Catalog of the Nonmarine Snails and Slugs of the Samoan Islands

Robert H. Cowie

Bishop Museum Bulletin in Zoology 3

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Honolulu, 1998
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Fig. 1. Map of the Samoan Islands showing some of the islands and localities mentioned in the catalog. (redrawn from Insects of Samoa. Maps).
ACKNOWLEDGEMENTS

I thank Dr. A.C. Robinson for the stimulus to produce this catalog, Dr. Gary Rosenberg for extensive assistance with obtaining literature, dates of publication, and for discussion of nomenclatural issues, Dr. Philippe Bouchet for help in obtaining literature, in dating literature, for reviewing all the family-group names, and for discussion, Mr. Fred Naggs for assistance with obtaining literature, for reviewing the Subulinidae, and for helping me with a number of other details. Drs. Yves Finet, Alan R. Kabat, and Peter B. Mordan also helped extensively in obtaining literature. I also thank the following for help with particular groups: Dr. Alison Haynes (freshwater species, especially Neritidae), Dr. Bern Holthuis (Neritidae), Dr. António M. de Fria Martins (Ellobiidae), Dr. Winston F. Ponder (Rissooidea), Prof. José Willibaldo Thomé (Veronicellidae). In addition, Drs. Christopher S. Lobban, Richard C. Preece, and John D. Taylor assisted with dating, Dr. R. Hershler provided information from the collection catalogs of the Smithsonian Institution, Dr. Lucius G. Eldredge brought a number of relevant publications to my attention, Dr. F. Christian Thompson helped with interpretation of the Code, and Dr. Willard McCarty helped with clarification of Latin and Greek usage. The manuscript was reviewed formally by Drs. Peter B. Mordan and Gary Rosenberg.

I especially thank Dr. Neal L. Evenhuis for reviewing the entire manuscript, for nomenclatural and bibliographic advice and assistance, particularly with dating, and for assistance with preparing the manuscript for publication. This help, as well as his previous collaboration on the Hawaiian catalog (Cowie et al., 1995), greatly facilitated production of the present Samoan catalog.

I also thank the staff of the mollusc section of The Natural History Museum (London), including those already mentioned above, for facilitating my bibliographic research in their library, and the library staffs of The Natural History Museum, the Bishop Museum, and the National Museum of Natural History (Smithsonian Institution) for assisting me greatly in obtaining some of the more obscure literature.
ABSTRACT

This catalog lists all species-group and genus-group names that have been applied to the nonmarine gastropod (snail and slug) fauna of the Samoan Archipelago. A total of 340 species-group names are listed. These names represent 172 species currently considered valid according to the most recent taxonomic works. Of the 130 terrestrial species, 59 are endemic to the archipelago, 35 are indigenous (occurring naturally in Samoa but also elsewhere), 22 are introduced, and the remaining 14 are of unknown status.

The status of the 42 fresh- and brackish-water species is less clear: tentatively, 3 are endemic, 34 are indigenous, 1 is introduced, and 4 are of unknown status. In addition to listing the names, the catalog provides information on type localities, deposition of type material, and a comprehensive, accurately dated bibliography.

The catalog is a nomenclatural not a taxonomic work and incorporates no revisionary treatment of the fauna. Many groups have not been treated recently, and modern revisionary study would certainly change the status of many taxa. Rather, the catalog is intended as a basic reference for future study of the Samoan fauna, not only by systematists but also by evolutionary biologists, ecologists, conservation biologists, and resource managers, all of whom can contribute to saving this unique and seriously threatened fauna.
INTRODUCTION

This catalog lists all published species-group and genus-group names that have been applied to the nonmarine gastropod fauna of the Samoan Islands. Politically, the archipelago is composed of Samoa (known until recently as Western Samoa) and American Samoa (see map). In this catalog, to avoid confusion, the use of "Western Samoa" is retained, with "Samoa" and "Samoan" referring to the entire group of islands. In overall format the catalog follows the Hawaiian catalog of Cowie et al. (1995). Full citations are given for the original proposal of each name. The current status of each name, according to the most recent authoritative revision, is indicated. The type locality and location of type material, if known, is given for all available species-group names. The island(s) within the Samoan Archipelago on which each valid taxon is known to occur is (are) indicated. Background information on each major group (family, genus) is provided, with an introduction to other relevant literature, making the catalog a basic source of reference for studies on the Samoan fauna. Following the main body of the catalog, a checklist of all the names is provided for ease of reference. Extralimital junior synonyms of Samoan taxa, i.e., names that have been applied to these taxa only outside Samoa, are excluded from the catalog, although sometimes they may be noted in Remarks sections for clarity.

Many of the early descriptions were published by Augustus Addison Gould, Constant Récluz (predominantly Neritidae), and Albert Mousson, between 1840 and 1871. Gould's material derived from the United States Exploring Expedition. All the names proposed by Gould have been listed by Johnson (1964), with details of type localities and type material. Récluz worked on material from a wide range of sources (see Kabat & Finet, 1992). Mousson's species were largely based on material from the Museum Godeffroy in Hamburg and due mostly to the collecting efforts of Édouard Graeffe. Catalogs of the Museum Godeffroy were published by J.D.E. Schmeltz around the same time as Mousson was publishing his descriptions. All these names are listed herein if Schmeltz gave a Samoan locality. Other authors of note who described significant numbers of Samoan taxa include Lovell Reeve in the Conchologia Iconica, Louis Pfeiffer, William Harper Pease (see Kay & Clench, 1975), and more recently for specific groups, William Clench and Elizabeth-Louise Girardi (Cyclophoroidea) and Alan Solem (Endodontoida). Unfortunately, a number of groups have not been treated recently and it is likely that some taxa listed here will ultimately prove to be junior synonyms or misidentifications of other, extralimital or widely distributed taxa. Others, especially small species, await discovery or description.

The native Samoan land snail fauna includes 94 nomenclaturally valid species, including the supralittoral Ellobiidae (18 species), but excluding the Siphonariidae, which although pulmonates are intertidal and subtidal, and excluding those species that are recorded from Samoa with doubt (14 species). Of these 94 species, 59 are endemic to Samoa, with 34 of these 59 recorded only from single islands. A number of species of land snails and slugs have been introduced to the Samoan Archipelago through human activities, both inadvertently and deliberately. Those that have been reported in the literature (18 species) are listed. There is no recent treatment of the terrestrial fauna as a whole.

The fresh- and brackish-water snail fauna of Samoa has most recently been reviewed by Starmühner (1992b, 1993, see also 1976). However, the major work (Starmühner, 1993) focused almost entirely on his own material collected on Tutuila and 'Upolu, and a number of taxa known to occur on those islands were not included, although some were listed in the shorter paper
(Starmühler, 1992a). Taxa known only from other islands were generally not dealt with. He included a number of littoral taxa that are treated here as marine and therefore excluded from this catalog. The only other major recent survey of the freshwater fauna is that of Haynes (1990), from whose paper additional records of taxa and distributions have been obtained. Her study is also based only on her own collecting activities on Savai'i, 'Upolu, and Tutuila and thus, from an archipelago-wide perspective, suffers from the same limitations as that of Starmühler. This catalog lists 46 nomenclaturally valid species of fresh- and brackish-water snails. Only a very small proportion of this fauna is endemic to Samoa (3 species of Thiaridae), and even these taxa may ultimately prove to be junior synonyms or misidentifications of other extralimital or widely distributed taxa. For many of the species it is not at all clear whether they have been artificially introduced or whether they occur naturally in Samoa, although Haynes (1990) favored the latter for most species.

It must be stressed that this catalog is derived from the literature and incorporates no revisionary treatment of the fauna. It is a nomenclatural not a taxonomic work. Many groups have not been treated recently, and modern revisionary study would certainly change the status of many included taxa, especially in the freshwater fauna.

As is the case in much of the Pacific, the diverse and highly endemic terrestrial snail fauna of Samoa, and perhaps to a lesser extent the fresh- and brackish-water fauna, is severely threatened with extinction. Many species are no doubt already gone. Habitat destruction, due both to urban and agricultural development and to inadvertent but extensive replacement of native vegetation with introduced plant species, is of major significance. Introduced predators, including rats and ants, have also no doubt had an impact, but the recent introduction of the carnivorous snail *Euglandina rosea* in attempts to control the giant African snail, *Achatina fulica*, has had drastic consequences. At the time of writing, *E. rosea* has only been introduced to Tutuila and Ta'u. It is important that it is kept out of the other islands. This catalog is intended as a basic reference not only for systematists but also for evolutionary biologists, ecologists, conservation biologists, and resource managers, all of whom can contribute to saving this unique fauna.
The following table gives numbers of species and genera, by family, of endemic, indigenous (occurring naturally in Samoa but also elsewhere) and artificially introduced (or possibly introduced) species. The column headed "?" includes species not known for certain to occur in Samoa. Habitat is listed as freshwater (including brackish water) (fw.) or terrestrial (terr.).

<table>
<thead>
<tr>
<th>Family</th>
<th>Habitat</th>
<th>Species (genera)</th>
<th>Endemic</th>
<th>Indigenous</th>
<th>?</th>
<th>Introduced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neritidae</td>
<td>fw.</td>
<td>23 (5)</td>
<td></td>
<td>3 (2)</td>
<td></td>
<td></td>
<td>26 (5)</td>
</tr>
<tr>
<td>Helicinidae(^1)</td>
<td>terr.</td>
<td>8 (2)</td>
<td>4 (2)</td>
<td>2 (2)</td>
<td></td>
<td></td>
<td>14 (3)</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>12 (1)</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1 (1)</td>
</tr>
<tr>
<td>Truncatellidae</td>
<td>terr.</td>
<td>1 (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 (1)</td>
</tr>
<tr>
<td>Assimineidae</td>
<td>terr.</td>
<td>3 (3)(^2)</td>
<td>7 (2)</td>
<td>2 (1)</td>
<td></td>
<td></td>
<td>12 (3)</td>
</tr>
<tr>
<td>Thiaridae(^3)</td>
<td>fw.</td>
<td>3 (2)</td>
<td>11 (2)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td></td>
<td>16 (2)</td>
</tr>
<tr>
<td>Veronicellidae</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ellobiidae</td>
<td>terr.</td>
<td>1 (1)(^2)</td>
<td>16 (6)</td>
<td>1 (1)</td>
<td></td>
<td></td>
<td>18 (6)</td>
</tr>
<tr>
<td>Physidae</td>
<td>fw.</td>
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<td></td>
<td></td>
<td>1 (1)</td>
<td></td>
<td>1 (1)</td>
</tr>
<tr>
<td>Planorbidida</td>
<td>fw.</td>
<td></td>
<td></td>
<td></td>
<td>2 (2)(^4)</td>
<td></td>
<td>2 (2)</td>
</tr>
<tr>
<td>Ancyliidae</td>
<td>fw.</td>
<td></td>
<td></td>
<td></td>
<td>3 (2)</td>
<td></td>
<td>4 (3)</td>
</tr>
<tr>
<td>Achatinellida</td>
<td>terr.</td>
<td></td>
<td></td>
<td>1(1)</td>
<td>3(2)</td>
<td></td>
<td>4 (3)</td>
</tr>
<tr>
<td>Pupillidae</td>
<td>terr.</td>
<td>1 (1)</td>
<td>2 (2)</td>
<td>1(1)</td>
<td></td>
<td></td>
<td>4 (3)</td>
</tr>
<tr>
<td>Partulidae</td>
<td>terr.</td>
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<td>2 (1)</td>
<td></td>
<td></td>
<td></td>
<td>10 (2)</td>
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<tr>
<td>Subulinidae</td>
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<td>5 (4)</td>
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<td>5 (4)</td>
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<tr>
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<td>terr.</td>
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<td></td>
<td>1 (1)</td>
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<td>1 (1)</td>
</tr>
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<td>Spiraxidae</td>
<td>terr.</td>
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<td></td>
<td></td>
<td>1 (1)</td>
<td></td>
<td>1 (1)</td>
</tr>
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<td>terr.</td>
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<td></td>
<td></td>
<td>3 (3)</td>
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<td>3 (3)</td>
</tr>
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<td>Rhytididae</td>
<td>terr.</td>
<td></td>
<td></td>
<td></td>
<td>3 (3)</td>
<td></td>
<td>3 (3)</td>
</tr>
<tr>
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<td>terr.</td>
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<td></td>
<td></td>
<td></td>
<td>2 (2)</td>
</tr>
<tr>
<td>Charopidae</td>
<td>terr.</td>
<td>8 (2)</td>
<td>1(1)</td>
<td></td>
<td></td>
<td></td>
<td>9 (3)</td>
</tr>
<tr>
<td>Succineidida</td>
<td>terr.</td>
<td>3 (1)</td>
<td>1 (1)</td>
<td></td>
<td></td>
<td></td>
<td>4 (1)</td>
</tr>
<tr>
<td>Helicarionidae</td>
<td>terr.</td>
<td>6 (3)</td>
<td>4 (3)</td>
<td>3 (1)(^2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ariophantidae</td>
<td>terr.</td>
<td></td>
<td></td>
<td></td>
<td>1 (1)</td>
<td></td>
<td>1 (1)</td>
</tr>
<tr>
<td>Zonitidae</td>
<td>terr.</td>
<td>5 (1)</td>
<td>1 (1)</td>
<td></td>
<td></td>
<td></td>
<td>6 (1)</td>
</tr>
<tr>
<td>Bradybaenidae</td>
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<td></td>
<td></td>
<td>1 (1)</td>
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<td>1 (1)</td>
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<tr>
<td><em>Incerta sedis</em></td>
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<td></td>
<td></td>
<td></td>
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<td>1 (1)</td>
</tr>
</tbody>
</table>

| Totals            | 62 (23) | 69 (24) | 18 (13) | 23 (21) | 172 (60) |

\(^1\) Five Helicinidae are of unknown genus; four of them are included as endemics, one as "?".
\(^2\) Includes a single, nomenclaturally valid species of unknown genus.
\(^3\) Many of these species could be considered artificially introduced.
\(^4\) Unidentified *Planorbus* spp. counted as one species.
EXPLANATORY INFORMATION

SCOPE

This catalog lists all published species-group and genus-group names found in the literature, whether available or unavailable according to the International Code of Zoological Nomenclature (ICZN, 1985), that have been applied to the nonmarine gastropod fauna of the Samoan islands. It includes indigenous (including endemic) and artificially introduced terrestrial, freshwater, and brackish-water taxa. The supralittoral Ellobiidae, as pulmonates, are included; but the Siphonariidae, although pulmonates, are intertidal and subtidal, and are therefore excluded as being marine. Extralimital synonyms and unavailable names, i.e., names that have never been applied to Samoan material, are excluded, except in instances where an extralimital name is recognized as a senior synonym of a name previously applied to Samoan material.

ARRANGEMENT AND TREATMENT OF TAXA

The sequence of families follows Vaught (1989), for ease of comparability with the Hawaiian catalog (Cowie et al., 1995), without implying any phylogenetic opinion. Subfamilies (if recognized) appear in alphabetical order within families, as do genera within families/subfamilies, and subgenera within genera. No other supraspecific taxa are used. Assignment of subfamilies, genera, and subgenera within families follows appropriate revisionary works, as indicated under each group. Genus-group synonyms are listed chronologically under the genus-group heading. These synonymies are not exhaustive; extralimital names (i.e., names that as far as could be determined have not been used in combination with Samoan species-group names) are excluded. Misidentifications and incorrect spellings are listed only if confusion might be caused by their omission. All species-group names (valid and invalid, available and unavailable) are listed alphabetically within genera/subgenera. Treatment of species-group names follows the most recent authoritative revisions. Names proposed as “forms”, “varieties”, etc. and neither already synonymized nor raised to subspecific status are simply listed as infraspecific. Taxa of uncertain placement are listed at the end of the most appropriate taxon.

Strict application of the rules of nomenclature has necessitated the introduction of a very small number of new synonymies, indicated in boldface by “N. syn.”. However, no other revisionary work has been attempted and no new taxonomic decisions have been made. For instance, nude names that have never been validated have not been placed in the synonymy of available names, as this would involve taxonomic decisions best left to the appropriate taxonomic specialists and inappropriate herein. This work is simply a nomenclatural catalog.

TYPOGRAPHICAL TREATMENT OF NAMES

Family-group and genus-group headings are centered in boldface upper case type. Valid genus-group names are listed flush left in boldface upper case type. Valid, available species-group names are listed flush left in boldface, infraspecific names preceded by a “+”. Synonymies, both genus- and species-group, are listed in italics flush left, upper case for genus-group names, lower case for species-group names. In the species-group, junior homonyms for which no synonyms are available as replacement names and for which new names are not provided here are listed in boldface italics flush left. Nomenclaturally unavailable names are listed in plain Roman type, flush left, upper case for genus-group names, lower case for species-group names.

TAXONOMIC REFERENCES

The citation for the original proposal of a genus-group name follows the name. The reference
consists of author(s), date of publication and page number (and plate/figure number if these formed part of the original description). Bibliographic and nomenclatural information (citation, synonyms, type species, etc., see below) provided for the nominate subgenus is not repeated if already given for the genus. For species-group names, on the line following the name and indented, the name is given in its original generic combination (including subgenus if in the original description, and using the original spelling, even if incorrect) and with its original status indicated (e.g., subspecies, "var.", as necessary). The name is followed by its author(s), date of publication, page number, and plate/figure number(s). When an author published the same name as new for the same taxon in more than one place, the later citation is given in square brackets following the first citation.

The author/date citation acts as a reference to the work as listed in the Bibliography. If an author published more than one work in the same year, a suffix (a, b, c, etc.), indicating chronological order of publication, is attached to the date in both the catalog text and the Bibliography. Authors' names containing the terms "de", "le", "van", "von" are cited and alphabetized in the Bibliography by the main name, e.g., "Nerita recluziana Guillou, 1841" in the main body of the catalog, and "Guillou, E. Le. 1841" in the Bibliography.

The date given for a work cited in the catalog is the date of publication. If the date printed in the original work is incorrect, the correct date is placed in square brackets in the Bibliography (Recommendation 22A(5) of the Code), but the brackets are omitted in the text.

The page number cited is that on which the name first appeared. In some instances, the name first appeared in a list or key, with the actual description beginning on a subsequent page. The page numbers of both the list, key, etc., and of the description are cited.

If the current status of a species-group name differs from that in the original description, this is indicated, with appropriate references, in a Remarks section below the standard entry for the species.

If a taxon is mentioned but is not Samoan, e.g., a non-Samoan type species of a genus-group name, the name, author, and date are followed by "not Samoan" in square brackets. The reference is not listed in the Bibliography.

**TYPE SPECIES**

For nomenclaturally available genus-group names, the type species and its method of fixation (following Code Art. 68 and 69) are given following the literature citation. The type species is given in its original combination with correct authorship, date, and spelling. If its citation in fixation of the type species differs from this in any respect, how it differs is indicated in parentheses. The senior synonym, if any, of the type species is given in square brackets.

**HOMONYMS AND REPLACEMENT NAMES**

Homonymy of species-group names is indicated in the Remarks section under the name. In most cases, the junior homonym has already been synonymized with another earlier name, or a replacement name has already been provided from synonymy. In 3 cases (elongata Mousson, 1869 and laevis Baird, 1873, both Assimineidae; montana Cooke & Crampton, 1930, Partulidae) in which a replacement name appears necessary but there are no synonyms, no replacement name is here provided, pending further research.

**UNAVAILABLE NAMES**

Unavailable names are listed with full citation and a statement of why the name is unavailable, e.g., "Nom. nud.", "Incorrect original spelling of . . .", etc. No other information is provided except for explanatory details in the Remarks section, if necessary. Obviously incorrect subsequent spellings are not listed but may be mentioned in annotations, for clarity.
MISIDENTIFICATIONS

Misidentifications are excluded unless inclusion is deemed necessary for clarity (Tornatelli-nops, Trochonanina). Names of misidentified taxa are italicized but separated from authorship by a colon, e.g., “TROCHONANINA: authors, not Mousson, 1869, misidentification”.

GENDER ENDINGS OF SPECIES-GROUP NAMES

Synonyms and unavailable names are cited in their original orthography. Valid names have been changed, if necessary, so that the ending agrees in gender with the genus with which the name is combined herein (Code Art. 31), but only if the species-group name can be construed definitively as adjectival in the original proposal of the name.

MISCELLANEOUS ANNOTATIONS

Under each family heading, explanatory and other useful information is given. If deemed necessary or useful, such information is also given for genus-group taxa, immediately under the genus-group synonymy. Annotations other than those indicated in the above paragraphs are placed in square brackets immediately following the item to be clarified or, in the case of species-group names if the annotations are more extensive, placed in a Remarks section following the standard entry for the species.

TYPE LOCALITIES AND TYPE MATERIAL

The type locality, quoted exactly as in the original publication, is given for each available species-group name immediately following the author and citation. Any additional or explanatory information regarding the type locality is placed in square brackets following the type locality. If no locality was given, this is simply stated, in square brackets. Location and catalog numbers of type material, if known, are given, following the type locality information. An exhaustive search for type material has not been made; the information provided is largely derived from the literature. This work is not intended as a comprehensive type catalog. Johnson (1964, 1994) provided information on type material for many of the taxa he listed, but ascertaining the true status of these specimens, in many cases probably as lectotypes and paralectotypes, is beyond the scope of this catalog.

ISLAND DISTRIBUTION AND INTRODUCED TAXA

Each valid name is followed, on the same line, by abbreviations (see below) in parentheses indicating the island(s) from which the taxon is known. If there is some question about the taxon’s presence on a particular island, the abbreviation for that island is preceded by a “?”. If it is not possible to specify particular islands, the catalog simply says “Samoa”. If there is a question whether it occurs in Samoa at all, this is indicated by “?Samoan” or “?not Samoan”. In some cases, the only locality information available is “Manua” or “Manua Islands”. In this case, the catalog says “Manu’a”, without specifying islands. Islands listed for a taxon include all islands for all synonyms as well as for the valid name. Many species that are widespread in the Pacific, as well as some that are more restricted, or perhaps endemic to Samoa, have only been recorded in Samoa from one or a few islands. Although they may occur on other Samoan islands, only those islands reported in the literature are listed. If a taxon has been artificially introduced to Samoa, this is indicated immediately following the list of islands. Island distributions are derived from the original descriptions and from the major monographs mentioned in the introductions to each family, genus, etc., with additional sources indicated under the specific taxa. Spelling of island names and use of diacritics (except when quoting directly, as for type localities), both in Samoa and elsewhere in the Pacific, follows Motteler (1986).
ABBREVIATIONS

The following abbreviations are used throughout the catalog:

ISLANDS:

S = Savai'i
Ap = Apolima
M = Manono
U = 'Upolu
N = Nu'utele
Nu = Nu'ulua
T = Tutuila
A = 'Aunu'u
O = Ofu
Ol = Olosega
Ta = Ta'u
R = Rose
Sw = Swains Island

OTHER ABBREVIATIONS:

AMS = Australian Museum, Sydney
ANSP = Academy of Natural Sciences, Philadelphia
Art. = Article (of the Code)
Berlin = Museum für Naturkunde der Humboldt-Universität, Berlin
BMNH = The Natural History Museum, London
BPBM = Bishop Museum, Honolulu
BSNH = Boston Society of Natural History, Boston
Code = International Code of Zoological Nomenclature (ICZN, 1985)
DMW = National Museum of Natural History, Wellington
fig(s). = figure(s)
FMNH = Field Museum of Natural History, Chicago
ICZN = International Commission on Zoological Nomenclature
MCZ = Museum of Comparative Zoology, Harvard University, Cambridge,
      Massachusetts
MHNG = Muséum d'Histoire Naturelle, Genève
MNHN = Muséum National d'Histoire Naturelle, Paris
n.n. = new name (replacement name)
Nom. dub. = Nomen dubium
Nom. nud. = Nomen nudum
N. syn. = New synonymy
p. = page
pl(s). = plate(s)
sect. = section
s.l. = sensu lato
SMF = Senckenberg Museum, Frankfurt-am-Main
s. str. = sensu stricto
subg. = subgenus
USNM = United States National Museum of Natural History, Washington, D.C.
Zurich = Zoologisches Museum der Universität, Zürich
SYSTEMATIC CATALOG

Family NERITIDAE Rafinesque, 1815

Neritidae are found in marine, brackish, and freshwater habitats. Many of the species are widespread in the Pacific, no doubt in large part as a result of their diadromous life-cycle (e.g., Cowie, 1997a; Haynes, 1990, 1993). Forms that are entirely marine are excluded from this catalog, although drawing the line between marine and brackish water or intertidal forms is somewhat arbitrary and an attempt has been made to err on the side of inclusion rather than exclusion. The Neritidae constitute the largest group of nonmarine aquatic snails in Samoa. The most recent treatment of the Samoan Neritidae was by Starmühlner (1993), who included a number of littoral forms that are excluded from this catalog as being marine, but whose systematic treatment is followed here. Island distributions are from Haynes (1990), Starmühlner (1976, 1992b, 1993), and the original descriptions; any additional sources are indicated under the individual species.

