

A Systematic Revision of the Land Snails of the Western Ghats of India

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Dedicated to the Memory

of

Professor Bryan Clarke, FRS

1932-2014

An inspiration for generations of geneticists, evolutionary biologists and malacologists, Bryan highlighted the rapid extinction of land snails in the Pacific region, initiated conservation measures and, with his wife Ann Clarke, set up the Frozen Ark programme.

Preface

The land snails of the Western Ghats constitute a unique fauna that has been neglected for many years. Their study is likely to have a significant impact on ongoing and future efforts to recognise biologically-diverse habitats and set conservation priorities, and they are worthy of conservation in their own right. Snails can act as powerful research tools in a number of biological disciplines, with the potential to contribute significantly to our understanding of the patterns and processes of evolution over a wide spectrum of temporal and spatial scales. The legacy of 19th century malacological pioneers has resulted in Indian snails being among the richest treasures in the land-snail collections at the Natural History Museum, London and the University Museum of Zoology, Cambridge. Harnessing museum collections for identifying and naming species continues to be the essential first step towards understanding and conserving species. As storehouses of biological diversity museums clearly need to respond to the biodiversity crisis in a number of ways. Systematics provides the foundation for understanding living diversity, and new ways of understanding, recording and conserving living diversity need to be utilised and developed. However, there is also an urgent need to deliver basic tools for identifying biodiversity. The publication of images of currently-recognised species provides a greatly needed and useful resource that will hopefully stimulate the study of the Western Ghats' snail fauna and of South Asian land snails in general.

It is widely considered that human population growth and utilisation of the planet to satisfy human needs and voracity is resulting in the sixth mass extinction and the largest extinction event for the past 65 Ma (Ceballos, 2010; Laurance, 2014). The scale of extinctions is controversial (Lomborg, 1998; Friel, 2010), but land snails appear to have suffered disproportionately. Reviews of the literature (Naggs et al., 2006; Régnier et al., 2009) indicate that recorded extinctions of land snails exceed those of all other animal groups combined. Such figures are not a reflection of reality. Rather, they demonstrate the value of snails as informative research organisms. There can be no doubt that a far greater number of arthropods have become extinct, but the majority of these have disappeared without trace, whereas snails may leave their shells as a record. This was recognised by Charles Darwin when he spent a few days on the Atlantic Ocean island of St Helena on the return leg of the

voyage of the Beagle in 1836. Darwin found numerous shells of the distinctive genus that we now call *Chilonopsis* and realised that they were extinct. Darwin (1839, p. 470) concluded that the snails became extinct following the loss of their forest habitat and noted that "there can be little doubt that this great change in the vegetation affected not only the land-shells, causing eight species to become extinct, but likewise a multitude of insects".

Nearly all recorded land-snail extinctions are from island faunas and it is much more difficult to determine what is happening to continental biotas. However, it may be that some of the species that have been described from the Western Ghats and are figured here are now extinct. We cannot know the extent of extinctions until detailed records of current distributions are available, but reports by the Zoological Survey of India (ZSI) from other parts of India indicate extensive extinctions may have occurred in the past century. The ZSI State Fauna review of Meghalaya (Subba Rao et al., 1995) recorded only 56% of the previously recorded fauna (105 out of 188 species) and suggested that (see p. 85) "at least a few species of land molluscs" may have become extinct owing to habitat loss. Kay (1995, p. 57) went so far as to state that: "The work of the early British conchologists can never be repeated as much of India no longer appears to support native terrestrial molluscan faunas. Centuries of habitation associated with massive deforestation have resulted in the disappearance of virtually all natural habitats ... the characteristic fauna of peninsular India has been virtually eliminated except for small but rapidly dwindling pockets; and there are virtually no land snails at all on the Indo-Gangetic plain, the most densely populated part of India". Kay surely overstated the case, but flying across India or casting your eyes across India on Google Earth (<http://www.google.com/earth>) demonstrates just how far the loss and fragmentation of natural habitats has progressed. On the ground the situation can be much worse than it appears from afar with degraded forests and various forms of drastic forest exploitation. A notable example in the Western Ghats is the forested Cardamom Hills of eastern Kerala, where magnificent canopied trees conceal the fact that the natural understory has been removed for the intensive cultivation of cardamom. From our limited observations tree seedlings appear to be absent and with current practice there will presumably be no succession and replacement of gerontic trees by native species. However, with the presence of mature trees the most difficult phase of forest restoration is already in place and there is considerable potential for setting aside even some small tracts in these areas and restoring natural habitats. Further north across the Anaimalai Hills, tracts of tea and coffee plantations dominate the landscape, but a few small pockets of forest survive on estate land. Such habitat remnants could be of enormous value as refugia for snails and many other organisms, at least in the short to medium term, and there is an urgent need to evaluate their importance. Snails can play a valuable role as surrogate or partial measures of biodiversity for identifying high priority conservation areas (Margules and Pressey, 2000; Moritz et al., 2001; Mumladze et al., 2014). Conservation reserves, community reserves and sacred groves have been shown to play an important role in preserving habitats for small organisms in India, but there is clearly potential for extending the local dimension of conservation.

Clearly there is an urgent need to enact conservation measures that will safeguard remaining natural habitats, to evaluate the relative conservation value of transformed habitats and to restore habitat connectivity. However, we should not be blind to the reality that such measures will prove inadequate. We have a responsibility to take action now that is relevant to the time in which we live. This is why we strongly support measures to set on record what exists today in the knowledge that further species will inevitably be lost. In expounding this view and our support for the Frozen Ark (<http://www.frozenark.org>) and related initiatives such as the Global Genome Biodiversity Network (<http://www.ggbn.org>) we have been criticised by some Indian colleagues as being defeatist and providing ammunition to those who might consider that this approach offers an alternative to the conservation of living species. The suggestion is that, by advocating the storage of DNA and ideally viable cells, we leave open the possibility that species could possibly be restored at some time in the future and it is therefore not so dreadful if species should become extinct. We are far from advocating preservation of viable cells as an alternative to species conservation, but restoring species by such means is no longer confined to science fiction and we have to accept the new responsibilities that the potential capacity of these new technologies imposes on us. This is about maximising future options and we consider that viable cell collections should be part of mainstream collecting efforts for major museums. The time when species can be lost and restored at a later date, when mankind has learned to live in harmony with nature, is possibly a long way off. But we should allow for this possibility and follow every available strategy to safeguard living diversity and record what we can of species that may become extinct despite our best efforts.

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ABSTRACT – The Western Ghats, the mountain chain running along the western coastline of India, has a phylogenetically-diverse land-snail fauna dominated by endemic species. Although this fauna was well studied in British colonial times, little revisionary taxonomic research has been carried out since the publication of the three volumes of *The Fauna of British India (FBI)* series on land molluscs, between 1908 and 1921. The *FBI* is an essential work for anyone wishing to study the land snails of the Western Ghats, but is of limited use as a species-identification tool on its own. Access to type material, most of which is in the U.K., is essential. Furthermore, only a handful of species are illustrated in the *FBI*, many of the species descriptions are inadequate, and errors and inaccuracies abound. To address this issue, we here present a taxonomically-updated, fully-illustrated revision of the land-snail fauna of the Western Ghats, here defined to include the western coastline of the Indian peninsula and the lowlands and foothills surrounding the main mountain range. In total we consider 337 taxa (299 species and 38 so-called ‘varieties’), consisting largely of snails recorded from the Western Ghats (277 species and 29 ‘varieties’ belonging to 64 genera in 23 families), but also including 16 taxa (9 species and 7 ‘varieties’) that may or probably occur in this region (e.g. snails widespread elsewhere in the Indian peninsula). We critically evaluate and clarify the nomenclature and taxonomy of these snails within a modern systematic framework, designating lectotypes and neotypes where appropriate, and for the first time provide colour images and specimen data of type material for all the Western Ghats taxa, alongside distributional data from the original literature. Also included is a comprehensive geo-referenced index of localities for the taxa considered.

KEY WORDS: Western Ghats, India, land snail, taxonomy, distribution

INTRODUCTION

The study of the land snails of the Western Ghats of India, and of the wider South Asian region, has a long and rich history, extending back to the 18th century. Virtually all of our current knowledge of the diversity and distribution of the Western Ghats snail fauna is based on the publications and collections of 19th century and early 20th

century workers, particularly William Benson, Louis Pfeiffer, William and Henry Blanford, Henry Godwin-Austen and Richard Beddoe. The three volumes of *The Fauna of British India* series on land molluscs (Blanford and Godwin-Austen, 1908; Gude, 1914a, 1921, abbreviated as the *FBI*) mark the culmination of this intense period of faunistic exploration. Published between 1908 and 1921, these volumes

provide a synthesis and summary of the historical literature and data from shell collections, and include detailed synonomies. It is an essential work for anyone wishing to study the land-snail fauna of the Western Ghats, but it is nevertheless an incomplete aid to species identification. Many of the species descriptions in the *FBI* are only given in Latin, only a small number of the species are illustrated, and there are a number of inaccuracies and errors. Consequently, in many instances the *FBI* cannot be used as a species-identification tool on its own; access to type material or comprehensive reference shell collections is usually essential.

Most, if not all, 19th century workers on the Indian land-snail fauna donated material directly to the Indian Museum in Calcutta (now Kolkata), although some early material, notably from Benson, was acquired by the Indian Museum from the collections of the Asiatic Society of Bengal. These Indian Museum collections were subsequently transferred to the Zoological Survey of India (ZSI), where they now reside in Kolkata, and include Ferdinand Stoliczka's collections and those acquired by Geoffrey Nevill, who was First Assistant in the Indian Museum, until his death in 1885 (Nevill, 1878a; Naggs, 1997). The ZSI collections have since grown to include material from the ZSI's long-term survey programmes (Ramakrishna et al., 2010), and distributional data from these collections have been published in a number of ZSI publications on regional and sub-regional land-snail faunas (e.g. Rajagopal and Subba Rao, 1972; Subba Rao and Mitra, 1979; Subba Rao and Mitra, 1991; Subba Rao et al., 1995; Mitra et al., 2005a), as well as in a recent illustrated review of Indian land snails (Mitra et al., 2005b). The reliability of these data, however, is uncertain since

species identifications have generally not been based on comparison of ZSI material with type material, the bulk of which is in the U.K., at the Natural History Museum, London (NHM) and the University Museum of Zoology, Cambridge (UMZC). The ZSI holds extensive reference collections and has the resources to undertake systematic research on land snails at a national level in India but, as Ramakrishna et al. (2010, p. 3) concede, its achievements have been largely restricted to compiling "fragmentary reports dealing with land molluscs of a particular area". Currently, the most active research group on the Indian land-snail fauna is led by one of us (N. A. Aravind) and is based at the Ashoka Trust for Research in Ecology and the Environment (ATREE) in Bangalore. Recent work, on the snail fauna of the Western Ghats, has concentrated on broad patterns of distribution and on highlighting the importance of snails as a significant component of Indian biodiversity and as taxa in urgent need of research and conservation (Aravind et al., 2005, 2007, 2008; Aravind and Naggs, 2012; Sen et al., 2012).

Our objective here has been to produce a taxonomically-updated, fully-illustrated list of the land-snail species described to date from the Western Ghats. Given that there has been little taxonomic revision of the fauna since the publication of the last volume of the *FBI* in 1921, our revision is based almost entirely on the species listed in the *FBI*. In essence it is an initial attempt to critically evaluate and clarify the nomenclature and taxonomy of the taxa within a modern systematic framework and to provide some details of their geographical distribution. It includes illustrations of the types of nearly all of the land snails formally described from the Western Ghats, and summarises and synthesises distribu-

TABLE 1. Summary of the distributional ranges of 277 species and 29 varieties of land snails recorded from the Western Ghats, showing the total number of taxa in each of 8 range categories, and the number of taxa for which distributional data are deficient. The totals in parentheses include the relevant additional taxa that may occur in the Western Ghats, but have yet to be detected; with the inclusion of these taxa the total number of species is 286 and varieties 36. The category ‘Endemic to India (other)’ refers to Western Ghats species that are endemic to India, but fall outside categories 1, 3 and 4. The category ‘Endemic to India and Sri Lanka (other)’ refers to Western Ghats species that are endemic to India and Sri Lanka, but fall outside category 2 (i.e. in India they range beyond the Western Ghats).

Distributional range	Species	Varieties
1. Endemic to the Western Ghats	200	27
2. Endemic to the Western Ghats and Sri Lanka	13	2
3. Endemic to the Western Ghats and southern Eastern Ghats	7	-
4. Endemic to the Western Ghats and northern Eastern Ghats	3	-
5. Endemic to India (other)	25 (29)	- (2)
6. Endemic to India and Sri Lanka (other)	5 (6)	- (1)
7. Ranging beyond India and Sri Lanka	21 (24)	-
8. Exotic to South Asia	3	-
Distribution unknown or uncertain	- (1)	- (4)
Total number of taxa	277	29

tional data from historical publications. We hope that this revision will provide a foundation for future explorations of the snail fauna of the Western Ghats, and that it will draw the attention of both professional biologists and amateur naturalists in India to the uniqueness of this fauna, which like other elements of the Western Ghats biota, is highly threatened (Myers et al., 2000; Cincotta et al., 2000; Kadur and Bawa, 2005; Bawa et al., 2007). In these ways we hope that it will stimulate future research and conservation efforts. The revision will be available in open-access online and print formats, and also in the form of an interactive database, which will be accessible at <http://www.westernghatsnails>. While this list should be a useful aid to species-level identification in many situations, it will be less useful on its own for identifying species in taxonomically-complex and/or speciose genera such as *Ariophanta*, *Euplecta* and *Glessula*. In such cases, as well as for rigorous research on the systematics and distribution of all Western Ghats taxa,

extensive study of the historical literature and type and historical collections will continue to be essential.

Most of the historical literature referred to in the revision is now freely available online at the Biodiversity Heritage Library (BHL) <http://www.biodiversitylibrary.org>. This includes the *FBI* as well as other invaluable references such as *Conchologia Indica* by Hanley and Theobald, *Land and Freshwater Mollusca of India* by Godwin-Austen, the second series of the *Manual of Conchology* by Henry Pilsbry, and complete or near-complete coverage of important serial publications such as the *Annals and Magazine of Natural History*, *Journal of the Asiatic Society of Bengal*, and *Proceedings of the Zoological Society of London*.

Taxonomy and Diversity

The list includes all the taxa listed in the *FBI* from the geographical region we treat as the Western Ghats (see definition below), as well as a small number of other taxa, including 6 that were omitted from or

TABLE 2. Land-snail genera of the Western Ghats. We give the name (original combination), author and date of the type species of each genus (sources: *FBI*; Wenz, 1938; Zilch, 1960; see also our Taxonomic Notes), as well as the placement of genera in families (sources: 1, Bouchet and Rocroi, 2005; 2, Vaught, 1989; 3, Godwin-Austen, 1907; 4, Hausdorf, 1998; 5, Sutcharit et al., 2010). We follow the widespread practice of citing type species by their currently recognised name, and have not provided original type species designations as stipulated by ICZN, 1999, Article 67.1.2. We indicate genera endemic to the Western Ghats and Sri Lanka (*), genera endemic to the Western Ghats (**), and genera exotic to Asia (+). All genera, apart from *Gulella*, have been recorded from the Western Ghats.

Genus, author and date of publication	Original combination of currently recognised type species and authority	Family	Sources
1. <i>Cyclophorus</i> Montfort, 1810	<i>Helix volvulus</i> Müller, 1774	Cyclophoridae	1
2. <i>Cyathopoma</i> Blanford, 1861	<i>Cyclostoma filocinctum</i> Benson, 1851	Cyclophoridae	1
3. <i>Mychopoma</i> Blanford, 1869	<i>Mychopoma hirsutum</i> Blanford, 1869	Cyclophoridae	2
4. <i>Lagocheilus</i> Blanford, 1864	<i>Cyclostoma scissimargo</i> Benson, 1856	Cyclophoridae	1
5. <i>Craspedotropis</i> Blanford, 1864	<i>Cyclostoma cuspidatum</i> Benson, 1851	Cyclophoridae	2
6. <i>Leptopomoides</i> * Nevill, 1878	<i>Cyclostoma halophilum</i> Benson, 1851	Cyclophoridae	2
7. <i>Micraulax</i> * Theobald, 1876	<i>Micraulax scabra</i> Theobald, 1876	Cyclophoridae	2
8. <i>Ditropopsis</i> Smith, 1897	<i>Cyclophorus (Ditropis) planorbis</i> Blanford, 1869	Cyclophoridae	2
9. <i>Theobaldius</i> Nevill, 1878	<i>Cyclophorus annulatus</i> Pfeiffer, 1847	Cyclophoridae	2
10. <i>Pterocyclos</i> Benson, 1832	<i>Pterocyclos rupestris</i> Benson, 1832	Cyclophoridae	1
11. <i>Pearsonia</i> Kobelt, 1902	<i>Spiraculum hispidum</i> Pearson, 1833	Cyclophoridae	2
12. <i>Chamalycaeus</i> Kobelt and Möllendorff, 1897	<i>Alycaeus andamaniae</i> Benson, 1861	Cyclophoridae	2
13. <i>Diplommatina</i> Benson, 1849	<i>Bulimus folliculus</i> Pfeiffer, 1846	Diplommatinidae	1
14. <i>Nicida</i> * Blanford, 1868	<i>Diplommatina nilgirica</i> W.T. & H.F. Blanford, 1860	Diplommatinidae	2
15. <i>Opisthostoma</i> W.T & H.F. Blanford, 1860	<i>Opisthostoma nilgirica</i> W.T. & H.F. Blanford, 1860	Diplommatinidae	2
16. <i>Tortulosa</i> Gray, 1847	<i>Pupa tortuosa</i> Gray, 1825	Pupinidae	2
17. <i>Cyclotopsis</i> Blanford, 1864	<i>Cyclostoma semistriatum</i> Sowerby, 1843	Pomatiidae	1
18. <i>Laevicaulis</i> ⁺ Simroth, 1913	<i>Vaginula comorensis</i> Fischer, 1883	Veronicellidae	2
19. <i>Succinea</i> Draparnaud, 1801	<i>Helix putris</i> Linnaeus, 1758	Succineidae	1
20. <i>Indosuccinea</i> Rao, 1924	<i>Succinea semiserica</i> Gould, 1846	Succineidae	2
21. <i>Quickia</i> Odhner, 1950	<i>Succinea concisa</i> Morelet, 1848	Succineidae	2
22. <i>Lithotis</i> ^{**} Blanford, 1863	<i>Succinea (Lithotis) rupicola</i> Blanford, 1863	Succineidae	2
23. <i>Pupilla</i> Fleming, 1828	<i>Turbo muscorum</i> Linnaeus, 1758	Pupillidae	1, 2
24. <i>Microstele</i> Boettger, 1886	<i>Pupa noltei</i> Boettger, 1886	Pupillidae	2
25. <i>Pupoides</i> Pfeiffer, 1854	<i>Bulimus nitidulus</i> Pfeiffer, 1848	Pupillidae	1
26. <i>Pyramidula</i> Fitzinger, 1833	<i>Helix rupestris</i> Draparnaud, 1801	Pyramidulidae	1
27. <i>Vallonia</i> Risso, 1826	<i>Helix pulchella</i> Müller, 1774	Valloniidae	1
28. <i>Pupisoma</i> Stoliczka, 1873	<i>Pupa lignicola</i> Stoliczka, 1871	Valloniidae	1
29. <i>Gastrocopta</i> Wollaston, 1878	<i>Pupa acarus</i> Benson, 1856	Vertiginidae	1
30. <i>Mirus</i> Albers, 1850	<i>Bulimus cantorii</i> Philippi, 1844	Enidae	2

TABLE 2. Continued.

Genus, author and date of publication	Original combination of currently recognised type species and authority	Family	Sources
31. <i>Cerastus</i> Albers, 1860	<i>Bulimus distans</i> Pfeiffer, 1856	Cerastidae	1
32. <i>Rachis</i> Pfeiffer, 1855	<i>Bulimus punctatus</i> Anton, 1838	Cerastidae	2
33. <i>Rhachistia</i> Connolly, 1922	<i>Buliminus rhodotaenia</i> von Martens, 1901	Cerastidae	2
34. <i>Gittenedouardia</i> Bank & Menkhorst, 2008	<i>Bulimus spadiceus</i> Pfeiffer, 1846	Cerastidae	2
35. <i>Corilla</i> * H. & A. Adams, 1855	<i>Helix erronea</i> Albers, 1853	Corillidae	1
36. <i>Ruthvenia</i> * Gude, 1911	<i>Helix clathratula</i> Pfeiffer, 1850	Charopidae	3, 1
37. <i>Thysanota</i> * Albers, 1860	<i>Helix guerini</i> Pfeiffer, 1842	Charopidae	3, 1
38. <i>Philalanka</i> Godwin-Austen, 1898	<i>Philalanka secessa</i> Godwin-Austen, 1898	Charopidae	3, 1
39. <i>Kaliella</i> Blanford, 1863	<i>Helix barrakporensis</i> Pfeiffer, 1853	Chronidae	1
40. <i>Eurychlamys</i> * Godwin-Austen, 1899	<i>Macrochlamys?</i> <i>platychlamys</i> Blanford, 1880	Helicaronidae	4
41. <i>Mariaella</i> ** Gray, 1855	<i>Mariaella dussumieri</i> Gray, 1855	Helicaronidae	4
42. <i>Pseudaustenia</i> ** Cockerell, 1891	<i>Africarion ater</i> Godwin-Austen, 1888	Helicaronidae	4
43. <i>Satiella</i> Blanford and Godwin-Austen, 1908	<i>Durgella dekhanensis</i> Godwin-Austen, 1898	Helicaronidae	1
44. <i>Sitala</i> Adams, 1865	<i>Helix infula</i> Benson, 1848	Helicaronidae	1
45. <i>Ariophanta</i> Desmoulin, 1829	<i>Helix laevipes</i> Müller, 1774	Ariophantidae	1
46. <i>Indrella</i> ** Godwin-Austen, 1901	<i>Helix ampulla</i> Benson, 1850	Ariophantidae	2
47. <i>Euplecta</i> Semper, 1870	<i>Helix subopaca</i> Pfeiffer, 1854	Ariophantidae	2
48. <i>Macrochlamys</i> (see Taxonomic Notes)	-	Ariophantidae	1
49. <i>Microcystina</i> Mörch, 1872	<i>Nanina (Microcystina) rinkii</i> Mörch, 1872	Ariophantidae	2
50. <i>Chloritis</i> Beck, 1837	<i>Helix unguilina</i> Linnaeus, 1758	Camaenidae	1
51. <i>Beddomea</i> * Nevill, 1878	<i>Bulimus ceylanicus</i> Pfeiffer, 1846	Camaenidae	2
52. <i>Apatetes</i> ** Gude, 1914	<i>Corasia bourdillonii</i> Theobald, 1876	Camaenidae	2
53. <i>Trachia</i> Albers, 1860	<i>Helix asperella</i> Pfeiffer, 1846	Camaenidae	2
54. <i>Landouria</i> Godwin-Austen, 1918	<i>Helix huttonii</i> Pfeiffer, 1842	Camaenidae	2
55. <i>Lissachatina</i> ⁺ Bequaert, 1950	<i>Achatina fulica</i> Bowdich, 1822	Achatinidae	2
56. <i>Cecilioides</i> Féruccac, 1814	<i>Buccinum acicula</i> Müller, 1774	Ferussaciidae	1
57. <i>Subulina</i> ⁺ Beck, 1837	<i>Bulimus octonus</i> Bruguière, 1789	Subulinidae	1
58. <i>Allopeas</i> Baker, 1935	<i>Bulimus?</i> <i>gracilis</i> Hutton, 1834	Subulinidae	2
59. <i>Prosopeas</i> Mörch, 1876	<i>Bulimus (Prosopeas) roepstorfi</i> Mörch, 1876	Subulinidae	2
60. <i>Zootecus</i> Westerlund, 1887	<i>Pupa insularis</i> Ehrenburg, 1831	Subulinidae	2
61. <i>Glessula</i> von Martens, 1860	<i>Achatina ceylanica</i> Pfeiffer, 1845	Subulinidae	1
62. <i>Rishetia</i> Godwin-Austen, 1920	<i>Glessula (Rishetia) longispira</i> Godwin-Austen, 1920	Subulinidae	1
63. <i>Perrottetia</i> Kobelt, 1905	<i>Helix peroteti</i> Petit de la Saussaye, 1841	Streptaxidae	2
64. <i>Gulella</i> Pfeiffer, 1856	<i>Pupa menkeana</i> Pfeiffer, 1853	Streptaxidae	5
65. <i>Sinoennea</i> Kobelt, 1904	<i>Pupa strophioides</i> Gredler, 1881	Diapheridae	5

described after the publication of the relevant volumes of the *FBI* (the species *Euplecta foveolata*, *Indosuccinea khandalla*, *Succinea?* *raoi* and *Succinea?* *tornadri*, and the varieties *Pterocyclos cyclophoroideus* 'var. *substenostoma*' and *Succinea?* *gravelyi* 'var. *bombayensis*'). In all, the list consists of 337 taxa, comprising 299 species and 38 so-called 'varieties' (see definition below). A further 5 species are listed separately at the end of the list; these were treated as Western Ghats species when originally described or were treated as such by Blanford and Godwin-Austen (1908) and Gude (1914a) in the *FBI*, but we have excluded them, for the reasons given.

Of these 337 taxa, we consider 13 species and 2 varieties to be *nomina dubia* because these snails cannot be identified on the basis of available information (i.e. the original descriptions are inadequate, original or authentic figures are poor or lacking, and type material cannot be traced). The species-level *nomina dubia* are *Beddomea?* *bontia*, *Cerastus malabaricus*, *Cyclophorus stenomphalus*, *Glessula anamullica*, *G. bensoniana*, *G. facula*, *G. orophila*, *G. perroteti*, *G. pseudoreas*, *G. subjerdoni*, *Macrochlamys?* *tenuicula*, *Macrochlamys perrotteti*, and *Theobaldius maculosus*; the varieties are *Cerastus jerdoni* 'var. *redfieldi*' and *Glessula pseudoreas* 'var. *subdeshayesiana*'. Some of these names (e.g. *C. stenomphalus*, *G. orophila* and *G. subjerdoni*) have been used extensively in the literature and in museum collections, but not in a consistent manner. The fact that 8 of these *nomina dubia* belong to the genus *Glessula* is unsurprising. Although the range of shell characters available for species identification in this genus is limited, the existing taxonomy is based almost entirely on shell morphology. In common with other problematic taxa (e.g. *Cyclophorus stenomphalus*, some

species of *Cerastus* and *Macrochlamys*), many of the species of *Glessula* described to date have been poorly defined and are difficult to identify, and this casts doubt on the reliability of some of the distributional data given in the *FBI*.

