. Henry Ryder!; ex A.E. Mehring collection.

***Neopycnodonte cochlear* (Poli, 1795)**

Ostrea cochlear Poli, 1795

Ostrea laysana DBR, 1938; **new synonymy**

Neopycnodonte cochlear was first recorded from the Hawaiian Islands under this name by Harry (1985: 133), although Burch & Burch (1995) also listed it as a "new state record". DBR's *O. laysana* also represents this species, a synonymy pointed out by the late H. A. Harry in the USNM collections, with which I concur.

Distribution: moderately deep water (27–2100m; Harry 1985); Red Sea and Madagascar to Hawaii, also E Atlantic (USNM).

Material examined: USNM484157 (Syntypes of *O. laysana*: 4 valves attached to each other) - Laysan Id. US Fish Comm. Sta, 3857, 30–20 fms, 73°; USNM 758163 - Kealakekua Bay, W coast, Hawaii, USFC Albatross, (1902) 14fms+, on spines of *Chondrocidarus gigantea* (#27309); USNM 335596 - Laysan, 20–30 fms; USNM 76277 - ca. Lahaina, Maui, channel btwn Maui and Lanai, 200ft; USNM 622172 - Mala Maui; USNM 337497 - off Waikiki, 2–300 ft.

***Parahyotissa numisma* (Lamarck, 1819)**

Ostrea thaanumi DBR, 1938

Synonymy by Harry (1985); this species is common on shallow fore reefs on most central Pacific islands (Paulay 1990) and Hawaiian shells do not appear distinct. Kay (1979) synonymized *Ostrea thaanumi* under *Ostrea hanleyana* Sowerby, 1871, which was also described from the Hawaiian Islands, and may thus also be a synonym of *numisma*.

Distribution: E Africa to Tuamotus and Hawaii (Harry 1985).

Ostreoida: Ostreidae***Nanostrea exigua* Harry, 1985**

Harry (1985) records this species from Hawaii, presumably on the basis of USNM 337556 (Hawaii Pearl Harbor, 35–40 ft, Thaanum Collection 7694d).

Distribution: Red Sea to Marshalls, Marquesas and Hawaii (Harry 1985, USNM).

***Lopha cristagalli* (Linné, 1758)**

Lopha cristagalli is commonly confused with some ecomorphs of *Dendrostrea folium*, from which it can be readily distinguished, however, by its densely pustulose exterior. A single lot indicates that the species has been transported to Pearl Harbor; its present status in the Hawaiian Islands is unknown.

Distribution: Red Sea to Marianas, Carolines, Marshalls, and Samoa outside Hawaii (USNM collections).

Material examined: USNM 699998 - Hawaii, Pearl Harbor, A.E. Mehring, ship bottom, 3/20/51. A label by H.A. Harry (dated June 79) in the lot notes: "Is true *Lopha cristagalli* but from a ship bottom - it may be imported from elsewhere".

Veneroida: Chamidae

Chama lazarus Linné, 1758

New state record

This species has been collected on ship bottoms in Pearl Harbor; its present status in the state is unknown.

Distribution: E Africa and the Red Sea to Marshalls, Tungaru (Kiribati) and Tonga outside Hawaii (USNM, DMNH, G. Paulay collection).

Material examined: USNM 699558 - Hawaii, Pearl Hbr., boat bottom, 1/20/50, A.E. Mehring [collection], Lt.Comm.Henry, with *Chama pacifica* attached to shell. Additional material seen but not recorded at BPBM.

Chama pacifica Broderip, 1835

New state record

Chama pacifica was at least at one time fairly common on ship bottoms in Pearl Harbor; its present status in Hawaii is not known.

Distribution: Similan Islands (Thailand, Andaman Sea) to Tuamotus and Line Is outside Hawaii (USNM, DMNH).

Material examined: BMNH 1950.11.1.54 (figured syntype); USNM 699565 - Hawaii, Pearl Hbr., boat bottom, 7/23/51, A.E. Mehring (Henry); USNM 699561 - Hawaii, Pearl Hbr., boat bottom, 5/31/50, A. E. Mehring (Henry); USNM 699563 - Hawaii, Pearl Hbr., boat bottom, 1/20/50, A.E. Mehring (Henry); USNM 699558 - Hawaii, Pearl Hbr., boat bottom, 1/20/50, A. E. Mehring ("Lt. Comm. Henry"), 2 valves attached to *Chama lazarus*, under which name it is filed at USNM. Additional material seen but not recorded at Bishop Museum.

Chama brassica Reeve, 1847

New state record

Chama brassica has been found on ship bottoms in Pearl Harbor; its present status in the Hawaiian Islands is unknown.

Distribution: E Africa and Red Sea to Marshalls, Samoa and Tonga outside Hawaii (USNM, DMNH).