Subfamily NERITILIINAE Schepman, 1908

Genus NERITILIA Martens, 1875


The original proposal of the name Neritilia included only a single species, rubida Pease, 1865, which is thus the type by monotypy. Other species were included in the group by Martens but only in a subsequently published part of his monograph.

rubida. (U, T)


Subfamily NERITINAE Rafinesque, 1815

Genus CLITHON Montfort, 1810

CLITHON Montfort, 1810: 326. Type species: Nerita corona Linnaeus, 1758 (as “Clithon”), by original designation.
Subgenus CLITHON Montfort, 1810

**bougainvillei.** (?not Samoan)

*Neritina bougainvillei* Récluz, 1850: 159. L’archipel de Bougainville ou des Navigateurs à Hamoa [= Bougainville or Samoa].

Remarks. Paetel (1888a: 519) recorded it from Samoa. Tentatively placed in *Clithon*, following Tryon (in Tryon & Pilsbry, 1888b: 72), who gave Samoa as locality. Apparently not recorded from Samoa by subsequent authors, nor synonymized with another Samoan or extralimital taxon.

**brevispina.**


**castanea.** (U, T)


Remarks. The description of this species (Rousseau, 1854: 68) was published after the plates (Hombron & Jacquinot, 1842–1853), although no accurate dating could be obtained for either (see Bibliography). Plate 17, with 3 figures, the name, and the locality, validated the name. Reported from Samoa (‘Upolu and Tutuila) and the Caroline Islands by Starmuhlner (1992a: 383, 1993: 238). Not reported by Haynes (1990).

**chlorostoma.** (U)


**corona.** (S, U, T)

*Nerita corona* Linnaeus, 1758: 777. In Asiae fluviis [= Asia].


**diadema.** (S, U, T)

*Nerita diadema* Récluz, 1841a: 277. Les îles de la mer du sud [= islands of the South Seas].

Whereabouts of type material unknown; no types listed by Kabat & Finet (1992: 233).

Remarks. Starmühlner (1976: 499, 1992a: 383) considered only the subspecies *recluziana* Guillou, 1841 to be found in Polynesia (including Samoa), with *diadema s. str.* in the Malayan Archipelago, the Philippines, and the Moluccas (see also Jutting, 1963: 415, for other localities). Subsequently (Starmühlner, 1993: 242), he treated the Samoan taxon as *diadema*, as did Haynes (1990: 243). A number of extralimital synonyms.

**humerosa.**


Remarks. Schmeltz attributed the name to Mousson.

**humerosa.**

*Neritina humerosa* Mousson, 1865: 188. Upolu.


**inermis.**

*Neritina humerosa* var. *inermis* Schmeltz, 1866: 28 [1869: 98, 1874: 143; in both cases as “Clithon ruginosus var. inermis”]. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from ‘Upolu and Ovalau (Fiji).
olivaceus. (T)


parvula.


propinqua.


*Remarks*. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

propinquus.

*Neritina (Clithon) propinquus* Mousson, 1869: 373, pl. 15, fig. 8. Upolu, dans l’intérieur, jusqu’à une altitude de 800 mètres.


rarispina.


*Remarks*. The description of this species (Rousseau, 1854: 69) was published after the plates (Honbron & Jacquinot, 1842–1853), although no accurate dating could be obtained for either (see Bibliography). Plate 17, with 3 figures, the name, and the locality, validated the name. Synonym of *souleyetana* Récluz, 1842 [not Samoan], *teste* Tryon (in Tryon & Pilsbry, 1888a: 64); *souleyetana* Récluz, 1842 treated here as a synonym of *diadema* Récluz, 1841, following Starmühlner (1993: 242). Synonym of *diadema* Récluz, 1841. N. syn.

+recluziana. (Samoan)

*Nerita recluziana* Guillou, 1841: 345. Taiti [= Tahiti].


ruginosa.


*Remarks*. Synonym of *corona* Linnaeus, 1758. Although Starmühlner (1993: 238–42) distinguished *ruginosa* Récluz, 1841 as a distinct form, he clearly did not treat it as a subspecies, including it in his synonymy of *corona* Linnaeus, 1758.

siderea.


subrugata.


Subgenus PICTONERITINA Iredale, 1936

PICTONERITINA Iredale, 1936: 288. Type species: Neritina oualaniensis Lesson, 1831 (as "oualaniensis"), by original designation.

oualaniensis. (T)


Remarks. Recorded by Haynes (1990: 243) from Tutuila, but not recorded from Samoa by Star- 


Genus NERITINA Lamarck, 1816

NERITINA Lamarck, 1816: 11, pl. 455. Type species: Nerita pulligera Linnaeus, 1767 (as "Neritina") [not Samoan], by subsequent designation of Children (1823: 247) [see also ICZN (1931: 23), ICZN (1957: 166, 170, 187)].

Subgenus DOSTIA Gray, 1842


DOSTIA Gray in British Museum, 1842: 58, 89. Type species: Neritina crepidularia Lamarck, 1822 [not Samoan], by subsequent designation of Gray (1847: 148).

siquijorensis. (?U; ?not Samoan)


Remarks. Included tentatively in this catalog on the basis of Schmeltz (1866: 37) and Schaufuss (1869: 58), who recorded it from 'Upolu. Placed in subg. Dostia as a synonym of crepidularia Lamarck, 1822 [not Samoan] by Tryon (in Tryon & Pilsbry, 1888b: 77), but retained here as a distinc 

Subgenus NERIPTERON Lesson, 1831

NERIPTERON Lesson, 1831b: 384. Type species: Neritina taitensis Lesson, 1831 (as "1830") [= Neritina auriculata Lamarck, 1816], by subsequent designation of Baker (1923: 143).

auriculata. (S, U, T)

Neritina auriculata Lamarck, 1816: 11, pl. 455, figs. 6a, b. [No locality given. "New Guinea" given as type locality by Pointier & Marquet (1990: 217)].


marginata.


Remarks. The description of this species (Rousseau, 1854: 67) was published after the plates (Homborn & Jacquinot, 1842–1853), although no accurate dating could be obtained for either (see Bibliography). Plate 17, with 2 figures, the name, and the locality, validated the name. Synonym of taitensis Lesson, 1831, teste Tryon (in Tryon & Pilsbry, 1888b: 73; as "tahitensis"); taitensis Lesson, 1831 treated here as a synonym of auriculata Lamarck, 1816. Synonym of auriculata Lamarck, 1816. N. syn.
Neritina (Neripteron) taitensis Lesson, 1831b: 385. Pointe Vénus, baie de Matavai, à O-Taiti [= Tahiti].


Neritina (Neriptera) subauriculata var. upolensis Mousson, 1869: 381. Upolu.

Remarks. Synonym of auriculata Lamarck, 1816, teste Starmühlner (1993: 246). The nominate subspecies subauriculata Récluz, 1843 has not been recorded from Samoa.

Subgenus NERITINA Lamarck, 1816

Most of the names in the present catalog were listed by Pace (1973: 16) as probable synonyms of pulligera Linnaeus, 1767. In reality there may only be one or two valid species.

Neritina aterrima. (?)U; ?not Samoan)

Neritina aterrima Koch in Philippi, 1843a: 28, pl. II.2, fig. 11. [No locality given.]

Remarks. Recorded from 'Upolu by Paetel (1888a: 518), but Tryon (in Tryon & Pilsbry, 1888a: 40) stated "habitat unknown". Placed in Neritina s. str. by these authors, although Tryon said "this species has not been identified".

Neritina canalis. (U)

Neritina canalis Sowerby, 1825: 44 [name only], xi [description]. Islands of the South Seas.


Neritina graiffei Mousson, 1869: 379. Unavailable name; proposed as a junior synonym of porcata Gould, 1847, not made available before 1961 (Code Art. 11(e)).


Neritina iris Mousson, 1849: 269. Java [in publication title].

Remarks. Only recorded from Samoa as its junior synonym, testudinea Oudart, 1853. Treated as a variety of squamipesicpta Récluz, 1843 (as 'squamipicta ') [not Samoan] by Tryon (in Tryon & Pilsbry, 1888a: 58). Considered a probable synonym of pulligera Linnaeus, 1767 by Pace (1973: 16).


pulligera. (T)

_Nerita pulligera_ Linnaeus, 1767: 1253. In Indiae fluvius [= India].

_Schmeltz attributed the name to Mousson._

samoensis.

_Neritina petiti var. samoensis_ Schmeltz, 1869: 98. *Nom. nud.*

_Schmeltz attributed the name to Mousson._

samoensis.

_Neritina (Clypeolum) petiti var. samoensis_ Mousson, 1869: 377. Upolu.

_tenuicostata._

_Neritina (Clypeolum) porcatum var. tenuicostata_ Mousson, 1869: 380. Upolu.

_Neritina (Clypeolum) planissimum_ Mousson, 1869: 378. Port Carteret, Solomon's Island [= Solomon Islands].

_Schmeltz attributed the name to Mousson and recorded it from ‘Upolu. Probably an error for tenuicostata Mousson._

Subgenus NERITONA Martens, 1869

NERITONA Martens, 1869: 22. Type species: _Neritina labiosa_ Sowerby, 1836 [not Samoan], by monotypy.

macgillivrayi. (U, T)

_Neritina macgillivrayi_ Reeve, 1855b, pl. 4, species 16, figs. a, b. Port Cartetet, Solomon's Island [= Solomon Islands].

_Schmeltz attributed the name to Mousson._

planissimum.

_Neritina (Clypeolum) planissimum_ Mousson, 1869: 378, pl. 15, fig. 9. Dans les montagnes d'Upolu, jusqu'a 800 mètres d'elevation.

Subgenus VITTINA Baker, 1923

VITTINA Baker, 1923: 132, 144. Type species: _Nerita roissyana_ Récluz, 1841 [= _Nerita turrita_ Gmelin, 1791], by original designation.
chrysocolla.


helvola.

*Neritina helvola* Gould, 1847f: 225. Feejee Islands [= Fiji]. Type material not mentioned by Johnson (1964: 87).

**Remarks.** Synonym of *lurtoni* Recluz, 1843, *teste* Tryon (in Tryon & Pilsbry, 1888a: 38) and Starmühlner (1976: 517). Paetel (1873: 69) listed *helvola* Gould from 'Upolu. Schmeltz (1869: 98) and Mousson (1869: 374) reported it from 'Upolu and Tutuila but kept it as a distinct "var." of *zelandica* Récluz, 1846 [not Samoan], although Récluz (1850: 151) had previously synonymized all three taxa, as did Tryon (in Tryon & Pilsbry, 1888a: 38) and Starmühlner (1976: 517). Tryon (1888a: 36) considered Mousson's record to be a misidentification of *variegata* Lesson, 1831.

navigatoria.

*Neritina navigatoria* Reeve, 1855c: pl. 23, species 102, figs. a, b. Navigators' Island [= Samoa].


rivula.


**Remarks.** The description of this species (Rousseau, 1854: 67) was published after the plates (Hombron & Jacquinot, 1842–1853), although no accurate dating could be obtained for either (see Bibliography). Plate 17, with 3 figures, the name, and the locality, validated the name. Synonym of *roissyana* Récluz, 1841, *teste* Tryon (in Tryon & Pilsbry, 1888a: 38) and Franc (1957: 22); *roissyana* Récluz, 1841 subsequently synonymized with *turrita* Gmelin, 1791. Synonym of *turrita* Gmelin, 1791. N. syn.

roissyana.


turrita. (S, U, T)

*Nerita turrita* Gmelin, 1791: 3686. In insularum antillarum [= Antilles Islands; ?error].

**Remarks.** See *roissyana* Récluz.

turtoni. (U, T)


vitiensis.

*Neritina vitiensis* Schmeltz (1869: 98). Nom. nud.

Remarks. Schmeltz listed it as a synonym of *chrysocolla* Gould, 1847, attributed it to Mousson and recorded it from 'Upolu; *chrysocolla* Gould here listed as a synonym of *turrita* Gmelin, 1791. Also listed by Schauffuss (1869: 58) from "Upola". Synonym of *turrita* Gmelin, 1791. N. syn.

Subgenus VITTOIDA Baker, 1923


**variegata.** (S, U, T)


**Incertae sedis in NERITINA**

granulosa.

*Neritina granulosa* Schmeltz, 1866: 37. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu. Also listed by Paetel (1883: 83, 1888a: 522) from 'Upolu, in section *Neritella*, and attributed to Moussou.

granulum.

*Neritella (Vittina) granulum* Schmeltz, 1874: 144. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu. Tentatively listed here under *Neritina* because *Vittina* has been treated as a subgenus of *Neritina* (Baker, 1923: 117; Vaught, 1989: 13).

turrita.

*Neritina turrita* Schmeltz, 1866: 37. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu. May be *turrita* Gmelin, 1791.

Genus PUPERITA Gray, 1857

**PUPERITA** Gray, 1857: 137. Type species: *Nerita pupa* Linnaeus, 1767 (as "*P. pupa* Rossmüellers") [not Samoan], by monotypy.

Treated as a subgenus of *Nerita* Linnaeus by Thiele (1929: 73), with *Heminerita* Martens as a section of *Puperita* Gray. Vaught (1989: 13) treated both *Puperita* and *Heminerita* as subgenera of *Nerita*. This catalog follows Wenz (1938b: 421) and Starmühlner (1993: 235) in treating *Heminerita* as a subgenus of *Puperita*.

Subgenus HEMINERITA Martens, 1887

**HEMINERITA** Martens, 1887: 9 [1889: 125] (as *Nerita* "Unterabtheilung"). Type species: *Nerita pica* Gould, 1859 [not Samoan] [= *Nerita japonica* Dunker, 1859 [not Samoan], teste Wenz (1938b: 421)], by monotypy.

The original proposal of the name *Heminerita* included only a single species, *pica* Gould, 1859, which is thus the type by monotypy. Other species were included only in a subsequently published part of Martens's monograph.
amoena. (U, T)


godeffroyana.

*Neritina (Vitta) godeffroyana* Schmeltz, 1869: 98. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson.

godeffroyanus.

*Neritina (Theodoxus) godeffroyanus* Mousson, 1869: 371, pl. 15, fig. 7. Upolu.


**Genus SEPTARIA** Féruссac, 1807

*SEPTARIA* Féruссac, 1807: 60. Type species: *Septaria borbonica* Féruссac, 1807 [not Samoan], by monotypy.

Species in this genus are usually found in fast flowing streams, attached to rocks (e.g., Haynes & Wawra, 1989). The reproductive systems of the four species of *Septaria* recognized from Samoa were described (from Fijian material) by Haynes (1992).

**Subgenus SEPTARIA** Féruссac, 1807

*affinis.*

*Navicella affinis* Reeve, 1856d: pl. 4, species 15, figs. a, b. [No locality given.]


decapitata.


Remarks. Considered a synonym of *macrocephala* Récluz, 1842 by Tryon (in Tryon & Pilsbry, 1888b: 79), but Tryon also included *sanguisuga* Reeve, 1856 as a synonym. Haynes & Wawra (189) showed that *macrocephala* Récluz and *sanguisuga* Reeve are not synonymous. Further research is necessary to determine the correct placement of *decapitata* Mousson, although A. Haynes (in litt., 22 March 1995) believed that it is probably a synonym of *sanguisuga* Reeve, 1856, or possibly of *suffreni* Récluz, 1842 [= freycineti Récluz, 1842].

+*depressa*. (U, T)


Remarks. Considered a synonym of *porcellana* Linnaeus, 1758 by Jutting (1956: 315, 1963: 430), Pointier & Marquet (1990: 219), and, implicitly, by Haynes (1992: 13). Retained as a distinct subspecies of *porcellana* Linnaeus by Haynes (1984: 18) and Starmühlner (1976: 537, 1993: 259), who recorded it from Tutuila. Not recorded by Haynes (1990), who only recorded *porcellana*. Alison Haynes (in litt., 21 April 1995) considered *depressa* Lesson as probably a synonym of *porcellana* Linnaeus, and (in litt., 22 March 1995) considered the *depressa* of Starmühlner (1993: 259) to be almost certainly *macrocephala* Récluz. True *porcellana* Linnaeus, as well as *depressa* Lesson, may neither be present in Samoa, as A. Haynes (in litt., 22 March 1995) said that "the S. *porcellana* type specimen kept at the Linnaean [sic] Society, London is nothing like any *Septaria* found in Samoa, or Fiji for that matter." However, following the latest published works on the Samoan fauna (Haynes, 1990; Starmühlner, 1993), both *porcellana* Linnaeus s. str. and *depressa* Lesson are retained as distinct taxa in the Samoan fauna, pending further research. Both recorded

**fissa.**


*Remarks.* Schmeltz attributed the name to Mousson.

**fissa.*


**freycineti.** (S, U, T)


*Remarks.* Senior synonym of *suffreni* Récluz, 1842, *tesse* Martens (1881: 21) acting as first reviser, followed by Tryon (in Tryon & Pilsbry, 1888b: 80), and see Kabat & Finet (1992: 235), although *suffreni* has been the more commonly used name (e.g., Haynes, 1990: 243; Riech, 1937: 64; Starmühlner, 1976: 543, 1993: 265). Starmühlner (1976: 544) recorded *suffreni* from Vanuatu, Fiji, and Samoa.

**haustrum.**

*Navicella haustrum* Reeve, 1856d: pl. 4, species 18, figs. a. b. New Caledonia.


**laperousei.** (U)


*Remarks.* Probably a “variety” of *macrocephala* Récluz, 1842, *tesse* Tryon (1842: 79), but never formally reduced to subspecific status or synonymy. Alison Haynes (in litt., 21 April 1995) suggested that *laperousei* Récluz, 1842 may be a synonym of *suffreni* Récluz, 1842 [= *freycineti* Récluz, 1842] but that it is not a synonym of *macrocephala* Récluz, 1842.

**macrocephala.** (?U, T)


**magnifica.**

*Navicella magnifica* Reeve, 1856d: pl. 4, species 16, figs. a. b. Hamond’s Island, Australian Seas.

*Remarks.* Listed from ‘Upolu by Paetel (1873: 70). Considered a synonym of *macrocephala* Récluz, 1842 by Tryon (in Tryon & Pilsbry, 1888b: 79), but Tryon also included *sanguisuga* Reeve, 1856 as a synonym. Haynes & Wawra (1989) have shown that *macrocephala* Récluz and *sanguisuga* Reeve are not synonymous. Further research is necessary to determine the correct placement of *magnifica* Reeve.

**pala.**


porcellana. (S, U, T)


*Remarks.* See *depressa* Lesson, 1831.

profunda.

*Navicella pala* var *profunda* Schmeltz, 1866: 37 [1869: 97]. *Nom. nud.*

*Remarks.* Schmeltz attributed the name to Mousson, but Mousson never published the name. Schmeltz (1866: 37) recorded it from 'Upolu, as did Schaufuss (1869: 58) and Paetel (1873: 70, 1883: 85, 1888a: 531). Tryon (*in Tryon & Pilsbry, 1888b: 80*) treated it as a synonym of *freycineti* Récluz, 1842.

sanguisuga. (S, U, ?T)

*Navicella sanguisuga* Reeve, 1856d: pl. 4, species 17, figs. a, b. New Caledonia. Syntypes BMNH 1974119 (Haynes & Wawra, 1989: 36).


suffreni.


*Remarks.* Junior synonym of *freycineti* Récluz, *testé* Martens (1881: 21) acting as first reviser (see also Kabat & Finet, 1992: 235), although frequently used as the senior synonym. Haynes (*in litt.*, 21 April 1995) prefers to retain *suffreni* Récluz as a valid taxon because of the disparity in their type localities.

truncata.


*Remarks.* Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

truncata.


*Remarks.* Considered a synonym of *macrocephala* Récluz by Tryon (*in Tryon & Pilsbry, 1888b: 79*), but Tryon also included *sanguisuga* Reeve as a synonym. Haynes & Wawra (1989) showed that *macrocephala* Récluz and *sanguisuga* Reeve are not synonymous. Further research is necessary to determine the correct placement of *truncata* Mousson, although A. Haynes (*in litt.*, 22 March 1995) believes it to be a synonym of *sanguisuga* Reeve.
Family HELICINIDAE Férussac, 1822

The family Helicinidae is one of several groups of operculate land snails that have diversified on Pacific islands. The most recent comprehensive revisions of the family were by Wagner (1905, 1907–1911). However, these works contained many errors and omissions (see Baker, 1922: 29; Fulton, 1915a, b; Solem, 1959: 166–67) and, combined with Baker’s (1922: 43) invalid type species designation for Sturanya (see Pleuropoma, below), have led to much confusion. This catalog follows the generic concepts of Neal’s (1934) revision of the Hawaiian fauna, as discussed by Cowie et al. (1995: 17, 19). Placement of species-group names in association with genera and subgenera generally follows Wagner (1905, 1907–1911). Paetel (1890: 496) listed Helicina lineata C.B. Adams, 1845 as possibly from Samoa. However, this species was described from Jamaica (Adams, 1845: 12); it has never been thought of as an artificial introduction in Samoa; and it is excluded from this catalog.

Genus OROBOPHANA Wagner, 1905


musiva. (S, U, T, O, Ol, Ta)


Remarks. Mousson (1869: 357) gave “Manua, Tutuila, Upolu, Savai” as localities. Reported from Tutuila and all three of the Manu’a Islands by Miller (1993: 11, 12). Recorded from Samoa, Fiji, and Tonga (Wagner, 1905: 429); also Tuvalu [“Ellis group”] (Garrett, 1887: 152).

oberwimmeri. (Samoa)


+uveana. (U, Manu’a)


Genus PLEUROPOMA Möllendorff, 1893

PLEUROPOMA Möllendorff, 1893: 140 (as Helicina sect.). Type species: Helicina dichroa Möllendorff, 1893 [not Samoan], by original designation.


STURANYELLA Pilsbry & Cooke, 1934b: 54. Type species: Helicina plicatilis Mousson, 1865, by original designation.

STURYANELLA: Pilsbry & Cooke, 1934b: 54. Incorrect original spelling of Sturanyella.