After excluding the *nomina dubia*, the total numbers of species and varieties in our revision are 286 and 36 respectively (in 65 genera and 23 families). The distributional ranges of the 322 taxa are summarised in **Table 1**. Published records from the Western Ghats are lacking for 9 of these species and 7 of the varieties, but we have included them because they may nevertheless occur in the Western Ghats (very likely in the case of snails such as *Euplecta foveolata* and *Cyclotopsis?* *spurca*). There are three classes of such taxa. First, taxa that are widespread in India, but for which published distributional data from the Western Ghats are lacking (*Gulella bicolor*). Second, taxa that are likely to occur in disturbed or non-forest habitats in the Western Ghats, although their presence has yet to be detected (*Cecilioides balanus*, *Macrochlamys indica*, *Sinoennea planguncula*). Third, Indian taxa for which locality data are lacking, scarce or imprecise, and that may occur in the Western Ghats (the species *Cyclotopsis?* *spurca*, *Cyclotopsis subdiscoidea*, *Euplecta foveolata*, *Gastrocopta bathyodon* and *Pupoides lardeus*, and the varieties *Ariophanta belangeri* 'var. *bombayana*', *A. belangeri* 'var. *vitellina*', *A. bistrialis* 'var. *ceylanica*', *A. semirugata* 'var. *tranquebarica*', *Mariaella beddomei* 'var. *maculosa*', *Pterocyclos bilabiatus* 'var. *conica*' and *P. nanus* 'var. *applanatus*'). After excluding these, the total numbers of taxa recorded to date from the Western Ghats are 277 species and 29 varieties (64 genera, 23 families). Of these, 72% of species (200) are endemic to the Western

Ghats (**Table 1**); this includes one species, *Mariaella dussumieri*, which has become established in Sri Lanka and parts of South-east Asia.

Of the 64 genera definitely recorded from the Western Ghats (**Table 2**), 5 are endemic to the Western Ghats (*Apateles*, *Indrella*, *Lithotis*, *Mariaella*, *Pseudaustenia*), and 8 are endemic to the Western Ghats and Sri Lanka (*Beddomea*, *Corilla*, *Eurychlamys*, *Leptopomoides*, *Micraulax*, *Nicida*, *Ruthvenia*, *Thysanota*). In addition, the Western Ghats and Sri Lanka biodiversity hotspot harbours several species-rich near-endemic genera (*Theobaldius*, *Tortulosa*, *Ariophanta*, *Euplecta*), as well as a substantial, and in some cases disproportionate, share of the known global richness of speciose genera such as *Cyathopoma* and *Glessula*. Despite broad similarities in generic composition and in the richness of key genera, the land-snail faunas of the Western Ghats and Sri Lanka are distinct, and this is reflected in the fact that only a small proportion of the species present in the Western Ghats and Sri Lanka hotspot occur in both the Western Ghats and Sri Lanka. In the case of the Western Ghats fauna just 13 of the 277 species (5%) confirmed from this region are endemic to and range across both the Western Ghats and Sri Lanka (**Table 1**).

Use of ‘Varietal’ Names

The use of ‘varietal’ names is adopted from the *FBI* (Blanford and Godwin-Austen, 1908; Gude, 1914a, 1921). We have treated varietal names in the same way as in volumes II and III of the *FBI* (Gude, 1914a, 1921), where varietal names are listed alongside the species with which they are associated, with relevant author names and dates and usually a short description. In volume I of the *FBI* (Blanford and Godwin-

Austen, 1908) varieties (often referred to as ‘forms’ by the authors) are listed as junior synonyms of particular species and are alluded to only very briefly or ignored altogether in the relevant species accounts. For the purposes of the current list, we have treated all the varieties listed in the three volumes in a consistent way and, except where otherwise stated, we have made no judgement on their status. Rao (1924, 1925) used the term ‘form’ (abbreviated as f.) instead of ‘variety’ for *Succinea gravelyi* f. *bombayensis*, and we have treated such taxa in exactly the same way as the varieties listed in the *FBI*. Varietal names were used widely by land-snail workers in the 19th and early 20th century to describe variation within species, primarily differences in the size, form, sculpture and/or colour pattern of shells. In this list we are not attributing subspecific status to varietal names, but simply treating them as available names of unknown taxonomic and biological status. Future studies may reveal that some of these varieties are distinct species, whereas others simply represent variation within and between populations of single species.

Of the 29 varieties recorded from the Western Ghats, 4 are associated with species in which the nominate form is absent from the Western Ghats (e.g. *Euplecta semidecussata* ‘var. *transfretata*’ and its nominate form ‘var. *semidecussata*’). These 4 varieties are: *Euplecta semidecussata* ‘var. *transfretata*’, *Glessula reynelli* ‘var. *immitis*’, *Succinea?* *gravelyi* ‘var. *bombayensis*’, and *Theobaldius annulatus* ‘var. *nilgiricus*’. The remaining 25 varieties along with their respective nominate forms occur in the Western Ghats.

Systematic Arrangement

The systematic arrangement used in the revision (summarised in **Table 3**) broadly

follows Bouchet and Rocroi's (2005) classification. Our revision, however, differs in five important ways:

1. While Bouchet and Rocroi (2005) treated the groupings above superfamily level as being unranked, we treat their entire arrangement as hierarchical (see numbered levels in **Table 3**).
2. Following the molecular phylogenetic studies of Wade et al. (2001, 2006), we consider the major division within the Stylommatophora to be between an achatinoid clade (including the Achatinoidea and Streptaxoidea) and a non-achatinoid group.
3. Unlike Bouchet and Rocroi, we have not used the superfamily Limacoidea, nor the term 'limacoid clade' above the superfamily level.
4. Although we have omitted the use of the subfamily level in the list, we have used Bouchet and Rocroi's family and subfamily arrangement as a guide to assignment of genera to families; some points of divergence between our list and the scheme of Bouchet and Rocroi are explained in the Taxonomic Notes at the end of the list.
5. We have included the recently-described family Diapheridae in the superfamily Streptaxoidea (Sutcharit et al., 2010).

Bouchet and Rocroi's classification is only comprehensive as far as the family and subfamily levels, so the placement of many of the Western Ghats genera is based on other sources, primarily Vaught (1989) (**Table 2**). Among the cases where we have not followed Vaught (1989), are the genera *Philalanka*, *Ruthvenia* and *Thysanota*. Gude (1914a, p. 10) noted that, prior to Godwin-

Austen (1907), *Thysanota* had been placed in widely different groups. In erecting the Thysanotinae Godwin-Austen (1907, p. 188) included *Thysanota*, *Philalanka* and *Sykesia* (= *Ruthvenia*, *Sykesia* being preoccupied) and placed them in the Endodontidae. In our popular guide to the land snails of the Western Ghats (Raheem et al., 2009) we followed Vaught (1989, pp. 93-94) in retaining *Philalanka* in the Endodontidae, and placing *Ruthvenia* and *Thysanota* in the Charopidae, widely recognised as a southern group of probable Gondwanan origin (Smith and Stanisic, 1998). However, *Philalanka* is recorded from Southeast Asia (Gude, 1914a; Benthem Jutting, 1959; Maassen, 2001), and it is possible that the Thysanotinae do not belong in the Charopidae or even fall within the Punctoidea. Here, we provisionally follow Godwin-Austen (1907) in including all three genera in the Thysanotinae and Bouchet and Rocroi (2005) in placing the Thysanotinae in the Charopidae.

Unless otherwise indicated, generic names and the assignment of species to genera follow the *FBI* (Blanford and Godwin-Austen, 1908; Gude, 1914a, 1921). We have not used subgenera, but some names used in the *FBI* at subgeneric level (e.g. *Mirus*, see Gude, 1914a, p. 230) are used here as genera, following published sources; all such cases are indicated in the Taxonomic Notes.

Structure of the Revision

Most of the taxa in this list are illustrated by photographic images of type material, each image usually being a composite of 4 views of a single specimen (i.e. apertural, lateral, dorsal and ventral views). Unless otherwise stated, all images were taken by one of us (Harold Taylor, NHM). The NHM holds copyright of all images taken at the NHM. For taxa for which types could not be traced,

TABLE 3. Systematic arrangement used in the Western Ghats revision based on Bouchet and Rocroi (2005) and Wade et al. (2001, 2006). The names and placement of families within superfamilies follow Bouchet and Rocroi, except for the recently-described family Diapheridae, which has been placed in the superfamily Streptaxoidea (Sutcharit et al., 2010).

1. Clade	2. Clade (C.) or Informal Group (IG.)	3. Clade	4. Clade	5. Clade	6. Clade (C.) or Informal Group (IG.)	7. Superfamily	8. Family
Caenogastropoda	IG. Architaenioglossa					Cyclophoroidea	
	C. Hypsogastropoda	Littorinimorpha			Littorioidea	Pomatidae	
			Stylommatophora		Veronicelloidea	Veronicellidae	
Heterobranchia	IG. Pulmonata	Eupulmonata	Stylommatophora	C. Elasmognatha	Succinoidea	Succineidae	
							Pupilloidea
				C. Orthurethra	Pupillidae	Pyramidulidae	
							Valloniidae
				Non-achatinoid	Enoidae	Vertiginidae	
							Cerastidae
				IG. Sigmurethra	Plectopyloidea	Enidae	
							Corillidae
				Stylommatophora	Punctoidea	Punctoidea	
							Charopidae
				Gastrodontoida	Gastrodontoida	Gastrodontoida	
							Chronidae
				Helicarionoidea	Helicarionoidea	Helicarionidae	
							Ariophantidae
				Achatinoid	Helicoidea	Helicoidea	
							Camaenidae
				Achatinoid	Achatinidae	Achatinidae	
							Ferussaciidae
				Streptaxoidea	Streptaxoidea	Streptaxidae	
							Diapheridae

we have reproduced figures from the historical literature (for a detailed explanation, see the section on the transcription of data from specimen labels), and/or provided images of other (i.e. non-type) material.

Each account of a species or variety in the revision consists of seven sections giving details of the current and past nomenclature of a taxon, its distribution, and the material illustrated. For a few taxa there are additional comments immediately preceding the distributional information and/or at the end of the account.

The seven key sections are arranged in the sequence shown below, along with information relevant to the general content of each section.

1. Current binominal combination, original author and year of publication

There is some uncertainty regarding the authorship of a few taxa. For example, Möllendorff (1897) attributed *Pterocyclos pseudocumingi* to Nevill. We cite such cases as '*Pterocyclos pseudocumingi* Nevill in Möllendorff, 1897'. Uncertain generic placements are indicated as in the following example: *Succinea?* *gravelyi* 'var. *bombayensis*' Rao, 1925.

Detailed synonymies are available in the *FBI*, and are not repeated here.

2. Original binominal combination, original author, year and full citation for original description

This information was obtained from the *FBI*, but then critically evaluated. Varietal names are usually listed exactly as given in the original publication. Publication dates for original descriptions listed in the *FBI* are not always correct, and in a small number of cases the original binominal combination, original author and/or original citation given are also incorrect. We have made emenda-

tions accordingly. Important general sources of reference in this respect include Sherborn (1902, 1922-1932), Ruhoff (1980), and Duncan (1937) for dates of publication of taxa originally published in the *Proceedings of the Zoological Society of London*. Other sources, which deal with specific works, such as Prashad's (1927) paper on the dates of publication of Hanley and Theobald's (1870-1876) *Conchologia Indica*, are listed in the Literature Cited.

In a small number of cases (e.g. *Mychopoma hirsutum*, *Ariophanta gassii*) the original description cites the name of the author of the manuscript name on which the original binominal combination is based. These attributions have no nomenclatural status and could be ignored, but to avoid any potential confusion of authorship these names are indicated in square brackets after the original binominal combination and citation details.

3. Binominal combination as given in the FBI, with year and full citation

4. Distribution

This section gives the known distribution of a taxon, and indicates if it is endemic to the Western Ghats, or ranges beyond it. Unless otherwise stated, all distributional data are from the *FBI* (Blanford and Godwin-Austen, 1908; Gude, 1914a, 1921). Our chief reason for taking this approach is the unreliability of distributional data generated from surveys carried out and collections made after the publication of the *FBI* (e.g. distributional data from ZSI surveys carried out during the past few decades, see the first part of the Introduction). The *FBI* has a number of errors and inaccuracies that we have highlighted or rectified, where possible, and we wished to avoid introducing any further sources of error by

including recent data that have not been validated by critical study of type material.

5. Original locality

Included here are the locality data given in the original description, together with any other relevant information from the original description, such as the original collector and/or shell collection from which the type material was drawn (given within parentheses after the locality), as well as habitat/microhabitat data.

For most taxa the original locality is effectively the type locality (the place of origin of the type or types), but there are exceptions. The syntype series for a few taxa (e.g. *Glessula pusilla*) consist of specimens from two or more places of origin, and in such instances the place of origin of the lectotype becomes the type locality (ICZN, 1999, Articles 73.2.3 and 76.2). Where a neotype has been designated, the place of origin of the neotype becomes the type locality (ICZN, 1999, Article 76.3). Thus, in the case of taxa such as *Cyathopoma ovatum*, the type locality (i.e. the locality on the labels accompanying the neotype) differs from the locality given in the original description.

6. Type material

This provides full details of the type material illustrated for each taxon.

7. Other material

Full details of the other material (i.e. non-type) illustrated or figured are given here.

Evaluation of Type Material

Locating, verifying and fixing types is an essential part of any critical study, and we have attempted to locate, fix and illustrate types for all the species and varieties included in the revision. Where holotypes

(or paratypes) are available, these have been illustrated. Where the only available types are syntypes (this is the case for most of the taxa included in the list), we have usually designated a lectotype. This has been done after careful comparison of the available syntype material with the original description, and occasionally other relevant literature. Our approach in designating lectotypes has been to select specimens that correspond with the original description; the relevant original description should therefore be consulted for a description of any lectotype designated by us. We have followed ICZN guidance (ICZN, 1999, Article 72.4.1) in excluding from the type series specimens that the original author referred to as varieties or forms or by an expression, such as 'varies from the type'.

In cases where syntype status was uncertain or where syntypes could not be traced, but where material corresponding with the original description was available, we have designated a neotype. However, where a taxon is well understood, such as in the case of the tropical cosmopolitan snail *Subulina octona*, a neotype designation is inappropriate (ICZN, 1999, Article 75.2). Our rationale for designating lectotypes and neotypes has been to preserve and enhance stability of nomenclature. We feel that this is of critical importance in the scientific study of a fauna, such as that of the Western Ghats, which includes many poorly-known and often taxonomically-complex groups.

Evaluating syntype status is often difficult in practice, because the available evidence may be conflicting or insufficient. Our approach has been to maintain rigorous standards, but to combine this, where appropriate, with a measure of pragmatism. For example, with Pfeiffer's types from the Hugh Cuming collection we would ideally only accept as type specimens those that are

accompanied by labels giving the species name in Pfeiffer's distinctive handwriting. Where such labels are absent, caution is required. On balance, however, where Pfeiffer's description was based on Cuming material, we have accepted the type status of a lot on the basis of three criteria, all of which have to be met. The criteria are: first, the material has to be clearly labelled as Cuming material; second, the material has to be labelled with the locality given in Pfeiffer's description; and third, the material has to correspond with the original description. Unless otherwise stated, the same approach has been followed when evaluating the type status of Cuming material described by other authors such as Dohrn, Hanley and Theobald.

Some specimens from Benson in the NHM are associated with original documentation, and thus their type status is well supported. A number of the NHM's Benson specimens were also acquired from the collection of J.S. Hawkins, a contemporary of Benson; Benson is known to have sent specimens and reprints of his papers to Hawkins. However, for most of Benson's collection that is housed in the UMZC, the level of evidence for recognising type series is limited because most of the original labels were removed before the collection was moved to Cambridge (Naggs, 1997). The same is also true of Benson material of *Glessula* that was transferred to the NHM from the UMZC. Following the publication of new species, Benson often obtained additional material, and this is most obvious where a lot contains more specimens than are referred to in his original description. Thus, all of the Benson specimens lacking original labels at the UMZC and the NHM might be considered to be of questionable type status. However, where we can find no conflicting evidence, we have accepted that lots do, most probably, represent at least part of the type

series from which lectotypes can be designated, and this we have done. Where there is doubt, but the material remains the best available basis for recognising species, we have designated neotypes. All lectotype and neotype designations should be attributed to Raheem and Naggs.

Apart from the NHM and UMZC, the list illustrates type material from the following institutions: Museum für Naturkunde, Humboldt-Universität zu Berlin (ZMB); Muséum d'Histoire Naturelle de la Ville de Genève, Geneva (MHNG); Muséum National d'Histoire Naturelle, Paris (MNHN); National Museum of Wales, Cardiff (NMW); Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt (SMF); Senckenberg Naturhistorische Sammlungen Dresden (SNSD); Zoological Museum, Natural History Museum of Denmark, University of Copenhagen (ZMUC); and the Zoological Survey of India, Calcutta (ZSI).

The NHM, located in South Kensington in Central London, was formerly known as the British Museum (Natural History) and became fully independent from the British Museum in 1963. The formal change of name to the Natural History Museum, London, occurred in 1992, and this has led to some confusion in India and elsewhere because classic 20th century publications such as the *FBI* refer to collections in the British Museum or more often simply BM.

Treatment of Data from Specimen Labels, Registers and Historical Literature

As a general rule, apart from taxon names, all documentation on the labels accompanying material illustrated in the list has been reproduced. In addition, for material from the NHM collections, we have included all data given under the relevant registration number in the NHM's Mollusca registers – the data transcribed from the registers are

shown within parentheses, immediately after the registration numbers. The registration data usually include the number of shells present in a lot when it was registered and there is sometimes a discrepancy between this number and the number of shells currently present in the lot. All specimen data from museum labels and museum registers have been transcribed *verbatim* as far as possible, and are shown within double quotation marks; where labels are illegible we state so explicitly. The abbreviation "M.C." or "MC" on some of the NHM specimen labels indicates that material is from the Cuming collection.

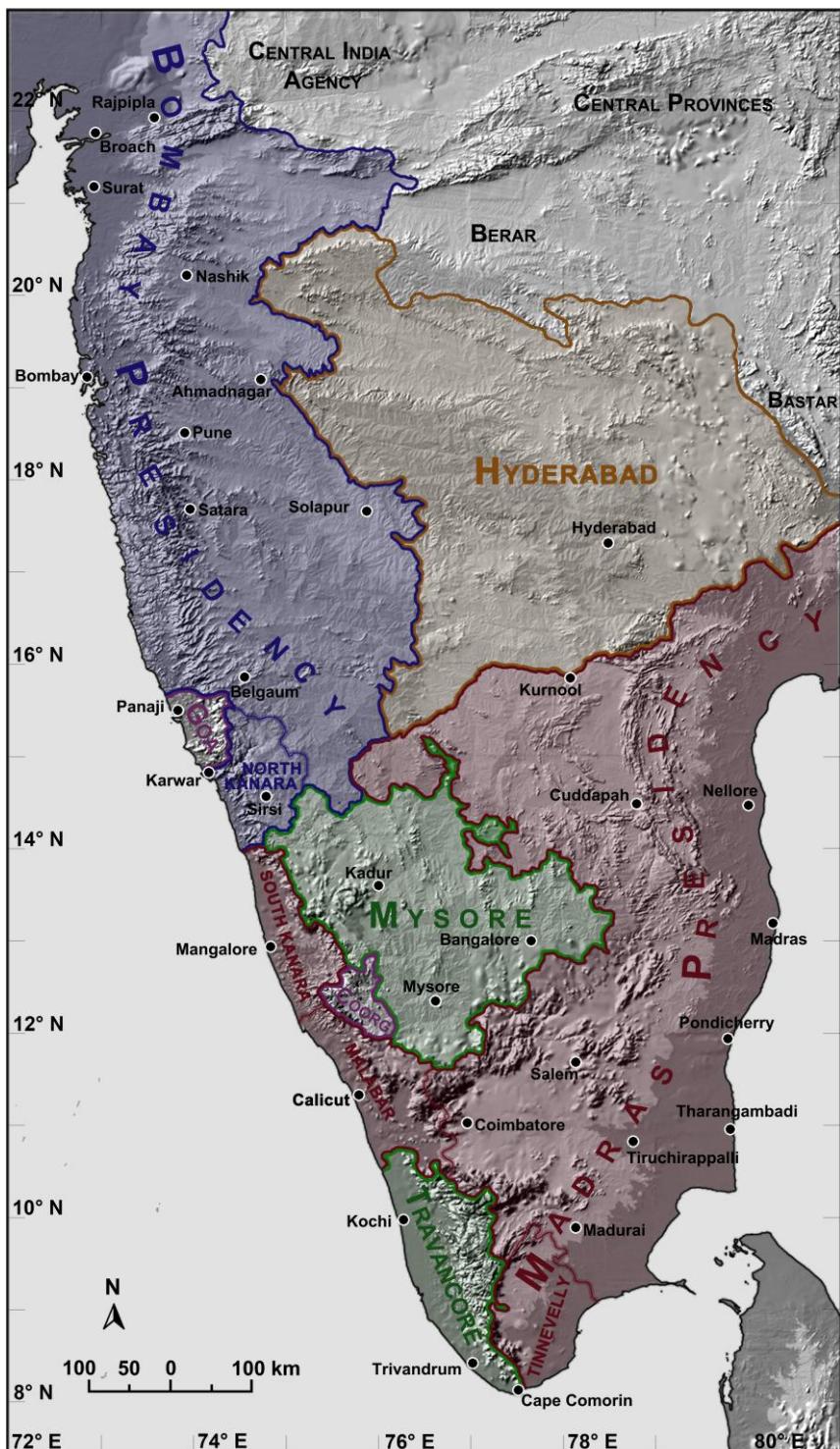
A number of taxa are illustrated by reproductions of hand-drawn figures from the historical literature. These were figures either published by the original author (in the original description or at a later date) or were figures published by other authors of specimens from the original author, collector and/or collection. All relevant information in the original text accompanying such figures has been reproduced, including all data, where supplied, on the original locality and author, type status, original collector and collections. A number of the historical figures reproduced (or referred to) are from publications composed of text and plates published over a span of several years; in such cases the date of publication of the relevant plate is shown in square brackets after the date of publication of the work in which it appears.

NHM registration numbers are usually first listed in the format given on the specimen labels (e.g. 220.40.vi.12, 75.6.29.2 or 1986 252), always within double quotation marks, and subsequently listed (usually within parentheses) in a standardised format for the purposes of citation (for the previous exam-

ples this would be respectively NHMUK 1940.06.12.220, NHMUK 1875.06.29.2 and NHMUK 1986252); the latter format incorporates the abbreviation NHMUK, adopted in 2011 by the then Department of Zoology (now subsumed in the Life Sciences Department). Both number formats have been included to facilitate cross-reference between the list and material in the NHM collections.

In some cases the same NHM lot has been registered twice (e.g. *Mariaella beddo-meii*). In such cases the older number is usually considered to be the 'true' registration number; any numbers assigned later have been listed in the text for the sake of completeness and are indicated by the phrase 're-registered in error'. Where there are 2 or more specimens in a single lot, individual specimens have been distinguished by adding '/1', '/2', '/3', etc. to the existing registration number.

The key NHM historical collections of Western Ghats land snails are associated with the following registration numbers: Beddome (1912.04.16); W. T. Blanford (1906.01.01, 1906.02.02, 1906.03.03, 1906.04.04, 1906.05.05); Godwin-Austen (1903.07.01); and Henry F. Blanford (1906.01.01, 1909.03.15). These numbers are specific to individual workers, apart from the number 1906.01.01, which is common to lots of material both from W.T. and from H.F. Blanford, and thus a potential cause of confusion. When labelling and registering specimens at the NHM, Blanford, Godwin-Austen and others often, although not invariably, used the terms "Type" (indicated as "T" in their registers) and "Typical" in relation to type material – but, as we have discovered in the process of compiling this list, not all such specimens are in fact types in the current sense of the word.



Treatment of Locality Data

The locality data are taken from the *FBI* and original descriptions of taxa. Spellings generally follow the *Ornithological Gazetteer of the Indian Subcontinent* (Lozupone et al., 2004), *The Imperial Gazetteer of India* (Meyer et al., 1908–1931), the *U.S. Army's 1:250,000 Topographic Map Series U502 for India and Pakistan* (U.S. Army Map Service, 1955–), *India Place Finder* (<http://india.csis.u-tokyo.ac.jp>) or the *Falling Rain Global Gazetteer* (<http://www.fallingrain.com/world/index.html>). As far as possible, all locality names given in the taxonomic revision are listed in the Appendix along with the relevant alternative spellings, geo-coordinates and sources.

Locality names shown within double quotation marks are historical names given in the *FBI* or in the original description of a taxon; all other place names (i.e. shown without double quotation marks) are names in current use. When indicating the original locality of a taxon we often give the modern name of the locality followed by the name as given by the original author within parentheses.

Historical names are usually regional, sub-regional, or point-locality names from the British colonial period (see **Fig. 1** for the major political divisions of South India c. 1909); many of these names are no longer in use or widely applied, or refer to localities that are poorly defined or untraceable in recent/current sources. Poorly-defined historical regional names are always shown within double quotation marks ("Eastern

India", "Western India" and "Southern India") to distinguish them from modern regional names (e.g. East India, consisting of the modern states of Bihar, Jharkhand, Odisha and West Bengal), which have been used elsewhere in the text, and which are explained in full below (see 'Geographical Definitions').

Our approach has been to treat all localities in the historical literature as point localities, the only exceptions being locality names that have been traditionally applied purely at regional or sub-regional scales (e.g. "Malabar", "Travancore", "Wynaad"). Some regional and sub-regional names of the British colonial period are still in use, although the configuration and extent of the regions themselves have changed, often substantially. In such cases we have attempted as far as possible to differentiate between the old meaning of the name and the new meaning, by showing the former within double quotation marks (e.g. "Salem District" of British India vs. the much smaller, modern Salem District). Other regional/sub-regional names are no longer in use (e.g. "South Kanara"), but we have used these historical names (i.e. always shown within double quotation marks) in the interests of accuracy; in a number of cases it is clear that the historical name does not correspond to any single modern administrative division (e.g. British colonial "South Kanara" vs. the modern-day Dakshina Kannada District of Karnataka). Careful comparison of the boundaries of British colonial and modern-day divisions need to

◀ **FIGURE 1.** Shaded relief map of South India showing the major political divisions of the late British Period, c. 1909 (source: Meyer et al., 1908–1931, vol. 26, plates 20, 37 and 41). Coorg Province and the Native States of Mysore and Travancore were contiguous with Madras Presidency, and the Portuguese Settlement of Goa with Bombay Presidency. Boundaries and names of divisions along with some of the key constituent districts, such as North and South Kanara, are indicated. The names of outlying political divisions (e.g. Berar) are shown in black, small capitals. Modern place names are given in black, regular font (for geo-coordinates see the Appendix). Base map: shaded relief map of India-South Asia, 38° 00' N, 60° 00' E to 5° 00' N, 98° 00' E (geographic projection), by Treehouse Maps (<http://www.treehouse-maps.com>).