Material examined: BMNH no reg. # (3 syntypes); USNM 700006 - Oahu, Pearl Harbor, Ship bottom, 3/20/50, A.E. Mehring

Veneroida: Cardiidae

Fulvia (Laevifulvia) ballieni Vidal, 1994

This recently described species was based on a single specimen labeled "Sandwich Islands, Mr Ballien, 1876" in the Muséum National d'Histoire Naturelle, Paris. According to Vidal (1994), Ballien sent numerous shells from Honolulu to Paris between 1872 and 1878, and as he notes, "be it Hawaiian or not, [it] must be a rare species, as evidenced by the fact that no other specimen has shown up since Ballien's collect [sic] in 1876."

Veneroida: Tellinidae

Tellina (Tellinides) ovalis Sowerby, 1825

Angulus hawaiiensis DBR, 1938

Listed in synonymy by Lamprell & Whitehead (1992). Having studied DBR's type,

I agree with their decision.

Distribution: Queensland, through Indonesia, to Japan, and east to Fiji, Marianas and Hawaii (USNM, UGI, G. Paulay collection).

Tellina (Scutarcopagia) scobinata Linné, 1758

Tellina elizabethae Pilsbry, 1918

Listed in synonymy by Lamprell & Whitehead (1992). Hawaiian shells were separated by Pilsbry in large part because they have finer scale-like sculpture than shells seen by Pilsbry from elsewhere in the Pacific. However although the Hawaiian population is relatively homogeneous in this regard, the range of variation in scale size is great at other locations and includes Hawaiian-type forms also; thus Lamprell & Whitehead's (1992) synonymy of the 2 may be justified.

Distribution: E Africa to Line and Pitcairn Is, Hawaii; common throughout the central Pacific (Paulay 1987, USNM).

Veneroida: Psammobiidae

Gari (Gari) pennata (Deshayes, 1855)

Heteroglypta kanaka Pilsbry, 1921

Synonymized in revisionary context by Willan (1993).

Distribution: E Africa and Red Sea to Societies and Hawaii (Paulay 1990, Willan 1993).

Gari (Dysmea) occidens (Gmelin, 1791)

Dysmea vitrea DBR, 1938

Synonymized in revisionary context by Willan (1993).

Distribution: Red Sea to New Caledonia and Hawaii (Willan 1993).

Veneroida: Veneridae

Globivenus toreuma (Gould, 1850)

Venus toreuma Gould, 1850

Generic reassignment by Paulay (1990).

Distribution: E Africa to Australs, Pitcairn Group, Hawaii (USNM).

Venerupis (Ruditapes) philippinarum (Adams & Reeve, 1850)

Tapes japonica Deshayes, 1853; Kay (1979)

As pointed out by Fischer-Piette & Métivier (1971) and Habe (1977b), the senior synonym of *Tapes japonica*, as well as the identity of the species introduced to Hawaii, is *Venerupis (Ruditapes) philippinarum*, under which name this species was originally recorded by DBR. The relationships of the closely related generic taxa *Venerupis* Lamarck, 1818 and *Ruditapes* Chiamenti, 1900 are poorly resolved; DBR and Coan *et al.*'s (1996) useage of *Ruditapes* as a subgenus of *Venerupis* is a reasonable approach for now.

Distribution: Pakistan to Philippines and Japan, and north to Kuril Is; introduced into Hawaii and W America (Fischer-Piette & Métivier 1971).

Myoida: Gastrochaenidae

Gastrochaena gigantea (Deshayes, 1830)

Rocellaria hawaiiensis DBR, 1938

Nielsen (1986) established the above synonymy and also noted that this species does not match the types (at ZMC) of *Gastrochaena cuneiformis* Spengler 1793, under which Kay (1979) synonymized DBR's species previously.

Distribution: Gulf of Aden to New Caledonia and Hawaii (Nielsen 1986).

Gastrochaena inaequistriata Jousseaume in Lamy, 1923

Rocellaria oahuana DBR, 1938

Synonymy was established by Nielsen (1986).

Distribution: known from the Gulf of Aden, Thailand, and Hawaii (Nielsen 1986).

Myoida: Teredinidae

Roch (1976) provides a review of Polynesian teredinids, in which he presents alternative species interpretations for many Hawaiian species to that given in Turner's (1966) revision and adopted by Kay (1979). As his paper is not revisionary in context (and does not even cite Turner (1966)!) and includes several nomenclatural errors, it appears to be less solidly founded than Turner's study. Thus it may be best to follow Turner's classification for the present.

Pholadomyoida: Verticordiidae

Lyonsiella formosa (Jeffreys, 1881)

Recorded from 460 m depth on Oahu (BPBM 207491) (Morton 1984, see also Burch 1987). The species was previously known only from the Atlantic: from the Gulf of Mexico to the Bay of Biscay at 366–3783 m depths (Morton 1984).

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