Neal (1934: 38), Pilsbry & Cooke (1934b: 54), and Solem (1959: 168) incorrectly considered the type species of Sturanya to be Helicina laciniosa Mighels, 1845 [not Samoan], by subsequent designation of Baker (1922: 43). This has led to much confusion as to the correct status of Sturanya.
Whether it is best retained as a valid genus or placed in synonymy with *Pleuropoma* can only be decided by further study of the type species. This catalog follows Neal (1934: 38) and Cowie et al. (1995: 19) in placing it as a synonym of *Pleuropoma*.

**Subgenus APHANOCONIA Wagner, 1905**


Cowie et al. (1995: 19) discussed the confusion over the type species designations for *Aphanoconia* and *Sphaeroconia*, and explained the rationale for treating *Aphanoconia* as a subgenus rather than a synonym of *Pleuropoma*.

**altivaga.**


*Remarks.* Schmeltz attributed the name to Mousson. Also listed by Pfeiffer (1876: 287), Garrett (1887: 152), and Paetel (1890: 491).

**altivaga. (U)**


**delicatula.**


*Remarks.* Preoccupied by *delicatula* Shuttleworth, 1852 [not Samoan]. Schmeltz attributed the name to Mousson and recorded it from ‘Uépolu. Also listed and attributed to Mousson by other authors, e.g., Paetel (1873: 125, 1890: 494, 495), Pfeiffer (1876: 287), Garrett (1887: 150), but apparently never validated.

**fulgora. (S, U, T, O, Ol, Ta)**


*Remarks.* See Neal (1934: 40, 51) for discussion of the confused status of this name. It is placed in the subgenus *Aphanoconia* following Wagner (1905: 408, 1909a: 163), although Neal (1934: 50–52) dealt with it in *Pleuropoma s. str.* Mouson (1869: 356) gave “Manua, Uépolu, Savai, Tutuila” as localities. Wagner (1905: 408) gave only ‘Uépolu in the Samoan Archipelago but (p. 409) reiterated Mouson’s (1870b: 198) records from Fiji. Solem (1975: 3, 4) reported it from Tutuila, Ofo, and Tu’u; Miller (1993: 11, 12) from Tutuila, Olosaiga, and Tu’u.

**rogosiuscula. (Samoan)**


*Remarks.* Name attributed to Ancey by Wagner (1909a: 184). However, there is no evidence of Ancey having published the name nor of his having provided characters to validate the name in Wagner’s publication. Authorship is therefore Wagner alone.

**samoana.**

*Aphanoconia samoana* Wagner, 1908c: 159, pl. 31, figs. 9–13. Uépolu.


**Subgenus PLEUROPOMA Möllendorff, 1893**

**beryllina. (T; not Samoan)**

Remarks. Listed from Tutuila by Pease (1871b: 476) and Miller (1993: 23–29), but only from Fiji by Garrett (1887: 151) and Wagner (1905: 385, 1907b: 37).

flavida.


Remarks. Schmeltz attributed the name to Mousson and recorded it from Tutuila.

+flavida. (T)


interna. (S; ?not Samoan)

*Helicina interna* Mousson, 1869: 358. Savai [= Savai’i].

Remarks. Recorded only from Fiji by Wagner (1905: 384, 1907b: 42), although Garrett (1887: 151) also recorded it from Savai’i and Tonga.

jetschini. (U, T)

*Sturanya jetschini* Wagner, 1905: 384, pl. 3, figs. 14a–c, 21a, b. Upolu, Samoa-Inseln, Viti-Inseln [= Fiji].

Remarks. Tutuila and ‘Upolu (also Fiji) given as localities by Wagner (1907b: 38).

plicatilis.


Remarks. Schmeltz attributed the name to Mousson and recorded it from Samoa.

plicatilis. (S, U)


Remarks. Savai’i listed by Schmeltz (1869: 74) and Wagner (1905: 384).

+tutuilana. (T)


zonata.


Remarks. Locality given as “I. Samoa” by Paetel. Preoccupied by *zonata* Lesson, 1831 [not Samoan], *zonata* Sowerby, 1842 [not Samoan], and *zonata* Guppy, 1864 [not Samoan].

*Incertae sedis* in *HELICINIDAE*

altior.

*Helicina altior* Schmeltz, 1866: 30. *Nom. nud.*

Remarks. Schmeltz attributed the name to Mousson and recorded it from ‘Upolu. However, it was apparently never published by Mousson and it was not treated by Wagner (1905, 1907–1911) nor listed by Fulton (1915a, b).

brenchleyi. (U)


Remarks. Not treated by Wagner (1905, 1907–1911); listed by Fulton (1915b: 325), who gave ‘Upolu as the locality.

fulgurata. (Samoa)


Remarks. Not treated by Wagner (1905, 1907–1911); listed by Fulton (1915b: 325).

leucochila.

*Helicina leucochila* Paetel, 1890: 496. *Nom. nud.*

Remarks. Name attributed to Mousson by Paetel and recorded from “I. Samoa”. However, it was apparently never published by Mousson and it was not treated by Wagner (1905, 1907–1911) nor listed by Fulton (1915a, b).
multifasciata. (Samoa)


Remarks. Not treated by Wagner (1905, 1907–1911); listed by Fulton (1915b: 325).

strigata. (U)


Remarks. Not treated by Wagner (1905, 1907–1911); listed by Fulton (1915b: 325).

zebriolata. (?U; ?not Samoan)


Remarks. Listed from 'Upolu by Paetel (1873: 126). Not treated by Wagner (1905, 1907–1911); listed by Fulton (1915a: 241).
The Cyclophoroid Families
NEOCYCLOTIDAE and DIPLOMMATINIDAE

The Cyclophoroidea are terrestrial operculate snails. They have been treated variously as a single family (Cyclophoridae) or as a superfamily with as many as twelve distinct families (see Boss, 1982: 978). Two groups are represented in Samoa, here treated as families: Neocyclotidae [= Poteriidae] and Diplommatinidae, following Boss (1982: 978–80), Ponder & Warén (1988: 291), and Vaught (1989: 15, 16), but contrary to Thiele (1929: 102, 108). A brief history of the classification of the Cyclophoroidea is given by Girardi (1978: 192).

Family NEOCYCLOTIDAE Kobelt & Möllendorff, 1897

The family-group name Neocyclotidae is adopted here as it has priority over the frequently used name Poteriidae (see Baker, 1956b: 28; Ponder & Warén, 1988: 291).

Genus OSTODES Gould, 1862

OSTODES Gould, 1862: 283. Type species: Cyclostoma strigatum Gould, 1848, by original designation.

The most recent revision of this genus was by Girardi (1978), extending the earlier work of Clench (1949). Synonymies in this catalog follow Girardi (1978). The genus Ostodes is endemic to the Samoan Archipelago. Island distributions follow Girardi (1978).

adjunctus. (T)

Cyclophorus (Ostodes) adjunctus Mousson, 1869: 351, pi. 14, fig. 9. Tutuila.

albida.

Cyclostoma albida Hombron & Jacquinot, 1852: mollusques pl. 12, figs. 25–28. Ile Samoa. Remarks. The description of this species (Rousseau, 1854: 50) was published after the plates (Hombron & Jacquinot, 1842–1853), although no accurate dating could be obtained for either (see Bibliography). Plate 12, with 4 figures, the name, and the locality, validated the name. Synonym of strigatus Gould, teste Clench (1949: 13) and Girardi (1978: 222).

apiae.


cookei. (U)

Ostodes cookei Clench, 1949: 10, fig. 3a. Upolu Is., Tiavi, alt. 2,100 ft. Holotype BPBM 9711, paratypes BPBM 186184, MCZ 140504 (Clench, 1949: 10).

exasperatus. (S, U)

Ostodes exasperatus Girardi, 1978: 227, figs. 19c, d, 20f, g, 21a, b. Station 34, approximately 8 km SE of Asau along main road, then inland about 8 km along a track to about 540 m elevation, in light upland forest, Savaii, W. Samoa. Holotype FMNH 170530 (Girardi, 1978: 228).
garretti. (S)

*Ostodes garretti* Clench, 1949: 18, fig. 7c. Savaii... Siavao-Auola, alt. 500 to 2,000 ft. Holotype BPBM 108334, paratypes BPBM 108216, BPBM 108198, MCZ 140524 (Clench, 1949: 18).

gassiesi. (S, U)

* Cyclostoma gassiesi* Souverbie, 1859: 294, pl. 8, figs. 6a, b. [No locality given.]

**Remarks.** Considered a synonym of *plicatus* Gould by Clench (1949: 16) but a valid species by Girardi (1978: 217) who recorded it from 'Upolu and Savai'i.

llanero. (S)

*Ostodes llanero* Girardi, 1978: 228, figs. 19b, 20d, e, 22a, b. Station 34, approximately 8 km SE of Asau along main road, then inland about 8 km along a track to about 540 m, in light upland forest; Savaii, W. Samoa. Holotype FMNH 152991 (Girardi, 1978: 230).

plicatus. (U)


pulverulentum.

* Cyclostoma pulverulentum* Pfeiffer, 1854a: 301, pl. 40, figs. 13, 14. Upolu.


reticulatus. (U)

*Ostodes reticulatus* Girardi, 1978: 220, figs. 16a, 17a, b, 18a, b. Station 16, SE peak Tafua- Upolu, in undisturbed foothill forest at 480 m elevation, Upolu, W. Samoa. Holotype FMNH 170532, paratypes FMNH 152757 (Girardi, 1978: 222).

savaii. (S)


strigatus. (T)


**Remarks.** Mousson (1865: 180) gave "Manua" as locality. Garrett (1887: 148), Mousson (1869: 350) and Schmeltz (1869: 74) gave "Upolu, Savai'i, and Tutuila. Clench (1949: 9) and Girardi (1978: 224) considered this species to occur only on Tutuila.

tiara. (U)

* Cyclostoma tiara* Gould, 1847c: 204. Upolu. Holotype USNM 5517 (Johnson, 1964: 159; the original catalog entry in the USNM shows that the lot contained only a single specimen).

upolensis.


**Remarks.** Schmeltz attributed the name to Mousson and recorded it from Samoa.

upolensis. (S, U)

Family DIPLOMMATINIDAE Pfeiffer, 1856

Genus DIPLOMMATINA Benson, 1849

DIPLOMMATINA Benson, 1849: 193. Type species: *Bulimus folliculus* Pfeiffer, 1846 [not Samoan], by subsequent designation of Nevill (1878: 284).

Benson (1849) did not designate a type species (cf. Smith, 1992: 36). His use of the term “type” is interpreted here as meaning “kind of snail”. He included two species in the new genus *Diplommatina*, viz., *folliculus* Pfeiffer, 1846 [not Samoan] (with Hutton’s manuscript name “costata” as a synonym) and a new species, *costulatum* [not Samoan], which he described (also originally a Hutton manuscript name).

Subgenus MOUSSONIA Semper, 1865

MOUSSONIA Semper, 1865: 296. Type species: *Pupa problematica* Mousson, 1865, by monotypy.

At the time of its proposal, *Moussonia* Semper, 1865 contained a single species, *problematica* Mousson, 1865. Semper used *problematica* as the valid name, and introduced *typica* in its synonymy. The name *typica* was made available, retrospectively to 1865, by Garrett (1887: 146) (and perhaps earlier). However, although the use of “*typica*” takes precedence over monotypy (Code Art. 68(c)), by the time *typica* was made available, *problematica* Mousson, 1865 was already the type (P.K. Tubbs in litt., 12 January 1995).

*problematica.*


Remarks. Schmeltz attributed the name to Mousson and recorded it from Samoa.

*problematica.* (U)


*typica.*

*Moussonia typica* Semper, 1865: 296. Upolu (Samoa).

Remarks. Proposed as a synonym of *problematica* Mousson, 1865; validated before 1961, e.g., by Garrett (1887: 146) and Wenz (1939: 484) (see Code Art. 11(e)); *problematica* has priority by several months.
Family TRUNCATELLIDAE Gray, 1840

The family-group name Rissoidea was given precedence over Truncatellidae by ICZN (1992a: 78), but only when their type genera are placed in the same family-group taxon. The family Truncatellidae is retained here as a distinct family within the superfamily Rissooidea, following Ponder & Warén (1988: 298).

Genus TRUNCATELLA Risso, 1826


guerinii. (S)


valida.


vitiana.


Family ASSIMINEIDAE Adams & Adams, 1856

There has been much confusion over the correct usage of the family-group names Assimineidae, Synceridae, and Realiidae (see, e.g., Solem, 1959: 198). Following Ponder & Warén (1988: 298), Assimineidae is adopted here. Synceridae is based on Syncera Gray, which is considered a nomen nudum (see below under genus Assiminea). Realiiidae is invalid (ICZN, 1971: 149).

The family Tutuilaniidae was established for a single new genus and species by Hubendick (1952: 304), who placed it in or near the Rissooidea (p. 305). Ponder & Warén (1988: 298), whose treatment is adopted here, considered it equivalent to Assimineidae, listing it under the subfamily Assimineinae.

Subfamily ASSIMINEINAE Adams & Adams, 1856

Genus ASSIMINEA Fleming, 1828

SYNCERA Gray, 1821: 239 (as Nerita subg.). Nom. dub.
ASSIMINEA Fleming, 1828: 275. Type species: Assiminea grayana Fleming, 1828 [not Samoan], by monotypy.

This catalog maintains current usage in considering Assiminea Fleming, 1828 the valid name of the genus. Certain authors have considered Syncera Gray, 1821 a nomen nudum (e.g., Solem, 1959: 198-99); it is here treated as a nomen dubium, following Abbott (1958: 233). Abbott (1958) provided a nomenclatural catalog and Bibliography of the genus. The species level taxonomy of the genus is confused, with over 200 names proposed. Identification using shells alone is almost impossible (Solem, 1959: 199), although the taxa from Pacific islands can mostly be referred to the “niti-da-complex” (Abbott, 1958; see also Abbott, 1949). According to Abbott (1958: 224), Assiminea spp. are estuarine and amphibious; they require at least a small degree of salinity in the water; some live at the edge of almost strictly marine waters. No Assiminea spp. were recorded from Samoa by Starmühlner (1993).

crosseana. (U)
Hydrocena crosseana Gassies, 1869: 77. Insula Art. (Nov. Caled.) [= Art, Belep Islands, New Caledonia].

nitida.
Hydrocena nitida Pease, 1865a: 674. Islands of the central Pacific [in publication title]. “Holotype” MNHN, “paratypes” MCZ 139120 (Johnson, 1994: 18) [Johnson incorrectly cited Fischer-Piette (1950: 72) as having identified the holotype; Fischer-Piette only indicated an “exemplaire figuré”].
Remarks. Junior synonym of parvula Mousson, 1865, although usually treated as the senior synonym (e.g., Abbott, 1958: 272; Garrett, 1884: 107, 1887: 152).
parvula.


**Remarks.** Schmeltz attributed the name to Mousson and recorded it from Fiji.

parvula. (U, T, O, Ta)


**Remarks.** Senior synonym of *nitida* Pease, 1865. Listed in *Omphalotropis* and *Assiminea* by Pease (1871b: 476), although Mousson only introduced the name once (see Ruhoff, 1980: 421). 'Upolu and Tutuila given as localities by Schmeltz (1869: 74); Uea [= Uvea] given by Mousson (1871: 29). Ofu and Ta'u as additional localities based on Solem's (1975: 3, 4) records of *nitida* Pease, 1865. Widespread in the Pacific (Garrett, 1887: 153).

similis. (U, T)

*Hydrocena similis* Baird, 1873: 440, pl. 39, figs. 1, 2. Samoan group. Type material BMNH (Chatfield, 1994: 101).

**Remarks.** Considered a synonym of *parvula* Mousson by Schmeltz (1874: 103) and of *nitida* Pease by Garrett (1887: 153) but retained here as a distinct taxon following Abbott (1958: 273). Recorded from Rarotonga, Uvea, Tutuila, and 'Upolu by Schmeltz (1874: 103).

Genus TUTUILANA Hubendick, 1952


Placed in subfamily Assimineinae following the listing of Tutuilanidae with Assimineinae by Ponder & Warén (1988: 298).

striata. (T)


Subfamily OMPHALOTROPIDINAE Thiele, 1927

The family-group name has been spelled as “Omphalotropinae” (e.g., Smith, 1992: 28; Starmühlner, 1993: 275; Wenz, 1939: 635) and “Omphalotropidinae” (e.g., Ponder & Warén, 1988: 298; Thiele, 1929: 171; Vaught, 1989: 25). The latter is adopted here following ICZN (1971: 149).

Genus OMPHALOTROPIS Pfeiffer, 1851

REALIA Baird, 1850: 63. Type species: *Cyclostoma rubens* Quoy & Gaimard, 1832 [not Samoan], by subsequent designation of Iredale (1941: 59).

OMPHALOTROPIS Pfeiffer, 1851: 176. Type species: *Bulimus hieroglyphicus* Potiez & Michaud, 1838 (as “*O. hieroglyphica*, Fér.”) [not Samoan], by subsequent designation of Nevill (1878: 319).

The type species of *Omphalotropis* was discussed by Keen & Coan (1969: 100) and confirmed by ICZN (1971: 149). The name is masculine (ICZN, 1971: 149). The genus-group name *Realia* Baird was suppressed for the purposes of priority by ICZN (1971: 149).

Starmühlner (1993: 275) recorded the genus only from 'Upolu, as *Omphalotropis* sp.
angulata.

*Omphalotropis angulata* Schmeltz, 1866: 30. *Nom. nud.*

*Remarks.* Schmeltz attributed the name to Mousson and listed it from 'Upolu.

+angulosus. (S)

*Realia (Omphalotropis) conoidea* var. *angulosa* Mousson, 1869: 353. Savai [= Savai'ī].

augulata.

*Omphalotropis augulata* Schaufuss, 1869: 96. *Nom. nud.*

*Remarks.* Schaufuss (and Paetel, 1873: 124, 1883: 189) attributed the name to Mousson and listed it from 'Upolu. Possibly just a misspelling of *angulata* Schmeltz, but listed here as a nude name, for completeness.

bifilaris.

*Omphalotropis bifilaris* Schmeltz, 1865: 18. *Nom. nud.*

*Remarks.* Schmeltz attributed the name to Mousson and recorded it from Samoa.

bifilaris. (U, T)

*Omphalotropis bifilaris* Mousson, 1865: 183. Upolu (Samoa).

*Remarks.* Tutuila also given as locality by Garrett (1887: 150) and Schmeltz (1869: 75); the former also gave Tonga.

biliratus. (S, U, T)


*Remarks.* Savai'ī and Wallis Island also given as localities by Garrett (1887: 149); Savai'ī only, by Schmeltz (1869: 75). Tentatively recorded from Tutuila (A.C. Robinson, *in litt.* 11 July 1994).

conoideus. (S, U, Ta)


*Remarks.* Savai'i and Uvea (Wallis Islands) also given as localities by Schmeltz (1869: 75, 1874: 101). Solem (1975: 3) reported it from Tā'u.

+elongatus. (S)

*Realia (Omphalotropis) bilirata* var. *elongata* Mousson, 1869: 354. Savai [= Savai'ī].

*Remarks.* Junior primary homonym of *Realia elongata* Pease, 1868 [not Samoan]. Mousson proposed it within a section under the heading ‘Genus Realia’ so, although the binomen “*Omphalotropis bilirata*” appeared above the actual description, *Omphalotropis* must be treated as a subgenus in this instance (see also Keen & Coan, 1969: 101), hence the primary homonymy in *Realia*. No new name proposed here, pending further research.

+gracilior. (T)


laevis. (Samoan)


*Remarks.* Junior primary homonym of *laevis* Pease 1865 [not Samoan; Pohnpei (Pease, 1871b: 476)]. No new name proposed here, pending further research.

navigatorum. (?not Samoan)

*Hydrocena (Omphalotropis) navigatorum* Pfeiffer, 1838: 113. Navigators’ Islands [= Samoa].

*Remarks.* Listed with no locality by Mousson (1865: 183) and doubtfully as Samoan by Mousson (1869: 390) and Garrett (1887: 128). Listed as Samoan by Pease (1869: 146, 1871b: 476) and Paetel (1883: 189).

scitulus. (Manu’a)


*Remarks.* Placed here in *Omphalotropis* following Garrett (1884: 95).
tectiformis.

Omphalotropis tectiformis Schmeltz, 1869: 75. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from Samoa. Probably a misspelling of teretiformis Mouss. Listed here for clarity.

+teretiformis. (T)

Realia (Omphalotropis) bifilaris var. teretiformis Mousson, 1869: 353. Samoa.

Remarks. Reported from Tutuila by Solem (1975: 5).

zebriolatus. (?U; ?Samoan)


Remarks. Listed as a nude name by Schmeltz (1865: 18; as “zebriolatus Mss.”) from Uvea but not from Samoa. Listed from ‘Upolu by Pease (1871b: 476).

Incertae sedis in ASSIMINEIDAE

brazierii. (U)


Family THIARIDAE Troschel, 1857

The name Thiaridae is retained in preference to Melaniidae, following Ponder & Warén (1988: 294). The taxonomy of the Thiaridae is confused and, perhaps because of their predominantly clonal mode of reproduction that can lead to extensive inter-population variation in morphology, many local forms and subspecies of rather doubtful validity have been proposed (Abbott, 1948; Franc, 1957; Jutting, 1956, 1963; Morrison, 1952, 1954; Pace, 1973). Generic limits are also poorly understood, with some authors raising certain subgenera to generic status (e.g., Morrison, 1954; Vaught, 1989: 28) and others preferring a less inflated classification (e.g., Pace, 1973). Pace (1973: 52) briefly summarized the history of the taxonomic treatment of the family. This catalog follows the generic and subgeneric arrangement of Starmühlner (1976, 1992a, 1993), the most recent author to treat the Samoan fauna in depth. Island distributions follow Haynes (1990), Starmühlner (1993), and the original descriptions, with additional sources indicated under the individual taxa.

Thiarids are worldwide in distribution, but with greatest diversity in the tropics. They are predominantly found in fresh waters of streams, rivers, ponds, lakes, and irrigation systems, but some species can inhabit brackish water (Pace, 1973). A number of thiarids are well known to have been introduced widely through human activities. For instance, Melanoides tuberculata (Müller), considered Asian by Morrison (1954: 378, 380) but of Middle Eastern and East African origin by Pointier & Marquet (1990: 220), is now so widespread (e.g., Chang, 1991b: 89; Dudgeon, 1989; Heller & Ehrlich, 1995: 237; Jutting, 1956: 415; Pace, 1973: 56; Pointier et al., 1994; Pointier & Marquet, 1990: 220; Starmühlner, 1992a: 382; Vaate et al., 1994) that its origins may well never be truly understood. It is listed herein as introduced, as considered probable by Haynes (1990: 245). The endemic, native, or introduced status of most of the species represented in Samoa is obscure, although Haynes (1990: 245) felt that most freshwater species on Pacific islands occurred there naturally. However, whether native or artificially introduced, most, if not all, of the thiarid taxa described from Samoa may well be conspecific with but a small number of widely occurring taxa. There are numerous extralimital synonyms that are excluded from this catalog, and it remains possible that certain taxa described from Samoa have not been recognized as junior synonyms of extralimital taxa.

Subfamily THIARINAE Troschel, 1857

Genus MELANOIDES Olivier, 1804

MELANOIDES Olivier, 1804: 69. Type species: Melanoides fasciolata Olivier, 1804 [not Samoan] [= Nerita tuberculata Müller, 1774, teste Morrison (1954: 380)], by monotypy.