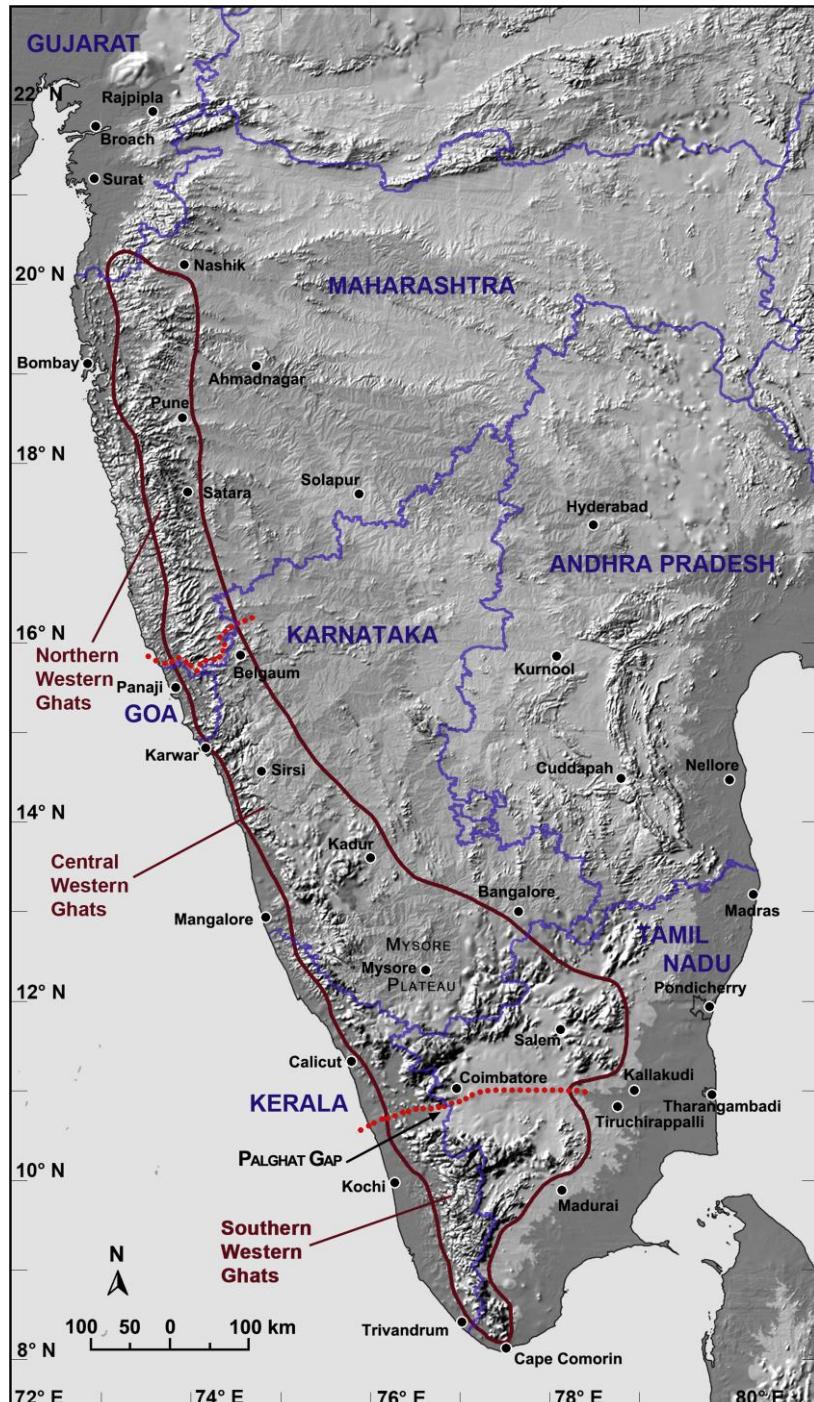


FIGURE 2. Shaded relief map of South India showing the Western Ghats hotspot as defined by Bawa et al. (2007). The hotspot boundary is demarcated by a maroon line, the northern, central and southern Western Ghats by a dotted red line, and state boundaries by purple lines (state names in purple font). For geo-coordinates of place names see the Appendix. Base map as Figure 1.

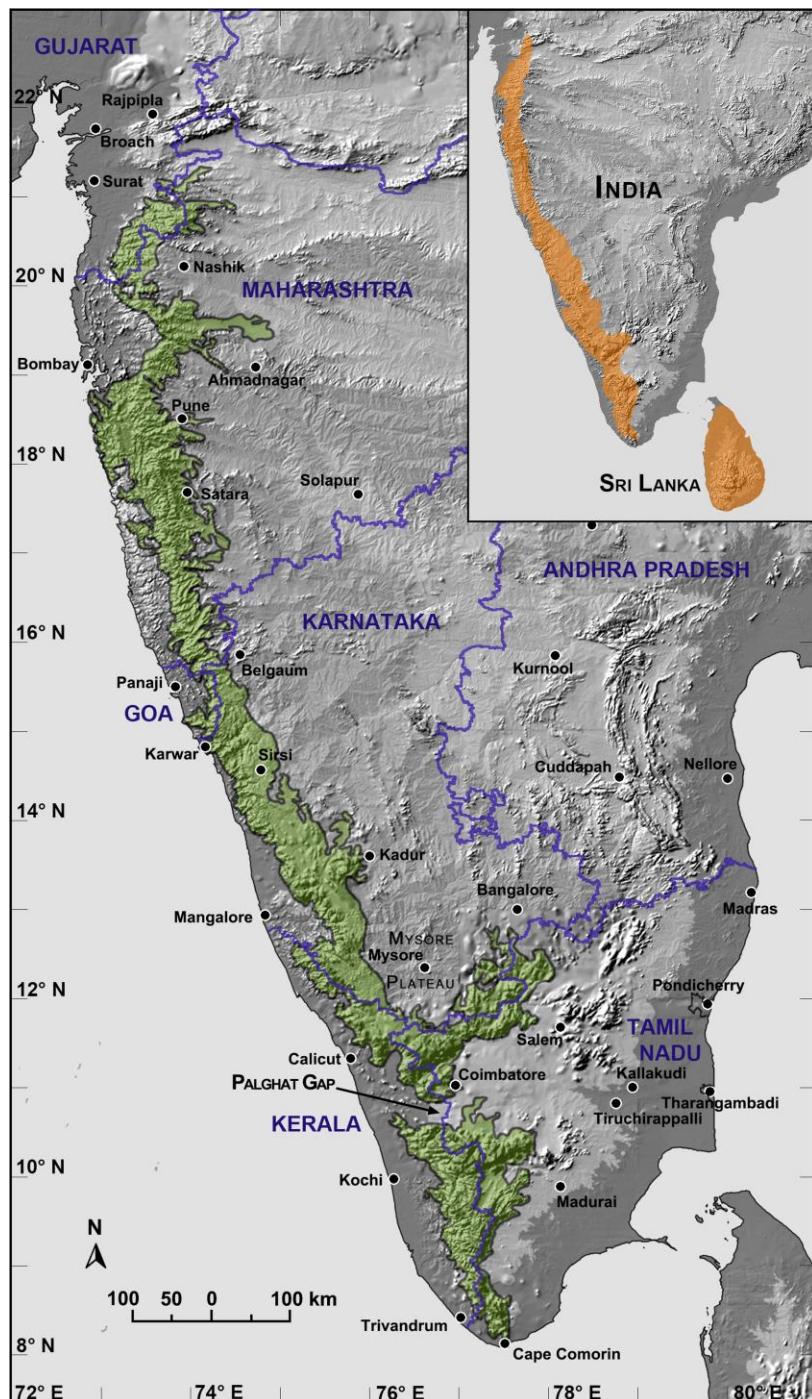


FIGURE 3. Shaded relief maps of South India showing the Western Ghats (green shading) as defined by Irfan-Ullah and Davande (2008), and as currently defined by Conservation International in the context of the Western Ghats and Sri Lanka biological hotspot (orange shading in inset map). State boundaries are indicated by purple lines (state names in purple font). For geo-coordinates of place names see the Appendix. Base map as Figure 1.

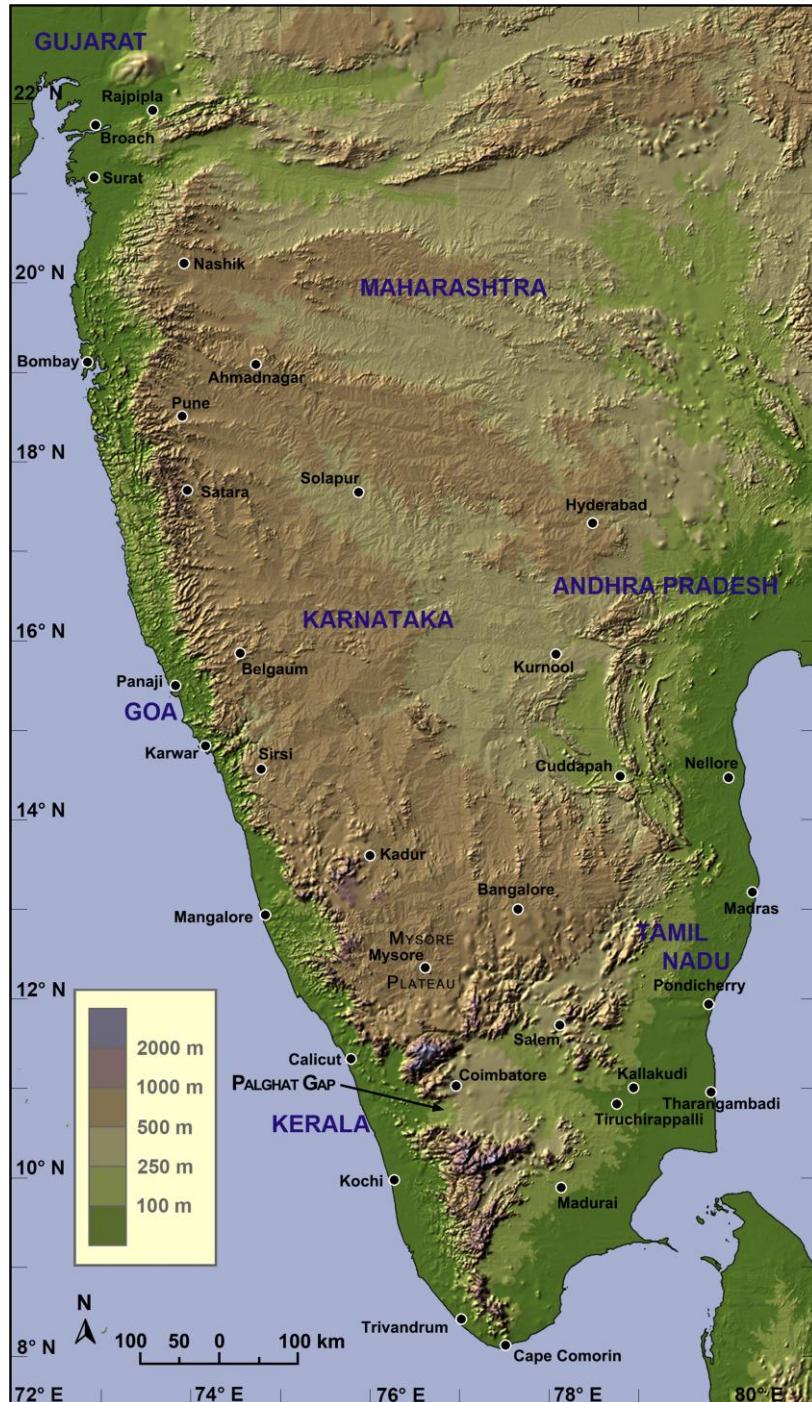


FIGURE 4. Elevational map of South India. For geo-coordinates of place names see the Appendix. Base map as Figure 1.

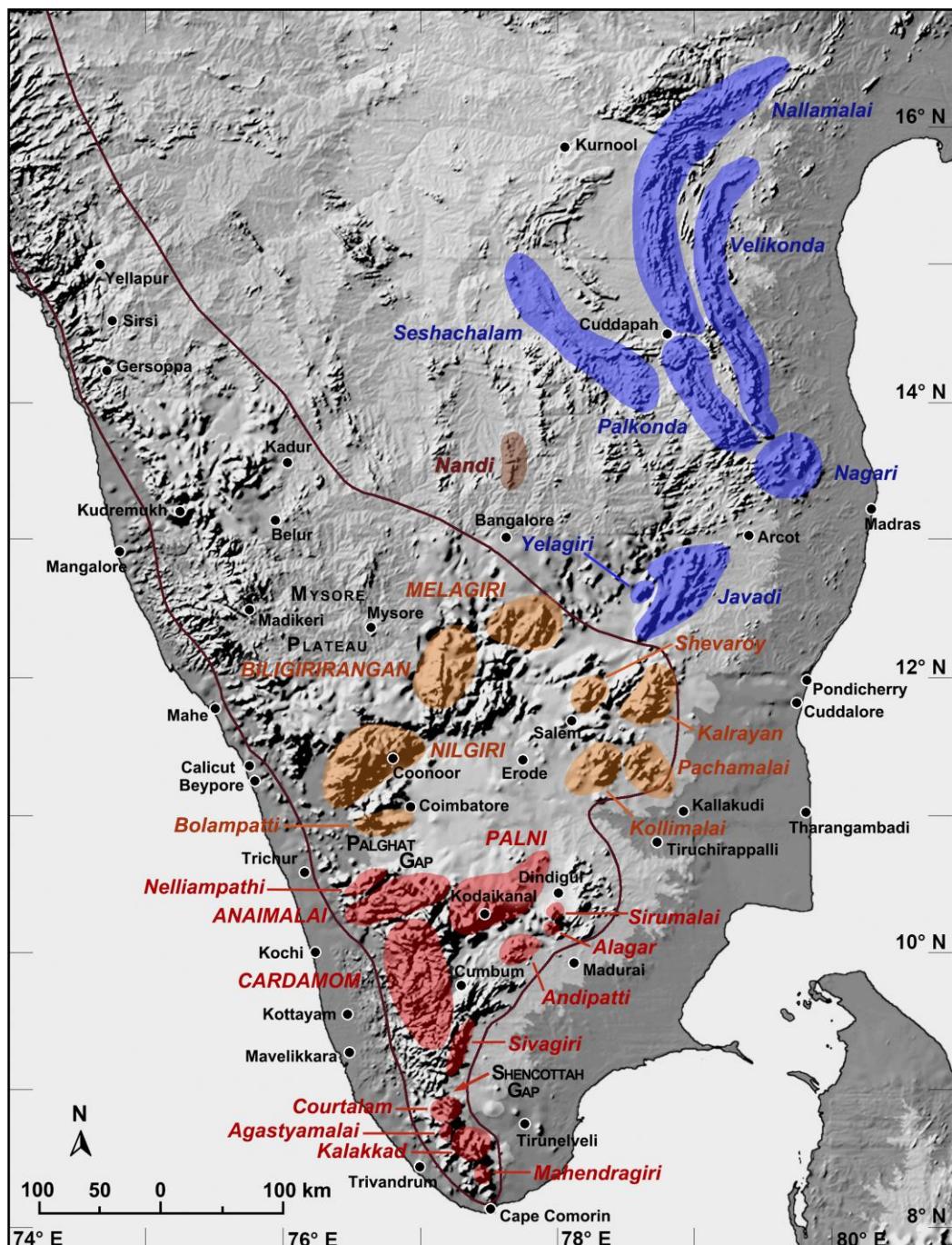


FIGURE 5. Shaded relief map of the southern and central Western Ghats, and the southern part of the Eastern Ghats. Hill ranges are shaded as follows: red, southern Western Ghats; orange, central Western Ghats; and blue, Eastern Ghats. For geo-coordinates of place names see the Appendix. The maroon line delineates the boundary of the Western Ghats hotspot as defined by Bawa et al. (2007). Base map as Figure 1.

be made using appropriate, fine-scale maps, but this is outside the scope of the current work. For up-to-date information on modern-day Indian administrative divisions see: Know India (<http://knowindia.gov.in/default.php>) and the National Portal of India (<http://india.gov.in>).

In order to facilitate comparison between the list, the *FBI* and other historical literature, for some localities we have used British colonial (anglicised) names in preference to those officially in current use (e.g. Bombay instead of Mumbai, Calcutta for Kolkata, Madras for Chennai, Trivandrum for Thiruvananthapuram). For the same reason we usually use anglicised names for hill or mountain ranges (e.g. Nilgiri Hills, Anaimalai Hills). We are aware, however, that the widespread use of Dravidian hill names in combination with the English word 'hills' is tautological – the words 'mala' or 'malai' (e.g. Anaimalai) and 'giri' (e.g. Nilgiri) signify mountain or hill in the Dravidian languages, Kannada, Malayalam, Tamil and Telugu (Gundert, 1872; Kittel, 1899; Gwynn, 1991; University of Madras, 1924–1936). We also note that it is becoming increasingly prevalent in India to use the Dravidian name alone (e.g. Nilgiris or Anaimalais) in preference to the anglicised form (e.g. Nilgiri Hills or Anaimalai Hills), although the use of the latter still remains commonplace outside India.

Geographical Definitions

Currently, there is no single, widely-used definition of the Western Ghats among researchers studying the Indian biota (e.g. see maps available at: <http://indiabiodiversity.org/map>). The term 'Western Ghats' as used by us is applied in a very broad sense and is based on Bawa et al.'s (2007) definition of the Western Ghats hotspot (see also Conservation International, 2009, **Fig. 2**).

Our use of the term differs substantially from the more precise definition used by ATREE (Irfan-Ullah and Davande, 2008, **Fig. 3**) and that currently used by Conservation International in the context of the Western Ghats and Sri Lanka biodiversity hotspot (see http://www.conservation.org/where/priority_areas/hotspots, **Fig. 3**).

The Western Ghats hotspot, as recognised by Bawa et al. (2007), extends over a distance of about 1500 km along the main mountain range of the Western Ghats (between latitudes 8° 00' N and 21° 00' N), from Cape Comorin (or Kanyakumari) in Tamil Nadu, on the southern tip of India, to the boundary between Gujarat and Maharashtra states (**Figs. 2, 4**). The western boundary of this region runs parallel to the coastline, but between about 1 and 60 km inland, and thus the region defined by Bawa et al. (2007) does not include much of the country along the western coastal margin of the Indian Peninsula. In the south this region encompasses the southern part of the Mysore Plateau (*sensu* Schwartzberg, 1992), and the hill ranges to the southeast and east (Biligirirangan hills, Melagiris, and associated ranges) – these hills extend in a north-easterly direction from the Nilgiri Hills to the Eastern Ghats (**Fig. 5**). The Bawa et al. (2007) definition of the hotspot also includes the isolated group of hills consisting of the Shevaroy, Kalrayan, Pachamalai, and Kollimalai (or Kolli) ranges (**Fig. 5**).

While we largely follow the definition of Bawa et al. (2007), we treat the Western Ghats as a biotic province that extends all the way to the western coastline of the Indian Peninsula. It thus includes the coastal lowlands falling outside the western boundary of the Bawa et al. (2007) hotspot (**Figs. 5, 6**). This coastal zone contains several localities that were explored by malacologists during the British Period:

Bombay, and Elephanta Island (near Bombay) on the Maharashtra coast; Calicut, Beypore, Kottayam, Mahe, Mavelikkara, Thrissur, and Trivandrum in coastal Kerala; and Cape Comorin on the southern tip of India. We also treat the Western Ghats as extending to localities in the foothills and lowlands immediately adjacent to the eastern boundary of the Bawa et al. (2007) hotspot, namely Ahmadnagar (Fig. 6), on the northeastern limits of the Western Ghats, and Tiruchirappalli, Kallakudi and Madurai, on the extreme, southeastern margin (Fig. 5). We do not treat taxa that are only known from these localities (e.g. *Cerastus fairbanki*, *Glessula vadalica*) as being endemic to the Western Ghats, because it is possible that the distributional ranges of such snails are located largely outside the Western Ghats, reaching their limits along the eastern foothills of the Ghats.

Our reasons for using such a broad definition of the Western Ghats are twofold. First, we have attempted to make this revision as broadly based and useful as possible, by including taxa that have yet to be detected in the main mountain ranges of the Western Ghats (broadly the region defined by Irfan-Ullah and Davande, 2008), but are likely to occur there because they have been recorded in surrounding areas. Second, we want to draw attention to the snail fauna of the areas immediately surrounding the main mountains of the Western Ghats. Current knowledge of moderate- to fine-scale patterns of species distributions and compositional turnover is limited, and in order to improve understanding we need detailed data from right across the Western Ghats, as well as from the lowlands and foothills surrounding the main ranges. A particularly noteworthy example is the group of small hills in central Tamil Nadu, which include the Shevaroy, Kalrayan, Pachamalai and

Kollimalai ranges (for convenience hereafter referred to as the Shevaroy Group). On the basis of available data (Blanford and Blanford, 1861; Blanford and Godwin-Austen, 1908; Gude, 1914a, 1921), a total of 37 species has been recorded from this hill group. Of these, 11 are endemic to the Shevaroy Group, 23 are shared with the main ranges of the central and southern Western Ghats (15 with the Nilgiri Hills), and 4 are shared with the Eastern Ghats. These numbers are likely to be underestimates, but taken at face value they suggest that the snail fauna of the Shevaroy Group is more similar to that of the Western Ghats than the Eastern Ghats (see also Blanford and Blanford, 1861, pp. 363-366).

We treat the Western Ghats as consisting of three regions: the southern, central and northern Western Ghats (Fig. 2, see also Raheem et al., 2009). The Western Ghats is marked by one major physical discontinuity, the Palghat Gap, an approximately 30-km wide strip of low-lying terrain (< 100 m in elevation) centred at 10° 40' N and 76° 35' E; a much narrower gap, the Shencottah Gap (c. 160 m in elevation), is located further to the south, at about 8° 57' N and 76° 05' E (Hooker, 1904, pp. 7-8, 31; Pascal, 1988, pp. 3-5; Vajravelu and Vivekananthan, 1996, pp. 390-393; Lozupone et al., 2004, p. 135; Biju and Bossuyt, 2009; Robin et al., 2010). The southern Western Ghats is the region south of the Palghat Gap. The central Western Ghats extends north of the Palghat Gap to meet with the northern Western Ghats on the boundary between the states of Goa, Karnataka and Maharashtra. This division of the Western Ghats into the southern, central and northern regions is a pragmatic attempt to gain a broad overview of land-snail species distributions across the Western Ghats as a whole. Bhimachar (1945) used the same division; see also

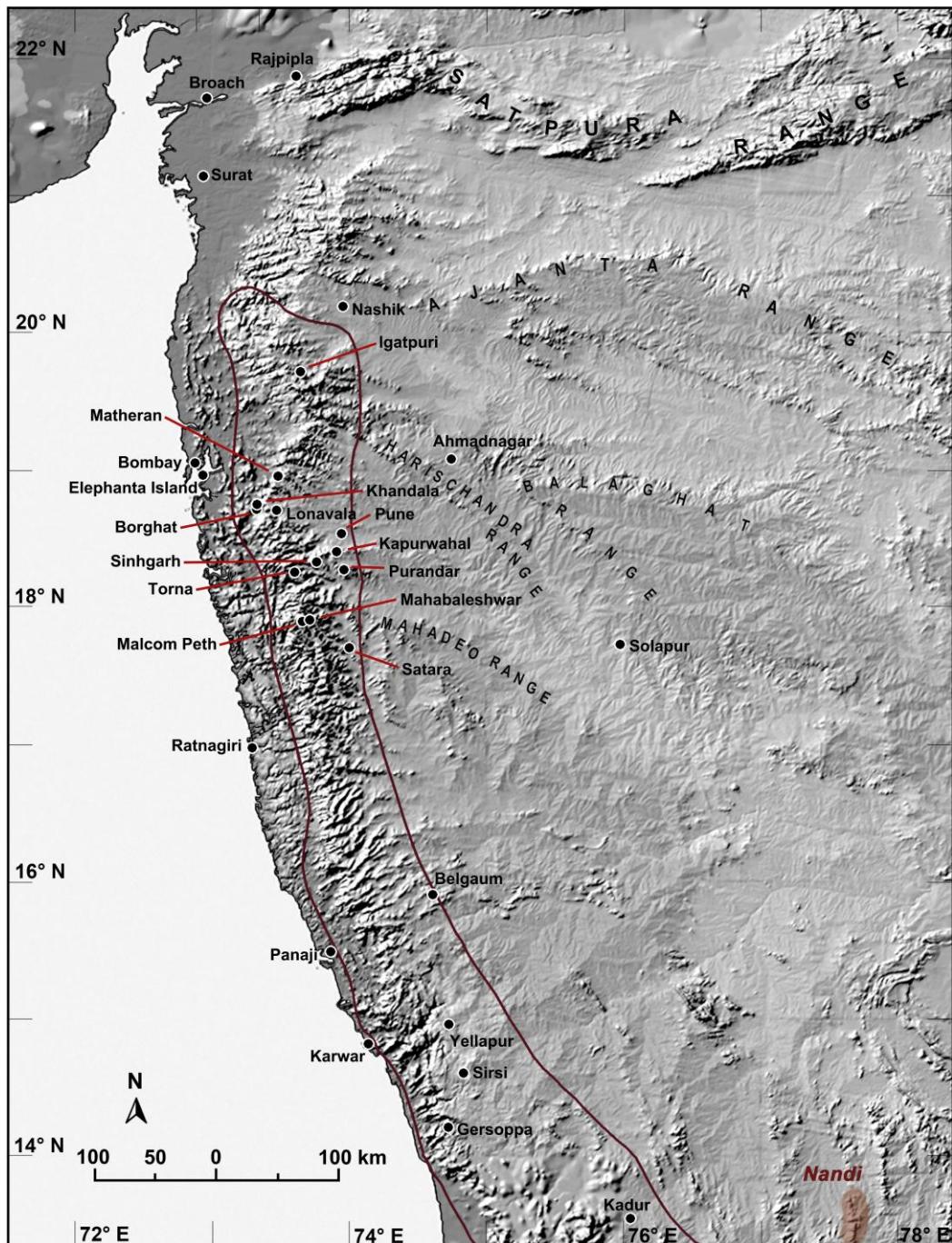


FIGURE 6. Shaded relief map of the northern and central Western Ghats. The maroon line delineates the boundary of the Western Ghats hotspot as defined by Bawa et al. (2007). Hill ranges largely follow Schwartzberg (1992, p. 3, plate I.B.1); for geo-coordinates of other localities see the Appendix. Base map as Figure 1.

Pascal (1988), who provides a highly informative introduction to the geography and geology of the Western Ghats. Other authors have adopted different schemes (e.g. Subramanyam and Nayar, 1974; Hajra et al., 1996; Wikramanayake et al., 2002; Dahanukar et al., 2004; Aravind et al., 2005).

The Eastern Ghats (**Figs. 4, 5**) are the disjointed and irregular line of hills running sub-parallel to and not far from the eastern coastline of the Indian Peninsula and across the states of Odisha, Andhra Pradesh and Tamil Nadu (Meyer et al., 1908-1931, vol. 12, pp. 216-217; Legris and Meher-Homji, 1984, p. 116; Swaminathan and Ellis, 1996, pp. 478-479; Pullaiah and Muralidhara Rao, 2002, pp. 1-6). They extend over a distance of more than 1700 km and on the north are bounded by the Mahanadi, a major river. On their southwestern margin the Eastern Ghats merge with the central and southern Western Ghats, and so the southern limits of both mountain ranges have been variously defined in the literature. In British colonial times (Meyer et al., 1908-1931, vol. 12, p. 217, vol. 14, pp. 84-85) the Eastern Ghats were considered to extend southwards only as far as the Melagiri and Biligirirangan Hills in the southwest and the Palar River in the southeast; the hills to the south of the Palar River (i.e. the Javadi and Yelagiri Hills, the Shevaroy Group) were regarded as 'detached' hill ranges. More recently, some authors (e.g. Legris and Meher-Homji, 1984, Das, 1996, p. 8, and Swaminathan and Ellis, 1996, p. 478) have treated these outlying hill ranges as part of the Eastern Ghats, whereas others (e.g. Mani, 1974, pp. 197, 202, and Pullaiah and Muralidhara Rao, 2002) have viewed the Eastern Ghats as extending further to the southwest, to encompass the eastern slopes of the Nilgiri, Anaimalai and Palni Hills. A contrasting approach has been taken by Bawa et al.