STRIATELLA Brot, 1870: 290 (as Melania subg.). Type species: not yet fixed (see below).

Striatella Brot is placed as a synonym of Melanoides Olivier, following Wenz (1939: 713) and Vaught (1989: 28). Brot (1874: 7) designated two type species for Striatella, one for each of his unnamed subdivisions. Otherwise, no type designation for Striatella has been found. The name Melanoides is treated as feminine.
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Subgenus MELANOIDES Olivier, 1804

gratiosa.

Melania gratiosa Schmeltz, 1866: 31 [1869: 78]. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu. It was never published by Mousson. Synonym of laxa Mousson, 1869, teste Schmeltz (1869: 78) and Starmühlner (1993: 280). Also listed by Paetel (1873: 58, 1883: 62, 1887: 375). Preoccupied by gratiosa Lea, 1861 [not Samoan].

laxa.

Melania laxa Schmeltz, 1869: 78. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

laxa. (U)

Melania laxa Mousson, 1869: 368, pl. 15, fig. 6. Upolu.


peregrina.


Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

peregrina. (U)

Melania peregrina Mousson, 1869: 368, pl. 15, fig. 5. Upolu.


tuberculata. (S, U, T, ?A, ?Ta; introduced)

Nerita tuberculata Müller, 1774: 191. In littore Coromandel.


Subgenus STENOMELANIA Fischer, 1855

STENOMELANIA Fischer, 1885a: 701 (as Melania sect.). Type species: Melania aspirans Hinds, 1847, by monotypy.

arthurii.

Melania arthurii Brot, 1870: 290. New Caledon. [= New Caledonia].

Remarks. Synonym of subexusta Mousson, teste Riech (1937: 58), and of persulcata Mousson (as “subexusta”), teste Starmühlner (1992a: 381), although both these authors treated arthurii Brot as the senior synonym; subexusta Mousson, 1870 treated here as a synonym of persulcata Mousson, 1869. Synonym of persulcata Mousson, 1869. N. syn.

aspirans. (S, U)

Melania aspirans Hinds, 1844a: 8. Feejee Islands [= Fiji].


bifasciata.

Melania bifasciata Schmeltz, 1869: 78. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.
bifasciata.

**Melania bifasciata** Mousson, 1869: 364, pl. 15, fig. 3. Upolu, à Uafata et à Apia.


brenchleyi. (U, T)


crassiuscula.


Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

crassiuscula.


+delicatula. (T)

*Melania brenchleyi* var. *delicatula* Baird, 1873: 444, pl. 40, figs. 3, 4. Tutuila, Samoan group.


funiculus. (U)

*Melania funiculus* Quoy & Gaimard, 1834: 158, pl. 56, figs. 43, 44. Moluques [= Moluccas].


graeffi.

*Melania græffi* Schmeltz, 1865: iii [1869: 78 (as *lutosa* var. *græffi*)]. *Nom. nud.*

Remarks. Schmeltz attributed the name to Mousson. He did not give a Samoan locality but the name is included here for clarity, as Mousson's valid publication of the name included Samoa as a locality.

graefei.

*Melania lutosa* var. *græeffei* Mousson, 1869: 362. Upolu . . . les ïles Viti [= Fiji].


inserta.


Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

+inserta. (U)


Remarks. Variety of *lutosa* Gould, since *samoensis* Reeve, 1856 is a synonym of *lutosa* Gould, 1847.

interposita.

*Melania interposita* Schmeltz, 1869: 78. *Nom. nud.*

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu, Futuna, and Vanua Balavu (Fiji).

interposita.


languida.

*Melania samoensis* var. *? languida* Schmeltz, 1869: 78. *Nom. nud.*

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu and Tutuila.

+languida. (U, T)


Remarks. Variety of *lutosa* Gould, since *samoensis* Reeve, 1856 is a synonym of *lutosa* Gould, 1847.

levis.


luctuosa. (U)

Melania luctuosa Hinds, 1844a: 9. Feejee Islands [= Fiji].
Remarks. See also Hinds (1845: 56). Brot (1877a: 225) gave ‘Upolu and Fiji as localities.

lutos. (U, T, O)


nigra.

Melania vainafa var. nigra Schmeltz, 1869: 78. Nom. nud.
Remarks. Schmeltz attributed the name to Mousson and recorded it from ‘Upolu.

nigra.

Melania vainafa var. nigra Mousson, 1869: 367. Upolu.

papuensis.

Melania papuensis Quoy & Gaimard, 1834: 157, pl. 56, figs. 45–47. Le havre Dorey, à la Nouvelle-Guineé [= New Guinea].

persulcata.

Melania subexusta var. persulcata Schmeltz, 1869: 78. Nom. nud.
Remarks. Schmeltz attributed the name to Mousson and recorded it from ‘Upolu.

persulcata. (U)

Melania subexusta var. persulcata Mousson, 1869: 369. Upolu.
Remarks. Validated by Mousson (1869: 369–70) even though he explicitly said that the diagnosis would be published in a later paper (i.e., Mousson, 1870b: 211). Mousson (1869: 369–70) gave no characters distinguishing persulcata from subexusta, so subexusta is a nude name in 1869. Thus, persulcata Mousson, 1869 has priority over subexusta Mousson, 1870, which was validated in the later publication, so persulcata should be treated as the nominotypical subspecies, with subexusta a subspecies of it. Recorded (as arthurii Brot) from Samoa by Riech (1937: 58), Franc (1957: 58), Starmühlner (1976: 577), and Haynes (1984: 10), and specifically from ‘Upolu by Starmühlner (1992a: 381) based on Mousson’s (1869: 369) description of persulcata Mousson, 1869 (as “subexusta”), but only from Waya (Fiji) by Haynes (1990: 242).

picea.

Melania bifasciata var. picea Schmeltz, 1869: 78. Nom. nud.
Remarks. Schmeltz attributed the name to Mousson and recorded it from ‘Upolu.

+picea. (U)

Melania bifasciata var. picea Mousson, 1869: 364. Upolu.
Remarks. Variety of lutos Gould, since bifasciata Mousson, 1869 is a synonym of lutos Gould, 1847.

picta.

Melania picta Hinds, 1844a: 8. New Ireland.

plicaria. (U)

Helix plicaria Born, 1778: [82] (Unnumbered page in errata section) [1780: 389, pl. 16, fig. 14]. [No locality given.]


Helix plicata Born, 1778: 403. Incorrect original spelling of plicaria Born, 1778.

punctata. (?U; ?not Samoan)

Melania punctata Lamarck, 1822: 165. [No locality given.]


samoensis

Melania samoensis Reeve, 1859b: pl. 11, species 60. Isle of Samoe [= Samoa], Pacific.


scipio.


subexusta.


Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu and Ovalau (Fiji).

subexusta.


Remarks. See persulcata Mousson, 1869.

subexusta.


subfasciata.


sulcata.

Melania lutosa var. sulcata Schmeltz, 1869: 78. Nom. nud.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

+sulcata. (U)

Melania lutosa var. sulcata Mousson, 1869: 361. Upolu.

vainafa.


Incertae sedis in MELANOIDES

acutespira. (S, U)

Melania acute-spira Mousson, 1869: 370, pl. 15, fig. 4. Upolu.

Remarks. Not mentioned by Starmühlner (1976, 1993) or Haynes (1990) but said to be found in Fiji and Samoa by Starmühlner (1992a: 383; as Melanoides "acutospira"). Recorded from Savai'i, 'Upolu, and Viti Levu by Brot (1877a: 232).

acutispira.


Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.
Genus THIARA Röding, 1798


+adjuncta. (U)
Melania scitula var. adjuncta Mousson, 1869: 368. Upolu.

amarula. (Samoa)
Helix amarula Linnaeus, 1758: 774. In Asiae fluviis [= Asia].

cybele.

macropira. (Samoa)
Melania macropira Morelet, 1857: 32. Cum praecedente [i.e., Navicella caledonica Morelet, 1857 [not Samoan], the locality of which was given as "ad Sanctam-Mariam de Balade, Novae-Caledoniae ore occidentali"].

scitula. (U)

terpsichore. (Samoa)
Melania terpsichore Gould, 1847e: 222. Feejee [= Fiji] and Samoa Islands. Lectotype MCZ 169397, “paratypes” (i.e., paralectotypes) MCZ 87931, 169398, USNM 611210 (Johnson, 1964: 158).
Family VERONICELLIDAE Gray, 1840

The family Veronicellidae [= Vaginulidae] includes a large number of species of terrestrial slugs distributed widely in the humid tropics and subtropics (e.g., Pilsbry, 1919; Hoffmann, 1925). The fullest single account of the family is that of Hoffmann (1925). Nomenclature at all levels in the family has been confused (e.g., Baker, 1925, 1931; Thomé, 1975a, b). The name Veronicellidae Gray, 1840 (in British Museum, 1840: 126, 149) has priority over Vaginulidae Martens, 1866 (p. 269; apparently the earliest publication of Vaginulidae), although both have been widely used. The systematics has most recently been worked on by J.W. Thomé in a series of over 30 papers that include detailed redescriptions of many of the type specimens (e.g., Thomé, 1971, 1975a, b, 1988a–c, 1994). The two species recorded from Samoa are widely distributed elsewhere (Alicata & McCarthy, 1964; Forcart, 1969; Franc, 1957; Grimpe & Hoffmann, 1925; Hoffman, 1925; Smith, 1992; Solem, 1959, 1964), probably in large part due to human activities (e.g., Baker, 1931). Forcart (1969) discussed the nomenclature of these two species and Bishop (1977) gave a detailed account of their anatomy.

Genus LAEVICAULIS Simroth, 1913

LAEVICAULIS Simroth, 1913: 147 (as Vaginula subg.), 202 (as Eleutherocaulis subg.).

Type species: Vaginula comorensis Fischer, 1883 [not Samoan] [= Vaginulus alte Ferussac, 1822, teste Solem (1959: 42)], by subsequent designation of Pilsbry (1919: 316).

The status of the genus-group names Laevicaulis Simroth, 1913 and Eleutherocaulis Simroth, 1913 was discussed by Forcart (1969: 148), who considered the latter the junior synonym. Eleutherocaulis has not been used in reference to the Samoan fauna.

alte. (U; ?introduced)

Vaginulus alte Ferussac, 1822c: 14, pl. 8a, fig. 8, pl. 8b, fig. 5. Environns de Pondichéry [= Pondicherry]. Holotype MNHP (Hoffmann, 1925: 120; Smith, 1992: 318).

Remarks. The plates cited by Ferussac (1822c: 14) were issued prior to the text, in livraisons 9 (6 April 1821) and 14 (16 February 1822) of Ferussac’s Histoire, but without figure legends (Kennard, 1942a; and see Bibliography). Possibly African in origin (Solem, 1964: 133), but widely distributed from Africa, through India, South East Asia, and Australia to the islands of the Pacific (Hoffman, 1925: 227–28). Reported, although only tentatively identified, from Apia by Alicata & McCarthy (1964: 608).

Genus VAGINULUS Ferussac, 1822

VAGINULUS Ferussac, 1822c: 13. Type species: Vaginulus taunaisii Ferussac, 1822 [not Samoan], by subsequent designation of Woodward (1854: 170).

Ferussac (1822c: 13) proposed the name as “Vaginulus”, masculine. Both this masculine form and the feminine form “Vaginula”, first introduced by Berthold (1827: 173) and soon after by Blainville (1828: 428), have subsequently been used almost interchangeably. It seems that Hoffmann (1925: 172) was the first to satisfy the provisions of Code Art. 33(b)(i) in making a formal
emendation. Smith (1992: 318) incorrectly attributed the emendation to Bishop (1977), who continued to use *Vaginulus*. Cowie (1997b: 38) considered the emendation to be justified. However, his interpretation of the emendation as justified seems to be mistaken. The gender of *Vaginulus* Ferussac is determined under the provisions of Code Art. 30(a)(iv) as masculine even though it was derived from a feminine word, the diminutive “vaginula” of the Latin word “vagina”. Thus, *Vaginulus*, masculine, remains the correct original spelling (Code Art. 32).

Further confusion surrounds the relationship of the genus *Veronicella* Blainville, 1817 [not Samoan] to *Vaginulus* Ferussac. Thomé (1975a, b, 1988a) has discussed the history of these issues in more detail.

Woodward’s (1854: 170) type designation predated that of Stoliczka (1873: 35), which in any case was not explicit (Code Art. 67(c)(3)) (cf. Baker, 1925: 13; Forcart, 1969: 149; Smith, 1992: 318; Thomé, 1975a: 158). Gray’s (1847: 178) designation of “Limax nudus, Sloane, 1725” [= *Onchidium sloani* Cuvier, 1816 and *Veronicella laevis* Blainville, 1817, texte Thomé (1988a: 17, 18, 21) [not Samoan] is considered invalid, following Baker (1925: 17) and Kennard (1942b: 118), because Ferussac (1822: 14) included this species with some doubt as a member of his new genus.

**Subgenus SARASINULA** Grimpe & Hoffmann, 1924

*SARASINULA* Grimpe & Hoffmann, 1924: 177 (as genus) [1925: 376 (as genus)]. Type species: *Vaginulus plebeius* Fischer, 1868 (as “S. plebeja”), by original designation.


**plebeius.** (?S, U; introduced)


**samoana.**


Remarks. Grimpe & Hoffmann (1925: 379–80) seemed undecided as to whether it should be considered a “species spuria” or a variety of *plebeius* Fischer, 1868, but treated it as a subspecific local form of *plebeius* on p. 383. Treated here as a synonym of *plebeius* Fischer, 1868, following Hoffmann (1925: 251).
Family ELLOBIIDAE Adams & Adams, 1854

The Ellobiidae [= Auriculidae] are pulmonates, but their placement within the Pulmonata has differed among authors (e.g., Bieler, 1992; Boss, 1982; Zilch, 1959a). They are supralittoral in habitat, with some taxa (notably Pythiinae in Samoa) being found among the terrestrial vegetation just inland of the zone of immediate marine influence (or in some cases much further inland; Martins, 1995c). The family has a worldwide distribution and most of the Samoan species are widely distributed extralimitally. There is considerable intra-specific morphological variation that has led to numerous extralimital synonyms. There has been no recent treatment specifically of the Samoan fauna and its nomenclature is not stable. However, a series of recent papers by Martins (1992, 1995a–c, 1996a, b; Martins & Tristão da Cunha, 1992) has treated the family widely and includes discussion of some of the Samoan taxa (see also Harbeck; 1996).


Subfamily ELLOBIINAE Adams & Adams, 1854

Genus AURICULAstra Martens, 1880

AURICULAstra Martens in Möbius, Richters & Martens, 1880: 207 (as Marinula subg.).

Type species: Auricula subula Quoy & Gaimard, 1832, by subsequent designation of Zilch (1959a: 76).

Cowie et al. (1995: 28) stated that the type species was Auricula elongata Küster, 1844 [not Samoan], by monotypy. Martins (1995a: 80) stated that Martens (1897: 158) designated Auricula subula Quoy & Gaimard, 1832 as the type species. In fact, Martens (in Möbius, Richters & Martens, 1880) included both subula Quoy & Gaimard, 1832 and elongata Küster, 1844, and Martens (1897) did not designate either as the type. Zilch (1959a: 76) appears to be the first to designate a type species.

subula. (U)


Genus **ELLOBIUM** Röding, 1798


**AURICULA** Lamarck, 1799: 76. Type species: *Bulla aurismidae* Linnaeus, 1758 (as “*Voluta*”) [not Samoan], by monotypy.

Cowie et al. (1995: 28) incorrectly stated that the type species fixation for *Auricula* was by subsequent designation of Childrey (1823: 241). They also incorrectly cited *Bulla aurismidae* Linnaeus, 1758 as *Voluta aurismidae* Linnaeus, 1767.

Subgenus **AURICULODES** Strand, 1928

**AURICULINA** Kobelt, 1898a: 77. Type species: *Auricula gangetica* Pfeiffer, 1855 [not Samoan], by original designation. [Preoccupied, Grateloup, 1838].

**AURICULODES** Strand, 1928: 64. Type species: *Auricula gangetica* Pfeiffer, 1855 [not Samoan], automatic. [n.n. for *Auriculina* Kobelt, 1898].

The name *Auriculina* Kobelt has not been used in reference to the Samoan fauna, but is listed here for completeness. See also Martins (1996b: 179).

**semisculptum. (U)**


Subfamily **MELAMPODINAE** Stimpson, 1851

Various authors have spelled the family-group name as “Melampinæ” (or “Melampidae”) (e.g., Baker, 1963a: 34; Harbeck, 1996: 86; Kay, 1979: 490; Martins, 1996b: 243); others have used “Melampodinae” (e.g., Vaught, 1989: 75; Zilch, 1959a: 65). Montfort (1810: 318), in his proposal of *Melampus*, did not give its derivation. According to a number of Latin dictionaries (Oxford, Harpers’, Cassell’s, Smith’s “Smaller” dictionary) and W. McCarty (pers. comm.), Melampus, with genitive Melampodis, was the son of Amythaon, and a celebrated physician, soothsayer, and healer (Cicero, Virgil); also the son of Atreus (Cicero); also the name of a dog, “Blackfoot” (Ovid). However, Baker (1963a: 34) noted a Latin dictionary (Ainsworth’s dictionary of 1830) that gave the physician’s name as Melampus, but with the genitive Melampi (also in Ainsworth’s abridged dictionary of 1808; G. Rosenberg, pers. comm.). In fact, Montfort may have been referring to the dog, for the following reason. Melampus is one of the dogs in Ovid’s story of Actaeon, and *Acteon* [sic] Montfort, 1810 (p. 314) is the genus name directly preceding *Melampus* (p. 318). Arguably, Melampi could be a mistaken inference of the dictionary compiler(s). Nevertheless, both Melampidae and Melampodinae could be construed as correct (Code Art. 26). But since most dictionaries seem to retain Melampodis as the genitive, and if the name (of the literary figures and the dog) is taken to mean black foot, it seems more appropriate to use Melampodinæ, which reflects the original meaning of the word more closely. The issue may require a ruling from the ICZN.

The family-group name Conovulinae Clarke, 1850, although having priority over Melamp-
podinae Stimpson is based on a junior synonym of Melampus (see Baker, 1956a: 130). Melampodinae has won general acceptance over Conovulinae and so is retained (Code Art. 40(b)).

Genus MELAMPUS Montfort, 1810

MELampus Montfort, 1810: 318. Type species: Bulimus coniformis Bruguière, 1789 [= Voluta coffea Linnaeus, 1767 teste Zilch (1959a: 65) and Martins (1996b: 258)] [not Samoan], by original designation.

Remarks. Schmeltz attributed the name to Mousson and reported it from “Insel Manua”.


Remarks. “Insel Manua” given as locality by Schmeltz (1866: 28), ‘Upolu and Savai’i by Schmeltz (1869: 68), Savai’i by Mousson (1869: 348) and Paetel (1883: 171), Tutuila, Ofu, and Ta’u by Miller (1993: 11, 12); also Ovalau (Fiji) by Mousson (1870a: 135). A number of extralimital synonyms (see, e.g., Garrett, 1887: 139).

+fors. (Manu’a) Melampus fasciatus var. foris Mousson, 1869: 348. Manua.

Remarks. Name attributed to Mousson and reported from “Insel Manua” by Schmeltz (1866: 28) and from ‘Upolu and Savai’i by Schmeltz (1869: 68, 1874: 88). Not published by Mousson.

luteus. (U, T, Manu’a) Auricula lutea Quoy & Gaimard, 1832: 163, pl. 13, figs. 25–27. La petite île de Nanoun-ha, qui touche Vanikoro [= Vanikolo, Santa Cruz Islands, Solomon Islands]. Syntypes MNHN (Smith, 1992: 217).

Remarks. Reported from ‘Upolu and Savai’i by Schmeltz.


philippii. (U) Auricula philippii Küster, 1845: 50. Der Insel Otahaiti [= Tahiti].
Remarks. ‘Upolu given as locality by Mousson (1865: 177, 1869: 348); “Samoa I.” by Schaufuss (1869: 90).
semisulcatus.


*Remarks.* Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

semisulcatus. (U)

*Melampus semisulcatus* Mousson, 1869: 347, pl. 15, fig. 2. Upolu.

*Remarks.* Occurs extralimitally, e.g., in Tonga and Fiji (Garrett, 1887: 141).

striatus. (U)


*Remarks.* Recorded from 'Upolu by Garrett (1887: 141).

tongaensis. (Samoa)

*Melampus tongaensis* Mousson, 1871: 22, pl. 3, fig. 8. Tangatabou [= Tongatapu].

*Remarks.* Recorded from Samoa by Garrett (1887: 140).

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**Subfamily PYTHIINAE Odhner, 1925**

**Genus ALLOCHROA Ancey, 1887**

ALLOCHROA Ancey, 1887: 288. Type species: *Auricula bronnii* Philippi, 1846 (as "*Melampus Bronni*"), [not Samoan], by original designation.

layardi. (U)


*Remarks.* Recorded from 'Upolu by Garrett (1887: 142). Placed in Allochroa following Martins (1995b), who provided a detailed account of this species.

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**Genus CASSIDULA Férussac, 1821**

CASSIDULA Férussac, 1821e: 105 (as *Auricula* subg.). Type species: *Auricula felis* Lamarck, 1816 (as "V. auris felis") [= *Bulimus aurisfelis* Bruguière, 1789, *teste* Zilch (1959a: 76)] [not Samoan], by subsequent designation of Gray (1847: 179).

Although the heading of Férussac’s “troisième groupe” of the genus *Auricula* is in the vernacular, i.e., “Les Cassidules, Cassidulæ”, the first listed species latinizes the name, i.e., “*Auricula (Cassidula) felis* Lamarck”, thereby validating *Cassidula*.

crassiuscula.

*Cassidula crassiuscula* Schmeltz, 1869: 69, pl. 15, fig. 1. *Nom. nud.*

*Remarks.* Schmeltz attributed the name to Mousson and recorded it from 'Upolu and Fiji.

crassiuscula. (U)


*Remarks.* Also recorded from “Uea” [= Uvea, Wallis Islands] and Tongatapu (Mousson, 1871: 19), as "var. vitiensis" from Fiji (Mousson, 1870a: 131), and from "Tonga, Viti and the islands in Melanesia" (Garrett, 1887: 142).

intuscarinata.


*Remarks.* Schmeltz attributed the name to Mousson and recorded it from Savai‘i.
intuscarinata. (?S; ?not Samoan)

_Auricula_ (Cassidulida) _intuscarinata_ Mousson, 1870a: 132, pl. 7, fig. 9. Natroga, dans l’île de Viti-Levu.

*Remarks.* Included only on the basis of the nude name _intuscarinata_ Schmeltz, 1869.

paludosa. (U)

_Ophicardelus paludosus_ Garrett, 1872: 220, pl. 19, fig. 3. Viti [= Fiji], Wallis and Samoa Islands.

*Remarks.* Recorded from ‘Upolu by Garrett (1887: 143).

**Genus PYTHIA Röding, 1798**


Following Mousson (1869: 390), _pyramidata_ Reeve, 1842 is excluded from this catalog as not Samoan.

savaiensis. (S, Manu’a)


tortuosa. (U)

_Pythia tortuosa_ Mousson, 1871: 19, pl. 3, fig. 6. Les deux îles d’Uea et de Futuna.

*Remarks.* Recorded from ‘Upolu by Garrett (1887: 143).

_Incertae sedis in ELLOBIIDAE_

ovuloides. (T)

_Melampus_ (Tifata) _ovuloides_ Baird, 1873: 442, pl. 39, figs. 9, 10. Tutuila, Samoan group.

Family PHYSIDAE Fitzinger, 1833

Physidae in the Pacific are poorly known. There may be more than one species, probably all introduced (e.g., in the Hawaiian Islands; Cowie, 1997b: 8).

Genus PHYSA Draparnaud, 1801


A single physid, in the genus Physa s. str., has been recorded in the literature from Samoa (Tutuila only) but has not been identified to species; it may have been artificially introduced (Sturmühlner, 1993: 288, 293, 1995: 401).
Family PLANORBIDAE Gray, 1840

Authorship and date of Planorbidae was attributed to Gray, 1840 by ICZN (1955: 484, 488). This authorship must stand (until corrected) according to the Code (Art. 78(f)(iii)), although the name was first introduced by Rafinesque in 1815. Planorbidae in the Pacific are poorly known. They may well have been introduced, perhaps in part via the aquarium trade (e.g., Cowie, 1997b: 9).

Subfamily PLANORBINAE Gray, 1840

Genus PHYSASTRA Tapparone Canefri, 1883

PHYSASTRA Tapparone Canefri, 1883: 245 (as Physa sect.). Type species: Physa vestita Tapparone Canefri, 1883 [not Samoan], by monotypy.


Physa nasuta. (T; ?introduced)


Genus PLANORBIS Müller, 1773

PLANORBIS Müller, 1773: [unnumbered page xxvi] [1774: 152]. Type species Planorbis carinatus Müller, 1774 [not Samoan], by subsequent designation of Baker (1930: 42).

The first valid publication of Planorbis is usually cited as Müller (1774: 152) but the introductory material to this work (Müller, 1773) includes a key to genera that includes characters that validate the genus-group name, although not including any species. The type species is often cited as Helix planorbis Linnaeus, 1758 [not Samoan], by tautonomy (e.g., Baker, 1945: 48, 51; Zilch, 1959a: 108). However, this species was not actually cited by name (although it was referred to as “Lin. Syst. 662”) among the originally included nominal species (Müller, 1774) and is therefore not eligible as the type (Code Art. 68(e), Art. 69(a)(i)). Baker (1930: 42) seems to have been the first to designate a type species from those named species originally included by Müller (1774). See also Kennard & Woodward (1924: 9).

Laird (1956: 46, 95) recorded unidentified "Planorbis spp." from 'Upolu. These species (one or more) have not been identified further, but are probably artificially introduced.
Family ANCYLIDAE Rafinesque, 1815

This catalog follows Hubendick (1967), Vaught (1989: 78), Smith (1992: 93), and Cowie et al. (1995: 34) in using the family name Ancylidae for the genus *Ferrissia*, which is placed in the subfamily Ferrissiinae. Zilch (1959a: 127) and Starmühlner (1976: 625, 1993: 290) raised Ferrissiinae to full family status. Hubendick (1967) was the most recent to review Pacific ancylics. He indicated the difficulty of distinguishing the few, poorly known species. The only Samoan records of Ancylidae are due to Starmühlner (1992a: 383, 1993: 290) who recorded but a single species.

Subfamily FERRISSIINAE Walker, 1917

Genus FERRISSIA Walker, 1903

*FERRISSIA* Walker, 1903: 15 (as *Ancylus* sect.). Type species: *Ancylus rivularis* Say, 1817 [not Samoan], by original designation.

Subgenus PETTANCYLUS Iredale, 1943

*PETTANCYLUS* Iredale, 1943: 228 (as genus). Type species: *Ancylus tasmanicus* Tenison-Woods, 1876 [not Samoan], by original designation.

*noumeensis*. (T; ?introduced)


Remarks. Starmühlner (1992a: 383, 1993: 290) considered his single ancylic species (from Tutuila only) either very close to or identical with *Ferrissia (Pettancylus) noumeensis* (Crosse, 1871) from New Caledonia, Fiji, and perhaps Tahiti and New Guinea (Haynes, 1984: 17; Starmühlner, 1976: 625–26, 1993: 292). It is listed here as *noumeensis* Crosse, 1871, with the caveat that this name may be incorrect. Starmühlner (1993: 293, 1995: 402) suggested that it might have been introduced. Solem (1964: 133) considered *noumeensis* Crosse, 1871 to be of doubtful distinction, and probably to have been introduced artificially to New Caledonia. Pointier & Marquet (1990: 222) and Marquet (1993: 166) also considered the unidentified species of *Ferrissia* in French Polynesia to have been recently introduced.
Family ACHATINELLIDAE Gulick, 1873

The Achatinellidae are widespread in the Pacific Basin. A number of species have also been recorded from Australia, South East Asia, and the islands of the Indian Ocean but these are probably introductions (Cooke & Kondo, 1961: 219; Solem, 1964: 133, 1989: 469; Zimmerman, 1948). The Achatinellidae are thus one of four land snail families endemic to the Pacific basin, the others being Partulidae, Endodontidae (both represented in the Samoan fauna; see below), and Amastridae (endemic to the Hawaiian Islands; Cowie et al., 1995). The phylogenetic and biogeographic relationships and origins of the Achatinellidae are unclear, but the family is certainly ancient, perhaps of Pangean origin, and seems to lie close to the Pupillidae, Valloniidae, and Pyramidulidae (Cowie, 1992, 1997a; Tillier, 1989). The most recent systematic review (Cooke & Kondo, 1961) focused on the non-achatinelline subfamilies. For details of the Achatinellinae, which are Hawaiian endemics, see Cowie et al. (1995). The Achatinellinae, mostly tree snails, are replaced ecologically elsewhere in the Pacific, at least in some respects, by the Partulidae (Cowie, 1992). The taxonomic arrangement adopted here follows Cowie et al. (1995).

Subfamily PACIFICELLINAE Steenberg, 1925

The status of the family-group names Pacificellinae Steenberg, 1925 and Lamellideinae Cooke & Kondo, 1961 and of the genus-group names Pacificella Odhner, 1922 and Tornatellinops Pilsbry & Cooke, 1915 were discussed by Cowie et al. (1995: 78, 80–81).

Genus LAMELLIDEA Pilsbry, 1910


LAMELLIDEA Pilsbry, 1910b: 123 (as Tornatellina sect.). Type species: Pupa peponum Gould, 1847 (as "Tornatellina") [not Samoan], by original designation.

The names Lamellina Pease and Lamellaria Liardet, appear not to have been used in reference to the Samoan fauna. However, they are included here for completeness. The history of these names, and of Lamellidea Pilsbry, is outlined by Cowie et al. (1995: 79).

Subgenus LAMELLIDEA Pilsbry, 1910

Schmeltz (1966: 29) recorded peponum Gould, 1847 from ‘Upolu, but this species is a Hawaiian endemic (Cooke & Kondo, 1961: 210; Cowie et al., 1995: 80) and is excluded from this catalog.
bacillaris.


Remarks. Schmeltz attributed the name to Mousson and recorded it from Tutuila.

bacillaris.

Tornatellina bacillaris Mousson, 1871: 16, pl. 3, fig. 5. Futuna.


buccularis.

Tornatellina buccularis Schmeltz, 1869: 70. *Nom. nud.*

Remarks. Schmeltz attributed the name to Mousson and recorded it from Tutuila.

conica.

Tornatellina conica Schmeltz, 1869: 70. *Nom. nud.*

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu and Tutuila as well as a number of other islands in the Pacific.

conica.

Tornatellina conica Mousson, 1869: 342, pl. 14, fig. 8. Upolu, Tutuila.


normalis.

Tornatellina impressa var. normalis Pilsbry & Cooke, 1915b: 174. [n.n. for *conica* Mousson, 1869].


oblonga. (T, Ol, Ta; ?introduced)


pusilla. (U, T, O, Ol, Ta, Sw; ?introduced)

Partula pusilla Gould, 1847a: 197. Matea Island [= Makatea, teste Cooke & Kondo (1961: 188)]. Holotype USNM 5492 (Johnson, 1964: 136; the original catalog entry in the USNM shows that the lot contained only a single specimen).


Genus PACIFICELLA Odhner, 1922


See Cowie et al. (1995: 80–81) for a discussion of the status of the genus-group names *Pacificella* and *Tornatellinops*.

variabilis. (?T; ?introduced)

Remarks. Widespread in the Pacific, probably in large part as a result of human activities (Cooke & Kondo, 1961: 166, 172–75; Solem, 1964: 133). The distribution map of Cooke & Kondo (1961: 166) includes the entire Samoan Archipelago, but the only more specific information is a tentative record from Tutuila (A.C. Robinson, in litt. 11 July 1994).

Subfamily TORNATELLININAE Sykes, 1900

Genus ELASMIAS Pilsbry, 1910

ELASMIAS Pilsbry, 1910b: 122. Type species: Tornatellina aperta Pease, 1865, by original designation.

Cooke & Kondo (1961) gave no records of Elasmias spp. from Samoa, although their map (p. 220) included Samoa in the distribution of the genus, with the recorded distribution of one species, aperta Pease, 1865, extending from the Marquesas and Society Islands to Rotuma and Tongatapu (p. 223). It was probably transported widely by Polynesian voyagers (Cooke & Kondo, 1961: 223; Solem, 1964: 133). Miller (1993: 11, 19) recorded Elasmias sp. on Tutuila but did not identify it to species; it may be aperta Pease, 1865, and should probably be considered artificially introduced in Samoa. Bishop Museum holds collections labeled Elasmias sp. from 'Upolu, Tutuila, and Ta'u. No species-group name is listed here in the absence of a definitive identification.
Family PUPILLIDAE Turton, 1831

The pupillids have a world-wide distribution and are one of the major groups of land snails in the Pacific. Family-level classifications of various authors differ considerably (e.g., Boss, 1982; Solem, 1989, 1991; Tillier, 1989; Vaught, 1989; Zilch, 1959a), as do assignments of genera to families and subfamilies. The conservative approach of Solem (1989, 1991) and Thompson & Dance (1983: 103), adopted by Cowie et al. (1995: 130), is also adopted here, following Pilsbry (1935: vii-xii) who included in the Pupillidae a number of subfamilies raised to family status by some later authors.

Subfamily GASTROCOPTINAE Pilsbry, 1918

Genus GASTROCOPTA Wollaston, 1878

GASTROCOPTA Wollaston, 1878: 515 (as Pupa subg.). Type species: Pupa acarus Benson, 1856 (as “G. acarus”) [not Samoan], by subsequent designation of Pilsbry (1916: 7) [see also ICZN (1957: 167)].

Cowie et al. (1995: 130, 131) recognized the subgenera Gastrocopta s. str. and Sinalbinula Pilsbry, 1916 in the Hawaiian fauna. However, following Solem (1989: 480), these subgeneric divisions are ignored here, the single species being placed in Gastrocopta s.l. pediculus. (U, T; ?introduced)

Pupa pediculus Shuttleworth, 1852: 296. Cum praecedente [i.e., Pupa pleurophora Shuttleworth, 1852 [not Samoan], the locality of which was given as “Marquesas et Taite”].


samoensis.


Remarks. Schmeltz attributed the name to Mousson and recorded it from Samoa.

samoensis.

Pupa pediculus var. samoensis Mousson, 1865: 175. Upolu, Samoa.


Subfamily NESOPUPINAE Steenberg, 1925

Genus NESOPUPA Pilsbry, 1900

PTYCHOCHILUS Boettger, 1881: 47 (as Vertigo subsect.). Type species: Pupa (Vertigo) tantilla Gould, 1847 [?not Samoan], by original designation.

PTYCHOCHYLUS: incorrect original spelling of Ptychochilus Boettger (Boettger, 1881: 48).
**NESOPUPA** Pilsbry, 1900: 431. Type species: *Pupa (Vertigo) tantilla* Gould, 1847 [?not Samoan], automatic. [Unnecessary n.n. for *Psychochilus* Boettger, 1881].

*Psychochilus* Boettger and *Psychochylus* Boettger were suppressed by ICZN (1996: 53), following the application of Cowie et al. (1994).

### Subgenus NESOPUPA Pilsbry, 1900

godeffroyi. (?T; Samoa)

*Pupa tantilla* var. *godeffroyi* Boettger, 1881: 53, pl. 10, fig. 5. Samoa-Inseln.

**Remarks.** Treated as a full species, following Pilsbry (in Pilsbry & Cooke, 1920: 324, 330). The only more specific distributional information is a tentative record from Tutuila (A.C. Robinson, in litt. 11 July 1994).

tantilla. (?U; ?not Samoan)


**Remarks.** Reported from ‘Upolu by Schmeltz (1869: 69) and Paetel (1873: 108, 1883: 160, 1890: 306) and widely in the Pacific by others (see Pilsbry in Pilsbry & Cooke, 1920: 325), but Pilsbry (in Pilsbry & Cooke, 1920: 326) considered “typical tantilla” to be “known positively from Tahiti only”.

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**Genus PUPISOMA** Stoliczka, 1873

**PUPISOMA** Stoliczka, 1873: 32 (as *Pupa* subg.). Type species: *Pupa lignicola* Stoliczka, 1871 [not Samoan], by original designation.

orcula. (?T)

*Helix orcula* Benson, 1850: 251. In agro Bengalesi et Baharico, necnon versus occidentem usque ad ripas fluvii Goomty ... a day’s march from Jounpore, and on the road thence to Benares ... at Dinpore, near Patna ... the whole route from Barrackpore, in Bengal, to the borders of Sikkim, and thence to Chuprah in Bahar.

**Remarks.** A widespread species (Solem, 1989: 473), possibly in part as a result of human activities (Pilsbry, 1920: 33). The only specific information recording it in Samoa is a tentative record from Tutuila (A.C. Robinson, in litt. 11 July 1994).
Family PARTULIDAE Pilsbry, 1900

With the exception of some doubtful records from New Guinea, the Partulidae are endemic to the islands of the Pacific. Their distribution extends from Belau and the Marianas in the north west to the Marquesas, Austral, and Society Islands in the south east; they are absent from Hawaii (Cowie, 1992). The precise phylogenetic relationships and geographic origins of the family are unknown, although they may be related to the Enidae and to the New Caledonian genus Draparnaulia Montrouzier (see Cowie, 1992, 1997a; Tillier & Mordan, 1995). The family is usually divided into three genera (e.g., Cowie, 1992; Kondo, 1968; Richardson, 1990), although Vaught (1989: 85) listed just the single genus Partula, with 12 subgenera (including Partula s. str.). Cowie (1992) reviewed the biology of the family and Richardson (1990) provided a nomenclatural catalog of the genus-group and species-group names. Together with the review of Johnson et al. (1993), these works constitute the basic sources of reference for the Partulidae. The most recent comprehensive systematic revision, entirely conchological, is that of Pilsbry (1909b, 1910a) in the Manual of Conchology. A major anatomical treatment of the family remains unpublished (Kondo, 1955).

Extensive work on the evolution and population genetics of partulids has been undertaken, in particular on the species of Moorea in the Society Islands (reviewed by Johnson et al., 1993). Tragically, these species are now extinct in the wild, largely as a result of predation by the introduced carnivorous snail Euglandina rosea (Férrussac, 1821) (see Murray et al., 1989). The partulids of Guam and the Marianas are succumbing to a similar fate (Hopper & Smith, 1992).

The Samoan fauna consists of just 8 species, 3 in Eua and 5 in Samoana. The species of American Samoa, at least, are under severe threat of extinction from habitat loss and rat predation, and especially from predation by E. rosea (see Cowie, 1993; Miller, 1993; Miller et al., 1993a, b; Trail, 1993).

Following Kondo (1968) and Richardson (1990), Eua and Samoana are treated as genera, not as subgenera of Partula (cf. Vaught, 1989; Zilch, 1959a, 1962). Island distributions are from Kondo (1968: 75). The following taxa, listed by various authors as from Samoa (e.g., Mousson, 1869: 388-89; Paetel, 1883: 153, 1890: 266-68) are in fact not Samoan (Kondo, 1968; Pilsbry, 1909b) and are excluded from this catalog: amabilis Pfeiffer, 1846, decussatula Pfeiffer, 1850, filosa Pfeiffer, 1853, navigatoria Pfeiffer, 1850, nodosa Pfeiffer, 1853, purpurascens Pfeiffer, 1857.

Genus EUA Pilsbry & Cooke, 1934

EUA Pilsbry & Cooke, 1934a: 4. Type species: Eua globosa Pilsbry & Cooke, 1934 [not Samoan], by original designation.

The Samoan species of Eua are placed in subg. NESANASSA, following Pilsbry & Cooke (1934a: 19).

Subgenus NESANASSA Pilsbry & Cooke, 1934

actor.

Partulus actor Albers, 1850: 187. [No locality given.]


dispersa. (S, U)

Partula dispersa Pease, 1871a: 26, pl. 9, fig. 3. In Insula Tutuila [error]. Holotype ANSP 59841 (Baker, 1963b: 205) [ANSP 59453, error (Johnson, 1994: 12)].

dispensa.


Remarks. Considered an error for expansa Pease by Pilsbry (1909b: 270) and Richardson (1990: 3).

montana. (U)

Partula montana Cooke & Crampton, 1930: 7, pl. 1, fig. D. High forest of the Afiamalu region, altitude about 2500 feet, near Tiapapala Pass, 5.75 miles south of Apia, Upolu, Samoa.

Remarks. Junior primary homonym of montana Möllendorff, 1900 [not Samoan], which is an unnecessary replacement name for guamensis Pfeiffer, 1846 [not Samoan]. No new name proposed here, pending further research.

recluziana. (T)

Partula recluziana Petit de la Saussaye, 1850: 170, pl. 7, fig. 5. [No locality given.]

Remarks. The original locality was given only tentatively as “une des iles Salomon?”. Mousson (1869: 339), Schmeltz (1869: 71, 1874: 91, 96), and Paetel (1883: 153) recorded it from Tutuila. Pease (1871b: 474) and Pilsbry (1909b: 269) considered it a variety of zebrina Gould, from Tutuila. Not listed by Kondo (1968).

tryoni.


zebrina. (T)


Remarks. Erroneously recorded from 'Upolu by various authors, including Gould (1852: 83), Mousson (1865: 173, 1869: 339), Schmeltz (1869: 71, 1874: 91, 97), and Paetel (1883: 153, 1890: 268).

Genus SAMOANA Pilsbry, 1909

EVADNE Hartman, 1881: 12 (as Partula subg.). Type species: Partula bulimoides Lesson, 1831 [misidentification; = Partula canalis, Mousson, 1865, teste Pilsbry (1909b: 264, 305) and Richardson (1990: 71]), by original designation. [Preoccupied, Lovén, 1836 (Crustacea)].

SAMOANA Pilsbry, 1909b: 165, 263 (as Partula sect.). Type species: Partula canalis Mousson, 1865, by original designation.

abbreviata.


Remarks. Schmeltz attributed the name to Mousson and recorded it from Tutuila.

abbreviata. (T)


biconica. (Samoan)

Partula (Samoana) canalis var. biconica Pilsbry, 1909b: 264, pl. 31, figs. 6, 7. Samoan
Islands [in title of section; the introductory paragraph states that "Samoan Partulae . . . [have] been collected only on Upolu and Tutuila"]). Holotype ANSP 59844a (Baker, 1963b: 204).

**Remarks.** Not listed by Kondo (1968).

**Partula canalis** Schmeltz, 1865: 25. **Nom. nud.**

**Remarks.** Schmeltz attributed the name to Mousson and recorded it from Samoa.

**canalis. (S, U)**


**Remarks.** Retained as a valid species, following Kondo (1968: 75), although Richardson (1990: 71, 87), treated it as either a synonym or subspecies of *conica* Gould.

**canica. (U, T)**


**Remarks.** Pilsbry (1909b: 266) considered Gould's locality "Raraka", which is in the Tuamoto Archipelago, as almost certainly incorrect.

**semilineata.**

**Partula canalis** var. *semilineata* Schmeltz, 1869: 71. **Nom. nud.**

**Remarks.** Schmeltz attributed the name to Mousson and recorded it from Tutuila.

**+semilineata. (T)**


**Remarks.** Not listed by Kondo (1968).

**stevensoniana. (S, U)**

**Partula (Samoana) stevensoniana** Pilsbry, 1909b: 266, pl. 31, fig. 12, pl. 32, figs. 4, 9, 11. Samoan Is.: Apia, Upolu. Holotype ANSP 77306a (Baker, 1963b: 205).

**thurstoni. (O)**

**Partula thurstoni** Cooke & Crampton, 1930: 6, pi. 1, fig. C. Ofu Island, Samoa, near the summit of the highest peak. Holotype BPBM 10853, paratypes BPBM 83121.

**upolensis.**

**Partula conica** *upolensis* Schmeltz, 1865: iii, 25. **Nom. nud.**

**Remarks.** Schmeltz attributed the name to Mousson, recorded it from Samoa, and considered it a synonym of *conica* Gould. Listed by various authors (e.g., Garrett, 1887: 134; Hartman, 1881: 13, 1885: 222; Paetel, 1873: 104, 1883: 153, 1890: 268), often in the synonymy of *conica* Gould, although its true identity seems unclear (Pilsbry, 1909b: 266). The name was apparently never validated.

**Incertae sedis in PARTULIDAE**

**brazierii. (?not Samoan)**

**Partula brazieri** Pease, 1871a: 27. pl. 9, fig. 5. In Insula Tutuila. Holotype ANSP 59846 (Baker, 1963b: 204; see also Garrett, 1887: 135).


**gonochila. (?not Samoan)**

**Bulimus gonochilus** Pfeiffer in Menke & Pfeiffer, 1847: 82. [No locality given.]

**Remarks.** Placed in *Partula sect. Samoana* by Pilsbry (1909b: 272). Retained in the genus *Partula* by Richardson (1990: 30). Samoa given as locality by various authors (e.g., Paetel, 1883: 153, 1890: 267; Pfeiffer, 1868: 160; Reeve, 1850c: pl. 4, species 19), but this was doubted by Pilsbry (1909b: 273). Frequently misspelled as "gonocheila". Not listed by Kondo (1968).
Family SUBULINIDAE Thiele, 1931

Authorship and date of Subulinidae was attributed to Thiele, 1931 by ICZN (1955: 484, 488). This authorship must stand (until corrected) according to the Code (Art. 78(f) (iii)), although the name was first introduced by Fischer & Crosse in 1877.

A number of subulinids are now widespread in the tropics and subtropics as a result of human activities, as well as being established greenhouse aliens in temperate regions (Cowie, 1997b: 33–37; Ho, 1995: 97–100; Kerney et al., 1979: 211–12; Pilsbry, 1906b: 124–41; Proschwitz, 1994: 184; Smith, 1992: 308; Solem, 1959: 118, 1964: 134, 1989: 520). In the Pacific, one species at least (Allopeas gracile (Hutton)) appears to have been dispersed by Pacific islanders prior to European exploration (Christensen & Kirch, 1986: 60), while others are more recent introductions (Christensen & Kirch, 1981: 82; Cooke, 1928: 2279; Solem, 1959: 118, 1964: 134, 1978: 43). They are often extremely abundant (Cooke, 1928: 2279). Their taxonomy is difficult, with much intra-specific conchological variation (e.g., Naggs, 1994: figs. 2–7) that, combined with their wide distributions, has resulted in numerous synonyms (Pilsbry, 1906b: 125). Many misidentifications of these introductions have probably been made (Kerney et al., 1979: 211–12; Naggs, 1994: 187; Solem, 1989: 520–24).

Characterization of subulinid genera is not well understood (Naggs, 1994: 175). However, following Naggs (1994), Allopeas Baker and Paropeas Pilsbry are treated here as genera, not sub-genera, respectively, of Lamellaxis Strebel & Pfeiffer and Prosopeas Möhrch.