(2007) and Irfan-Ullah and Davande (2008), who have included the Melagiri and Biligirirangan Hills as part of the Western Ghats. Bawa et al. (2007) have also treated the Shevaroy Group and the small, isolated hills immediately to the north, east and south of Dindigul as belonging to the Western Ghats. The Javadi and Yelagiri Hills lie just beyond the southeastern limits of Bawa et al.'s (2007) hotspot boundary, and for the purposes of this list we have included these hills as part of the Eastern Ghats (**Fig. 5**). Despite a long history of study of some taxa (e.g. plants, Mani, 1974, Swaminathan and Ellis, 1996, and herpeto-fauna, Srinivasulu and Das, 2008), the biota of the Eastern Ghats is far less well known than that of the Western Ghats (Zafarul Islam and Rahmani, 2004; Srinivasulu and Das, 2008). Detailed explorations of the relationship between the biotas of the Western and Eastern Ghats, using molecular phylogenetic approaches, have still to be carried out.

In assessing the distributional ranges of taxa occurring in both the Western and Eastern Ghats, we differentiate between the southern and northern parts of the Eastern Ghats. The physiographic division between the southern and northern Eastern Ghats is the 130-km-wide gap of the Krishna and Godavari Rivers (Mani, 1974; Das, 1996; Swaminathan and Ellis, 1996; Pullaiah and Muralidhara Rao, 2002). As used in this revision, the 'southern part of the Eastern Ghats' (between latitudes 12° 00' N and 16° 00' N) lies between the rivers, Ponnaiyar and Krishna, and extends from the Javadi, Yelagiri and Nagari Hills in the south to the Palkonda, Seshachalam, Nallamalai and Velikonda Hills in the north (**Fig. 5**). The 'northern part of the Eastern Ghats' (between latitudes 16° 00' N and 20° 00' N) encompasses the hill ranges that run northwards from the Krishna and Godavari

Rivers to the Mahanadi.

We have adopted the following regional arrangement for India: East India (states of Bihar, Jharkhand, West Bengal, Odisha); North India (states of Chhattisgarh, Himachal Pradesh, Haryana, Jammu and Kashmir, Madhya Pradesh, Punjab, Rajasthan, Uttarakhand, and Uttar Pradesh, the National Capital Territory of Delhi and the Union Territory of Chandigarh); Northeast India (states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura); South India (states of Andhra Pradesh, Goa, Karnataka, Kerala and Tamil Nadu, and the Union Territory of Puducherry); and West India (states of Gujarat and Maharashtra, Union Territories of Dadra and Nagar Haveli, and Daman and Diu). State and Union Territories follow: Know India (<http://knowindia.gov.in/default.php>) and the National Portal of India (<http://india.gov.in>).

A number of different web-based sources are cited in this revision, and all of these were last accessed on 21 February 2014.

SYSTEMATIC REVISION

Clade Caenogastropoda

Informal Group Architaenioglossa

Superfamily Cyclophoroidea

Family Cyclophoridae

Genus *Cyclophorus*

1. *Cyclophorus altivagus* Benson, 1854

Cyclophorus altivagus Benson, 1854, *Annals and Magazine of Natural History, Series 2*, 14: 411

Cyclophorus (Glossostylus) altivagus -
Gude, 1921, *FBI, Mollusca-III*: 56

Distribution: endemic to the Western Ghats. Known from Mahabaleshwar in the northern Western Ghats.

Original locality: summit of the ghats at Mahabaleshwar, "Southern India" (A.E. Benson).

Type material: a neotype is here designated from a series of 7 shells, "Bens. Col., R. MacAndrew Coll., 1873", UMZC (reg. no. I.103835). These shells were originally in at least two distinct lots with separate labels ("Bens Col. So. Ind: Mahabaleshwar", and "Bens. col. So Ind."), but were subsequently confused. The neotype is labelled "Punah ... Mahabaleshwar" (reg. no. I.103835.A, **Fig. 7A**). It is clearly not the heavily-worn specimen on which Benson's description was based – this shell, Benson's holotype, could not be traced. We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. altivagus* (see the original description by Benson, 1854).

Other material: 2 of the 6 remaining shells from the above lot (reg. nos. I.103835.B, I.103835.C., **Figs. 7B, C**), "Bens. Col., R. MacAndrew Coll., 1873", UMZC.

2. *Cyclophorus indicus* (Deshayes, 1834)

Cyclostoma indicum Deshayes, Mollusques, in Bélanger 1834, *Voyage aux Indes-Orientales, Zoologie*: 415, pl. 1, figs. 4, 5
Cyclophorus (Glossostylus) indicus - Gude, 1921, *FBI, Mollusca-III*: 63

Distribution: endemic to the Western Ghats. Known from Elephanta Island,

Bombay and Matheran in the northern Western Ghats.

Original locality: Elephanta Island (also known as Gharapuri), Bombay (Bélanger). Found at the base of trees in the forested hills of the island.

Type material: 3 syntypes, MNHN, Paris, labelled "Cyclophorus indicus Desh., Elephanta", "M. Belanger 1828, type, n3 136C", and "don. E.N.S.M. 1978, Coll. Deshayes, Ile d'Elephanta, Indes". One of these shells is here designated as the lectotype (reg. no. MNHN 5510, **Fig. 7D**). It is the shell figured in Deshayes' (1834) description, and is labelled "Cyclophorus indicum. Desh. Pondichery, Type de l'Espèce"; the reference to Pondichery is confusing, and is probably an error. The two paralectotypes (both registered under reg. no. MNHN 5511, **Figs. 7E, F**) are also illustrated.

3. *Cyclophorus jerdoni* (Benson, 1851)

Cyclostoma jerdoni Benson, 1851a, *Annals and Magazine of Natural History, Series 2*, 8: 185

Cyclophorus (Litostylus) jerdoni - Gude, 1921, *FBI, Mollusca-III*: 48

Distribution: endemic to the Western Ghats. Known from the Nilgiri and Biligirirangan Hills in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: on the slopes of the Nilgiri Hills (Jerdon).

Type material: 2 syntypes, "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103685). One of these has been labelled "Nilgherries, Jerdon, N & E Face, in forest,

Fig.d by Pfeiffer", and is here designated as the lectotype (reg. no. I.103685.A, **Fig. 8A**). The paralectotype (reg. no. I.103685.B, **Fig. 8B**), which is labelled "NE face of Nilgherries in Forest", is also illustrated.

4. *Cyclophorus nilagiricus* (Benson, 1852)

Cyclostoma nilagiricum Benson, 1852a, *Annals and Magazine of Natural History, Series 2*, 10: 268

Cyclophorus (Litostylus) nilagiricus - Gude, 1921, *FBI, Mollusca-III*: 51

Distribution: endemic to the Western Ghats. Known from "Travancore" in the southern Western Ghats, and from the Nilgiri Hills, the Biligirirangan Hills and "South Canara" in the central Western Ghats.

Original locality: forest on the western edge of the Nilgiri Hills (T. Jerdon).

Type material: 8 syntypes, "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103890). One of these is labelled "West Edge of Nilgherries in forest", and is here designated as the lectotype (reg. no. I.103890.A, **Fig. 8C**); 1 of the 7 paralectotypes (reg. no. I.103890.C, **Fig. 8D**) is also shown.

5. *Cyclophorus stenomphalus* (Pfeiffer, 1846)

Cyclostoma stenomphalum Pfeiffer, 1846a, *Zeitschrift für Malakozoologie*, 3: 44

Cyclophorus (Glossostylus) stenomphalus - Gude, 1921, *FBI, Mollusca-III*: 67

Distribution: uncertain. This species has supposedly been recorded from several widely-separate localities in West and Northeast India (Gude, 1921), but given its

uncertain taxonomic status, these distributional records are of questionable value.

Original locality: not known.

Type material: authentic Pfeiffer material could not be traced, but this species was figured by Pfeiffer in a publication that appeared after the original description (Pfeiffer, 1843-1850 [1847-1848], p. 59, pl. 8, figs. 5, 6, see **Fig. 9A**). This figure, as well as the original description, are insufficient for recognising *C. stenomphalus*, and we therefore consider this species to be a *nomen dubium*.

The types of *C. stenomphalus* and other Pfeiffer taxa we treat as *nomina dubia* may have been part of the Pfeiffer collections (including many types) at Stettin Museum, which was destroyed in the Second World War (Dance, 1986, pp. 210, 222).

Genus *Cyathopoma*

6. *Cyathopoma album* Beddome, 1875

Cyathopoma (Jerdonia) album Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 446, pl. 52, fig. 14

Cyathopoma (Cyathopoma) album - Gude, 1921, *FBI, Mollusca-III*: 131

Distribution: endemic to the Western Ghats (Sirumalai range in the southern Western Ghats) and the southern part of the Eastern Ghats (Yelagiri Hills).

Original locality: Yelagiri (= "Yellagherry") Hills, "Salem district", at 2500 feet elevation; Sirumalai range (= "Sirumallay hills"), Dindigul, at an elevation of 3500 feet; and Dimbula, central provinces, Ceylon. *Cyathopoma* from the Western

Ghats and Sri Lanka tend to have highly-restricted ranges, and that is particularly true of the Sri Lankan species. Beddome in his original description stated that he had seen examples of this species from Ceylon, but no Sri Lankan material could be traced by us at the NHM. We think that the Ceylon record is almost certainly an error – it is most likely a case of mistaken identity, involving a taxon superficially similar to *C. album*, such as *C. leptomita* (Collett, 1897) or *C. turbinatum* Sykes, 1897. Therefore, *C. album* should be treated as a snail endemic to the Western Ghats.

Type material: 3 syntypes from "Yellagiri, Salem distr.t", "coll. Col. R. Beddome", "898. 12.iv.16", NHM (reg. no. NHMUK 1912.04.16.898), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.898/1, **Fig. 8E**). One of the two paralectotypes (reg. no. NHMUK 1912.04.16.898/2, **Fig. 8F**) is also shown.

7. *Cyathopoma anamallayanum* Beddome, 1875

Cyathopoma (Jerdonia) anamallayanum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 446, pl. 52, fig. 15

Cyathopoma (Jerdonia) anamallayanum - Gude, 1921, *FBI, Mollusca-III*: 144

Distribution: endemic to the Western Ghats. Known from an elevation of 6000 feet in the Anaimalai and Palni Hills, southern Western Ghats.

Original locality: Anaimalai Hills, at an elevation of 6000 feet, in evergreen forest and sholas. In the 19th century the term 'shola' was often used to refer to forested ravines or patches of forest that occurred at

elevations above 5000 feet and were surrounded by open grassland (Hooker, 1904, p. 32). More recently, Meher-Homji (1984) has defined shola as a type of evergreen forest occurring in the southern and central Western Ghats at elevations above 1500 m (\approx 4920 feet), while other authors (e.g. Thomas and Palmer, 2007) have used the term in relation to both these forests and the high-altitude grasslands contiguous with them (i.e. shola grasslands and shola forests).

Type material: 2 syntypes ("PZS 1875, the shells figured") from the "Anamallay Hills, S. India", "Col. Beddome, 75.6.29.2" NHM (reg. no. NHMUK 1875.06.29.2, "Presented by Col. Beddome, The Chalet, Balham Park Rd", "2" specimens, "South India"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.06.29.2/1, **Fig. 10A**). 4 paralectotypes from the "Anamallais, coll. Col. Beddome", "870.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.870, registered as "T", "5" specimens); one of these paralectotypes is also illustrated (reg. no. NHMUK 1912.04.16.870/1, **Fig. 10B**).

8. *Cyathopoma atrosetosum* Beddome, 1875

Cyathopoma (Jerdonia) atrosetosum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 448, pl. 52, fig. 18

Cyathopoma (Cyathopoma) atrosetosum - Gude, 1921, *FBI, Mollusca-III*: 132

Distribution: endemic to the Western Ghats. Known from the Ghats of "South Canara" in the central Western Ghats and from the Anaimalai Hills in the southern Western Ghats.

Original locality: "South-Canara ghats", at an elevation of 3000 feet, and the higher ranges of the Anaimalai Hills.

Type material: 2 syntypes from a lot of 3 shells from "S. Canara", "coll. Col. R. Beddome, 874.12.iv.16", NHM (reg. no. NHM UK 1912.04.16.874, registered as "T"). These 2 shells correspond with Beddome's original description and are here considered syntypes. One of these syntypes is here designated as the lectotype (reg. no. NHMUK 1912.04.16.874/1, **Fig. 10C**). The paralectotype (reg. no. NHMUK 1912.04.16.874/2, **Fig. 10D**) is also shown. The third shell in the lot is sufficiently different (i.e. it clearly belongs to another species of *Cyathopoma* or possibly even to the genus *Lagocheilus*) that we consider it unlikely that Beddome would have included it in his concept of *Cyathopoma atrosetosum*, and we therefore exclude it from the type series.

9. *Cyathopoma beddomeanum* Nevill, 1881

Cyathopoma (Jerdonia) beddomeanum Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 145

Cyathopoma (Cyathopoma) beddomeanum - Gude, 1921, *FBI, Mollusca-III*: 133

Distribution: endemic to the Western Ghats. Known from the "Tinnevelly" Hills in the southern Western Ghats.

Original locality: "Tinnevelly" mountains, at an elevation of 4000 feet (Beddome).

Type material: 4 syntypes ("PZS 1875, the shells figured") from "Tinnevelly, S. India", "75.3.6.69", NHM (reg. no. NHMUK 1875.03.06.69, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Bed-

dome"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.03.06.69/1, **Fig. 10E**).

**10. *Cyathopoma coonooreense*
Blanford, 1868**

Cyathopoma coonooreense Blanford, 1868a, *Journal de Conchyliologie*, 16: 261, pl. 12, fig. 6
Cyathopoma (Cyathopoma) coonooreense -
 Gude, 1921, *FBI, Mollusca-III*: 133

Distribution: endemic to the Western Ghats. Known from Coonoor in the Nilgiri Hills, central Western Ghats.

Original locality: on the peaks of the Nilgiri Hills at Coonoor, at an elevation of 6000 feet.

Type material: 3 syntypes (labelled "authentic") from "Coonoor, Nilgiris", "H.F. Blanford colln., Acc. Non: 1944", NHM (reg. no. NHMUK 20110221), one of which is here designated as the lectotype (reg. no. NHMUK 20110221/1, **Fig. 10F**). One of the paralectotypes is also shown (reg. no. NHM UK 20110221/2, **Fig. 11A**).

Other material: 1 of 2 shells (reg. no. NHMUK 20110222/1, **Fig. 11B**) labelled "Nilgherries", "M.C." (label with species name and locality in Beddome's handwriting), NHM.

**11. *Cyathopoma deccanense*
Blanford, 1868**

Cyathopoma deccanense Blanford, 1868a, *Journal de Conchyliologie*, 16: 258, pl. 12, fig. 2
Cyathopoma (Cyathopoma) deccanense -

Gude, 1921, *FBI, Mollusca-III*: 134

Distribution: endemic to the Western Ghats. Known from the northern Western Ghats: from Khandala, Sinhgarh (or Sinhagad), and Borghat (near Lonavala).

Original locality: Western Ghats, not far from Bombay, near Khandala (= "Khandala"), Sinhgarh (= "Singurh") etc., at an elevation of 2000-4000 feet.

Type material: 7 syntypes from "Khandala, Bombay Pres.", "coll. W.T. Blanford, 31.06. 5.5", NHM (reg. no. NHMUK 1906.05.05.31, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.05.05.31/1, **Fig. 11C**). One of the paralectotypes (reg. no. NHMUK 1906.05.05.31/2, **Fig. 11D**) is also illustrated.

**12. *Cyathopoma filocinctum*
(Benson, 1851)**

Cyclostoma filocinctum Benson, 1851a, *Annals and Magazine of Natural History*, Series 2, 8: 188
Cyathopoma (Cyathopoma) filocinctum -
 Gude, 1921, *FBI, Mollusca-III*: 135

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: peaks of the Nilgiri Hills (Jerdon).

Type material: 3 syntypes, "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103705), one of which is here designated as the lectotype (reg. no. I.103705.A, **Fig. 11E**). One of the paralectotypes (reg. no. I.103705.B, **Fig. 11F**) is also illustrated.

Other material: 1 of 3 shells from the "Nilgherries", "Conway, Shiplay Esq., M.C", NHM (reg. no. NHMUK 20110223/1, **Fig. 12A**).

**13. *Cyathopoma imperforatum*
Nevill, 1881**

Cyathopoma (Jerdonia) imperforatum
Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 145
Cyathopoma (Jerdonia) imperforatum -
Gude, 1921, *FBI, Mollusca-III*: 147

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills, at an elevation of 6600 feet (Beddome).

Type material: 2 syntypes (1 adult and 1 immature), labelled "Anamalais, coll. Col. R. Beddome", "1912.4.16.851" and "not procerum", NHM (reg. no. NHMUK 1912.04.16.851, "Anamalais – 6000 f", not registered as types, "2" specimens). The adult shell is here designated as the lectotype (reg. no. NHMUK 1912.04.16.851/1, **Fig. 12B**). There is also 1 paralectotype at the ZSI, Calcutta (registration number could not be traced), which has been examined and photographed by N.A. Aravind. Nevill in his 1881 description referred to Beddome (1875, p. 449) and this brings all 3 of the shells mentioned by Beddome into the type series. The shells mentioned by Beddome correspond closely with the 3 shells at the NHM and ZSI.

**14. *Cyathopoma kalryenense*
(W.T. & H.F. Blanford, 1861)**

Cyclotus kalryenensis W.T. & H.F. Blan-

ford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 352, pl. 2, fig. 1
Cyathopoma (Cyathopoma) kalryenense -
Gude, 1921, *FBI, Mollusca-III*: 135

Distribution: endemic to the Western Ghats. Known from the Kalrayan Hills in the central Western Ghats and from the Sirumalai range in the southern Western Ghats.

Original locality: peaks of the Kalrayan (= "Kalryen") Hills (King and/or Foote), "Southern India".

Type material: 1 syntype (labelled "authentic") from "Kalryenmalais", "H.F. Blanford colln., Acc. no: 1944", NHM; this specimen is here designated as the lectotype (reg. no. NHMUK 20110224, **Fig. 12C**).

**15. *Cyathopoma kolamulliense*
(W.T. & H.F. Blanford, 1861)**

Jerdonia? kolamulliense W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 351, pl. 1, fig. 4
Cyathopoma (Cyathopoma) kolamulliense -
Gude, 1921, *FBI, Mollusca-III*: 136

Distribution: endemic to the Western Ghats. Known from the Kollimalai Hills (or Kolli Hills) in the central Western Ghats.

Original locality: Kollimalai (= "Kolamullie") Hills (W. King).

Type material: a neotype (reg. no. NHMUK 1906.01.01.2221/1, **Fig. 12D**) is here designated from a series of 17 shells from the "Kolamullay Hills", "2221.06.1.1", NHM (reg. no. NHMUK 1906.01.01.2221, not registered as types, "13" specimens), labelled "*Cyathopoma Kolymullayanum*" in Bed-

dome's handwriting. These shells correspond closely with the type description. We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. kolamulliense* (see the original description by Blanford and Blanford, 1861).

Other material: 1 of the 16 remaining shells from the above lot is also illustrated (reg. no. NHMUK 1906.01.01.2221/2, **Fig. 12E**).

The NHM type collection contains 2 shells, which were wrongly considered to be the types of *C. kolamulliense*. This lot is labelled "Kolamalai Hills, S. India" and "Sispara", "Coll. W.T. Blanford", "114.06. 4.4" (reg. no. NHMUK 1906.04.04.114). These shells are minute and different in shape and sculpture from the type description of *C. kolamulliense*. The NHM register indicates that 2 shells from the "Kolamalai Hills" were registered under the number 1906.04.04.114. However, the original specimens may have been replaced by the shells of another species subsequent to their being registered, or the specimen data may have been entered wrongly by Godwin-Austen, who registered the original lot.

16. *Cyathopoma latilabre* Beddome, 1875

Cyathopoma latilabre Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 450, pl. 53, figs. 28, 29

Cyathopoma (Cyathopoma) latilabre - Gude, 1921, *FBI, Mollusca-III*: 137

Distribution: endemic to the Western Ghats. Known from the central Western Ghats: from the Ghats of "South Canara" and from "Wynaad".

Original locality: "South-Canara ghats", at an elevation of 2000-3000 feet.

Type material: 3 syntypes, "S. Canara", "coll. Col. R. Beddome", "900.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.900, "5" specimens registered), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.900/1, **Fig. 12F**). One of the paralectotypes (reg. no. NHMUK 1912.04.16.900/2, **Fig. 13A**) is also illustrated.

17. *Cyathopoma malabaricum* (W.T. & H.F. Blanford, 1860)

Cyclotus malabaricus W.T. & H.F. Blanford, 1860, *Journal of the Asiatic Society of Bengal*, 29 (2): 125

Cyathopoma (Jerdonia) malabaricum - Gude, 1921, *FBI, Mollusca-III*: 148

Distribution: endemic to the Western Ghats. Known from Pykara in the Nilgiri Hills, central Western Ghats.

Original locality: near Pykara, Nilgiri Hills, at an elevation of 7000 feet. Found beneath rocks and stones on damp ground at forest edges.

Type material: 4 syntypes (labelled "authentic") from "Pykara, Nilgiris, S. India", "H.F. Blanford colln., Acc. no: 1944", NHM (reg. no. NHMUK 20110226), one of which is here designated as the lectotype (reg. no. NHMUK 20110226/1, **Fig. 13B**).

18. *Cyathopoma nitidum* Beddome, 1875

Cyathopoma (Jerdonia) nitidum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 445, pl. 52, fig. 12

Cyathopoma (Jerdonia) nitidum - Gude, 1921, *FBI, Mollusca-III*: 149

Distribution: endemic to the Western Ghats. Known from the Ghats of "South Canara" in the central Western Ghats and from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills, at an elevation of 6000 feet and the "South-Canara ghats", at 4000 feet.

Type material: 5 syntypes from the "Anaimalais", "coll. Col. R. Beddome", "894.12. iv.16", NHM (reg. no. NHMUK 1912.04.16.894, registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.894/1, **Fig. 13C**). One of the paralectotypes (reg. no. NHM UK 1912.04.16.894/2, **Fig. 13D**) is also illustrated.

19. *Cyathopoma ovatum* Beddome, 1875

Cyathopoma (Jerdonia) ovatum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 447, pl. 52, fig. 16

Cyathopoma (Cyathopoma) ovatum - Gude, 1921, *FBI, Mollusca-III*: 139

Distribution: endemic to the southern part of the Eastern Ghats (Yelagiri Hills) and the central Western Ghats (Shevaroy Hills).

Original locality: Yelagiri (= "Yellagheri") Hills, "Salem District".

Type material: a neotype (reg. no. NHM UK 1912.04.16.884/1, **Fig. 13E**) is here designated from a lot of 3 shells from the "Shevaroys", "Coll. Col. R. Beddome",

"884.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.884, registered as "T"). These shells collected by Beddome agree with his description, but are not from the original locality (the Yelagiri Hills) and, therefore, cannot be considered as syntypes. We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. ovatum* (see the original description by Beddome, 1875).

20. *Cyathopoma peilei* Preston, 1903

Cyathopoma peilei Preston, 1903, *Proceedings of the Malacological Society of London*, 5: 340, text-fig. 1

Cyathopoma (Cyathopoma) peilei - Gude, 1921, *FBI, Mollusca-III*: 140

Distribution: endemic to the Western Ghats. Known from Yercaud in the Shevaroy Hills, central Western Ghats.

Original locality: Yercaud (= "Yercand"), Shevaroy Hills (A.J. Peile).

Type material: 1 syntype from "Yercand, Sherveroy Hills, India", "1903.9.8.9", NHM (reg. no. NHMUK 1903.09.08.9 "Type", "Purch.d of Mr. Preston"). This specimen is here designated as the lectotype (**Fig. 13F**).

21. *Cyathopoma procerum* Blanford, 1868

Cyathopoma procerum Blanford, 1868a, *Journal de Conchyliologie*, 16: 262, pl. 12, fig. 8

Cyathopoma (Jerdonia) procerum - Gude, 1921, *FBI, Mollusca-III*: 150

Distribution: endemic to the Western Ghats. Known from Beypore in "Malabar", central Western Ghats.

Original locality: in scrub and gardens at Beypore (= "Beypur") in "Malabar" not far from the coast (S. Fairbank).

Type material: 7 syntypes (labelled "authentic") from "Beypoor", "H.F. Blanford colln., Acc. no: 1944", NHM (reg. no. NHM UK 20110227), one of which is here designated as the lectotype (reg. no. NHMUK 20110227/1, **Fig. 14A**). One of the paralectotypes (reg. no. NHMUK 20110227/2, **Fig. 14B**) is also illustrated.

22. *Cyathopoma shevaroyanum* Beddome, 1875

Cyathopoma shevaroyanum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 451, pl. 53, figs. 32, 33

Cyathopoma (Cyathopoma) shevaroyanum - Gude, 1921, *FBI, Mollusca-III*: 141

Distribution: endemic to the Western Ghats (Shevaroy Hills in the central Western Ghats) and the southern part of the Eastern Ghats (Yelagiri Hills).

Original locality: Shevaroy and Yelagiri (= "Yellaghirry") Hills.

Type material: 4 syntypes from "Shevaroys", "coll. Col. R. Beddome", "885.12.iv. 16", NHM (reg. no. NHMUK 1912.04.16.885, registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1912.04.16.885/1, **Fig. 14C**). One of the paralectotypes (reg. no. NHMUK 1912.04.16.885/2, **Fig. 14D**) is also illustrated.

23. *Cyathopoma sivagherrianum* Beddome, 1875

Cyathopoma (Jerdonia) sivagherrianum

Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 448, pl. 52, fig. 17

Cyathopoma (Cyathopoma) sivagherrianum - Gude, 1921, *FBI, Mollusca-III*: 142

Distribution: endemic to the Western Ghats. Known from the Sivagiri range in the southern Western Ghats and from "Sispara" in the Nilgiri Hills, central Western Ghats.

Original locality: Sivagiri range (= "Sivagerry mountains"), at an elevation of 3000 feet.

Type material: 5 syntypes from "Sivagiri", "coll. Col. R. Beddome", "892.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.892, registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1912.04.16.892/1, **Fig. 14E**).

24. *Cyathopoma travancoricum* Beddome, 1875

Cyathopoma travancoricum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 451, pl. 53, figs. 30, 31

Cyathopoma (Cyathopoma) travancoricum - Gude, 1921, *FBI, Mollusca-III*: 142

Distribution: endemic to the Western Ghats. Known from the mountains of "Travancore" in the southern Western Ghats.

Original locality: mountains of "Travancore", at an elevation of 3000 feet.

Type material: 2 syntypes from "Travancore", "Coll. Col. R. Beddome", "906.12.iv. 16", NHM (reg. no. NHMUK 1912.04.16.906, registered as "T"), one of which is here designated as the lectotype (reg. no. NHM

UK 1912.04.16.906/1, **Fig. 14F**). The paralectotype (reg. no. NHMUK 1912.04.16.906/2, **Fig. 15A**) is also illustrated.

25. *Cyathopoma trochlea* (Benson, 1851)

Cyclostoma trochlea Benson, 1851a, *Annals and Magazine of Natural History, Series 2*, 8: 189

Cyathopoma (Jerdonia) trochlea - Gude, 1921, *FBI, Mollusca-III*: 152

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (Jerdon).