Genus ALLOPEAS Baker, 1935

ALLOPEAS Baker, 1935: 84 (as Lamellaxis subg.). Type species Bulinus gracilis Hutton, 1834 (as “Lamellaxis”), by original designation.


bacillaris.


Remarks. Treated here as possibly applying to gracile Hutton, following Pilsbry (1906c: 184). Listed from Tutuila by Paetel, who attributed the name to Mousson.

clavulinum. (?T, introduced)


Remarks. The only specific information recording it in Samoa is a tentative record from Tutuila (A.C. Robinson, in litt. 11 July 1994). Placed in Allopeas following Naggs (1994: 178).

gracile. (U, T; introduced)

Bulinus gracilis Hutton, 1834: 84 [description], 93 [name]. Mirzapo . . . Futhehpoo Sikra . . . in the rocky hills between Agra and Neemuch.

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junceus.

Bulimus junceus Gould, 1846e: 191. Society and Sandwich islands. Holotype USNM 5489, paratypes MCZ 169204, 169209, 216795 (Johnson, 1964: 96; the original catalog entry for the USNM lot shows that it contained only a single specimen).

oparanus.

Bulimus oparanus Pfeiffer, 1846a: 34. Island of Opara [= Rapa].

upolensis.

Remarks. Schmeltz attributed the name to Mousson and recorded it from Samoa.

Genus OPEAS Albers, 1850


hannense. (U, 7T; introduced)

Helix hannensis Rang, 1831: 41, pl. 3, fig. 8. Au village de Hann sur la presqu’île du Cap-Verd [= Cap Vert, Senegal].
Remarks. The junior synonym pumilus Pfeiffer, 1840 was recorded from 'Upolu by Solem (1989: 524). Tentatively recorded from Tutuila (A.C. Robinson, in litt. 11 July 1994). Also as "hanuensis" on pl. 3, fig. 8; hannensis selected here as the correct original spelling.

hanuensis.

Helix hanuensis Rang, 1831: pl. 3, fig. 8. Incorrect original spelling of hannensis Rang, 1831.

pumilus.

Bulimus pumilus Pfeiffer, 1840: 252. Cuba [in publication title].

Genus PAROPEAS Pilsbry, 1906

PAROPEAS Pilsbry, 1906a: 14 (as Prosopeas subg.). Type species Bulimus acutissimum Mousson, 1857 (as "P. acutissimum") [not Samoan], by original designation.

achatinaceum. (?S, ?U, 7T; introduced)

Remarks. A widespread synanthropic species, especially in the tropical Indo-Pacific (Naggs, 1994: 175). The only specific information recording it in Samoa is a tentative record from Tutuila, and tentative records of the junior synonym javanica from Savai'i and 'Upolu (A.C. Robinson, in litt. 11 July 1994).


**Genus SUBULINA** Beck, 1837

*SUBULINA* Beck, 1837: 76 (as *Achatina* subg.). Type species: *Bulimus octonus* Bruguière, 1789 (as "*Helix octona*"), by subsequent designation of Gray (1847: 178).

**octona.** (?U, T, O, Ol, Ta; introduced)

*Bulimus octonus* Bruguière, 1789: 325. Les îles Antilles [specifically mentioning Guadeloupe and Saint-Domingue].

Family ACHATINIDAE Swainson, 1840

The Achatinidae are native to Africa and include some of the largest land snails known. Their taxonomy has been treated in detail by Bequaert (1950). The single species in Samoa, *Achatina fulica* Bowdich, 1822, was first reported in American Samoa in 1977, subsequently spreading rapidly throughout Tutuila (Eldredge, 1988). Eldredge (1988) reported it from the Manu‘a Islands (not specifying which) but considered it to have been eradicated. However, in 1992 it was recorded on Ta‘u, as well as on Tutuila, although not on Ofu or Olosega (Cowie, 1993; Miller, 1993). It was first reported from 'Upolu in 1990 (Cowie, 1995: 16) but seems not yet to have reached other islands of Western Samoa (see also Anonymous, 1996a, b). *Achatina fulica* has been introduced widely in the humid tropics (Cowie, 1997b: 15; Mead, 1979), frequently becoming an agricultural and garden pest. Its pest status has led to the introduction of predatory snails in attempts at biological control, with resultant serious impacts on native snail faunas (see Partulidae, Spiraxidae, Streptaxidae).

Genus ACHATINA Lamarck, 1799

ACHATINA Lamarck, 1799: 75. Type species: *Bulla achatina* Linnaeus, 1758 [not Samoan], by monotypy.

Subgenus LISSACHATINA Bequaert, 1950

LISSACHATINA Bequaert, 1950: 49. Type species: *Achatina fulica* Bowdich, 1822, by original designation.

*fulica*. (U, T, Ta; introduced)


Remarks. Bequaert (1950: 63) discussed the validity of the name.
Family SPIRAXIDAE Baker, 1939

Spiraxidae are carnivorous snails native to the southeastern United States through Central America and the Caribbean to Brazil and Peru (Boss, 1982: 1071; Thompson, 1995: 45–89). The family-group name was proposed, as Spiraxinae, by Baker (1939: 9; cf. Emberton et al., 1990: 341).

Subfamily EUGLANDININAE Baker, 1941

Genus EUGLANDINA Crosse & Fischer, 1870

EUGLANDINA Crosse & Fischer in Fischer & Crosse, 1870: 97. Type species: Achatina lignaria Reeve, 1849 (as “E. aurata var. lignaria Reev.”) [not Samoan], by subsequent designation of Pilsbry (1907c: 175).

The carnivorous snail Euglandina rosea (Férussac, 1821) has been widely introduced throughout the tropics and subtropics for control of Achatina fulica Bowdich, 1822 (see Griffiths et al., 1993). While there is no good evidence that it has provided effective control of A. fulica (e.g., Christensen, 1984), despite claims to the contrary (e.g., Tauili‘ili & Vargo, 1993), there is ample evidence of its devastating effects on native land snail faunas, especially in the Pacific (Cowie, 1992, 1997a, b; Hadfield, 1986; Hadfield et al., 1993; Murray et al., 1989). It will even go under water to attack freshwater snails (Kinzie, 1992). It was first introduced to Samoa in 1980. By 1992 it appeared only to have been introduced to Tutuila and Ta‘u (Miller, 1993; Smith, 1992), but it has been a major contributor to the decline of native snail populations on those islands (Cowie, 1993; Eldredge, 1988; Miller, 1993; Miller et al., 1993a, b; Trail, 1993).

rosea. (T, Ta; introduced)
Achatina rosea Férussac, 1821c: 50. Les Florides [= Florida].
Remarks. Illustrated subsequently in pl. 136, figs. 8, 9, of Férussac’s Histoire; this plate issued in livraison 18 (1 March 1823) with the name rosea given on the wrapper. The wrapper of livraison 21 (27 September 1823) also lists pl. 135, figs. 1–3, as being rosea but this appears to be a misidentification. See Kennard (1942a, b) and the Bibliography.
Family STREPTAXIDAE Gray, 1860

Emberton et al. (1990: 341) gave 1840 as the date for the family-group name Streptaxidae, but the source for this is unknown and 1860 is taken as the date of publication of this name (Philippe Bouchet, pers. comm., 21 February 1997).

Streptaxids are carnivorous snails, widely distributed throughout the tropics and subtropics, in part due to human activities (Smith, 1992). Frequently, they have been introduced deliberately for use in attempts at biological control of Achatina fulica Bowdich, 1822 (Cowie, 1997b; Eldredge, 1988; Godan, 1983; Krauss, 1964). Notwithstanding reports to the contrary (e.g., Godan, 1983), there is no satisfactory evidence that they have had a significant impact on populations of A. fulica (e.g., Christensen, 1984). In general, streptaxids introduced for biological control have not become as abundant as Euglandina rosea (Férussac, 1821) (see above, Spiraxidae), but they nevertheless pose a significant threat to native land snail faunas (Solem, 1989: 531). They have been implicated in the recent decline of native Samoan land snails (Cowie, 1993; Miller, 1993; Miller et al., 1993a, b).


Subfamily ENNEINAE Bourguignat, 1883

Genus GULELLA Pfeiffer, 1856

GULELLA Pfeiffer, 1856a: 173 (as Ennea subg.). Type species: Pupa menkeana Pfeiffer, 1853 [not Samoan], by subsequent designation of Martens (1860: 298).

The single species recorded from Samoa, Gulella bicolor (Hutton, 1834), has been introduced widely and is now circumtropical in distribution (Clench, 1964: 142–43; Harry, 1966: 216; Solem: 1989: 531–32). Its possible origin is on the Indian subcontinent (Naggs, 1989: 167). Its nomenclature and distribution, and their taxonomic implications, have been discussed in detail by Naggs (1989). There is no consensus in assigning this species to genus nor in the status of the subgenus Huttonella, of which it is the type species (Naggs, 1989: 167; Solem, 1989: 531).

Solem (1989: 530) considered G. bicolor to have been introduced to Melanesia and Polynesia. It is not known when it first arrived in Samoa, nor whether it was accidentally or deliberately introduced. Other Gulella spp. have been introduced elsewhere in the Pacific in programs attempting to control Achatina fulica (e.g., Krauss, 1964: 23) but none of them has been reported from Samoa.

Subgenus HUTTONELLA Pfeiffer, 1856

HUTTONELLA Pfeiffer, 1856a: 174 (as Ennea subg.). Type species: Pupa bicolor Hutton, 1834 (as “E. bicolor”), by subsequent designation of Stoliczka (1871: 169).

The type species designation was discussed by Naggs (1989: 166).

bicolor. (?T; introduced)

Pupa bicolor Hutton, 1834: 86 [description], 93 [name]. Mirzapur . . . and at the base of the

Remarks. The only specific information recording it in Samoa is a tentative record from Tutuila (A.C. Robinson, in litt. 11 July 1994).

Genus STREPTOSTELE Dohrn, 1866

STREPTOSTELE Dohrn, 1866: 118, 128. Type species: Bulimus fastigiatus Morelet, 1848 (as "S. fastigiata") [not Samoan], by subsequent designation of Smith (1890: 96).

Subgenus TOMOSTELE Ancey, 1885

TOMOSTELE Ancey, 1885: 143. Type species: Achatina musaecola Morelet, 1860 (as "mus-cola"), by original designation.

The single, introduced species was first collected in Polynesia in 1973, with the first published record of its occurrence in the Pacific, including Samoa, by Solem (1989: 530; see also the unpublished report by Solem, 1975: 6). Whether it was accidentally or deliberately introduced to Samoa is unknown. Its impact on native snail populations is also unknown, although Miller (1993) conjectured that it may have been implicated in at least the extinction of Samoana abbreviata (Mousson, 1869) (Partulidae—see above).

musaecola. (T; introduced)


Subfamily STREPTAXINAE Gray, 1840

Genus GONAXIS Taylor, 1877

GONAXIS Taylor, 1877: 252. Type species: Gonaxis gibbonsi Taylor, 1877 [not Samoan], by monotypy.

Various Gonaxis spp. have been introduced to Pacific islands in attempts to control Achatina fulica Bowdich, 1822 (e.g., Eldredge, 1988; Hopper & Smith, 1992; Krauss, 1964). As yet, only one of these species, introduced in 1977 to Tutuila (Eldredge, 1988; Tauili'iili & Vargo, 1993), has been recorded from Samoa.

kibweziensis. (T; introduced)

Streptaxis kibweziensis Smith, 1894: 165, fig. 1. Kibwezi [Kenya].
Family RHYTIDIDAE Pilsbry, 1893

The family-group name Paryphantidae Godwin-Austen has also been used for this group, e.g., by Thiele (1931: 724), Kondo (1943: 230), Solem (1959: 147), and Smith (1971: 55). Zilch (1960a: 549), Boss (1982: 1072), Vaught (1989: 92), and Smith (1992: 299) used Rhytididae. The latter name has priority according to Baker (1957: 142) but contrary to Solem (1959: 147; see also Baker, 1956a: 134, 1956c: 34) and is used here. In fact, Rhytididae Pilsbry, 1893 is dated 25 February, while Paryphantidae Godwin-Austen, 1893 is dated October (Philippe Bouchet, pers. comm., 14 February 1997).

The Rhytididae are carnivorous snails but otherwise poorly known ecologically (e.g., Smith, 1971). They are found in New Zealand, Australia, islands of the western Pacific, Indonesia, South Africa, and the Seychelles (Boss, 1982: 1072; Smith, 1992: 299; Solem, 1959: 147). Their generic level taxonomy was reviewed by Solem (1959: 147–51) and Climo (1977) but remains somewhat insecure. A generic revision of the family is being undertaken by B.J. Smith (see Smith, 1992: 299).

Genus OUAGAPIA Crosse, 1895

OUAGAPIA Crosse, 1895: 203. Type species: Helix raynali Gassies, 1863 [not Samoan], by monotypy.

gradata. (S, U, O, Ta)


Remarks. Island distribution from Cooke (1942: 92) and Kondo (1943: 241). Generic placement is uncertain (Kondo, 1943: 229).
Family **ENDODONTIDAE** Pilsbry, 1895

The Endodontidae, *sensu* Solem (1976), are endemic to the Pacific basin and the most diverse land snail family of the Pacific. The only major monographic treatment of the group is that of Solem (1976), which includes many new genera and species. Combined with the subsequent monograph (Solem, 1983) of the other Pacific island endodontoid families, Charopidae (see below) and Punctidae (not recorded from Samoa), which deals also with biogeographical issues, this work provides the basic source of reference for the Endodontidae. A brief summary of patterns of endodontoid diversity in Samoa was given by Solem (1983: 290–92).

Endodontidae have been severely affected by human activities and much of the once huge diversity has now disappeared. They are essentially ground-dwelling snails and many species have the curious habit of depositing their eggs in the shell umbilicus. Both these characteristics have been suggested as making them highly susceptible to habitat degradation and predation by introduced ants (on eggs and juveniles especially) (Solem, 1976: 100–01, 1983: 45). Their relatively low diversity in Western Samoa may be related to the presence of endemic ants (Solem, 1976: 101).

**Genus MINIDONTA** Solem, 1976


**manuaensis**. (Ol, Ta)


*Remarks.* Also recorded from Olosega by Solem (1976: 130).

**Genus THAUMATODON** Pilsbry, 1893

**THAUMATODON** Pilsbry, 1893: 26 (as *Endodonta* sect.). Type species: *Pitys multilamellata* Garrett, 1872 [not Samoan], by subsequent designation of Solem (1976: 444).

Solem (1976: 444) regarded the type species to have been designated by Pilsbry. However, although Pilsbry (1893: 26) probably intended *multilamellata* Garrett, 1872 as the type species, he did not explicitly designate it as such.

**histriceilloides.**

*Patula histriceilloides* Schmeltz, 1865: 25. *Nom. nud.*

*Remarks.* Schmeltz attributed the name to Mousson and recorded it from Samoa.

**hystriceilloides.** (U)


*Remarks.* Figured by Crosse (1865: pl. 14, fig. 6). Solem (1976: 455) considered Mousson's (1871: 11) record from Tonga to be a misidentification.
Family CHAROPIDAE Hutton, 1884

The endodontoid family Charopidae, thought to be derived from the Endodontidae by Solem (1983) but considered as a possible “stem” group of the Endodontoidea by Tillier (1989: 88), is not confined to Pacific islands as are the Endodontidae. Outside the Pacific they are found in New Zealand, Australia, South America, South Africa, and St. Helena (Solem, 1983: 268). They exhibit particular diversity in New Zealand (e.g., Solem & Climo, 1985) and Australia (e.g., Stanisic, 1990). The monograph of Solem (1983) is a comprehensive treatment of the Pacific fauna and provides the essential entry into the scattered literature.

Charopids are to some extent arboreal, in contrast to the exclusively ground-dwelling endodontids, and they generally do not adopt the umbilical egg-laying habit of the endodontids (Solem, 1983: 45). Solem (1983: 45) suggested that they may as a result be less susceptible to ground-level habitat degradation and ant predation than are the endodontids, and hence appear to have persisted in relatively fair diversity.

Island distributions in Samoa are from Solem (1983).

Genus DISCOCHAROPA Iredale, 1913

DISCOCHAROPA Iredale, 1913: 379 (as Charopa subg.). Type species: Charopa exquisita Iredale, 1913 [not Samoan], by original designation.

aperta. (A, Ol, Ta)


Genus GRAEFFEDON Solem, 1983


graeffei.

Patula graeffei Schmeltz, 1866: 29 [1869: 72; as “Graeffei”]. Nom. nud.
Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.
graeffei. (U)

savaiiensis. (S)

Genus SINPLOYEA Solem, 1983

**SINPLOYEA** Solem, 1983: 81. Type species: *Sinployea peasei* Solem, 1983 [not Samoan], by original designation.

**allecta.** (S, U)


**aunuana.** (A, ?Ta)

*Sinployea aunuana* Solem, 1983: 122, figs. 52a–c, 53a–c. Samoa: Aunu Island (off Tutuila), Station 14, 500 yd. from shore at 200 ft. elevation. Holotype BPBM 83256, paratypes BPBM 83242, ex BPBM 182444 (Solem, 1983: 125).

**clausa.** (Ta)


**clista.** (U, T)


**complementaria.** (U)


*Remarks.* Figured by Crosse (1865: pl. 14, fig. 5).

**intermedia.** (Sw)


**τauensis.** (Ta)

Family SUCCINEIDAE Beck, 1837

Succineidae are found worldwide and constitute a major part of the land snail fauna of the Pacific, exhibiting particular diversity in the Hawaiian Islands (Cowie et al., 1995). Generic and subgeneric divisions are uncertain; further anatomical study is needed to define them more precisely. Likewise, placement of species in particular genera and subgenera can rarely be done on the basis of shell characters alone and relies mainly on anatomical characters. Thus, unless species have been dissected, they have generally, but not always, remained in Succinea. Two species, *manuana* Gould, 1846 and *modesta* Gould, 1846, were placed in the genus Catinella Pease, 1870 by Solem (1975: 3, 5) in an unpublished report. They appear not to have been formally published in this combination and are listed here under Succinea, pending further research. Reflecting this uncertainty, no subfamilial groupings are adopted here.

Genus SUCCINEA Draparnaud, 1801

**Succinea** Draparnaud, 1801: 32, 55. Type species: *Helix putris* Linnaeus, 1758 [not Samoa], by subsequent designation of Fleming (1818: 312, implicitly; 1822: 574, explicitly).

ICZN (1926: 13) and ICZN (1957: 164, 185) indicated that the subsequent designation of *putris* Linnaeus as the type species was by Gray (1847: 171).

**Succinea cheynei** Garrett, 1887: 137. *Nom. nud.*

*Remarks.* Name attributed to Dohrn and considered a synonym of *modesta* Gould.


*Remarks.* Tutuila also given as locality by Mousson (1869: 343). Tentatively recorded from Savai'i (A.C. Robinson, in litt. 11 July 1994).


*Remarks.* Reported from Ta'u by Solem (1975: 3; as "Catinella manua").


*Remarks.* Tutuila also given as locality by Mousson (1869: 343) and Schmeltz (1869: 69). Also recorded from Tonga (Mousson, 1871: 17). Reported from Tutuila by Solem (1975: 5; as "Catinella").

The "zonitoid" families
HELCARIONIDAE, ARIOPHANTIDAE, and ZONITIDAE

Treatments of what might loosely be called the "zonitoid" families have differed widely among authors (e.g., Baker, 1938, 1940, 1941; Boss, 1982; Riedel, 1980; Smith, 1992; Thiele, 1931; Tillier, 1989; Vaught, 1989; Zilch, 1959b). In general, the arrangement of taxa in this catalog follows Baker (1938, 1940, 1941), the most recent to revise the Pacific fauna comprehensively (cf. Cowie et al., 1995: 153; Solem, 1989: 543). The "zonitoids", although not endemic to the region, are one of the major land snail groups to have diversified widely on Pacific islands.

Island distributions in Samoa follow the original descriptions, Baker (1938, 1941), and other sources as indicated under the individual species. The listing of "Trochonanina sp." by Miller (1993: 24–30) is a misidentification.

Family HELICARIONIDAE Godwin-Austen, 1882

Correct spelling, authorship and date of Helicarionidae were clarified by ICZN (1992b), as corrected by ICZN (1993).

Subfamily EUCONULINAE Baker, 1928

Genus CONEUPLECTA Mollendorff, 1893

CONEUPLECTA Mollendorff, 1893: 64. Type species: Helix scalarina Pfeiffer, 1851 (as "Euplecta") [not Samoan], by original designation.

Subgenus SITALINA Thiele, 1931

SITALINA Thiele, 1931: 635 (as genus). Type species: Conulus circumcinctus Reinhardt, 1883 (as "S. circumcincta") [not Samoan], by monotypy.

microconus. (T)

Nanina microconus Mousson, 1865: 192. Lomma-Lomma (Viti) [= Fiji].

Remarks. Distribution given as "Samoa to Fiji and westward" by Baker (1941: 234) without mentioning individual Samoan islands except by reference to Schmeltz (1869: 70) who gave Tutuila. Garrett (1887: 126) did not mention specific islands.
Subfamily MICROCYSTINAE Thiele, 1931

Genus DIASTOLE Gude, 1913

DIASTOLE Gude, 1913b: 391. Type species: Helix conula Pease, 1861 [not Samoan], by original designation.

TROCHONANINA: authors, not Mousson, 1869, misidentification.

"Trochonanina Mousson, 1869" has frequently been used for this genus, but was restricted to an African group by the type designation of Nevill (1878: 45) (see Baker, 1938: 45).

Subgenus DIASTOLE Gude, 1913

matafaoi. (T)

Diastole (Diastole) matafaoi Baker, 1938: 51, pl. 5, fig. 7, pl. 17, figs. 4, 5). Tutuila (central) . . . alt. 1,500–1,600 feet, below sub-peak on connecting ridge to Matafao. Holotype BPBM 11402 (Baker, 1938: 101).

Subgenus TROCHONANITA Baker, 1938

TROCHONANITA Baker, 1938: 45. Type species: Nanina schmeltziana Mousson, 1865 (as "Diastole"), by original designation.

lamellaxis. (S)

Diastole (Trochonanita) lamellaxis Baker, 1938: 54, pl. 5, fig. 14, pl. 15, figs. 11, 12. Samoa: Savaii: . . . hillside, alt. 1,000–2,000 feet, one to three miles behind Salealua. Holotype BPBM 75769 (Baker, 1938: 100).

savaii. (S)

Diastole (Trochonanita) savaii Baker, 1938: 53, pl. 5, fig. 13, pl. 17, figs. 9, 10. Samoa: Savaii: . . . hillside, alt. 900 feet, two miles behind Salealua. Holotype BPBM 75807 (Baker, 1938: 101).

schmeltzana.

Remarks. Schmeltz attributed the name to Mousson and recorded it from Samoa.

schmeltziana. (U, T, O)

Remarks. Baker (1938: 52, 53) considered this species to be distributed throughout Samoa, but questioned Mousson’s (1871: 9) record from Futuna. Miller (1993: 12) recorded it from Tutuila and Ofu.

usurpata.

Nanina schmeltziana var. usurpata Schmeltz, 1869: 71. Nom. nud.
Remarks. Schmeltz attributed the name to Mousson and recorded it from Savai‘i and Futuna. Baker (1938: 52) questioned the record from Futuna.

+usurpata. (S, U, O, Ta)

Nanina (Trochonanina) schmeltziana var. usurpata Mousson, 1869: 330. Savai [= Savai‘i].
Remarks. The distinction of this “variety” from the nominotypical schmeltziana Mousson, 1865 seems doubtful (Baker, 1938: 52–53).
Genus LAMPROCYSTIS Pfeffer, 1883

LAMPROCYSTIS Pfeffer, 1883: 20. Type species: Nanina excrescens Mousson, 1870 [not Samoan] (as "Lamprocystis"), by subsequent designation of Pilsbry (1928: 67).

Subgenus KERAKYSTIS Baker, 1938

KERAKYSTIS Baker, 1938: 69. Type species: Nanina perpolita Mousson, 1869 (as "Lamprocystis"), by original designation.

remarks.

perpolita.

Remarks. Schmeltz attributed the name to Mousson and recorded it from 'Upolu.

perpolita. (S, U)

Nanina (Microcystis) perpolita Mousson, 1869: 326, pl. 14, fig. 1. Upolu.
Remarks. Garrett (1887: 125) recorded it from 'Upolu and said it was also known from Tonga and Fiji. However, the record from Viti Levu by Mousson (1870a: 113) was questioned by Baker (1938: 76), who only recorded it from 'Upolu and Savai'i (see also Mousson, 1871: 8).

Subgenus LAMPROCYSTIS Pfeffer, 1883

ensifera.

Nanina ensifera Schmeltz, 1869: 71. Nom. nud.
Remarks. Schmeltz attributed the name to Mousson and recorded it from Samoa.

ensifera. (Samoa)

Nanina (Gastrodonta) ensifera Mousson, 1869: 328, pl. 14, fig. 2. Samoa.
Remarks. Widely distributed, with a number of extralimital synonyms, i.e., futunaana Mousson, 1870 (nom. nud.), futunaensis Mousson, 1871, steamseana Garrett, 1887 (see Baker, 1938: 86).

laqueata.


oneataensis. (S?; S not Samoan)

Nanina (Microcystis) upolensis var. oneataensis Mousson, 1870a: 114. Oneata et Vanua-Balavo [= Vanua Balavu; Lau Group, Fiji].
Remarks. Reported from Savai'i by Schmeltz (1874: 90; as "Zonites") but not recorded from Samoa by Baker (1938: 80). Treated as a full species by Baker (1938: 80).

oneatensis.

Nanina upolensis var. oneatensis Schmeltz, 1869: 71. Nom. nud.
Remarks. Schmeltz attributed the name to Mousson and reported it from Savai'i.

samoensis.


unisulcata. (S Samoan)

Nanina unisulcata Mousson, 1865: 191. Ile Lomma-Lomma (Viti) [= Fiji].
Remarks. Only tentatively considered Samoan by Baker (1938: 83) on the basis of synonymy with laqueata Baird.
upolensis.


*Remarks.* Schmeltz attributed the name to Mousson and recorded it from Samoa.

upolensis. (S, U, T)


*Remarks.* Savai'i and Tutuila given as additional localities by Schmeltz (1869: 71). Garrett (1887: 124) recorded it from 'Upolu and Fiji.

### Genus LIARDETIA Gude, 1913

**LIARDETIA** Gude, 1913a: 326. Type species: *Helix clayi* Liardet, 1876 (as "Nanina") [not Samoan] [= *Helix striolata* Pease, *testa* Baker (1938: 12)], by original designation.

The type species fixation was not by monotypy (cf. Baker, 1938: 12).

### Subgenus LIARDETIA Gude, 1913

samoensis.

*Nanina samoensis* Schmeltz, 1865: 25. *Nom. nud.*

*Remarks.* Schmeltz attributed the name to Mousson and recorded it from Samoa.

samoensis. (U, T, O)


striolata.


tutuillae. (T)

*Helix tutuillae* Cox, 1870: 83. Tutuilla [= Tutuila], Navigator's Islands [= Samoa] ... on the mountains.

*Remarks.* Synonymized only questionably with *samoensis* Mousson by Baker (1938: 23) and so retained here as valid, pending further research.

### Incertae sedis in HELICARIONIDAE

difficilis.

*Nanina difficilis* Schmeltz, 1866: 29. *Nom. nud.*

*Remarks.* Tentatively placed in Helicarionidae. Schmeltz attributed the name to Mousson and recorded it from 'Upolu. Not treated by Baker (1938, 1941).

fiemastyla.

*Nanina fiemastyla* Schmeltz, 1865: 25. *Nom. nud.*

*Remarks.* Schmeltz attributed the name to Mousson and recorded it from Uvea. Almost certainly intended as "firmostyla" and included here only for completeness.

firmostyla. (?Samoan)

*Nanina firmostyla* Mousson, 1865: 166. Nukuiona (Uvea) [= Uvea, Wallis Islands].

*Remarks.* Tentatively placed in Helicarionidae. See Baker (1941: 335—36) for discussion of its possible affinities. Samoa given as locality by Paetel (1883: 114) and Tryon (1886b: 125).
Family ARIOPHANTIDAE Godwin-Austen, 1888

Some authors (e.g., Boss, 1982) place this group as a subfamily of Helicarionidae (see above). Ariophantidae are found in southern Asia (Boss, 1982). Many species are semi-slugs, that is, they have a shell but cannot withdraw the body fully into it, and the mantle frequently covers much of the shell.

Subfamily PARMARIONINAE Godwin-Austen, 1908

The name Parmarioninae was proposed conditionally by Godwin-Austen (in Blanford & Godwin-Austen, 1908: 180), but this does not render it unavailable (Code Art. 11(d) and 15).

Genus PARMARION Fischer, 1856

PARMARION Fischer, 1856: 395. Type species: Limax problematica Férussac & Deshayes, 1839 (as "problematicus") [not Samoan], by subsequent designation of Humbert (1863: 112).

martensi. (U, T; introduced)

Parmarion martensi Simroth, 1893: 107. Cambodia [= Cambodia].

Remarks. Reported from Tutuila by Miller (1993: 10) but only very tentatively identified (S.E. Miller, personal communication). Appears to be a widely introduced species (e.g., Chang, 1991a: 37; Cowie, 1997b; Ho, 1995: 105).
Family ZONITIDAE Mörch, 1864

Subfamily TROCHOMORPHINAe Möllendorff, 1890

Genus TROCHOMORPHA Albers, 1850

TROCHOMORPHA Albers, 1850: 116. Type species: Helix trochiformis Pfeiffer, 1842 (as "Nanina trochiformis Fér.") [= Trochomorpha typus Baker, 1941] [not Samoan], by subsequent designation of Martens (1860: 60).

Pfeiffer (1842: 40) was the first to validate trochiformis Férrusac, 1821, which is a nomen nudum (see Baker, 1941: 314; Pease, 1871b: 456). Baker (1941: 285, 314) provided the replacement name typus for the type species, because trochiformis Férrusac, 1821 is preoccupied by trochiformis Montagu, 1803 [not Samoan].

Gould (1846b: 176; and others, e.g., Mousson, 1865: 171; Paetel, 1883: 118, 1888b: 75) gave "Samoa" as one of the localities for his new species cressida. However, Baker (1941: 319; and see Garrett, 1884: 26, Mousson, 1869: 336) considered this locality "undoubtedly erroneous" and cressida Gould, 1846 is excluded from this catalog. Also excluded are eurydice Gould, 1846 and tumulus Gould, 1846. Baker (1941: 312) treated Mousson's (1865: 170-71) report of eurydice from 'Upolu and Savai'i (see also Pease, 1871b: 474; Schmeltz, 1865: 25, 1869: 73 [Savai'i and Tutuila]) as a misidentification of apia Hombron & Jacquinot, 1852. Schmeltz (1865: 25) gave Samoa as locality for tumulus and later (Schmeltz, 1866: 30, 1869: 73, 1874: 94) gave 'Upolu. However, Baker (1941: 300) only recorded it from Fiji.

Subgenus LAUHALA Baker, 1941


The type species is cited as Trochomorpha savaii Baker, rather than Trochomorpha troilus savaii Baker, following Code Art. 61(d).

luteocornea.

Helix luteo-cornea Pfeiffer, 1855a: 56. Navigators' Islands [= Samoa].

Remarks. Pfeiffer's paper was intended as the original description, was entitled "Descriptions of . . . new species . . . ", and was referred to by Reeve (1854d) as the original description. However, Reeve's work was published first so Pfeiffer's name is a junior primary homonym of Reeve's. Synonym of luteocornea Reeve, teste Baker (1941: 307).

luteocornea. (Samoan)

Helix luteo-cornea Reeve, 1854d: pl. 186, species 1287. Navigators' Islands [= Samoa].

Remarks. Synonymized only tentatively with troilus Gould by Baker (1941: 307). Not treated individually as a species in the main body of his text, but distinguished as a species in both his key and his table of shell dimensions (Baker, 1941: 309). It has not strictly been synonymized with troilus Gould and is therefore retained here as a valid species, pending further research.

navigatorum.

Helix navigatorum Pfeiffer, 1855a: 55. Navigators' Islands [= Samoa].

Remarks. Pfeiffer's paper was intended as the original description, was entitled "Descriptions of .
new species . . .", and was referred to by Reeve (1854d) as the original description. However, Reeve's work was published first so Pfeiffer's name is a junior primary homonym of Reeve's. Synonym of *troilus* Gould, *testa* Baker (1941: 307).

**navigatorum.**


**Remarks.** Synonymized with *troilus* Gould, 1846 by Baker (1941: 307) and not treated individually as a species in the main body of his text, even though he distinguished it as a species in both his key and his table of shell dimensions (Baker, 1941: 309). Treated here as a synonym of *troilus* Gould.

**samoan.** (U)

*Helix samoan* Hombrón & Jacquinot, 1841: 63. L'île Opoulou (archipel Samoa) [= 'Upolu].

**tuber.** (U)

*Trochomorpha tuber* Mousson, 1869: 334, pi. 14, fig. 5. Upolu.

**Subgenus LUDIFICATOR Baker, 1941**

**LUDIFICATOR** Baker, 1941: 285. Type species: *Helix api* Hombrón & Jacquinot, 1852 (as "T. api"), by original designation.

**apia.** (S, U, T)


**Remarks.** The description of this species (Rousseau, 1854: 23) was published after the plates (Hombrón & Jacquinot, 1842–1853), although no accurate dating could be obtained for either (see Bibliography). Plate 7, with 5 figures, the name, and the locality, validated the name. Pfeiffer (1853b: 273) and Reeve (1854g: pi. 199, species 1402) attributed the name to Hombrón & Jacquinot, citing their plate and figure numbers, but not the text page number, with Pfeiffer explicitly listing *apia* among his "species deficiente descriptione incertae".

**subtrochiformis.**

*Helix subtrochiformis* Schmeltz, 1869: 73. *Nom. nud.*

**Remarks.** Schmeltz attributed the name to Mousson and recorded it from Savai'i and Tutuila.

**tentoriolum.** (U, ?not Samoan)


Family BRADYBAENIDAE Pilsbry, 1934

The Bradybaenidae are predominantly Asian, with their greatest diversity in eastern Asia. A single species reaches western Europe (Kerney et al., 1979: 174) and there are a few African species (Boss, 1982). A number of species, including the single species recorded from Samoa, have been widely dispersed by human activities (Smith, 1992: 99; Solem, 1959: 119).

Subfamily BRADYBAENINAE Pilsbry, 1934

Genus BRADYBAENA Beck, 1837


similaris. (S, U, T, O)


Remarks. Rang cited Ferussac (1821b: 43) as author of the name, but similaris Ferussac, 1821 is a nom. nud. Ferussac gave Timor as locality. Considered native to southern China, South East Asia, and Indonesia, this species is now widespread in tropical and subtropical regions, including many Pacific islands (Solem, 1959: 119, 1964: 135, 1978: 43). Recorded from 'Upolu by Alicata & McCarthy (1964: 608) and from Tutuila and Ofu by Miller (1993: 24, 27). Tentatively recorded from 'Aunu'u and Tutu (A.C. Robinson, in litt. 11 July 1994).
Incertae sedis
in the Samoan Land Snail Fauna

crouanii. (Samoa)

CHECKLIST

This checklist includes all the names listed in the main body of the catalog except mis-identifications and incorrect spellings. Family-group and genus-group names appear in the same sequence as in the main catalog. Valid species are listed alphabetically within genera/subgenera. Within a species, valid infraspecific taxa are listed alphabetically, with no distinction of subspecies, varieties, color forms, etc., without implying any taxonomic judgement regarding their true status. Synonyms, homonyms and unavailable names (*nomina nuda*, etc.) are listed chronologically under the appropriate species-group name where justified. Otherwise they are listed at the end of the appropriate subgenus, genus, family, etc. For full explanation of the treatment of the names in this list, refer to the main body of the catalog.

If a taxon was described as an infraspecific taxon of a species now synonymized with or considered a subspecies of another species, it is listed here as a subspecies of the latter.

Valid genus-group names are printed in boldface. Valid species-group names are printed in plain Roman type. Synonyms and unavailable names are in italics, indented. In 3 cases (*elongata* Mousson and *laevis* Baird, both Assimineidae; and *montana* Cooke & Crampton, Partulidae) junior homonyms have not been replaced, so remain the names of valid taxa, although as homonyms they appear in italic.

NERITIDAE

Neritilliinae

Neritilia Martens, 1875

rubida Pease, 1865

Neritinae

**Clithon** (**Clithon**) Montfort, 1810

bougainvillei Récluz, 1850

castanea Hombron & Jacquinot, 1852

*propinqua* Schmeltz, 1866

*propinquus* Mousson, 1869

chlorostoma Broderip, 1833

*parvula* Guillou, 1841

*siderea* Gould, 1847

corona Linnaeus, 1758

*brevispina* Lamarck, 1822

*ruginosa* Récluz, 1841

*humerosa* Schmeltz, 1865

*humerosa* Mousson, 1865 N. syn.

*subrugata* Baird, 1873 N. syn.

diadema diadema Récluz, 1841

*rarispina* Hombron & Jacquinot, 1852 N. syn.

diadema recluziana Guillou, 1841

*olivaceus* Récluz, 1843

_Incertae sedis in Clithon (Clithon)_

*inermis* Schmeltz, 1866
Clithon (Pictoneritina) Iredale, 1936
oualaniensis Lesson, 1831

Neritina (Dostia) Gray, 1842

Dostia Gray, 1840
siquiorensis Récluz, 1844

Neritina (Neripteron) Lesson, 1831
auriculata Lamarck, 1816
taitensis Lesson, 1831
marginata Hombron & Jacquinot, 1852 N. syn.
upolensis Mousson, 1869

Neritina (Neritina) Lamarck, 1816
aterrima Koch, 1843
canalis Sowerby, 1825
petitii Récluz, 1841
samoensis Schmeltz, 1869
samoensis Mousson, 1869
porcata porcata Gould, 1847
graeffei Schmeltz, 1866
graeffei Mousson, 1869
porcata tenuicostata Mousson, 1869
pulligera Linnaeus, 1767
squamaepicta iris Mousson, 1849
testudinea Hombron & Jacquinot, 1852

Neritina (Neritona) Martens, 1869
macgillivrayi Reeve, 1855
planissimum Mousson, 1869

Neritina (Vittina) Baker, 1923
turrita Gmelin, 1791
roissyana Récluz, 1841
chrysocolla Gould, 1847 N. syn.
rivula Hombron & Jacquinot, 1852 N. syn.
navigatoria Reeve, 1855 N. syn.
vitiensis Schmeltz, 1869 N. syn.
turtoni Récluz, 1843
helvolia Gould, 1847

Neritina (Vittoida) Baker, 1923
variegata Lesson, 1831

Neritina (Vittina) s.l.

Puperita (Heminerita) Martens, 1887
amoena Gould, 1847
godeffroyana Schmeltz, 1869
godeffroyanus Mousson, 1869

Septaria (Septaria) Févissac, 1807
freycineti Récluz, 1842
suffreni Récluz, 1842
pala Mousson, 1865
profunda Schmeltz, 1866
laperousei Récluz, 1842
macrocephala Récluz, 1842
porcellana depressa Lesson, 1831
   affinis Reeve, 1856
   fiss Schmeltz, 1869
   fiss Mousson, 1869
porcellana porcellana Linnaeus, 1758
   sanguisuga Reeve, 1856

*Incertae sedis in* Septaria *s. str.*
   truncata Schmeltz, 1869
decapitata Mousson, 1869
   truncata Mousson, 1869

HELICINIDAE

*Orobophana* Wagner, 1905
   musiva musiva Gould, 1847
   musiva uveana Mousson, 1865
   oberwimmeri Wagner, 1910

*Pleuropoma* *(Aphanoconia)* Wagner, 1905
*Sphaeroconia* Wagner, 1909
   altivaga Ancey, 1889
   altivaga Schmeltz, 1874
   fulgora Gould, 1847
   samoana Wagner, 1908
   rogosiuscula Wagner, 1909

*Incertae sedis in* *Pleuropoma* *(Aphanoconia)*
delicatula Schmeltz, 1869

*Pleuropoma* *(Pleuropoma)* Möllendorff, 1893

*Sturanya* Wagner, 1905
*Sturanyella* Pilsbry & Cooke, 1934
   beryllina beryllina Gould, 1847
   beryllina flavida Mousson, 1869
   flavida Schmeltz, 1869
   beryllina tutuilana Wagner, 1907
   interna Mousson, 1869
   jetschini Wagner, 1905
   plicatilis Mousson, 1865
   plicatilis Schmeltz, 1865

*Incertae sedis in* *Pleuropoma* *s. str.*
zonata Paetel, 1890

*Incertae sedis in* HELICINIDAE

   altior Schmeltz, 1866
   brenchleyi Baird, 1873
   fulgurata Baird, 1873
   leucocilla Paetel, 1890
   multifasciata Baird, 1873
   strigata Baird, 1873
   zebriolata Pfeiffer, 1855
NEOCYCLOTIDAE

Ostodes Gould, 1862
  adjunctus Mousson, 1869
  cookei Clench, 1949
  exasperatus Girardi, 1978
  garretti Clench, 1949
  gassiesi Souverbie, 1859
  llanero Girardi, 1978
  plicatus Gould, 1847
    apiæ Récluz, 1851
    pulverulentum Pfeiffer, 1854
  reticulatus Girardi, 1978
  savaii Clench, 1949
  strigatus Gould, 1847
    albida Hombron & Jacquinot, 1852
  tiara Gould, 1847
  upolensis Mousson, 1865
    upolensis Schmeltz, 1865

DIPLOMMATINIDAE

Diplommatina (Moussonia) Semper, 1865
  problematica Mousson, 1865
    problematica Schmeltz, 1865
    typica Semper, 1865

TRUNCATELLIDAE

Truncatella Risso, 1826
  guerinii Villa & Villa, 1841
    valida Pfeiffer, 1846
    vitiana Gould, 1847

ASSIMINEIDAE

Assimineinae

Assiminea Fleming, 1828
  Syncera Gray, 1821
    crosseeana Gassies, 1869
    parvula Mousson, 1865
      parvula Schmeltz, 1865
      nitida Pease, 1865
    similis Baird, 1873

Tutuliana Hubendick, 1952
  striata Hubendick, 1952

Omphalotropidinae

Omphalotropis Pfeiffer, 1851
  Realia Baird, 1850
    bifilaris bifilaris Mousson, 1865
      bifilaris Schmeltz, 1865
    bifilaris gracilior Mousson, 1869
    bifilaris teretiformis Mousson, 1869
    biliratus biliratus Mousson, 1865
    biliratus elongatus Mousson, 1869
    conoideus angulosus Mousson, 1869
    conoideus conoideus Mousson, 1865
    laevis Baird, 1873
navigatorum Pfeiffer, 1838
scitulus Gould, 1847
zebriolatus Mousson, 1865

_Incertae sedis in Omphalotropis_

  _angulata_ Schmeltz, 1866
  _tectiformis_ Schmeltz, 1869

_Incertae sedis in ASSIMINEIDAE_

  _brazier_ Cox, 1879

THIARIDAE

Thiarinae

_Melanoides (Melanoides)_ Olivier, 1804
_Siriatella_ Brot, 1870

  _laxa_ Mousson, 1869
  _gratiosa_ Schmeltz, 1866
  _laxa_ Schmeltz, 1869
  _peregrina_ Mousson, 1869
  _peregrina_ Schmeltz, 1866
  _tuberculata_ Müller, 1774

_Melanoides (Stenomelania)_ Fischer, 1885

  _aspirans_ Hinds, 1844

    _picta_ Hinds, 1844
    _scipio_ Gould, 1847
    _brenchleyi brenchleyi_ Baird, 1873
    _brenchleyi delicatula_ Baird, 1873
    _funiculus_ Quoy & Gaimard, 1834
    _luctuosa_ Hinds, 1844
    _lutosa inserta_ Mousson, 1869
      _inserta_ Schmeltz, 1869
    _lutosa languida_ Mousson, 1869
      _languida_ Schmeltz, 1869
    _lutosa_ Gould, 1847
      _vainafa_ Gould, 1847
      _samoensis_ Reeve, 1859
      _graeffei_ Schmeltz, 1865
      _subfasciata_ Schmeltz, 1866
      _bifasciata_ Schmeltz, 1869
      _crassiuscula_ Schmeltz, 1869
      _interposita_ Schmeltz, 1869
      _nigra_ Schmeltz, 1869
      _bifasciata_ Mousson, 1869
      _crassiuscula_ Mousson, 1869
      _graeffei_ Mousson, 1869
      _interposita_ Mousson, 1869
      _levis_ Mousson, 1869
      _nigra_ Mousson, 1869
    _lutosa picea_ Mousson, 1869
      _picea_ Schmeltz, 1869
    _lutosa sulcata_ Mousson, 1869
      _sulcata_ Schmeltz, 1869
    _persulcata_ Mousson, 1869
persulcata Schmeltz, 1869
subexuesta Schmeltz, 1869
subexuesta Mousson, 1869
subexuesta Mousson, 1870 N. syn.
arthurii Brot, 1870 N. syn.

plicaria Born, 1780
punctata Lamarck, 1822
papuensis Quoy & Gaimard, 1834

Incertae sedis in Melanoides s. l.

acutespira Mousson, 1869
acutispira Schmeltz, 1869

Thiara Röding, 1798
Melania Lamarck, 1799
amarula Linnaeus, 1758
cybele Gould, 1847
macrospira Morelet, 1857
scitula adjuncta Mousson, 1869
scitula scitula Gould, 1847
terpsichore Gould, 1847

VERONICELLIDAE

Laevicaulis Simroth, 1913
alte Féruassac, 1822
Vaginulus (Sarasinula) Grimpe & Hoffmann, 1924
plebeius Fischer, 1868
samoana Simroth, 1918

ELLOBIIDAE

Ellobiinae

Auriculastra Martens, 1880
subula Quoy & Gaimard, 1832
Ellobium (Auriculodes) Strand, 1928
Auriculina Kobelt, 1898
semisculptum Adams & Adams, 1854

Melampodinae

Melampus Montfort, 1810
castaneus Megerle von Mühlfeld, 1816
fasciatus fasciatus Deshayes, 1830
brevior Schmeltz, 1866
minor Schmeltz, 1869
gracilior Schmeltz, 1866
fasciatus fortis Mousson, 1869
luteus Quoy & Gaimard, 1832
parvulus Pfeiffer, 1856
parvulus Pfeiffer, 1854
philippii Küster, 1845
semisulcatus Mousson, 1869
semisulcatus Schmeltz, 1869
striatus Pease, 1861
tongaensis Mousson, 1871

Pythiinae

Allochroa Ancy, 1887
layardi Adams & Adams, 1855
Cassidula Férrussac, 1821
   crassiuscula Mousson, 1869
      crassiuscula Schmeltz, 1869
   intuscarinata Mousson, 1870
      intuscarinata Schmeltz, 1869
   paludosa Garrett, 1872
Pythia Röding, 1798
   savaiensis Mousson, 1869
   scarabaeus Linnaeus, 1758
   tortuosa Mousson, 1871

*Incertae sedis* in Ellobiidae
   ovuloides Baird, 1873

Physidae

*Physa* (Physa) Draparnaud, 1801
   sp.