Type material: a neotype (reg. no. NHM UK 20110228/1, **Fig. 15B**) is here designated from a lot of 2 shells from "Pykara, Nilgiris", "H.F. Blanford colln., Acc. No 1944", NHM (reg. no. NHMUK 20110228). We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. trochlea* (see the original description by Benson, 1851a).

Other material: the remaining shell from the above lot is also illustrated (reg. no. NHMUK 20110228/2, **Fig. 15C**).

26. *Cyathopoma vitreum* Beddome, 1875

Cyathopoma (Jerdonia) vitreum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 449, pl. 53, figs. 21, 22

Cyathopoma (Cyathopoma) vitreum - Gude, 1921, *FBI, Mollusca-III*: 143

Distribution: endemic to the Western Ghats. Known from the Sivagiri range in the southern Western Ghats.

Original locality: Sivagiri range (= "Sivagerry mountains"), "Tinnevelly district", at an elevation of 1000 feet.

Type material: 5 syntypes from "Sivagiri", "Coll. Col. R. Beddome", "903.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.903, registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1912.04.16.903/1, **Fig. 15D**). One of the paralectotypes (reg. no. NHMUK 1912.04.16.903/2, **Fig. 15E**) is also illustrated.

27. *Cyathopoma wynaudense* Blanford, 1868

Cyathopoma wynaudense Blanford, 1868a, *Journal de Conchyliologie*, 16: 259, pl. 12, fig. 3

Cyathopoma (Cyathopoma) wynaudense - Gude, 1921, *FBI, Mollusca-III*: 144

Distribution: endemic to the Western Ghats. Known from "Wynaad" in the central Western Ghats.

Original locality: "Wynaad", on the northern side of the Nilgiri Hills, at an elevation of about 4000 feet (1200 m).

Type material: 3 syntypes from "Wynaad", "coll. W.T. Blanford", "30.06.5.5", NHM (reg. no. NHMUK 1906.05.05.30, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1906.05.05.30/1, **Fig. 15F**). One of the paralectotypes (reg. no. NHMUK 1906.05.05.30/2, **Fig. 16A**) is also illustrated.

Genus *Mychopoma*

28. *Mychopoma hirsutum* Blanford, 1869

Mychopoma hirsutum Blanford, 1869, *Jour-*

nal of the Asiatic Society of Bengal, 38 (2): 132, pl. 16, figs. 5-5d [indicated as a Beddome manuscript name]

Mychopoma hirsutum - Gude, 1921, *FBI, Mollusca-III*: 155

Distribution: endemic to the Western Ghats. Known from the southern Western Ghats: from the Kalakkad Hills, "Tinnevelly" Hills and "Travancore" (Mahendragiri).

Original locality: Kalakkad (= "Calcad") Hills and Mahendragiri (= "Myhendra"), "Travancore", "Southern India".

Type material: 2 syntypes, from "Calcad Hills", "coll. W.T. Blanford", "82.06.5.5", NHM (reg. no. NHMUK 1906.05.05.82, register indicates: "Probably the type"). 2 syntypes from "Myhendra", "coll. W.T. Blanford", "83.06.5.5", NHM (reg. no. NHMUK 1906.05.05.83, register indicates: "Probably the type"). One of the syntypes from the Calcad Hills (reg. no. NHMUK 1906.05.05.82/1, **Fig. 16B**) is here designated as the lectotype; one of the paralectotypes (reg. no. NHMUK 1906.05.05.83/1, **Fig. 16C**) from Myhendra is also illustrated.

Other material: 1 of 4 shells (reg. no. NHMUK 1912.04.16.908/1) from "Tinnevelly", "coll. Col. R. Beddome", "908.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.908, registered as "T?", **Fig. 16D**).

29. *Mychopoma limbiferum* Blanford, 1869

Mychopoma limbiferum Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 133, 131 (text-fig. 1), pl. 16, figs. 4-4d
Mychopoma limbiferum - Gude, 1921, *FBI, Mollusca-III*: 156

Distribution: endemic to the Western Ghats. Known from the Palni Hills in the southern Western Ghats.

Original locality: peaks of the Palni Hills, at an elevation of 7000 feet (S. Fairbank).

Type material: 2 syntypes (labelled "authentic") from "Pulni Hills", "H. F. Blanford colln., Acc. No 1944", NHM (reg. no. NHMUK 20110229), one of which is here designated as the lectotype (reg. no. NHM UK 20110229/1, **Fig. 16E**). The paralectotype is also illustrated (reg. no. NHMUK 20110229/2, **Fig. 16F**).

30. *Mychopoma seticinctum* (Beddome, 1875)

Cyathopoma (Jerdonia) seticinctum Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 449, pl. 53, figs. 23, 24

Mychopoma seticinctum - Gude, 1921, *FBI, Mollusca-III*: 157

Distribution: endemic to the Western Ghats. Known from the banks of the Sholayar (river) in the Anaimalai Hills, southern Western Ghats.

Original locality: Anaimalai Hills, moist forest on the banks of the Sholayar, a large river, 2000 feet elevation.

Type material: 3 syntypes from "Aggamalais", "coll. Col. R. Beddome", "907.12. iv.16", NHM (reg. no. NHMUK 1912.04.16.907, registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1912.04.16.907/1, **Fig. 17A**). One of the paralectotypes is also illustrated (reg. no. NHMUK 1912.04.16.907/2, **Fig. 17B**).

Genus *Lagocheilus*¹

31. *Lagocheilus malleatus* (W.T. & H.F. Blanford, 1861)

Cyclophorus malleatus W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 349, pl. 1, fig. 6 (given in error as fig. 4 in text)
Japonia (Lagochilus) malleata - Gude, 1921, *FBI, Mollusca-III*: 8

Distribution: endemic to the Western Ghats. Known from the central Western Ghats: from the Nilgiri, Shevaroy and Kalrayan Hills.

Original locality: Shevaroy Hills (W. King).

Type material: 1 syntype labelled "authentic" from "Shevaroys S. India", "H.F. Blanford colln. Acc. No. 1944", NHM (reg. no. NHMUK 20110212). This specimen is here designated as the lectotype (Fig. 17C).

Other material: 1 of 5 shells from the "Shevroy Hills, India", "75.3.6.22", NHM (reg. no. NHMUK 1875.03.06.22/1, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome", Fig. 17D).

32. *Lagocheilus shiplayi*² (Pfeiffer, 1857)

Cyclostoma (Cyclophorus) shiplayi Pfeiffer, 1857a, *Proceedings of the Zoological Society of London*, proceedings for 1856: 337

Theobaldius shiplayi - Gude, 1921, *FBI, Mollusca-III*: 42

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (Conway Shipplay, Cuming collection).

Type material: 1 syntype in a lot of 3 shells from "Neilgherries, Mr. Conway Shipplay, M.C.", NHM (reg. no. NHMUK 20110216). This shell is here designated as the lectotype (reg. no. NHMUK 20110216/1, Fig. 17E). Pfeiffer's type apparently lacked an operculum (in his description he stated "Operc.?"), and because 2 of the 3 shells in this lot have an operculum they cannot be treated as types.

Other material: 1 of 2 remaining shells (reg. no. NHMUK 20110216/2, Fig. 17F) from the above lot. 2 of 6 shells from "Naduvatam, Nilgiris, S. India, 46", "G.A.S. Barnacle colln., Acc. No. 2254", NHM (reg. no. NHMUK 20110217/1-2, Figs. 18A, B).

Genus *Craspedotropis*

33. *Craspedotropis bilirata* (Beddome, 1875)

Cyclophorus biliratus Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 452, pl. 53, fig. 34

Craspedotropis bilirata - Gude, 1921, *FBI, Mollusca-III*: 15

Distribution: endemic to the Western Ghats. Known from the central Western Ghats: from the Ghats of "South Canara", and possibly from "Wynaad".

Original locality: "South-Canara range of ghats", at an elevation of 2500 feet.

Type material: 5 syntypes from "South Canara", "coll. Col. R. Beddome", "533.12. iv.16", NHM (reg. no. NHMUK 1912.04.16).

533, registered as "T", but only 4 specimens), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.533/1, **Fig. 18C**).

**34. *Craspedotropis cuspidata*
(Benson, 1851)**

Cyclostoma cuspidatum Benson, 1851a, *Annals and Magazine of Natural History, Series 2*, 8: 189
Craspedotropis cuspidata - Gude, 1921, *FBI, Mollusca-III*: 16

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Octacamund or Ooty) in the central Western Ghats.

Original locality: peaks of Nilgiri Hills (Jerdon).

Type material: a neotype (reg. no. NHM UK 20110213/1, **Fig. 18D**) is here designated from a series of 3 shells from "Fairlawns, Octacamund, Nilgiris", "H.F. Blanford colln., Acc. No: 1944", NHM (reg. no. NHMUK 20110213). We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. cuspidata* (see the original description by Benson, 1851a).

Other material: 1 of 7 shells (reg. no. NHMUK 1875.03.06.51/1, **Fig. 18E**) from "S.W. India", "71.9.23.119", NHM (reg. no. NHMUK 1871.09.23.119, "1" specimen, "purchased of Mr. Damon") and "Nilgiris, S. India", "75.3.6.51", NHM (reg. no. NHM UK 1875.03.06.51, 6 specimens, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"). The 7 shells are in one box with no labelling to separate the two registration numbers, so we have

arbitrarily assigned the shell illustrated in **Fig. 18E** to one of the numbers.

**35. *Craspedotropis salemensis*
(Beddome, 1875)**

Cyclophorus salemensis Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 453, pl. 53, fig. 35
Craspedotropis salemensis - Gude, 1921, *FBI, Mollusca-III*: 18

Distribution: endemic to the Western Ghats. Known from the Shevaroy Hills in the central Western Ghats.

Original locality: Shevaroy Hills, "Salem district".

Type material: 1 syntype from "S. India", "Col. Beddome", "1875.6.29.10", NHM (reg. no. NHMUK 1875.06.29.10, "presented by Col. Beddome, The Chalet, Balham Park Road, PZS 1875"). 2 syntypes from the "Shevaroys, Salem District", "coll. Col. R. Beddome", "534.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.534, registered as "T"). For the syntype from "S. India" the register also states: "the specimens figured but not the specimens from which the descriptions were drawn up - they are in Beddome's own collection". This specimen is here designated as the lectotype (**Fig. 18F**); one of the paralectotypes has also been illustrated (reg. no. NHMUK 1912.04.16.534/1, **Fig. 19A**).

In his description Beddome (1875) stated that only two specimens were procured and that a typical specimen was deposited in the British Museum (i.e. reg. no. NHMUK 1875.06.29.10). This is inconsistent with the two additional specimens, which were subsequently registered from

Beddome's collection (reg. no. NHMUK 1912.04.16.534) and were labelled by Godwin-Austen as types. More confusion results from the comment accompanying the 1875 registration of Beddome material that these were "the specimens figured but not the specimens from which the descriptions were drawn up - they are in Beddome's own collection". There is no reason to doubt that the specimen registered as NHMUK 1875.06.29.10 is a figured syntype and we have designated this as the lectotype. The status of the two specimens registered as NHMUK 1912.04.16.534 is unclear; at least one would be a paralectotype. Red cotton wool with one of the two specimens, which are in separate tubes, suggests that someone, probably Godwin-Austen, gave it special status, but his label refers to "types". Our assumption is that there were, in fact, three original specimens and we, therefore, treat both of the specimens registered as NHMUK 1912.04.16.534 as paralectotypes.

Genus *Leptopomoides*³

36. *Leptopomoides valvatus* Blanford in Möllendorff, 1897

Leptopomatoides valvatus Blanford in Möllendorff, 1897, *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, 29: 35

Leptopomoides valvatus - Gude, 1921, *FBI, Mollusca-III*: 21, pl. 1, figs. 1, 2

Distribution: endemic to the Western Ghats. Known from "Canara" in the central Western Ghats.

Original locality: "Kanara", "Southern India".

Type material: lectotype (designated by A.

Zilch, see Zilch, 1955, p. 192), labelled "Senckenbg. Mus. 128498/1, Frankfurt-M, Lectotypūs, Faun. Br. Ind. 3: T.1 F.1-2, S-Voderindien: S-Canara, Sammlung. O.v. Moellendorff", SMF, Frankfurt (reg. no. SMF 128498/1, **Fig. 19B**).

Other material: 1 of 6 shells (reg. no. NHMUK 1875.03.06.32/1, **Fig. 19C**) from "Wynad, 2500 ft", "75.3.6.32", NHM (reg. no. NHMUK 1875.03.06.32, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"). 2 of 4 shells of *L. valvatus* (reg. no. NHMUK 20110214/1-2, **Figs. 19D, E**) in a mixed-species lot of 7 shells from "S. Canara" (label in Beddome's handwriting), NHM.

Genus *Micraulax*

37. *Micraulax coeloconus* (Benson, 1851)

Cyclostoma coeloconus Benson, 1851a, *Annals and Magazine of Natural History, Series 2*, 8: 189

Micraulax coeloconus - Gude, 1921, *FBI, Mollusca-III*: 22

Distribution: endemic to the Western Ghats and Sri Lanka. Known from the Nilgiri Hills (Ootacamund) in the central Western Ghats. In Sri Lanka it occurs in the dry, northern and north-central parts of the island (D. Raheem, unpublished data).

Original locality: "on the lower parts of the Nilgherries, "Eastern India" (Jerdon)". The original locality is sufficiently vague to accept that the Benson specimens from "Trichoor" (Trichur, present-day Thrissur in Kerala), which is close to the foothills of the Nilgiri (and Anaimalai) hills, are part of the type series.

Type material: 7 syntypes from "Trichoor Ind.", "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103655), one of which is here designated as the lectotype (reg. no. I.103655.A, **Fig. 19F**). One of the 6 paralectotypes is also figured (reg. no. I.103655.B, **Fig. 20A**).

38. *Micraulax scabra* Theobald, 1876

Micraulax scabra Theobald, 1876, *Journal of the Asiatic Society of Bengal*, 45 (2): 185, pl. 14, fig. 4

Micraulax scabra - Gude, 1921, *FBI, Mollusca-III*: 22

Distribution: endemic to the Western Ghats. Known from the mountains of "Travancore" in the southern Western Ghats.

Original locality: mountains in "Travancore", "Southern India" (F. Bourdillon).

Type material: 2 syntypes from "Travancore", "88.12.4.1981-2", NHM (reg. no. NHMUK 1888.12.04.1981-2, "Purchased of W. Theobald Esq."), one of which is here designated as the lectotype (reg. no. NHMUK 1888.12.04.1981, **Fig. 20B**). The paralectotype is also illustrated (reg. no. NHMUK 1888.12.04.1982, **Fig. 20C**).

Genus *Ditropopsis*⁴

39. *Ditropopsis beddomei* (Blanford, 1869)

Cyclophorus (Ditropis) beddomei Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 127, pl. 16, fig. 2

Ditropis beddomei - Gude, 1921, *FBI, Mollusca-III*: 24

Distribution: endemic to the Western Ghats. Known from the "Travancore hills" in the

southern Western Ghats.

Original locality: "Travancore hills" (Beddome).

Type material: 2 syntypes from "Tinnevelly Hills, S. India", "75.3.6.33", NHM (reg. no. NHMUK 1875.03.06.33, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"), of which one is here designated as the lectotype (reg. no. NHMUK 1875.03.06.33/1, **Fig. 20D**). The paralectotype is also illustrated (reg. no. NHMUK 1875.03.06.33/2, **Fig. 20E**).

40. *Ditropopsis convexus* (Blanford, 1869)

Cyclophorus (Ditropis) convexus Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 128, pl. 16, fig. 3, text-fig. 2 (p. 131)

Ditropis convexa - Gude, 1921, *FBI, Mollusca-III*: 25

Distribution: endemic to the Western Ghats. Known from the southern Western Ghats: from the Kalakkad Hills, "Tinnevelly", and from "Travancore".

Original locality: Kalakkad (= "Calcad") Hills (Beddome).

Type material: 1 syntype from "Tinnevelly, S. India" ("Con. Ind. Pl. 136 f. 7-10"), "75.3.6.34", NHM (reg. no. NHMUK 1875.03.06.34, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"). This specimen is here designated as the lectotype (**Fig. 20F**).

Other material: 1 of 6 shells from "Madura Hills", "coll. Col. R. Beddome", "541.12.IV. 16", NHM (reg. no. NHMUK 1912.04.16. 541/1, **Fig. 21A**).

41. *Ditropopsis planorbis* (Blanford, 1869)

Cyclophorus (Ditropis) planorbis Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 126, pl. 16, fig. 1
Ditropis planorbis - Gude, 1921, *FBI, Mollusca-III*: 25

Distribution: endemic to the Western Ghats. Known from the southern Western Ghats: from the Kalakkad Hills, "Tinnevelly", and from "Travancore".

Original locality: Kalakkad Hills (= "Calcad hills"), not far from Cape Comorin (Kanyakumari), "Southern India" (Beddoe).

Type material: 4 syntypes from "Calcad Hills, S. India", "coll. W.T. Blanford", "85. 06.5.5", NHM (reg. no. NHMUK 1906.05. 05.85, not registered as "T", "5" specimens), one of which is here designated as the lectotype (reg. no. NHMUK 1906.05.05. 85/1, **Fig. 21B**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 1906. 05.05.85/2, **Fig. 21C**).

Genus *Theobaldius*

42. *Theobaldius anguis*⁵ (Sowerby in Hanley & Theobald, 1874)

Cyclophorus stenostoma, var. *anguis*
 Sowerby in Hanley & Theobald, 1874,
Conchologia Indica: 43, pl. 105, fig. 9
Theobaldius stenostoma var. *anguis* - Gude,
 1921, *FBI, Mollusca-III*: 43

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: top of the Nilgiri Hills.

Type material: a neotype (reg. no. NHM UK 20110218/1, **Fig. 21D**) is here designated from a series of 6 shells, from "Sispara, Nilgiris", "H.F. Blanford colln., Acc. no: 1944", NHM (reg. no. NHMUK 20110218). These shells have been wrongly labelled as "*Cyclophorus (Theobaldius) deplanatus* Pfr". We have designated a neotype with the express purpose of clarifying the taxonomic status of *T. anguis* (see the original description by Hanley and Theobald, 1874, and the description by Gude, 1921).

Other material: 1 of 2 shells from "Nilgiris", "coll. Col. R. Beddome", "575/1.12.iv. 16", NHM (reg. no. NHMUK 1912.04.16. 575/1, **Fig. 21E**).

43. *Theobaldius annulatus* 'var. *nilgiricus*' Kobelt, 1907

*Theobaldius (annulatus?) nilgiricus*⁶ Kobelt, 1907, Die Gedeckelten Lungenschnecken (Cyclostomacea). In *Abbildungen nach der Natur mit Beschreibungen. Dritte Abteilung. Cyclophoridae I. Systematisches Conchylien-Cabinet von Martini und Chemnitz*, bd. 1, abt. 19, heft 3 (second version): 557, pl. 71, figs. 4-6
Theobaldius annulatus var. *nilgiricus* - Gude, 1921, *FBI, Mollusca-III*: 32

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats. *Theobaldius annulatus* 'var. *annulatus*' is endemic to Sri Lanka.

Original locality: Nilgiri Hills (Möllendorff collection).

Type material: holotype labelled "Senckenbg. Mus. 128491/i, Frankfurt-M, Holotypus, M.Ch. T. 71.F.4-6, S-Indien: Nilgiri Berge, Sammlung. O.v. Moellendorff",

SMF, Frankfurt (reg. no. SMF 128491/i, **Fig. 21F**). Also labelled: "152. 442 Cyclophorus annulatus Troschel var. major, Nilgherries, CW"; according to Kobelt, this is the original label by Möllendorff. Kobelt's description was based on a single shell.

44. *Theobaldius deplanatus* (Pfeiffer, 1855)

Cyclostoma deplanatum Pfeiffer, 1855a, *Proceedings of the Zoological Society of London*, proceedings for 1854: 301
Theobaldius deplanatus - Gude, 1921, *FBI, Mollusca-III*: 35

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills ("Sispara Ghat" and the Kundah Hills) in the central Western Ghats, and from the Anaimalai Hills and "Travancore" in the southern Western Ghats.

Original locality: Kundah (= "Koondah") Hills (Pirrie, Cuming collection).

Type material: 4 syntypes (species name in Pfeiffer's handwriting) labelled "Koondah Mt. Near Calicut, Mr. Pirrie, one for yourself", "M.C.", NHM (reg. no. NHMUK 201 10215), one of which is here designated as the lectotype (reg. no. NHMUK 20110 215/1, **Fig. 22A**). Two of the 3 paratypes are also illustrated (reg. no. NHMUK 20110215/2-3, **Figs. 22B, C**).

45. *Theobaldius maculosus* (Sowerby, 1843)

Cyclostoma maculosum Sowerby, 1843a, *Proceedings of the Zoological Society of London*, proceedings for 1843: 66

Theobaldius maculosus - Gude, 1921, *FBI, Mollusca-III*: 37

Distribution: unknown. This species is taxonomically poorly-known, and its occurrence in "Southern India" (= "Südindien"), as reported by Kobelt and Möllendorff (1897, p. 105), is doubtful.

Original locality: not known (Cuming collection).

Type material: authentic Sowerby material has not been traced, but this species was figured by Sowerby (1842-1850 [1843], p. 112, pl. 31, figs. 256, 257, see **Fig. 9B**). However, both this figure and Sowerby's original description are poor. We therefore consider *T. maculosus* to be a *nomen dubium*.

46. *Theobaldius ravidus* (Benson, 1851)

Cyclostoma ravidum Benson, 1851a, *Annals and Magazine of Natural History, Series 2*, 8: 190

Theobaldius ravidus - Gude, 1921, *FBI, Mollusca-III*: 41

Distribution: probably endemic to the Western Ghats. It has been recorded from the Nilgiri, Shevaroy and Kollimalai Hills and "Wynaad" in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats. Two of the localities listed by Gude (1921), "Battingh" and "Battenpathi", could not be traced.

Original locality: peaks of Nilgiri Hills, "Southern India" (Jerdon).

Type material: holotype from "Nilgherries", "figured in Conch. Ind., pl. 105, figs. 5, 6)", "R. MacAndrew Coll. 1873", UMZC

(reg. no. I.103670, **Fig. 22D**). This shell matches Benson's description and agrees well with the figure by Reeve (1861, *Cyclophorus* pl. 20, fig. 102) of Benson's type; only a single specimen was given to Benson by Jerdon.

47. *Theobaldius stenostoma* (Sowerby, 1843)

Cyclostoma stenostoma Sowerby, 1843,
Thesaurus Conchyliorum, 1: 95, pl. 31,
 fig. 261
Theobaldius stenostoma - Gude, 1921, *FBI, Mollusca-III*: 42

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Ootacamund) in the central Western Ghats.

Original locality: "Arabia" (Powis). This is evidently a mistake – this species occurs in the Nilgiri Hills (Gude, 1921).

Type material: 1 syntype, labelled "Hab. (?)", and on a separate label "Arabia" in one hand, and in another hand "Neilgherry" followed by some indistinct script, then "fide Dr. Blanford", "43.10.2.117", NHM (reg. no. NHMUK 1843.10.02.117, "purchased off Mr Powis"). This specimen is here designated as the lectotype (**Fig. 22E**).

48. *Theobaldius? tristis*⁷ (Blanford, 1869)

Pterocyclos? tristis Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 134, pl. 16, fig. 9
Theobaldius tristis - Gude, 1921, *FBI, Mollusca-III*: 44

Distribution: endemic to the Western Ghats. Known from "South Canara" in the

central Western Ghats and from "Tinnevelly" in the southern Western Ghats.

Original locality: "South Kanara" (Beddoe).

Type material: 3 syntypes from "S. Canara", "coll. W.T. Blanford", "54.06.5.5" (registered as "T", "South Canara - Type red wool", "from Col. Beddome"), NHM (reg. no. NHMUK 1906.05.05.54), one of which is here designated as the lectotype (shell with red wool in aperture, reg. no. NHMUK 1906.05.05.54/1, **Fig. 22F**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1906.05.05.54/2, **Fig. 23A**).

Genus *Pterocyclos*⁸

49. *Pterocyclos bilabiatus* Benson, 1835

Pterocyclos bilabiatus Benson, 1835, *The Zoological Journal*, 5: 462
Pterocyclus bilabiatus - Gude, 1921, *FBI, Mollusca-III*: 100

Distribution: endemic to the Western Ghats. Known from the central Western Ghats: from the Nilgiri Hills (Coonoor Pass), Kalrayan, Kollimalai and Pachamalai Hills, and Salem (Blanford and Blanford, 1861; Gude, 1921).

Original locality: Salem, "Madras Presidency" (G.B. Sowerby collection).

Type material: *Pterocyclos bilabiatus* was briefly described by Benson in 1835 and was based on material in G.B. Sowerby's possession. A detailed description and the first figure of this highly distinctive snail were published by Sowerby in 1843. We were unable to trace authentic Benson or

Sowerby material. However, the specimen figured by Sowerby (1842-1850 [1843], p. 110, pl. 25, figs. 81, 82, see **Fig. 9C**) can be considered a syntype because Benson cited material from Sowerby in his 1835 description.

Other material: 1 of 3 shells from "Salem near Madras, S. India", "M.C.", NHM (reg. no. NHMUK 20110219/1, **Fig. 23B**). 1 of 4 shells from "Shevaroy Hills, 5000ft. S. India (J.R. Henderson)", "92.4.9.91-94", NHM (reg. no. NHMUK 1892.04.09.91, **Fig. 23C**); also labelled: "They burrow underground (Henderson)".

Pterocyclus bilabiatus 'var. *conica*'
Nevill, 1878

Pterocyclus bilabiatus var. *conica* Nevill, 1878a, *Hand List of Mollusca in the Indian Museum*, 1: 262
Pterocyclus bilabiatus var. *conica* - Gude, 1921, *FBI, Mollusca-III*: 100

Distribution: uncertain, but probably endemic to the central Western Ghats. Nevill (1878a) did not give a locality, but Kobelt and Möllendorff (1897, p. 113) and Kobelt (1902, p. 163) have indicated the Nilgiri Hills. Gude (1921) confusingly gave the locality as "Ceylon", but this is clearly an error; *Pterocyclus bilabiatus* is a highly distinctive snail and has not been encountered by us in our wide-ranging surveys of the island.

Original locality: unknown.

Type material: Nevill's description was based on material in the Indian Museum (i.e. currently the ZSI). His description is brief, simply indicating that this snail is an

"elevated, closely wound form" of *Pterocyclus bilabiatus*. The NHM collections do not contain material from Nevill.

50. *Pterocyclus comatus* Beddome in Nevill, 1881

Pterocyclus comatus Beddome in Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 146
Pterocyclus comatus - Gude, 1921, *FBI, Mollusca-III*: 102

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills (Beddome).

Type material: 3 syntypes from "Anamalais", "coll. Col. R. Beddome", "669.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.669, not registered as "T", "7" specimens, "3 taken"), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.669/1, **Fig. 23D**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1912.04.16.669/2, **Fig. 23E**).