Planorbidae

Planorbinae

*Physastra* Tapparone Canefri, 1883
   nasuta Morelet, 1857

*Planorbis* Müller, 1774
   spp.

Ancylidae

Ferrissiinae

*Ferrissia* (Pettancylus) Iredale, 1943
   noumeensis Crosse, 1871

Achatinellidae

Pacificellinae

*Lamellidea* (Lamellidea) Pilsbry, 1910
   *Lamellina* Pease, 1861
   *Lamellaria* Liardet, 1876
   oblonga Pease, 1865
      bacillaris Schmeltz, 1869
      bacillaris Mousson, 1871
   pusilla Gould, 1847
      conica Schmeltz, 1869
      conica Mousson, 1869
      normalis Pilsbry & Cooke, 1915

*Incertae sedis* in Lamellidea s. str.
   bucullaris Schmeltz, 1869

*Pacificella* Odhner, 1922
   variabilis Odhner, 1922

Tornatellininae

*Elasmias* Pilsbry, 1910
   sp.

Pupillidae

Gastrocoptinae

*Gastrocopta* Wollaston, 1878
   pediculus Shuttleworth, 1852
      samoensis Schmeltz, 1865
      samoensis Mousson, 1865
Nesopupinae

**Nesopupa** Pilsbry, 1900

*Ptychochilus* Boettger, 1881
godefroyi Boettger, 1881
tantilla Gould, 1847

**Pupisoma** Stoliczka, 1873
orca B. Benson, 1850

**PARTULIDAE**

**Eua** (*Nesanassa*) Pilsbry & Cooke, 1934

expansa Pease, 1871

extensa Pease, 1871

montana Cooke & Crampton, 1930

zebrina recluziana Petit de la Saussaye, 1850

zebrina zebrina Gould, 1847

actor Albers, 1850

tryoni Hartman, 1885

**Samoana** Pilsbry, 1909

**Eudne** Hartman, 1881

abbreviata Mousson, 1869

abbreviata Schmeltz, 1869

canalis biconica Pilsbry, 1909

canalis canalis Mousson, 1865

canalis Schmeltz, 1865

canalis semilineata Mousson, 1869

semilineata Schmeltz, 1869

conica Gould, 1847

stevensoniana Pilsbry, 1909

thurstoni Cooke & Crampton, 1930

Incertae sedis in **Samoana**

upolensis Schmeltz, 1865

Incertae sedis in **PARTULIDAE**

brazier Pease, 1871

gonochila Pfeiffer, 1847

**SUBULINIDAE**

**Allopeas** Baker, 1935

clavulinum Potiez & Michaud, 1838

gracile Hutton, 1834

junceus Gould, 1846

oparanus Pfeiffer, 1846

upolensis Schmeltz, 1865

upolensis Mousson, 1865 N. syn.

bacillaris Paetel, 1873

**Opeas** Albers, 1850

hannense Rang, 1831

pumilus Pfeiffer, 1840

**Paropeas** Pilsbry, 1906

achatinaceum Pfeiffer, 1846

javanica Reeve, 1849

**Subulina** Beck, 1837

octona Bruguière, 1789
ACHATINIDAE
Achatina (Lissachatina) Bequaert, 1950
fulica Bowdich, 1822

SPIRAXIDAE
Euglandininae
Euglandina Crosse & Fischer, 1870
rosea Férussac, 1821

STREPTAXIDAE
Enneinae
Gulella (Huttonella) Pfeiffer, 1856
bicolor Hutton, 1834
Streptostele (Tomostele) Ancey, 1885
musaeccola Morelet, 1860
Streptaxinae
Gonaxis Taylor, 1877
kibweziensis Smith, 1894

RHYTIDIDAE
Ouagapia Crosse, 1895
gradata Gould, 1846

ENDODONTIDAE
Minidonta Solem, 1976
manuaensis Solem, 1976
Thaumatodon Pilsbry, 1893
hystricelloides Mousson, 1865
histriricelloides Schmeltz, 1865

CHAROPIDAE
Discocharopa Iredale, 1913
aperta Mollendorff, 1888
Graeffedon Solem, 1983
graeffei Mousson, 1869
graeffei Schmeltz, 1866
saviaiensis Solem, 1983
Sinployea Solem, 1983
allecta allecta Cox, 1870
allecta tauensis Solem, 1983
aunuana Solem, 1983
clausa Solem, 1983
clista Solem, 1983
complementaria Mousson, 1865
intermedia Solem, 1983

SUCCINEIDAE
Succinea Draparnaud, 1801
crocata Gould, 1846
manuana Gould, 1846
modesta Gould, 1846
cheynei Garrett, 1887
putamen Gould, 1846
HELICARIONIDAE

Euconulinae

Coneuplecta (Sitalina) Thiele, 1931

microconus Mousson, 1865

Microcystinae

Diastole (Diastole) Gude, 1913

matafaoi Baker, 1938

Diastole (Trochonanita) Baker, 1938

lamellaxis Baker, 1938

savaii Baker, 1938

schmeltziana schmeltziana Mousson, 1865

schmeltziana Schmeltz, 1865

schmeltziana usurpata Mousson, 1869

usurpata Schmeltz, 1869

Diastole (Diastole) Gude, 1913

matafaoi Baker, 1938

Diastole (Trochonanita) Baker, 1938

lamellaxis Baker, 1938

savaii Baker, 1938

schmeltziana schmeltziana Mousson, 1865

schmeltziana Schmeltz, 1865

schmeltziana usurpata Mousson, 1869

usurpata Schmeltz, 1869

Lamprocystis (Kerakystis) Baker, 1938

perpolita Mousson, 1869

perpolita Schmeltz, 1869

Lamprocystis (Lamprocystis) Pfeffer, 1883

ensifera Mousson, 1869

ensifera Schmeltz, 1869

unisulcata Mousson, 1865

laqueata Baird, 1873

oneataensis Mousson, 1870

oneataensis Schmeltz, 1869

unisulcata Mousson, 1865

laqueata Baird, 1873

oneataensis Mousson, 1870

oneataensis Schmeltz, 1869

upolensis Mousson, 1865

upolensis Schmeltz, 1865

samoaensis Baird, 1873

Liardetia (Liardetia) Gude, 1913

samoaensis Mousson, 1865

samoaensis Schmeltz, 1865

samoaensis Baird, 1873

tutuillae Cox, 1870

Incertae sedis in HELICARIONIDAE

difficilis Schmeltz, 1866

fiemastyla Schmeltz, 1865

firmostyla Mousson, 1865

ARIOPHANTIDAE

Parmarioninae

Parmarion Fischer, 1856

martensi Simroth, 1893

ZONITIDAE

Trochomorphinae

Trochomorpha (Lauhala) Baker, 1941

luteocornea Reeve, 1854

luteocornea Pfeiffer, 1855

samoa Hombron & Jacquinot, 1841

troilus savaii Baker, 1941

troilus troilus Gould, 1846

navigatorum Reeve, 1854

navigatorum Pfeiffer, 1855
tuber Mousson, 1869

**Trochomorpha (Ludificator)** Baker, 1941

apia Hombron & Jacquinot, 1852

*subtrochiformis* Schmeltz, 1869

*subtrochiformis* Mousson, 1869

*tentoriolum* Gould, 1846

**BRADYBAENIDAE**

Bradybaeninae

**Bradybaena** Beck, 1837

*similaris* Rang, 1831

*Incertae sedis* in the Samoan land snail fauna

*crouanii* Guillou, 1842
A concerted effort has been made to see all the references listed in this Bibliography in order to ensure accuracy of citation. Dates of publication in many cases have been taken from Evenhuis & Cowie (1995); other dates derive from subsequent research. Citation is given verbatim. In some cases if a publication represents a presentation made at a meeting and cannot be cited verbatim, a paraphrased title is provided and placed in square brackets. The date of publication, as accurately as could be ascertained from the publication itself and from outside sources, is placed in square brackets at the end of the citation. The dates recorded here are the earliest found for each citation. If the year of publication was different from that printed in the publication itself, the actual year of publication is placed in square brackets after the author. In many instances of works published in parts (Lieferungen, livraisons, etc.) the original wrappers have not been seen, only the complete bound work. Dating has then have been obtained from other, secondary sources. The dates that were printed on the original wrappers have therefore not been verified. The year(s) of publication of the entire work, if different from that which actually appeared in the work (usually on the frontispiece) are therefore not placed in square brackets, pending further research on the original wrappers. If no date other than year could be found, the publication date should be treated as 31 December until such time as evidence of earlier publication is discovered. Sources for dates listed here are held at the Bishop Museum. When an author published more than one paper in a year, the papers are listed chronologically and the year given a letter suffix corresponding to the citation in the catalog. Where tabular collation is given for publications issued in parts, the date letter for each part is given in the “Date of publication” column. The actual author, if known, of anonymous works is placed in square brackets. Publications of the International Commission on Zoological Nomenclature are cited with authorship as “ICZN” in the catalog but spelled out in this bibliography.

———. 1887. Nouvelles contributions malacologiques. Bulletins de la Société Malacologique de
France 4: 273–99. [July]

Ancey, C.F. 1889. Description de mollusques nouveaux. Le Naturaliste 1889: 205. [1 September]


———. 1931. Notes on West Indian Veronicellidae. The Nautilus 44(4): 131–37, pl. 8. [27 April]


———. 1957. Families of Pulmonata, No. 3. The Nautilus 70(4): 141–42. [29 April]


Published in fascicles, as follows:

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Benson, W.H. 1849. Characters of Diplommatina, a new genus of terrestrial mollusks belonging to the family of Carychiidae, and of a second species contained in it; also of a new species of Carychium inhabiting the Western Himalaya. Annals and Magazine of Natural History (2) 4(21): 193-95. [1 September]
———. 1850. Characters of new species of Helix from India, Mauritius and the Cape of Good Hope; also of a new Mauritian Tornatellina, with remarks on the habits of a Cape Succinea. Annals and Magazine of Natural History (2) 6: 251-56. [1 October]
Broderip, W.J. & Sowerby, G.B. [1st of the name] [1833]. [Descriptions of new species from the collection of shells formed by Mr. Cuming on the Western coast of South America, and among the islands of the Southern Pacific Ocean]. Proceedings of the Committee of Science and Correspondence of the Zoological Society of London 2(25)[1832]: 194-202. [13 March]
Published in Lieferungen as follows:

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Although date of publication was given in the journal itself as 22 May, the copy in the Bishop Museum library is stamped 9 June.


Dated 27 August in the published work, but not received by the Bishop Museum library until 1 October.


Received by the Bishop Museum Library on this date. As there has been no earlier receipt date found, it is most probable that there was a delay in publication after the printed date of “1960” and that this volume was in fact published in 1961.


The printed date is 1996, but the book was not mailed until 10 January 1997 (to the junior editor).


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</table>

Livraison 102 also included volume 3, with pages 595–1152.


This book was issued in the livraisons of the author’s Histoire naturelle générale et particulière des mollusques terrestres et fluviatiles ..., although the texts of the two publications are quite distinct. The text of the Tableaux (often cited as the Prodrome) appeared in two parts, the first including title page and introductory material, the second consisting of the actual Tableaux of the Limaces, Limacons and Auricules. This second part was described as “Deuxième partie. (Première section.)”; but there was no second section. The plates associated with both the Tableaux and the Histoire were also issued in the same series of livraisons; all plates cited in the text of the Tableaux, except pl. 121 (livraison 19), were issued before livraison 15. Dates of publication of the text of the Tableaux are as follows:

Première partie. Tableaux systématiques généraux de l’embranchement des mollusques, divisés en familles naturelles. Table alphabétique générale et synonymique de toutes les dénominations génériques connues.

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Deuxième partie. (Première section.), Tableaux particuliers des mollusques terrestres et fluviatiles, présentant pour chaque famille les genres et espèces qui la composent. Classe des gastéropodes. Ordre des pulmonés sans opercules.

I. Tableau systématique de la famille des Limaces. Limaces, servant de supplément provisoire a notre histoire naturelle de ces animaux.

<table>
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<tr>
<td>16</td>
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</table>

II. Tableau systématique des Limacons, Cochlea.

III. Tableau systématique des pulmonés géhydorphiles. [also entitled Tableau de la famille des Auricules].

Two versions of these sections are known; one in folio (dated January 1821) and one in quarto (dated...
June 1821). The actual dates of issue of both versions are given below. The **Auricules** starts on p. 91 in the quarto version. Pages cited in the catalog text refer to the quarto version.

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Published in parts. The part containing “No. 6—*Parmacella deshayesii*” (p. 380–96), which includes the establishment of the new genus *Parmarion*, was published on 15 March 1856.

———. 1868. Diagnoses de deux limaciens de la Nouvelle-Calédonie. *Journal de Conchyliologie 16(2): 145–46. [16 April]*


Published in fascicles as follows:

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<td>79–88</td>
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——. 1828. *A history of British animals, exhibiting the descriptive characters and systematical arrangement of the genera and species of quadrupeds, birds, reptiles, fishes, Mollusca, and Radiata of the United Kingdom; including the indigenous, extirpated, and extinct kinds, together with periodical and occasional visitants*. Bell & Bradfute, Edinburgh; James Duncan, London. xxiii + 565 p. [March]


Part of this publication was printed in 1883, but it is not clear that it was distributed until 1884, once the complete article had been printed (see *Proceedings of the Academy of Natural Sciences of Philadelphia* for 1883, p. 315, and 1884, p. 323).


Gould, A.A. 1846a. [Descriptions of new shells, collected by the United States Exploring Expedition, and belonging to the genus *Helix*]. *Proceedings of the Boston Society of Natural History* 2: 170–73. [September]

——. 1846b. [Descriptions of the species *Helix*, from the shells of the United States Exploring Expedition]. *Proceedings of the Boston Society of Natural History* 2: 175–76. [September]

——. 1846c. [Descriptions of shells collected by the U.S. Exploring Expedition]. *Proceedings of the Boston Society of Natural History* 2: 182–84. [after 16 December]
———. 1846e. [Description of shells from the Exploring Expedition]. Proceedings of the Boston Society of Natural History 2: 190–92. [after 16 December]
———. 1847b. [Descriptions of the Expedition Shells of the genera Achatinella and Helicina]. Proceedings of the Boston Society of Natural History 2: 200–03. [March]
———. 1847c. [Species of Cyclostoma, from the collection of the Exploring Expedition]. Proceedings of the Boston Society of Natural History 2: 204–06. [March]


———. 1993. The gastropods in the streams and rivers of four islands (Guadalcanal, Makira, Malaita, and New Georgia) in the Solomon Islands. The Veliger 36(3): 285–90. [1 July]


Hinds, R.B. 1844a. Descriptions of new species of Melania collected during the voyage of H.M.S. Sulphur. Annals and Magazine of Natural History 14(88): 8–11. [1 July]


Published in parts as follows:

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Authorship of the Atlas is attributed to Hombron & Jacquinot as editors of the Zoologie volumes (see also Rousseau, 1854). Published in livraisons but it has not been possible to obtain dating for indi-
vidual livraisons or plates, except as follows. Pl. 12 was cited by Pfeiffer (1852: 316); pl. 7 was cited by Pfeiffer (1853b: 273); pl. 24 was published between December 1851 and December 1852. Plates cited in this catalog are therefore dated to 1852, in the absence of additional information.


Kerney, M.P., Cameron, R.A.D. & Riley, G. 1979. A field guide to the land snails of Britain and
100 BISHOP MUSEUM BULLETIN IN ZOOLOGY 3 (1997)


Published in Lieferungen as follows:

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<td>1845</td>
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This is the 84th livraison, which contains plates and 16 pages of explanations to the plates in the "Liste des objets".

——. 1822. Histoire naturelle des animaux sans vertèbres, présentant les caractères généraux et particuliers de ces animaux, leur distribution, leurs classes, leurs familles, leurs genres, et la citation des principales espèces qui s'y rapportent; précédée d'une introduction offrant la détermination des caractères essentiels de l'animal, sa distinction du végétal et des autres corps naturels; enfin, l'exposition des principes fondamentaux de la zoologie. Tome sixième. Deuxième partie. Chez l'auteur, au jardin du Roi. 232 p. [April]


Published in parts as follows:

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Lowe, R.T. [1855]. Catalogus molluscorum pneumonatorum insularum Maderensium: or a list of all the land and fresh-water shells, recent and fossil, of the Madeiran islands: arranged in groups according to their natural affinities; with diagnoses of the groups, and of the new or hitherto imperfectly defined species. Proceedings of the Zoological Society of London 22[1854]: 161–218. [16 March]


Published in Lieferungen as follows:


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<td>209-303</td>
<td>20-23</td>
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Published as a single Lieferung, number 311.


[1995a]. The anatomy of Auriculastra subula (Quoy and Gaimard, 1832) (Pulmonata: Ellobiidae) from Hong Kong, with a comment on the systematic position of Auriculastra Martens, 1880. Asian Marine Biology 11[1994]: 79–88. [before 31 August]


No authorship is attributed to the paper as a whole, although authorship of the individual species descriptions is indicated. Authorship of the article is therefore attributed to Menke & Pfeiffer, as editors of the journal.


Von Martens is the author of the Mollusca article in this work.


———. 1869. Faune malacologique terrestre et fluviatile des îles Samoa, publiee d’apres les envois de M. le Dr E. Graeffe. *Journal de Conchyliologie* 17(4): 323–90, pls. 14, 15. [23 October]

———. 1870a. Faune malacologique terrestre et fluviatile des îles Viti, d’apres les envois de M. le
Dr Édouard Graeffe. Journal de Conchyliologie 18(1): 109–35, pl. 7. [10 January; plate 7 bound with issue 2 in the original wrappers in a copy of the journal in the malacology library at Bishop Museum, published 8 April]


Published in two volumes.

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This is the second part of the entire work. The third part (not cited here) was published as Lieferungen 15–17, p. 1–240, 1890, and Lieferung 18, p. 241–256, 1891. The title page of the second part is dated 1889. Published in Lieferungen as follows:

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This is the second of three parts, the entire work being published 1841–1846.


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This is the last of three parts, the entire work being published 1841–1846.


This is the third of four parts of this article, the entire work being published in *Zeitschrift für Malakoziologie*, vol. 8, parts 9–12; the last part published after 15 January 1852.


This is the concluding part of this article. The first part was published, 1855, *Malakozoologische Blätter* 2: 112–44.

1856b. *Monographia auraliculaceorum viventium. Sistens descriptiones systemáticas et criticas omnium huius familiae generum et specierum hodie cognitorum, nec non fossilium enumeratione. Accedente proserpinaceorum nec non generis truncatellae historia.* T. Fischer, Cassel. xii + 209 p. [after May]


1876. *Monographia pneumonopomorum viventium, accedente fossilium enumeratione. Supplementum tertium, monographiae auriculaceorum. Parte secunda auctum.* T. Fischer,
Cassel. x + 479 p.


Published in Lieferungen as follows:

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The series was begun by Tryon. Pilsbry continued it after Tryon’s death and is the sole author of the material contained in this volume. Published in parts as follows:

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Published in parts as follows:

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Pilsbry is the sole author of the material contained in this volume except as noted below. Published in parts as follows (stamped dates are those on which each part was mailed from the Academy):

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The article, “Review of the anatomy of Pupillidae and related groups”, p. 191–209, is by H.B. Baker.

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**Rang, S.** 1831. Description des coquilles terrestres recueillies pendant un voyage à la côte occidentale d'Afrique, et au Brésil. *Annales des Sciences Naturelles* 24(93): 5–63, pl. 3. [September]


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1843b. [Descriptions of various new species of shells belonging to the genus *Nerita*, from Mr. Cuming's collection]. *Proceedings of the Zoological Society of London* 11: 71–73. [November]

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This is a lambda book (a book in which plates were published separately, along with unnumbered pages of explanatory text, as the plates were ready). After all plates were completed, they were bound into volumes. Dates of publication, as given at the bottom of the explanatory text for each page, are as follows for *Achatina*:

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<td>17–19</td>
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See Reeve (1848–1850) above for details of the publication methods of this series. Dates of publication, as given at the bottom of the explanatory text for each page, are as follows for *Partula*:

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1851–1854. *Conchologia Iconica: or, illustrations of the shells of molluscous animals*.


See Reeve (1848–1850) above for details of the publication methods of this series. Dates of publication, as given at the bottom of the explanatory text for each page, are as follows for *Helix*:

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<td>November 1852i</td>
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<td>143–146</td>
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<td>June 1854c</td>
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See Reeve (1848–1850) above for details of the publication methods of this series. Dates of publication, as given at the bottom of the explanatory text for each page, are as follows for *Neritina* and *Navicella*:

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<td>3–10</td>
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Genus | Plates | Date of publication
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*Neritina* | 11–26 | November 1855c
 | 27–30 | January 1856a
 | 31–34 | February 1856b
 | 1, 35–37 | March 1856c
*Navicella* | 1–8 | June 1856d


See Reeve (1848–1850) above for details of the publication methods of this series. Dates of publication, as given at the bottom of the explanatory text for each page, are as follows for *Melania*:

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<td>February 1860b</td>
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<td>31–33</td>
<td>May 1860c</td>
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<td>34–45</td>
<td>September 1860d</td>
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<td>June 1861d</td>
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Authorship of this work determined by ICZN Direction 48.


Rousseau provided the descriptions although many of the species had previously been validated in the *Atlas*, authorship of which is attributed to Hombron & Jacquinot (1842–1853) as editors of the *Zoologie* volumes. Both the text and the *Atlas* appeared in livraisons. Receipt of individual livraisons was not noted by the *Bibliographie de la France*, although the publication was listed as complete in the issue of the *Bibliographie* for 4 November 1854.


Part I. Family Endodontidae. Field Museum of Natural History, Chicago. xii + 508 p. [29 October]


Sowerby, G.B. [1st of the name] 1825. A catalogue of the shells contained in the collection of the late Earl of Tankerville, arranged according to the Lamarckian conchological system; together with an appendix, containing descriptions of many new species. G.B. Sowerby, London. vii + 92 + xxxiv p., 9 pls.


Strand, E. 1928. Miscellanea nomenclatoria zoologica et palaeontologica. *Archiv für Naturges-


Signatures published separately as follows:

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<td>49–64</td>
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Mailed from the printer on this date, although the journal itself gives June as the publication date.


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The series was begun by Tryon. Pilsbry continued it after Tryon's death. Published in parts as follows:

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Pages 3–160 are by Tryon. Pages 161–323 are by Pilsbry.


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<td>4</td>
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<td>15 August 1960b</td>
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INDEX OF LISTED TAXA

Taxa treated in the catalog are listed here in alphabetical order by name, author and (for species-group names) current generic combination. Original generic combination for species-group names, if different from the current combination, is listed in parentheses. Family-group names are in BOLDFACE capitalized letters. Genus-group names are in all CAPITALIZED letters. Unavailable names, nomina nuda, and misidentifications are listed in italics. Page numbers in bold-face refer to entries in the catalog proper; those in plain Roman type refer to listings of taxa in the checklist.

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