Nevill (1881) attributed the description and name of this species to Beddome. The Beddome shells, which we consider to be types, were not registered as types, but this is likely to be an error. The lot of 3 shells (reg. no. NHMUK 1912.04.16.668) hitherto deposited in the NHM type collection as the types of *P. comatus* are not from the original locality, and so may have been mistakenly identified as types during the registration process. This lot is labelled "Balaranguns. South India", "coll. Col. R. Beddome", "668.12.iv.16", and has been registered as a type lot (i.e. "T", "5" specimens).

51. *Pterocyclos cumingi* Pfeiffer, 1851

Pterocyclos cumingi Pfeiffer, 1851a, *Zeitschrift für Malakozoologie*, 8: 5

Pterocyclus cumingi - Gude, 1921, *FBI, Mollusca-III*: 103

Distribution: endemic to Sri Lanka and the Western Ghats. According to Gude (1921), this species is represented in the Western Ghats by a variety from "Travancore" in the southern Western Ghats.

Original locality: Ceylon (Cuming collection).

Type material: 1 syntype in a lot of 3 shells from "Ceylon, M.C." (species name and locality in Pfeiffer's handwriting), NHM (reg. no. NHMUK 20110220). The syntype is here designated as the lectotype (reg. no. NHMUK 20110220/1, **Fig. 23F**).

Pfeiffer's type lacked an operculum (his description states "Operc.?"'), and as 2 of the 3 shells in the NHM lot have an operculum they cannot be treated as types. In his description, Pfeiffer gave the major diameter of the shell as 32 mm and this is much larger than the corresponding measurement for the lectotype (c. 20 mm). This is almost certainly an error because the figure in Pfeiffer (1853-1854 [1853], p. 232, pl. 31, figs. 6-8) corresponds closely in its dimensions, markings and lack of an operculum with the lectotype.

Other material: 1 of 2 remaining shells (reg. no. 20110220/2, **Fig. 24A**) from the above lot.

52. *Pterocyclos cyclophoroideus* Nevill, 1881

Pterocyclus cyclophoroideus Nevill, 1881,

Journal of the Asiatic Society of Bengal, 50 (2): 145

Pterocyclus cyclophoroideus - Gude, 1921, *FBI, Mollusca-III*: 103

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills (Beddome).

Type material: Nevill's types, which were from Beddome, were in the collections of the Indian Museum, Calcutta (now the ZSI); the shells illustrated are additional Beddome specimens.

Other material: 2 of 3 shells from "Anamalais", "coll. Col. R. Beddome", "666.12.iv. 16", NHM (reg. no. NHMUK 1912.04.16. 666/1-2, not registered as "T", "5" specimens, "3 taken", **Figs. 24B, C**).

Pterocyclos cyclophoroideus 'var. *subluteolus*' Nevill, 1881

Pterocyclus cyclophoroideus var. *subluteola* Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 146

Pterocyclus cyclophoroideus var. *subluteola* - Gude, 1921, *FBI, Mollusca-III*: 104

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats (Nevill, 1881).

Original locality: Anaimalai Hills (Beddome).

Type material: this taxon was described after the publication of Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*. The types are likely to have been from

the Indian Museum collections (i.e. presently at the ZSI), but could not be traced. The NHM collections do not contain material from either Beddome or Nevill.

***Pterocyclos cyclophoroideus* 'var. *substenostoma*' Nevill, 1881**

Pterocyclus cyclophoroideus 'var. *substenostoma*' Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 146

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats (Nevill, 1881).

Original locality: Anaimalai Hills at an elevation of 2000 feet (Beddome).

Type material: this taxon, which was not included in the *FBI* (Gude, 1921), was described after the publication of Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*. The types are likely to have been from the Indian Museum collections (i.e. presently at the ZSI). The NHM collections do not contain material from either Beddome or Nevill.

53. *Pterocyclos nanus* Benson, 1851

Pterocyclos nanus Benson, 1851b, *Annals and Magazine of Natural History, Series 2*, 8: 450

Pterocyclus nanus - Gude, 1921, *FBI, Mollusca-III*: 107

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills, and possibly also Salem, in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: Nilgiri Hills, "Southern India" (Jerdon).

Type material: 1 syntype from "Nilgherries", "Bens. col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103695). This shell is here designated as the lectotype (Fig. 24D).

***Pterocyclos nanus* 'var. *applanatus*' Nevill, 1881**

Pterocyclus nanus var. *applanata* Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 146

Pterocyclus nanus var. *applanata* - Gude, 1921, *FBI, Mollusca-III*: 108

Distribution: endemic to South India. Possibly occurring in Salem in the central Western Ghats.

Original locality: "South India" (Stoliczka collection).

Type material: this taxon was described after the publication of Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*. The type is likely to have been from the Indian Museum collections (i.e. presently at the ZSI), but could not be traced. The NHM collections do not contain material from Nevill.

***Pterocyclos nanus* 'var. *reflexilabris*' Nevill, 1881**

Pterocyclus nanus var. *reflexilabris* Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 146

Pterocyclus nanus var. *reflexilabris* - Gude, 1921, *FBI, Mollusca-III*: 108

Distribution: endemic to the Western Ghats. Known from the Kundah Hills in the Nilgiri Hills, central Western Ghats (Nevill, 1881).

Original locality: Kundah (= "Khoondah") Hills (Pirie, Lombe Taylor collection).

Type material: this taxon was described after the publication of Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*. The type is likely to have been from the Indian Museum collections (i.e. presently at the ZSI), but could not be traced. The NHM collections do not contain material from Nevill.

54. *Pterocyclus pseudocumingi* Nevill in Möllendorff, 1897

Pterocyclus pseudocumingi Nevill, in Möllendorff 1897, *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, 29: 36

Pterocyclus pseudocumingi - Gude, 1921, *FBI, Mollusca-III*: 109

Distribution: endemic to the Western Ghats. Known from "Travancore" in the southern Western Ghats.

Original locality: "Travancore".

Type material: holotype (see Zilch, 1956, p. 85) labelled "Senckenbg. Mus. 130362/1, Frankfurt-M, Holotypūs, M.Ch. T. 108. F. 13-15, S-Indien: Travancūr, Hūngerford l., Sammlung. O.v. Moellendorff", SMF, Frankfurt (reg. no. SMF 130362/1, **Fig. 24E**).

Möllendorff (1897) stated that the name was Nevill's manuscript name and cited Nevill (1878a). Nevill (1878a, p. 261, not 267 as given by Möllendorff) listed this taxon under "*Pterocyclus cumingi*", Pfeif-

fer", indicating it as "var." "1 Travancore; ex c. dr. F. Stoliczka.".

Genus *Pearsonia*

55. *Pearsonia fairbanki* (Blanford, 1869)

Spiraculum fairbanki Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 135

Pearsonia (Pseudospiraculum) fairbanki - Gude, 1921, *FBI, Mollusca-III*: 127

Distribution: endemic to the Western Ghats. Known from the Palni Hills in the southern Western Ghats.

Original locality: Palni Hills, "Southern India" (S. Fairbank). Found in "a Shola" at some distance from Kodaikanal, on the road to "Kukal Shola" (near the village of Kukkal).

Type material: 3 syntypes from "Pulney Hills", "coll. W.T. Blanford", "79.06.5.5", NHM (reg. no. NHMUK 1906.05.05.79), one of which is here designated as the lectotype (reg. no. NHMUK 1906.05.05.79/1, **Fig. 24F**).

56. *Pearsonia travancorica* (Blanford, 1880)

Spiraculum travancoricum Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 212, pl. 3, fig. 6 [indicated as a Beddome manuscript name]

Pearsonia (Pearsonia) travancorica - Gude, 1921, *FBI, Mollusca-III*: 126

Distribution: endemic to the Western Ghats. Known from the hills between "Travancore" and "Tinnevelly" in the southern Western Ghats.

Original locality: hills between "Travancore" and "Tinnevelly", not far from Cape Comorin, at an elevation of between 4000-5000 feet (H. Beddome). In some of his publications William Blanford cited Beddome's name as H. Beddome, rather than R.H. Beddome.

Type material: holotype in a mixed-species lot of 3 shells (2 shells of *Pearsonia travancorica*, 1 shell of a *Pterocyclos* sp.) from "Travancore", "coll. Col. R. Beddome", "646.12.iv.16", NHM (reg. no. NHM UK 1912.04.16.646/1, not registered as "T"). This shell (Fig. 25A) matches the original description very closely. As described by Blanford, it has the terminal portion of the sutural tube broken. Blanford's description was based on a single specimen, thus excluding the second, fully-intact shell of this species from the type series.

Other material: the other shell (reg. no. NHMUK 1912.04.16.646/2, Fig. 25B) in the above lot.

Genus *Chamalycaeus*⁹

57. *Chamalycaeus expatriatus* (W.T. & H.F. Blanford, 1860)

Alycaeus expatriatus W.T. & H.F. Blanford, 1860, *Journal of the Asiatic Society of Bengal*, 29 (2): 123

Alycaeus (Dicharax) expatriatus - Gude, 1921, *FBI, Mollusca-III*: 249

Distribution: endemic to the Western Ghats. Known from the central Western Ghats ("Neddoowuttom Ghat" in the Nilgiri Hills, the Shevaroy Hills and "South Canara") and from the southern Western

Ghats (Anaimalai Hills).

Original locality: near the base of the Naduvattam "ghat" (= "Neddoowuttom ghat") and a little above Gudalur (= "Goodaloor"), on the northern side of the Nilgiri Hills, at an elevation of between 3000-4000 feet, "Southern India".

Type material: 6 syntypes from "nr. Neddiwuttom, Nilgiris", "W. T. Blanford", "58.06.4.4", NHM (reg. no. NHMUK 1906.04.04.58, registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1906.04.04.58/1, Fig. 25C).

58. *Chamalycaeus footei* (W.T. & H.F. Blanford, 1861)

Alycaeus footei W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 348, pl. 1, fig. 3

Alycaeus (Dicharax) footei - Gude, 1921, *FBI, Mollusca-III*: 251

Distribution: endemic to the Western Ghats. Known from the central Western Ghats (Kollimalai and Nilgiri Hills, "Wynaad", "South Canara", "Kadur District", and Yercaud in the Shevaroy Hills) and from the southern Western Ghats ("Tinnevelly").

Original locality: Kollimalai Hills (= "Kolamullies") (W. King).

Type material: 1 syntype labelled "Typical" from "Kolamalai Hills, nr. Trichinopoly", "coll. W. T. Blanford", "57.06.4.4", NHM (reg. no. 1906.04.04.57, registered as "T*p.1" and as being from the "Typical Locality"). This shell is here designated as the lectotype (Fig. 25D).

Family Diplommatinidae

Genus *Diplommatina*

59. *Diplommatina canarica* Beddome, 1875

Diplommatina canarica Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 442, pl. 52, fig. 1

Diplommatina (Sinica) canarica - Gude, 1921, *FBI, Mollusca-III*: 345 (misprinted as 543)

Distribution: endemic to the Western Ghats. Known from Yellapur, "North Canara", in the central Western Ghats.

Original locality: "North Canara", in "moist forests" around Yellapur (= "Yellapore"), at an elevation of 2500 feet and 14° 00' N latitude.

Type material: 7 syntypes ("PZS 1875, the shells figured") from "N. Canara, 3000ft, S. India", "75.3.6.64", NHM (reg. no. NHM UK 1875.03.06.64, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.03.06.64/1, **Fig. 25E**).

Genus *Nicida*

60. *Nicida anamallayana* (Beddome, 1875)

Diplommatina (Nicida) anamallayana Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 443, pl. 52, figs. 5, 6
Nicida anamallayana - Gude, 1921, *FBI, Mollusca-III*: 290

Distribution: endemic to the Western Ghats. Known from the banks of the "Peringoonda" (could not be traced) in the Anaimalai Hills, southern Western Ghats.

Original locality: Anaimalais, in dense moist forest on the banks of the "Peringoonda river" (precise locality could not be traced), at an elevation of 2000 feet.

Type material: 2 syntypes from "Anamallays, 3000 ft, S. India", "the shell figured", "75.3.6.66", NHM (reg. no. NHMUK 1875.03.06.66, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.03.06.66/1, **Fig. 25F**).

61. *Nicida fairbanki* (Blanford, 1868)

Diplommatina (Nicida) fairbanki Blanford, 1868b, *Journal de Conchyliologie*, 16: 335, pl. 14, fig. 4

Nicida fairbanki - Gude, 1921, *FBI, Mollusca-III*: 291

Distribution: endemic to the Western Ghats. Known from the Palni Hills in the southern Western Ghats.

Original locality: Palni Hills, at an elevation of about 5000 feet (S. Fairbank, W. Blanford collection).

Type material: 1 shell, here designated a neotype (**Fig. 26A**), from "Pulney Hills, 4000 ft, S. India", "75.3.6.47", NHM (reg. no. NHMUK 1875.03.06.47, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"). We have designated a neotype with the express purpose of clarifying the taxonomic status of *N.*

fairbanki (see the original description by Blanford, 1868b).

62. *Nicida kingiana* (W.T. & H.F. Blanford, 1861)

Diplommatina kingiana W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 348, pl. 1, fig. 2
Nicida kingiana - Gude, 1921, *FBI, Mollusca-III*: 292

Distribution: endemic to the Western Ghats. Known from the Kollimalai Hills in the central Western Ghats.

Original locality: Kollimalai Hills (= "Kolamullies"), near the town of Tiruchirappalli (= "Trichinopoly"), "Southern India" (W. King).

Type material: a neotype (reg. no. NHMUK 1888.12.04.201, **Fig. 26B**) is here designated from a series of 3 shells, "Kolamallay hills", "88.12.4.201-3", NHM (reg. no. NHMUK 1888.12.04.201-3, "purchased of W. Theobald Esq."). We have designated a neotype with the express purpose of clarifying the taxonomic status of *N. kingiana* (see the original description by Blanford and Blanford, 1861).

Other material: 1 of the 2 remaining shells (reg. no. NHMUK 1888.12.04.202, **Fig. 26C**) from the above lot.

63. *Nicida liricincta* (Blanford, 1868)

Diplommatina (Nicida) liricincta Blanford, 1868b, *Journal de Conchyliologie*, 16: 336, pl. 14, fig. 5
Nicida liricincta - Gude, 1921, *FBI, Mollusca-III*: 293

Distribution: endemic to the Western Ghats. Known from Khandala in the northern Western Ghats.

Original locality: Western Ghats at Khandala (= "Khandalla") between Bombay and Pune (or Poona), in leaf litter, at an elevation of about 2000 feet (W. Blanford and Crosse collections).

Type material: 9 syntypes, from "Khandalla, Bombay", "coll. W.T. Blanford", "32. 06.5.5", NHM (reg. no. NHMUK 1906.05. 05.32 not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.05.05.32/1, **Fig. 26D**).

64. *Nicida nilgirica* (W.T. & H.F. Blanford, 1860)

Diplommatina nilgirica W.T. & H.F. Blanford, 1860, *Journal of the Asiatic Society of Bengal*, 29 (2): 124
Nicida nilgirica - Gude, 1921, *FBI, Mollusca-III*: 293

Distribution: endemic to the Western Ghats. Known from Pykara in the Nilgiri Hills, central Western Ghats.

Original locality: forest near Pykara towards the crest of the Nilgiri Hills, at an elevation of about 7000 feet.

Type material: 5 syntypes, from "Pykara, Nilgiri Hills", "coll. W.T. Blanford", "20.06. 4.4", NHM (reg. no. NHMUK 1906.04.04. 20, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.04.04.20/1, **Fig. 26E**). One of the 4 paralectotypes is also illustrated (reg. no. NHMUK 1906.04.04.20/2, **Fig. 26F**).

65. *Nicida nitidula* (Blanford, 1868)

Diplommatina (Nicida) nitidula Blanford, 1868b, *Journal de Conchyliologie*, 16: 334, pl. 14, fig. 3
Nicida nitidula - Gude, 1921, *FBI, Mollusca-III*: 294

Distribution: endemic to the Western Ghats. Known from Kalpetta Hill in the "Wynaad" region, central Western Ghats.

Original locality: Kalpetta (= "Kulputty") Hill in the "Wynaad" region on the northern side of the Nilgiri Hills, at an elevation of about 4000 feet (H. Beddome, W. Blanford collection).

Type material: 1 shell, here designated a neotype (Fig. 27A), from "Pykara, Nilgiris", "88.12.4.211", NHM (reg. no. NHM UK 1888.12.04.211, "purchased of W. Theobald Esq."). We have designated a neotype with the express purpose of clarifying the taxonomic status of *N. nitidula* (see the original description by Blanford, 1868b).

66. *Nicida pulneyana* (Blanford, 1868)

Diplommatina (Nicida) pulneyana Blanford, 1868b, *Journal de Conchyliologie*, 16: 333, pl. 14, fig. 2
Nicida pulneyana - Gude, 1921, *FBI, Mollusca-III*: 295

Distribution: endemic to the Western Ghats. Known from the Palni Hills in the southern Western Ghats.

Original locality: peaks of the Palni Hills, at an elevation of 7000 feet, "Southern India" (found by S. Fairbank, W. Blanford

and Crosse collections).

Type material: 5 syntypes from the "Pulney Hills, 7000 f.", "coll. W.T. Blanford", "33.06.5.5", NHM (reg. no. NHMUK 1906.05.05.33, not registered as "T", but collector is "Fairbank"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.05.05.33/1, Fig. 27B). One of the 4 paralectotypes is also illustrated (reg. no. NHMUK 1906.05.05.33/2, Fig. 27C).

67. *Nicida subovata* (Beddome, 1875)

Diplommatina (Nicida) subovata Beddome, 1875, *Proceedings of the Zoological Society of London*, proceedings for 1875: 443, pl. 52, fig. 7

Nicida subovata - Gude, 1921, *FBI, Mollusca-III*: 295

Distribution: endemic to the Western Ghats. Known from "South Canara" in the central Western Ghats.

Original locality: "South-Canara ghats" in moist forest at an elevation of 1000-3000 feet.

Type material: 5 syntypes from "S. Canara, 6000 ft., S. India", "75.3.6.46", NHM (reg. no. NHMUK 1875.03.06.46, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.03.06.46/1, Fig. 27D). These shells correspond well with the original description. One of the 4 paralectotypes is also illustrated (reg. no. NHMUK 1875.03.06.46/2, Fig. 27E). Note that the elevation of the original locality, as given in Beddome's description, differs substantially from that on the specimen label.

Genus *Opisthostoma*

68. *Opisthostoma deccanense* Beddome, 1875

Opisthostoma deccanense Beddome, 1875,
Proceedings of the Zoological Society of London, proceedings for 1875: 444, pl.
 52, figs. 10, 11
Opisthostoma deccanense - Gude, 1921,
FBI, Mollusca-III: 296

Distribution: endemic to the Western Ghats (Sivagiri range in the southern Western Ghats) and the southern part of the Eastern Ghats (Nallamalai Hills in "Kurnool District").

Original locality: Nallamalai Hills in "Kurnool District" ("common on the Yerra Chalma, about 3000 feet elevation", could not be traced), and the Sivagiri range (= "Sivagherry hills"), "Tinnevelly district".

Type material: 3 syntypes ("PZS 1875, the shells figured"), from "Kurnool Hills, India", "75.3.6.80", NHM (reg. no. NHM UK 1875.03.06.80, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.03.06.80/1, **Fig. 27F**).

Other material: 1 of 5 shells (reg. no. 1958.01.13.151-153/1, **Fig. 28A**) from "Kurnorh Hills, 3000'", "Ex. A.S. Kennard. Coll.", "1958.1.13.151-153", NHM (reg. no. NHMUK 1958.01.13.151-153, "Purch. A.S. Kennard. Coll. (Dry)").

69. *Opisthostoma fairbanki* Blanford, 1866

Opisthostoma fairbanki Blanford, 1866a,
Proceedings of the Zoological Society of

London, *proceedings for 1866*: 448, pl.
 38, fig. 14

Opisthostoma fairbanki - Gude, 1921, *FBI, Mollusca-III*: 298

Distribution: endemic to the Western Ghats. Known from Khandala in the northern Western Ghats.

Original locality: near Khandala (= "Khandalla") on the summit of the Western Ghats between Bombay and Pune, "Eastern India". In his description Blanford (1866a) stated that: the "locality at Khandalla, at the top of the well known Bhore-Ghat incline on the railway between Bombay and Poona, is some distance down a ravine behind the graveyard, below the hill known as the Duke's Nose". He added that this snail "lives amongst dead leaves, in the same manner as *Diplommatina*, but, except in very wet weather, it appears to bury itself in the ground".

Type material: 1 syntype ("one of the original types") from "Khandala, Western Ghats, Bombay", "W.T. Blanford, Ex. A.S. Kennard Coll.", "1958.1.13.143", NHM (reg. no. NHMUK 1958.01.13.143, "Purch. A.S. Kennard. Coll. (Dry)"). This shell is here designated as the lectotype (**Fig. 28B**).

70. *Opisthostoma macrostoma* Blanford, 1869

Opisthostoma macrostoma Blanford, 1869,
Journal of the Asiatic Society of Bengal,
 38 (2): 139, pl. 16, fig. 7 [indicated as a
 Beddome manuscript name]

Opisthostoma macrostoma - Gude, 1921,
FBI, Mollusca-III: 299

Distribution: endemic to the Western Ghats. Known from the Brahmagiris in the

"Wynaad" region of the central Western Ghats.

Original locality: Brahmagiris (= "Bramagiri Hills"), in the "Wynaad" region, not far from the coast of "Malabar" (H. Beddome).

Type material: 3 syntypes, from "Bramigiri Hills, Wynad, Malabar (Beddome)", "Ex. A.S. Kennard. Coll.", "1958.1.13.140-142", NHM (reg. no. NHMUK 1958.01.13.140-142, "Purch. A.S. Kennard. Coll. (Dry)"), one of which is here designated as the lectotype (reg. no. NHMUK 1958.01.13.140, **Fig. 28C**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1958.01.13.141, **Fig. 28D**).

71. *Opisthostoma nilgiricum* (W.T. & H.F. Blanford, 1860)

Opisthostoma nilgirica W.T. & H.F. Blanford, 1860, *Journal of the Asiatic Society of Bengal*, 29 (2): 121, pl. 1, figs. 1-5

Opisthostoma nilgiricum - Gude, 1921, *FBI, Mollusca-III*: 300

Distribution: endemic to the Western Ghats. Known from Pykara in the Nilgiri Hills, central Western Ghats.

Original locality: near Pykara on the crest of the Nilgiri Hills, found in leaf litter in sholas (collected by H.F. Blanford in 1857 and/or W.T. Blanford in 1859).

Type material: the types could not be traced at the NHM. There is a card for this species in the index card series of the NHM's type collection with the annotation "? Calcutta Museum", however this species is not listed in Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*. The figure

accompanying the original description is reproduced (see **Fig. 9D**).

Family Pupinidae

Genus *Tortulosa*

72. *Tortulosa albescens* (Blanford, 1880)

Cataulus albescens Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 214

Tortulosa (Eucataulus) albescens - Gude, 1921, *FBI, Mollusca-III*: 172

Distribution: endemic to the Western Ghats. Known from "Mynall" (could not be traced), near Trivandrum in the southern Western Ghats.

Original locality: near "Mynall" (locality could not be traced), in the hills east of the city of Trivandrum (F. Bourdillon through Theobald).

Type material: 3 syntypes from "Mynall", "W.T. Blanford colln.", "69.06.5.5", NHM (reg. no. NHMUK 1906.05.05.69, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.05.05.69/1, **Fig. 28E**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1906.05.05.69/2, **Fig. 28F**).

73. *Tortulosa calcadensis* (Blanford, 1869)

Cataulus calcadensis Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 137, pl. 16, fig. 8 [indicated as a Beddome manuscript name]

Tortulosa (Eucataulus) calcadensis - Gude, 1921, *FBI, Mollusca-III*: 175

Distribution: endemic to the Western Ghats. Known from the Kalakkad Hills in the southern Western Ghats. Recently recorded from the vicinity of the type locality (N.A. Aravind, unpublished data).

Original locality: Kalakkad (= "Calcad") Hills, beyond the border of the province of "Travancore".

Type material: a neotype (reg. no. NHMUK 1875.03.06.83/1, **Fig. 29A**) is here designated from a series of 3 shells ("Con. Ind. Pl. 106 f. 10") from "Calcad, S. India", "75.3.6.83", NHM (reg. no. NHMUK 1875.03.06.83, "obtained by exchange with Lt. Col. Beddome", "collected by Lt. Col. Beddome"). These shells are not Blanford's type series of 3 shells: their measurements do not agree with the original description, and while the description states that the operculum is not known, 2 of the shells have an operculum. We have designated a neotype with the express purpose of clarifying the taxonomic status of *T. calcadensis* (see the original description by Blanford, 1869).

Other material: the 2 remaining shells from the above lot (reg. no. NHMUK 1875.03.06.83/2-3, **Figs. 29B, C**).

74. *Tortulosa costulata* (Blanford, 1880)

Cataulus costulatus Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 213, pl. 3, fig. 7

Tortulosa (Eucataulus) costulata - Gude, 1921, *FBI, Mollusca-III*: 177

Distribution: endemic to the Western Ghats. Known from the "Tinnevelly Ghats" in the southern Western Ghats.

Original locality: in the mountains of the

"Tinnevelly Ghats", "Southern India" (H. Beddome).

Type material: a neotype (reg. no. NHM UK 1906.05.05.68/1, **Fig. 29D**) is here designated from a lot of 2 shells from "Tinnevelly Ghats", "68.06.5.5", NHM (reg. no. NHMUK 1906.05.05.68, not registered as "T"). These 2 shells (1 badly damaged and heavily worn) are from the W.T. Blanford collection and match Blanford's description, which however was based on a single specimen. Blanford's holotype cannot be unambiguously identified, and we have designated a neotype with the express purpose of clarifying the taxonomic status of *T. costulata* (see the original description by Blanford, 1880).

75. *Tortulosa recurvata* (Pfeiffer, 1862)

Cataulus recurvatus Pfeiffer, 1862a, *Proceedings of the Zoological Society of London*, proceedings for 1862: 116, pl. 12, fig. 2

Tortulosa (Eucataulus) recurvata - Gude, 1921, *FBI, Mollusca-III*: 186

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats and from the Anaimalai Hills in the south.

Original locality: forests of the Anaimalais, and the base of the Nilgiri Hills (Cuming collection).

Type material: 2 syntypes from "Anamalay Forest, foot of the Nilgherries", "M.C.", "Acc. No. 1829", NHM (reg. no. NHMUK 20110230). The specimens are not accompanied by any labels in Pfeiffer's own hand, but because they are from the original locality and from the Cuming collection they

can be considered as syntypes. One of these syntypes is here designated as the lectotype (reg. no. NHMUK 20110230/1, **Fig. 29E**); the paralectotype is also illustrated (reg. no. NHMUK 20110230/2, **Fig. 29F**).

Other material: 1 of 2 shells from "Anaimalai Hills, foot of (Beddome)", "Coll. W.T. Blanford", "47/1.06.5.5", NHM (reg. no. NHMUK 1906.05.05.47/1, **Fig. 30A**).

76. *Tortulosa tortuosa* (Gray, 1825)

Pupa tortuosa Gray, 1825, *Annals of Philosophy, New Series*, 9: 413
Tortulosa (Tortulosa) tortuosa - Gude, 1921, *FBI, Mollusca-III*: 190

Distribution: occurs in the Nicobar Islands and doubtfully in the Western Ghats (near Trivandrum in the southern Western Ghats).

Original locality: Nicobar Islands (Spen-
gler).

Type material: Gray in his brief description cites the figure from Chemnitz (1795, p. 158, pl. 195 A, figs. 1882, 1883, see **Fig. 9E**), and thus the specimen figured would be a syntype. We could not trace authentic Gray or Chemnitz material.

Other material: 2 shells from the "Nicobar Islands", "M.C.", NHM (reg. no. NHMUK 20100643/1-2, **Figs. 30B, C**).

The name *Turbo tortuosa* Chemnitz, 1795 (Chemnitz, 1795, p. 158) was published prior to Gray's name, but is unavailable. Specific names introduced by Martini and Chemnitz (1769-1795) have

been ruled unavailable by the ICZN (1944: Opinion 184 and 1954: Direction 1).

The occurrence of *T. tortuosa* in India is doubtful. It is based on a single shell with the apical portion missing, which was collected by Beddome in the hills northeast of Trivandrum at 2500 feet and presented to the Indian Museum (Nevill, 1881, p. 149). We have been unable to examine this specimen, and it is possible that it is a misidentified example of one of the three smaller species restricted to the Western Ghats (*T. albescens*, *T. calcadensis* and *T. costulata*).

The two shells of *T. tortuosa*, reportedly from the Nicobar Islands, bear a striking resemblance to *Perlisia tweediei* Tomlin, 1948, a pupinid recorded from the western coastal region of southern Thailand and northern Peninsular Malaysia (Tomlin, 1948; Hemmen and Hemmen, 2001; Maassen, 2001). Unlike all the other species of *Tortulosa*, *T. tortuosa* has the terminal portion of the last whorl detached from the rest of the shell, and this character is shared with *P. tweediei*. It is possible that the Nicobar Islands were given in error as the locality for the two Cuming specimens, and that these shells are in fact from Southeast Asia; Godwin-Austen (1895) does not mention this species in his review of the land-snail fauna of the Andaman and Nicobar Islands. Conversely, given that there are several land-operculate taxa, which range from South Asia through the Andaman/Nicobar Islands to Southeast Asia (e.g. *Lagocheilus*, *Cyathopoma* and *Acmeila*, see Gude, 1921), and that the snail fauna of these islands is poorly known, it is possible that *Tortulosa/Perlisia* does indeed occur in the Nicobars.

Clade Hypsogastropoda**Clade Littorinimorpha****Superfamily Littorinoidea****Family Pomatiidae****Genus *Cyclotopsis*****77. *Cyclotopsis montana* (Pfeiffer, 1855)**

Cyclostoma (Cyclotus) montanum Pfeiffer, 1855a, *Proceedings of the Zoological Society of London*, proceedings for 1854: 300

Cyclotopsis montana - Gude, 1921, *FBI, Mollusca-III*: 352

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (Cuming collection).

Type material: 1 syntype, "Hab. Neilgherry hills, India, M.C.", NHM (reg. no. NHMUK 20030595, **Fig. 30D**), which is here designated as the lectotype. Although this shell is not labelled in Pfeiffer's own hand, it can be considered a syntype because it is from the original locality and from the Cuming collection.

78. *Cyclotopsis semistriata* (Sowerby, 1843)

Cyclostoma semistriatum Sowerby, 1843, *Thesaurus Conchyliorum*, 1: 91

Cyclotopsis semistriata - Gude, 1921, *FBI, Mollusca-III*: 353

Distribution: endemic to the Western Ghats. Known from Pune in the northern Western Ghats.

Original locality: Pune (= "Poonah") (G. Humphrey collection).

Type material: a neotype is here designated from a series of 3 shells from "Poona", "M.C.", NHM (reg. no. NHMUK 20030591/1, **Fig. 30E**). Although deposited in the NHM's type collection, these are not types, there being no indication on the specimen labels to link them with Sowerby's original description, which was published in June 1843. We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. semistriata* (see the original description by Sowerby, 1843).

Other material: 1 of the 2 remaining shells from the above lot (reg. no. NHMUK 20030591/2, **Fig. 30F**).

These 3 shells were identified as synatypes by Neubert (2009, p. 117), who indicated the account published by Sowerby in October 1843 in the *Proceedings of the Zoological Society of London* (Sowerby, 1843b, p. 29) as the original description; the locality "Poonah" and Cuming's name appear in this description. However, Sowerby's earlier description in his *Thesaurus Conchyliorum* has priority. This gives the same locality, and the type material as being from Humphrey, but does not mention Cuming.

79. *Cyclotopsis? spurca*¹⁰ (Grateloup, 1840)

Cyclostoma spurca Grateloup, 1840a, *Actes de la Société Linnéenne de Bordeaux*, 11

(55): 169

Cyclotopsis spurca - Gude, 1921, *FBI*,
Mollusca-III: 353

Distribution: possibly endemic to the Western Ghats (possibly occurring in Bombay in the northern Western Ghats).

Original locality: unknown, but as indicated by Grateloup (1840b, p. 444), possibly Bombay.

Type material: 1 shell (Fig. 31A), here designated a neotype, from "Malabar", "From Grateloup Colln.", "1907.11.22.9", NHM (reg. no. NHMUK 1907.11.22.9, "co-type", "purchased of Messrs. Sowerby & Fulton", "from the "Grateloup Collection", which was purchased by Messrs. Sowerby & Fulton"). Although this shell, the only available specimen from Grateloup, is registered as a type specimen, the locality on the label does not agree with the original locality published by Grateloup (possibly Bombay). The historical region of "Malabar" occupied the northern portion of the present-day state of Kerala (see Meyer et al., 1908-1931, vol. 17, pp. 53-72). We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. spurca* (see the original description by Grateloup, 1840a, and his later, more detailed description, Grateloup, 1840b, p. 444).

80. *Cyclotopsis subdiscoidea* (Sowerby, 1850)

Cyclotopsis subdiscoideum Sowerby, 1850,
Thesaurus Conchyliorum, 1: 161*, pl.
31b, figs. 304, 305
Cyclotopsis subdiscoidea - Gude, 1921,
FBI, Mollusca-III: 354

Distribution: endemic to South India.

Original locality: not known.

Type material: a neotype (reg. no. NHM UK 20030594/1, Fig. 31B) is here designated from a series of 3 shells from "India", "M.C.", NHM (reg. no. NHMUK 20030594). Although this lot is deposited in the NHM's type collection, the specimen labels provide insufficient information to support the conclusion that these are Sowerby's types. We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. subdiscoidea* (see the original description by Sowerby, 1850).

Other material: 1 of the 2 remaining shells from the above lot (reg. no. NHMUK 20030594/2, Fig. 31C).

Clade Heterobranchia

Informal Group Pulmonata

Clade Eupulmonata

Clade Systellommatophora

Superfamily Veronicelloidea

Family Veronicellidae

Genus *Laevicaulis*

81. *Laevicaulis alte*¹¹ (Férussac, 1822)

Vaginulus alte Férussac, 1822, *Tableaux Systématiques des Animaux Histoire Mollusques Suivis d'un Prodrome Générale pour Tous les Mollusques Terrestres ou Fluviaires Vivants ou Fossiles, Deuxième Partie, Tableau de la Famille des Limaces*: 14

Vaginulus alte - Gude, 1914a, *FBI, Mollusca-II*: 482

Distribution: exotic to the Indian subcontinent. Although originally recorded from South India, this slug is an indigenous African species, the centre of diversity of the genus *Laevicaulis* being East and Central Africa (Forcart, 1953). It has become widespread in the tropics during the last century, presumably travelling with cultivated plants. The current distribution extends from Africa to Central and South America, Asia, Australasia and Oceania (Mordan et al., 2003; Gomes and Thomé, 2004). In the Western Ghats it has been recorded from the vicinity of Coimbatore and Tirunelveli in the central and southern regions respectively (N.A. Aravind, unpublished data).

Original locality: the environs of "Pondichéry" (Leschenault). This most likely refers to either the former French settlement of Pondicherry (also known as Puducherry) or its capital, the town of the same name, which is located on the eastern coast of South India, about 20 km north of Cuddalore, Tamil Nadu.

Type material: 1 syntype labelled "Vaginulus alte, Férus. Pondichéry 1818. M. Leschenault.", "Vaginulus alte Ferussac (Type)", and "MNHN 21306, syntype, Vaginulus alte (Ferussac 1821)", MNHN, Paris (reg. no. MNHN 21306, **Fig. 31D**). This specimen is here designated as the lectotype.

Clade Stylommatophora

Non-Achatinoid Clade

Clade Elasmognatha

Superfamily Succineoidea

Family Succineidae

Genus *Succinea*¹²

82. *Succinea baconi* Pfeiffer, 1855

Succinea baconi Pfeiffer, 1855b, *Proceedings of the Zoological Society of London*, proceedings for 1854: 298
Succinea baconi - Gude, 1914a, *FBI, Mollusca-II*: 452

Distribution: endemic to India, where it has been recorded from the central Western Ghats ("South Canara") and East India (Calcutta in West Bengal).

Original locality: Calcutta (Bacon, Cuming collection).

Type material: 2 syntypes (species name in Pfeiffer's handwriting) from "Calcutta", "Cap. Bacon, M.C.", NHM (reg. no. NHM UK 20110242), one of which is here designated as the lectotype (reg. no. NHM UK 20110242/1, **Fig. 31E**).

83. *Succinea collina* Hanley & Theobald, 1873

Succinea collina Hanley & Theobald, 1873, *Conchologia Indica*: 30, pl. 68, figs. 8, 9, var. fig. 10 [indicated as a Blanford manuscript name]

Succinea collina - Gude, 1914a, *FBI, Mollusca-II*: 449

Distribution: endemic to West and South India, where it has been recorded from the northern part of the Western Ghats (Mahabaleshwar, Pune, Torna, and the Western Ghats near Bombay), and from Pondicherry, which is just north of Cuddalore on the east coast of Tamil Nadu. A "rufous variety" has been recorded from the Torna Hills.

Original locality: Mahabaleshwar.

Type material: 2 syntypes from "Mahabaleshwar", "Hanley Coll., H. Harvey Esq.", "1907.12.30.224-225", NHM (reg. no. NHM UK 1907.12.30.224-225, "Types", "Mahabaleshwar", "Presented by H. Harvey Esq", "2"), one of which is here designated as the lectotype (reg. no. NHMUK 1907.12.30.224, **Fig. 31F**).

***Succinea collina* 'var. *aurantiaca*'**
Blanford, 1880

Succinea collina var. *aurantiaca* Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 200

Succinea collina var. *aurantiaca* - Gude, 1914a, *FBI, Mollusca-II*: 450

Distribution: endemic to the northern Western Ghats, where it has been recorded from Torna Hill (Blanford, 1880) and the "Bombay Ghats" (Gude, 1914a).

Original locality: Torna Hill, between Mahabaleshwar and Pune.

Type material: authentic Blanford material could not be traced, and Blanford type material was never figured.

84. *Succinea?* *gravelyi* 'var. *bombayensis*'
Rao, 1925

Succinea gravelyi f. *bombayensis* Rao, 1925, *Records of the Indian Museum*, 27 (5): 386

This variety was published after the publication of the relevant volume of the *FBI* (i.e. Gude, 1914a).

Distribution: *Succinea gravelyi* Rao, 1924

and its varieties are globally restricted to India and the Andaman Islands (Rao, 1924, 1925). *Succinea gravelyi* 'var. *gravelyi*' is only known from "Elliot's Beach, Adyar, Madras" (Rao, 1924), and *Succinea gravelyi* 'var. *bombayensis*' only from Kapurwahal, near Pune (= ? "Kapurwala") in the "Bombay Presidency", West India (Rao, 1925).

Original locality: "Kapurwala, Bombay Presidency, on the surface of wet rocks close to a small waterfall and on grass, etc., growing on them" (Hora). This locality may possibly be present-day Kapurwahal, south of Pune.

Type material: holotype, "Loc. Kapurwala, Bombay Pres.", "Donor Dr. S.L. Hora", "Holotype", ZSI (reg. no. M 12513/2, **Fig. 32A**, images by N.A. Aravind). The original description did not include any shell measurements for the holotype.

85. *Succinea?* *raoi* Rao & Mitra, 1976

Succinea raoi Rao & Mitra, 1976, *The Nautilus*, 90: 125

= *Succinea arboricola* Rao, 1925, *Records of the Indian Museum*, 27 (5): 394, text-figs. 7-11

This species was described after the publication of the *FBI* (i.e. Gude, 1914a) as *Succinea arboricola* Rao, 1925. This name was a junior homonym of *Succinea arboricola* Connolly, 1912, and so Rao and Mitra (1976) proposed the replacement name *Succinea raoi*.

Distribution: endemic to the Western Ghats. Known from Lonavala and near Khandala in the northern Western Ghats (Rao, 1925).

Original locality: "found in a state of hibernation on the bark of mango trees in the compound of the Hamilton Hotel" at Lonavala (= "Lonavla"), "Bombay Presidency" (Hora), and "on moss at base of trees on the way" to Khandala (= "Khandalla") (Hora).

Type material: holotype, "Locality Lonavla, Bombay Presidency. Coll./Don. Dr. S.L. Hora, Date Sep. 1924", "Holotype", ZSI (reg. no. M12514/2, **Fig. 32B**, images by N.A. Aravind).

86. *Succinea subgranosa* Pfeiffer, 1850

Succinea subgranosa Pfeiffer, 1850a, *Proceedings of the Zoological Society of London*, proceedings for 1849: 132

Succinea subgranosa - Gude, 1914a, *FBI, Mollusca-II*: 456

Distribution: endemic to India, where it has been recorded from West India (Bombay in the northern Western Ghats and Kutch in Gujarat), and South India (Kurnool in the Eastern Ghats of Andhra Pradesh), with a variety from Calcutta (West Bengal) in East India.

Original locality: "Kurmant" (could not be traced), India (Cuming collection), and a variety, which is white ventrally, from Calcutta.

Type material: 5 syntypes (species name in Pfeiffer's handwriting) from "Kurmant, India", "M.C.", NHM (reg. no. NHMUK 20110244), one of which is here designated as the lectotype (reg. no. NHMUK 20110244/1, **Fig. 32C**). One of the 4 paralectotypes is also illustrated (reg. no. NHMUK 20110244/2, **Fig. 32D**).

87. *Succinea tornadri* Rao, 1924

Succinea tornadri Rao, 1924, *Records of the Indian Museum*, 26 (5): 384, pl. 28, fig. 19

This species was published after the publication of the relevant volume of the *FBI* (i.e. Gude, 1914a).

Distribution: endemic to the Western Ghats. Known from the Torna Hills in the northern Western Ghats (Rao, 1924).

Original locality: Torna Hills in Pune (= "Poona") (Blanford).

Type material: holotype, "Loc. Torna Hills, Poona", "Holotype", ZSI (reg. no. M 12380/2, **Fig. 32E**, images by N.A. Aravind).

88. *Succinea vitrea* Pfeiffer, 1855

Succinea vitrea Pfeiffer, 1855b, *Proceedings of the Zoological Society of London*, proceedings for 1854: 298

Succinea vitrea - Gude, 1914a, *FBI, Mollusca-II*: 454

Distribution: globally restricted to peninsular India, the Andaman Islands and the Laccadive Islands. In the Indian peninsula it has been recorded from Calcutta in West Bengal and from Bombay Island on the western margin of the northern Western Ghats.

Original locality: Calcutta (Bacon, Cuming collection).

Type material: 4 syntypes (species name in Pfeiffer's handwriting) from "Calcutta", "Cap. Bacon, M.C.", NHM (reg. no. NHM UK 20110243), one of which is here desig-

nated as the lectotype (reg. no. NHMUK 20110243/1, **Fig. 32F**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 20110243/2, **Fig. 33A**).

Genus *Indosuccinea*

89. *Indosuccinea khandalla*¹³ Rao, 1924

Indosuccinea semiserica f. *khandalla* Rao, 1924, *Records of the Indian Museum*, 26 (5): 407

This taxon was published after the publication of the relevant volume of the *FBI* (i.e. Gude, 1914a).

Distribution: endemic to the Western Ghats. Known only from Khandala in the northern Western Ghats (Rao, 1924; Patterson, 1971).

Original locality: on shrubs growing in moist ground near Khandala (= "Khandala"), "Bombay Presidency" (R. Hodgart in July 1924).

Type material: Rao (1924) indicated that the type material for this species was deposited at the ZSI (reg. no. M. 12504/2). Although Rao stated that the shells of this taxon "do not exceed 12 mm in height", no precise shell measurements were given for the type/s.

The shell of this species was figured by Patterson (1971, p. 152).

Genus *Quickia*¹⁴

90. *Quickia bensonii* Pfeiffer, 1850

Succinea bensonii Pfeiffer, 1850a, *Proceedings of the Zoological Society of London*, proceedings for 1849: 133

Succinea bensonii - Gude, 1914a, *FBI, Mollusca-II*: 456

Distribution: endemic to India, where it was originally described from Moradabad in Uttar Pradesh. Rao (1924) has recorded it from Bombay and Pune in the northern Western Ghats, and it has also been reported from Kutch in Gujarat and Calcutta in West Bengal (Gude, 1914a; Patterson, 1970, 1971).

Original locality: Moradabad, India (Benson, Cuming collection).

Type material: 5 syntypes (species name in Pfeiffer's handwriting) from "Moradabad India", "Benson", "M.C.", NHM (reg. no. NHMUK 20120081), one of which is here designated as the lectotype (reg. no. NHM UK 20120081/1, **Fig. 33B**).

Genus *Lithotis*¹⁵

91. *Lithotis rupicola* (Blanford, 1863)

Succinea (Lithotis) rupicola Blanford, 1863, *Annals and Magazine of Natural History, Series 3*, 12: 186, pl. 4, figs. 8-10

Lithotis rupicola - Gude, 1914a, *FBI, Mollusca-II*: 458

Distribution: endemic to the Western Ghats. Known from Khandala in the northern Western Ghats (Gude, 1914a; Patterson, 1971).

Original locality: Western Ghats or Sahyadris (= "Sahyadri mountains"), found "adhering to the precipitous basaltic rocks of the Western Ghats".

Type material: syntype from "Bori Ghat", "from Hanley Coll. (figd. In Conch. Ind. Pl.

81 f.7), H. Harvey Esq.", "1907.12.30.234", NHM (reg. no. NHMUK 1907.12.30.234, "Presented by H. Harvey Esq."). This specimen is here designated as the lectotype (Fig. 33C).

Other material: 1 of 3 shells from "Khandala near Bombay", "presented by Dr A.H. Leith", "71.8.2.4", NHM (reg. no. NHMUK 1871.08.02.4/1, Fig. 33D).

92. *Lithotis tumida* (Blanford, 1870)

Succinea (Lithotis) tumida Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 23, pl. 3, figs. 24, 24a
Lithotis tumida - Gude, 1914a, *FBI, Mollusca-II*: 459

Distribution: endemic to the Western Ghats. Known from Sinhgarh and Pune in the northern Western Ghats.

Original locality: Sinhgarh (= "Singhur"), from material collected by Blanford, Beddome, Evezard and/or Fairbank.

Type material: 9 syntypes from "Singhur", "Coll. W.T. Blanford", "298.06.2.2", NHM (reg. no. NHMUK 1906.02.02.298, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1906.02.02.298/1, Fig. 33E). One of the 8 paralectotypes is also illustrated (reg. no. NHMUK 1906.02.02.298/2, Fig. 33F).

Lithotis tumida 'var. *subcostulata*' (Blanford, 1870)

Succinea (Lithotis) tumida var. *subcostulata*
 Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 23, pl. 3, fig. 24b (given as fig. 25 in error in text)

Lithotis tumida var. *subcostulata* - Gude, 1914a, *FBI, Mollusca-II*: 460

Distribution: endemic to the Western Ghats. Known from Purandar in the northern Western Ghats.

Original locality: Purandar (= "Poorundhur"), from material collected by Blanford, Beddome, Evezard and/or Fairbank.

Type material: authentic Blanford material could not be traced, but the original description included a figure (see Fig. 9F).

Clade Orthurethra

Superfamily Pupilloidea

Family Pupillidae

Genus *Pupilla*

93. *Pupilla salemensis* (W.T. & H.F. Blanford, 1861)

Ennea salemensis W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30: 359, pl. 2, fig. 8

Pupilla salemensis - Gude, 1914a, *FBI, Mollusca-II*: 289

Distribution: endemic to the Western Ghats. Known from the Kalrayan Hills in the central Western Ghats.

Original locality: Kalrayan (= "Kalryen") Hills (R.B. Foote).

Type material: authentic Blanford material could not be traced. This species was figured in the original description (see Fig. 34A).

Genus *Microstele*¹⁶

94. *Microstele muscerda* (Benson, 1853)

Pupa muscerda Benson, 1853, *Annals and Magazine of Natural History, Series 2*, 12: 94

Pupilla muscerda - Gude, 1914a, *FBI, Mollusca-II*: 286

Distribution: endemic to Sri Lanka (Point Pedro, Jaffna and Batticaloa) and the Western Ghats, where it has been recorded from Erode in the central Western Ghats.

Original locality: Point Pedro (E. Layard), Ceylon, found "in old posts, and on Palmyra trees".

Type material: 1 syntype from "Ceylon Bens. Coll.", "R. MacAndrew Coll., 1873", UMZC (reg. no. I.103977.A). This specimen is here designated as the lectotype (Fig. 35A).

Other material: 1 possible paralectotype (labelled with species name only), "R. MacAndrew Coll., 1873", UMZC (reg. no. I.103977.B, Fig. 35B). The type status of this shell cannot be confirmed because of the lack of supporting documentation to confirm that it was part of Benson's collection.

Genus *Pupoides*

95. *Pupoides coenopictus* (Hutton, 1834)

Pupa coenopicta Hutton, 1834, *Journal of the Asiatic Society of Bengal*, 3: 85, 93

Pupoides coenopictus - Gude, 1914a, *FBI, Mollusca-II*: 259

Distribution: ranging beyond the Indian subcontinent. The indigenous range of this

species is thought to extend from Africa to Southwest and South Asia (India, Pakistan, Sri Lanka), and it has been introduced to other tropical regions (Seddon, 1992; Mordan et al., 2003). In India this species is distributed in: the west (Kutch in Gujarat); the north ("Kashmir", Delhi, Agra in Uttar Pradesh, Roorkee in Uttarakhand); the east (Dinapore and Patna in Bihar); and in the south in the Western Ghats and Kurnool (Eastern Ghats of Andhra Pradesh). In the Western Ghats it has been recorded from the northern (Bombay Island), central (Erode, Tiruchirappalli) and southern ("Travancore") regions.

Original locality: Bayana (= "Beana"), and between Fatehpur Sikri (= "Futtehpoor Sikra") and Neemuch. Found on rocks and "buried in the earth". In his description of this species Hutton gave the locality as "Beana", but in a concluding discussion at the end of the same paper he stated that the species was also found on the route he took in December 1832 "from Futtehpoor Sikra to Neemuch". "Beana" is probably Bayana, 40 km southwest of Bharatpur in Rajasthan. Fatehpur Sikri is near Agra, which is c. 40-50 km east of Bharatpur. Neemuch, in northern Madhya Pradesh, is 120 km east of Udaipur and c. 480 km southwest of Agra. As Beana, Futtehpoor Sikra and Neemuch are all mentioned in Hutton's paper, his specimens from these localities and from Agra can all be considered as syntypes.

Type material: 9 syntypes labelled "11. Pupa Coenopicta – on rocks – Agra & Neemuch", "Miss Wienholt, ex Colln. Capt. T. Hutton", "1928.7.28.144-152", NHM (reg. no. NHM UK 1928.07.28.144-152), one of which is here designated as the lectotype (reg. no. NHMUK 1928.07.28.144, Fig.

35C). Two of the 8 paralectotypes are also illustrated (reg. no. NHMUK 1928.07.28. 145-146, **Figs. 35D, E**).

96. *Pupoides lardeus* (Pfeiffer, 1854)

Bulimus lardeus Pfeiffer, 1854a, *Proceedings of the Zoological Society of London*, proceedings for 1852: 157

Pupoides lardeus - Gude, 1914a, *FBI, Mollusca-II*: 261

Distribution: endemic to India, but distributional data are lacking.

Original locality: "Eastern India" (Cuming collection).

Type material: 5 syntypes from "India", "M.C.", NHM (reg. no. NHMUK 20110 246). Pfeiffer's original labels are missing, but because these specimens are from the Cuming collection they can be considered as syntypes. One of these syntypes is here designated as the lectotype (reg. no. NHMUK 20110246/1, **Fig. 35F**). One of the 4 paralectotypes is also illustrated (reg. no. NHMUK 20110246/2, **Fig. 36A**).

Family Pyramidulidae

Genus *Pyramidula*

97. *Pyramidula euomphalus* (W.T. & H.F. Blanford, 1861)

Helix euomphalus W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30: 354

Pyramidula euomphalus - Gude, 1914a, *FBI, Mollusca-II*: 43

Distribution: endemic to the Western Ghats.

Known from near Pykara in the Nilgiri Hills, central Western Ghats.

Original locality: near Pykara, Nilgiri Hills (W.T. and H. Blanford).

Type material: authentic Blanford material could not be traced. This species was figured by Hanley and Theobald (1870-1876 [1875], p. 52, pl. 129, figs. 1-3, see **Fig. 34B**); the specimen figured was from the same locality as the Blanford type/types, but the name of the collector/collection was not indicated.

Family Valloniidae

Genus *Vallonia*

98. *Vallonia ladacensis* (Nevill, 1878)

Helix (Vallonia) ladacensis Nevill, 1878b, *Scientific Results of The Second Yarrakand Mission (based upon the Collections and Notes of the Late Ferdinand Stoliczka PhD.)*, *Mollusca*: 4

Vallonia ladakensis - Gude, 1914a, *FBI, Mollusca-II*: 226

= *Vallonia miserrima* Gude 1907, *Proceedings of the Malacological Society of London*, 7: 307, text-figures

Vallonia miserrima - Gude, 1914a, *FBI, Mollusca-II*: 227

Distribution: globally largely restricted to the western Himalayan region and the Tien Shan Mountains of Central Asia. Beyond this area it has only been recorded from the Anaimalai Hills in the southern Western Ghats. In the western Himalayas this species ranges from the area formerly constituting the historical kingdom of "Kashmir" (extending from the northern extremity of India

into northeast Pakistan) to Nepal, Tibet, and possibly Sikkim in Northeast India (Gude 1914a; Gerber, 1996; Gerber and Bössneck, 2009). The known localities for this species from North India are Matayan in the Dras Valley, Leh and Ladakh, all located in central Jammu and Kashmir, and Spiti in Himachal Pradesh (Gude, 1914a).

Original locality: Matayan (= "Matain") in the Dras Valley (Stoliczka), central Jammu and Kashmir. The first and only record of this species from the Western Ghats was from the interior of the Anaimalai Hills, at an elevation of about 3,000 feet (Beddome).

Type material of *Vallonia ladacensis*: 2 paralectotypes (see Gerber, 1996, p. 188), "Mataian, Dras, Kashmir Ter. (F. Stol.) coll. GA", "360.03.vii.1", NHM (reg. no. NHM UK 1903.07.01.360, "Collector Stoliczka", "2" specimens), re-registered in error as NHMUK 1993054. One of these paralectotypes is illustrated (reg. no. NHMUK 1903.07.01.360/1, **Fig. 36B**). The lectotype (designated by Rajagopal and Subba Rao, 1972, p. 202) is in the collections of the ZSI, Calcutta (reg. no. M 18328/3).

Other material: lectotype (designated by J. Gerber, see Gerber, 1996, p. 188, reg. no. NHMUK 1906.01.01.370/1, **Fig. 36C**) and paralectotype (reg. no. NHMUK 1906.01.01.370/2, **Fig. 36D**) of *Vallonia miserrima*, in a lot of 2 shells (reg. no. NHMUK 1906.01.01.370, registered as "T") from the "Anaimalai Hills (Col. Beddome)", "W.T. Blanford Colln.", "370.06.1.1", NHM.

We follow Gerber (1996, p. 191), who considered the types of *V. miserrima* to fall within the range of variation of the Himalayan *V. ladacensis*, and therefore treated *V. miserrima* as a junior synonym of *V. ladacensis*. He regarded the occurrence

of *V. ladacensis* in the Western Ghats as surprising, and suggested that the specimens collected by Beddome and described by Gude as *V. miserrima* may have been from the Himalayan region, but wrongly labelled. Richard Beddome, however, was a meticulous worker, and his records are generally considered to be reliable, certainly for material that he collected. As is the case for many other land snails from the Western Ghats, not much can be read into the lack of subsequent records of *Vallonia* from this region. More importantly, there are other examples of taxa with a disjunct Himalayan-Western Ghats distribution (e.g. *Mirus nilagiricus*, see p. 65). *Landouria huttonii* (see p. 114), which in India occurs in the Himalayas and the Shevaroy Hills of the central Western Ghats, is also represented by a variety, *L. huttonii* 'var. *radleyi*' (Jousseaume, 1894), in the Central Highlands of Sri Lanka (Gude, 1914a).

Genus *Pupisoma*

99. *Pupisoma evezardi* (Hanley & Theobald, 1874)

Pupa evezardi Hanley & Theobald, 1874,
Conchologia Indica: 41, pl. 101, figs. 5, 6 [indicated as a Blanford manuscript name]

Pupisoma evezardi - Gude, 1914a, *FBI, Mollusca-II*: 37

Distribution: endemic to the Western Ghats. Known from Sinhgarh/Khandala in the northern Western Ghats (Hanley and Theobald 1874; Gude, 1914a).

Original locality: Sinhgarh (= "Singhur") Hill in the "Dekkan". The latter region, more usually known as the Deccan, refers in its broadest sense to all of India south of the

Narmada River or the Vindhya mountains, and in its narrowest sense "has much the same meaning as Māhārashtra" (see Meyer et al., 1908-1931, vol. 11, pp. 205-6).

Type material: authentic Blanford, Hanley or Theobald material could not be traced.

Other material: 1 possible syntype from "Khandala", "W.T. Blanford Colln.", "923. 06.1.1", NHM (reg. no. NHMUK 1906.01. 01.923, registered as "T"). The height of this shell (c. 3 mm, **Fig. 36E**) is a little greater than the specimens figured by Hanley and Theobald (1874), which measure 2.2-2.5 mm. It may be a syntype because "Khandala" (present-day Khandala) and the original locality Sinhgarh are in the same general area; the former is located c. 80 km to the northwest of Pune, whereas the latter lies approximately 20 km southwest of Pune.

Family Vertiginidae

Genus *Gastrocopta*¹⁷

100. *Gastrocopta bathyodon* (Benson, 1863)

Pupa bathyodon Benson, 1863, *Annals and Magazine of Natural History, Series 3*, 12: 426

Bifidaria bathyodon - Gude, 1914a, *FBI, Mollusca-II*: 290

Distribution: endemic to India, where it has been recorded from the vicinity of Hoshangabad near the Narmada River, and from the "Mul River, Western India" (possibly the Mula River, which passes through Pune in the northern Western Ghats and drains into the Bhima, a tributary of the Krishna River).

Original locality: "Teluk Sendur" (could not be traced), near Hoshangabad (= "Hoshungabad"), not far from the Narmada (= "Nerbudda") River (W. Theobald, jun.).

Type material: 1 syntype from "nr. Nerbudda Ri. cotype ex. Benson", NHM (reg. no. NHMUK 19991573). This shell is here designated as the lectotype (**Fig. 36F**).

101. *Gastrocopta huttoniana* (Benson, 1849)

Pupa huttoniana Benson, 1849, *Annals and Magazine of Natural History, Series 2*, 4: 126

Bifidaria huttoniana - Gude, 1914a, *FBI, Mollusca-II*: 291

Distribution: globally restricted to India and Pakistan (Pokryszko et al., 2009). In India it has been recorded from the north in "Kashmir" (i.e. from the Pir Panjal range) and Simla (Himachal Pradesh), and in the south from Ahmadnagar on the northeastern limits of the Western Ghats. It has also been recorded from "Wadalé", but this locality could not be precisely identified, there being a number of places in western and central Maharashtra with the modern name of Wadala or Wadali (see the online resource India Place Finder, <http://india.csis.u-tokyo.ac.jp>).

Original locality: Simla, "western sub-Himalayan mountains" (Hutton).

Type material: 2 syntypes, "Bens, col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.102345), one of which is here designated as the lectotype (reg. no. I.102345.B, **Fig. 37A**). The paralectotype is also illustrated (reg. no. I.102345.A, **Fig. 37B**).

Superfamily Enoidea

Family Enidae

Genus *Mirus*¹⁸

102. *Mirus hanleyanus* (Kobelt, 1902)

Buliminus (Ena) hanleyanus Kobelt, 1902, *Die Familie Buliminidae. Systematisches Conchylien-Cabinet von Martini und Chemnitz*, bd. 1, abt. 13, theil 2: 931, pl. 131, figs. 3-5
Ena (Mirus) hanleyana - Gude, 1914a, *FBI, Mollusca-II*: 232

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills in "South India" (Beddome, Möllendorff collection).

Type material: 1 syntype, here designated as the lectotype, labelled "Nilghiri Bergi, Beddome", "Slg. O.v.Moellendorff", SMF, Frankfurt (reg. no. SMF 238382/1, **Fig. 37C**). Kobelt's description was based on 2 shells, and a figure from the *Conchologia Indica* (Hanley and Theobald, 1870-1876 [1870], pl. 23, fig. 3).

103. *Mirus nilagiricus* (Pfeiffer, 1846)

Bulimus nilagiricus Pfeiffer, 1846b, *Proceedings of the Zoological Society of London*, proceedings for 1846: 41
Ena (Mirus) nilagirica - Gude, 1914a, *FBI, Mollusca-II*: 231

Distribution: globally restricted to the southern part of the Western Ghats (Anaimalai and Palni Hills), Northeast India (Khasi

and Dafla Hills), and northern Mynamar ("Shan States").

Original locality: Nilgiri Hills, "East Indies" (Cuming collection).

Type material: 3 syntypes from the "Neelgherries" (locality and species name in Pfeiffer's handwriting), "M.C.", "Acc. No. 1829", NHM (reg. no. NHMUK 20110238), one of which is here designated as the lectotype (reg. no. NHMUK 20110238/1, **Fig. 37D**). One of the two paralectotypes is also illustrated (reg. no. NHMUK 20110238/2, **Fig. 37E**). In his description, Pfeiffer gave the shell length as 28.5 mm, but the lectotype, which is the largest of the three types, measures 21.1 mm. The length given by Pfeiffer may be an error; in all other respects Pfeiffer's description agrees well with the three shells. Gude (1914a, p. 231) has also noted that the length given by Pfeiffer may be a "misprint", but the length he gave for the 2 larger shells (19.5 mm) is different again.

Family Cerastidae

Genus *Cerastus*

104. *Cerastus abyssinicus* (Rüppell in Pfeiffer, 1845)

Bulimus abyssinicus Rüppell in Pfeiffer, 1845a, *Zeitschrift für Malakozoologie*, 2: 157

Cerastus abyssinicus - Gude, 1914a, *FBI, Mollusca-II*: 263

Distribution: originally recorded from the East African region of "Abyssinia" (historical name for modern-day Ethiopia and Eritrea), but some uncertainty as to whether this species is indigenous to India, Benson

having suggested that it may have been introduced with plants (see Gude, 1914a). In India it has been recorded from the northern Western Ghats (Pune, Bombay) and in the country to the the north, from Manda (could not be traced) in the Narmada valley, and from "Malwa" (probably the British colonial Malwa Agency).

Original locality: Abyssinia (Pfeiffer attributes *Bulimus abyssinicus* to "Rüpp", presumably indicating a Rüpell manuscript name).

Type material: authentic Rüpell or Pfeiffer material could not be traced. Although a figure of this species was not included in the original description, it was figured in one of Pfeiffer's later publications (Küster and Pfeiffer, 1840-1865 [1854], p. 149, pl. 39, figs. 6, 7, see **Fig. 34C**).

105. *Cerastus densus* (Pfeiffer, 1856)

Bulimus (Petraeus) densus Pfeiffer, 1856,
Malakozoologische Blätter, 2: 154
Cerastus densus - Gude, 1914a, *FBI, Moll-*
usca-II: 269

Distribution: endemic to the Western Ghats. Known from the central ("Malabar") and northern (Pune) parts of the Western Ghats, and from its northeastern limits (Ahmadnagar). The original locality of "Eastern India" may have been given in error.

Original locality: "Eastern India".

Type material: a neotype (reg. no. NHM UK 1986222/1, **Fig. 37F**) is here designated from a lot of 2 shells from "Malabar, India" (species name in Pfeiffer's hand-writing), "M.C.", NHM (reg. no. NHMUK 1986222).

These shells are not from the original locality, so cannot be considered syntypes. We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. densus* (see the original description by Pfeiffer, 1856).

Other material: the other shell in the above lot is also illustrated (reg. no. NHMUK 1986222/2, **Fig. 38A**).

106. *Cerastus distans* (Pfeiffer, 1857)

Bulimus distans Pfeiffer, 1857d, *Proceedings of the Zoological Society of London*, proceedings for 1856: 331
Cerastus distans - Gude, 1914a, *FBI, Moll-*
usca-II: 270

Distribution: data are sparse for this species. Gude (1914a) listed only two localities: "Karak I., Persian Gulf" (most likely Khark Island, off the Iranian coast), and Pune in the northern Western Ghats of India.

Original locality: "Isle of Karah, Gulf of Persia" (Cuming collection), probably Khark Island, off Iran in the Persian Gulf.

Type material: 3 syntypes from "Isle Karah, Gulf of Persia, M.C." (species name and locality in Pfeiffer's handwriting), NHM (reg. no. NHMUK 1986210), one of which is here designated as the lectotype (reg. no. NHMUK 1986210/1, **Fig. 38B**). One of the paratypes is also illustrated (reg. no. NHMUK 1986210/2, **Fig. 38C**).

107. *Cerastus fairbanki* (Pfeiffer, 1857)

Bulimus fairbanki Pfeiffer, 1857b, *Proceedings of the Zoological Society of London*, proceedings for 1857: 109

Cerastus fairbanki - Gude, 1914a, *FBI, Mollusca-II*: 264

Distribution: endemic to India, with the only published record from Ahmadnagar, on the northeastern limits of the Western Ghats.

Original locality: Ahmadnagar (= "Ahmednugger"), India (Fairbank, Cuming collection).

Type material: 4 syntypes from "Ahmednuggur", "M.C", NHM (reg. no. NHMUK 1986209), one of which is here designated as the lectotype (reg. no. NHMUK 1986 209/1, **Fig. 38D**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 1986209/2, **Fig. 38E**). Pfeiffer's original labels are missing, but because these specimens are from the Cuming collection they can be considered as syntypes.

108. *Cerastus jerdoni* (Reeve, 1848)

Bulimus jerdoni Reeve, 1848, *Conchologia Iconica*, 5 (*Bulimus*): pl. 46, fig. 297
[indicated as a Benson manuscript name]
Cerastus jerdoni - Gude, 1914a, *FBI, Mollusca-II*: 265

Distribution: endemic to India. The only published records are from the Deccan and from Pune in the northern Western Ghats.

Original locality: "Dekkan", "Hindostan" (Benson collection). According to *The Imperial Gazetteer of India* (Meyer et al., 1908-1931, vol. 13, p. 140), the Hindustan was "a vaguely-defined area, sometimes applied to the whole of India north of the Vindhya, in contradistinction to the Deccan ... which lies south of them. ... During the eighteenth and first half of the nineteenth

centuries the term Hindustan was loosely employed by geographers to include the whole of India."

Type material: authentic material from Reeve or Benson could not be traced, but the species was figured in the original description (see **Fig. 34D**).

Cerastus jerdoni 'var. *redfieldi*' (Pfeiffer, 1854)

Bulimus redfieldi Pfeiffer, 1854b, *Malakozoologische Blätter*, 1: 66

Cerastus jerdoni var. *redfieldi* - Gude, 1914a, *FBI, Mollusca-II*: 266

Distribution: endemic to the Western Ghats. Known from Pune in the northern Western Ghats and from Ahmadnagar on the northeastern limits of the Western Ghats.

Original locality: near Ahmadnagar (= "Ahmednuggur"), India, (Redfield).

Type material: authentic Pfeiffer material could not be traced, and this snail was never illustrated by him. Pfeiffer's description is insufficient for discriminating *C. jerdoni* 'var. *redfieldi*' from other species of Indian *Cerastus*, and we therefore consider it to be a *nomen dubium*.

109. *Cerastus malabaricus* (Pfeiffer, 1857)

Bulimus malabaricus Pfeiffer, 1857c, *Malakozoologische Blätter*, 4: 156
Cerastus malabaricus - Gude, 1914a, *FBI, Mollusca-II*: 264

Distribution: endemic to India, with the only published record from Ahmadnagar, on the northeastern limits of the Western Ghats.

Original locality: Ahmadnagar (= "Ahmednuggur") (Fairbank).

Type material: authentic Pfeiffer material could not be traced, and this species was never illustrated by him. Pfeiffer's description is insufficient for discriminating *C. malabaricus* from other species of Indian *Cerastus*, and we therefore consider this species to be a *nomen dubium*.

110. *Cerastus moussonianus* (Petit de la Saussaye, 1851)

Bulimus moussonianus Petit de la Saussaye, 1851, *Journal de Conchyliologie*, 2: 266, pl. 7, fig. 4

Cerastus moussonianus - Gude, 1914a, *FBI, Mollusca-II*: 267

Distribution: endemic to the northern part and northeastern limits of the Western Ghats (Bombay, Khandala, Ahmadnagar), and the country to the north (Broach, Kutch and Surat) and east (Solapur).

Original locality: near Bombay (Charbonnier).

Type material: 1 syntype labelled "Coll. Types J. de Conch. II 1851 p. 266, pl. VII, fig. 4, Holotype, *Bulimus moussonianus* Petit de la Saussaye", "Bombay" and "23023, Syntype, *Bulimus moussonianus* Petit, 1851", MNHN, Paris (reg. no. MHN 23023, **Fig. 38F**). This shell is here designated as the lectotype (there is no indication in Petit de la Saussaye's description that it was based on a single shell, so the Paris specimen cannot be assumed to be the holotype).

Genus *Rachis*¹⁹

111. *Rachis punctatus* (Anton, 1838)

Bulimus punctatus Anton, 1838, *Verzeichniss der Conchylien, welche sich in der Sammlung von Hermann Eduard Anton befinden*: 42

Rachisellus punctatus - Gude, 1914a, *FBI, Mollusca-II*: 277

Distribution: indigenous to the Indian subcontinent (India, Sri Lanka) and to other parts of the Old World Tropics (East and West Africa) (Gude, 1914a; Mordan et al., 2003). In India it has been recorded from the north ("Bundelkhund", see p. 69) and east (Uluberia in West Bengal, Benares in Uttar Pradesh, "Orissa") India, and in the south from the northern (Bombay, Pune, and Ahmadnagar), central (Kundah Hills, Tiruchirappalli) and southern ("Travancore", Palni Hills) parts of the Western Ghats. Other South Indian localities include Madras in Tamil Nadu, and the Nallamalai Hills of the Eastern Ghats. It also occurs in the Laccadive Islands.

Original locality: not known.

Type material: the supposed type of this species labelled "B. punctatus Ant.* 4380 Banda Bansk. Ostind." from the SNSD, Dresden (reg. no. SNSD Moll 4380) was compared by Peter Mordan with Anton's description and measurements. The Dresden shell clearly differs in its width and height from Anton's description. It is also more turreted in form and has a very different colour pattern, leading Mordan to conclude that this shell could not be Anton's type of *Rachis punctatus*. In addition, the collection

number given in the original description was no. 1540, whereas the collection number with the specimen currently identified as the "holotype" is no. 4380. Furthermore, the original description does not give a locality, but the current "holotype" is labelled "Banda Bunsk, East India". A search was made for further Anton material of *Bulimus punctatus* by Katrin Schniebs in the Natural History Collections at Dresden, but this proved unsuccessful. Thus, we conclude that the Dresden shell labelled as "B. punctatus Ant." has been misidentified, and that Anton's original type has been lost.

Despite the loss of the type, the identity of *Bulimus punctatus* has been consistently understood on the basis of Anton's original description and the figure by Reeve (1849, *Bulimus* pl. 65, fig. 452), making the designation of a neotype inappropriate (ICZN, 1999, Article 75.2).

Other material: since Reeve's (1849) figure illustrated a shell from "Mus. Benson", we have illustrated a Benson specimen (reg. no. NHMUK 1954.06.02.654-655/1, **Fig. 39A**). This shell is one of a lot of 4 specimens labelled "J.S. Hawkins colln.", "1954.6.2.654-655", NHM (reg. no. NHM UK 1954.06.02.654-655, registered as "Bundelkhund, W.H. Benson 1861, 2 shells purchased from Mrs M.G. Hawkins, J.S. Hawkins Collection"). The "Bundelkhund" (also spelt Bandelkhand, Bundelcund or Bundelkhand) was a historical region of northern and central India, which extended some 12, 000 square miles (about 31, 000 km²) and lay principally between 24° 00' N and 26° 00' N, in what is now the states of Uttar Pradesh and Madhya Pradesh (Hamilton, 1815, p. 188; Meyer et al., 1908-1931, vol. 9, p. 68). The 4 shells are accompanied by a label in Benson's hand: "*Bulimus punctatus* Anton, From South

India, also occurs in Bundelkhund and Ceylon". This locality corresponds with the locality given by Reeve (1849) in the description accompanying his figure: "Bundelkhund and Southern India (on plants); Benson, Jerdon". Only 2 of the 4 shells in the NHM lot are registered and it is unclear which of the shells are from the Bundelkhund and which from South India.

Genus *Rhachistia*²⁰

112. *Rhachistia bengalensis* (Lamarck, 1822)

Bulimus bengalensis Lamarck, 1822, *Historie Naturelle des Animaux sans Vertèbres*, 6 (2): 124

Rachisellus bengalensis - Gude, 1914a, *FBI, Mollusca-II*: 274

Distribution: globally restricted to India and Bangladesh (Chittagong). Originally recorded from "Bengal", its distribution in India is centred in the east of the country in West Bengal (Calcutta, Chandannagar, Barrackpore and Raniganj), but it also has been reported from the Western Ghats, from Bombay in the north and the Anaimalai Hills in the south.

Original locality: "Bengal" (Massé).

Type material: holotype labelled "Museum de Genève, No. 25, Collection Lamarck, *Bulimus bengalensis* LR., *Buliminus (Rhachis) bengalesis* LR, Deless. 28/4, Localité Bengale, Chenu 9/4, (1ex) TYPE, 1092/71", MHNG, Geneva (reg. no. MHNG INVE 51168, formerly MHNG 1092/71, **Fig. 39B**, images provided by MHNG, Geneva). According to Yves Finet (pers. comm), formerly of the MHNG, Geneva, a handwritten annotation, attributed to Lamarck, in

the margin of the museum's copy of *Histoire Naturelle des Animaux sans Vertèbres* (Lamarck, 1822), indicates that there was originally only a single specimen of this species in Lamarck's collection. In his description Lamarck gave the length as "10 lignes", which is equivalent to about 22.5 mm, and the height of the Geneva type agrees with this.

113. *Rhachistia praetermissus* (W.T. & H.F. Blanford, 1861)

Bulimus praetermissus W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30: 360
Rachisellus praetermissus - Gude, 1914a, *FBI, Mollusca-II*: 275

Distribution: endemic to India, where it is known from "Orissa" and "Bengal" in East India, and from the Western Ghats and "Salem district" in South India. In the Western Ghats it has been recorded from Bombay in the north and from the Madurai hills (= "Madura Hills", probably the hills immediately to the north and west of Madurai town) in the southern region.

Original locality: initially discovered in "Orissa", and later found near Salem. The first 6 of the 7 varieties described were, as indicated by Blanford and Blanford (1861), from the "tributary mehals of Cuttak, in Orissa". Cuttack was the administrative capital of Orissa Division during much of the 19th century (see Meyer et al., 1908-1931, vol. 11, p. 98) and it seems likely that the material was collected from the "tributary states of Orissa" (see Meyer et al., 1908-1931, vol. 19, pp. 251-266). The 7th variety of *Rhachistia praetermissus* was found on "detached hills, N.E. of Conani-

putty, in the Salem district" (King); this locality could not be traced.

Type material: 6 syntypes from "Talchir, Orissa", "coll. W.T. Blanford", "215.06.2.2", NHM (reg. no. NHMUK 1906.02.02.215, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.02.02.215/1, **Fig. 39C**). Two of the 5 paralectotypes are also illustrated (reg. no. NHMUK 1906.02.02.215/2-3, **Figs. 39D, E**). According to the *The Imperial Gazetteer of India* (Meyer et al., 1908-1931, vol. 23, p. 212), "Talcher" (Blanford's "Talchir") was "one of the Tributary States of Orissa".

114. *Rhachistia pulcher* (Gray, 1825)

Bulimus pulcher Gray, 1825, *Annals of Philosophy, New Series*, 9: 414
Rachisellus pulcher - Gude, 1914a, *FBI, Mollusca-II*: 276

Distribution: endemic to Sri Lanka and the Western Ghats, where it has been recorded from "Travancore" and "Tinnevelly" in the southern Western Ghats, and from Tiruchi-rappalli on the southeastern limits of the Western Ghats. In Sri Lanka it occurs in the drier parts of the island, including the dry monsoon forests of the north central region (D. Raheem, unpublished data).

Original locality: not known.

Type material: 2 syntypes from "India", "Dr. J.E. Gray", "75.8.2.1", NHM (reg. no. NHMUK 1875.08.02.1, "Pres.d by the late Dr. J.E. Gray. 2"), one of which is here designated as the lectotype (reg. no. NHM UK 1875.08.02.1/1, **Fig. 39F**). 4 paralectotypes in a box marked "Types" from "India",

"Oldham collection", NHMUK (reg. no. NHMUK 1986220); one of these is also illustrated (reg. no. NHMUK 1986220/1, **Fig. 40A**).

115. *Rhachistia trutta* (Blanford, 1866)

Bulimus trutta Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 42
Rachisellus trutta - Gude, 1914a, *FBI, Mollusca-II*: 273

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills (Beddome).

Type material: 2 syntypes (both immature) from "Anaimalai Hills (Beddome)", "C. W.T. Blanford", "47.06.3.3", NHM (reg. no. NHMUK 1906.03.03.47, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.03.03.47/1, **Fig. 40B**). Both shells correspond with Blanford's measurements and description.

Other material: 1 shell (labelled "authentic") from "Anamullays, S. India", "H.F. Blanford colln. Acc. No. 1944", NHM (reg. no. NHMUK 20110262, **Fig. 40C**). This shell cannot be part of Blanford's type series because it is an adult shell with measurements larger than those given in the original description.

Genus *Gittenedouardia*²¹

116. *Gittenedouardia orbus* (W.T. & H.F. Blanford, 1861)

Bulimus orbus W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*,

30 (4): 361, pl. 1, fig. 14
Edouardia orbus - Gude, 1914a, *FBI, Mollusca-II*: 280

Distribution: endemic to the Western Ghats, where it has been recorded from Kallakudi near Tiruchirappalli on the southeastern margin of the Western Ghats, from Pune in the northern Western Ghats, and from Ahmadnagar on the northeastern limits of the Western Ghats.

Original locality: Kallakudi (= "Cullygoody"), near the town of Tiruchirappalli (= "Trichinopoly"), "Southern India".

Type material: 4 syntypes from "Cullygoody, nr. Trichinopoly", "coll. W.T. Blanford", "228.06.2.2", NHM (reg. no. NHMUK 1906.02.02.228, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.02.02.228/1, **Fig. 40D**).

Informal Group Sigmurethra

Superfamily Plectopyloidea

Family Corillidae

Genus *Corilla*

117. *Corilla anax* (Benson, 1865)

Helix anax Benson, 1865, *Annals and Magazine of Natural History, Series 3*, 15: 12

Corilla anax - Gude, 1914a, *FBI, Mollusca-II*: 59

Distribution: endemic to the Western Ghats. Known from "Travancore" and the Anaimalai Hills in the southern Western Ghats. Recently recorded from the Valparai

area in the Anaimalai Hills (N.A. Aravind, unpublished data).

Original locality: "Mavillicurray" in the "Travancore hills". Benson stated that the "Mavillikurray Hills are 2000 feet in height" and are "to the east of the station of Cottayam". "Cottayam" is present-day Kottayam ($9^{\circ} 35' N$, $76^{\circ} 31' E$), and about 40 km to the east of this town the elevation reaches 2000 feet. A present-day town on the coast, south of Kottayam, is Mavelikkara ($9^{\circ} 16' N$, $76^{\circ} 33' E$) and it seems likely that Benson was referring to the foothills of the Western Ghats to the east of Kottayam and Mavelikkara.

Type material: 4 syntypes, "E. Ind.", "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103150), one of which is here designated as the lectotype (reg. no. I.103150.C, **Fig. 40E**). One of the 3 paratypes is also illustrated (reg. no. I.103150.A, **Fig. 40F**).

Superfamily Punctoidea

Family Charopidae

Genus *Ruthvenia*

118. *Ruthvenia clathratuloides* (Gude, 1897)

Plectopylis clathratuloides Gude, 1897, *Science-gossip, New Series*, 3: 332
Ruthvenia clathratuloides - Gude, 1914a, *FBI, Mollusca-II*: 27

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats and from Madurai on the southeastern margin of the Western Ghats.

Original locality: Anaimalai Hills (Beddome collection).

Type material: 1 shell, here designated a neotype (**Fig. 41A**), from the "Anamallays, India", "75.3.6.12", NHM (reg. no. NHM UK 1875.03.06.12, "Obtained by exchange with Lt. Col. Beddome"). This shell is from the original locality and from Beddome, and though the peripheral keel is poorly developed or possibly abraded, the palatal and parietal armature corresponds with Gude's description (the minimum and maximum diameter of the shell is a bit smaller than the measurements provided by Gude). There is no supporting documentation to indicate that this shell was part of the original type series. We have designated a neotype with the express purpose of clarifying the taxonomic status of *R. clathratuloides* (see the original description by Gude, 1897).

119. *Ruthvenia retifera* (Pfeiffer, 1845)

Helix retifera Pfeiffer, 1845b, *Proceedings of the Zoological Society of London, proceedings for 1845*: 73
Ruthvenia retifera - Gude, 1914a, *FBI, Mollusca-II*: 26

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Coonoor Ghat), Shevaroy Hills and "Mysore" in the central Western Ghats, and from the "Tinnevelly Hills" in the southern Western Ghats.

Original locality: unknown (Metcalf collection).

Type material: a neotype (reg. no. NHM UK 20110234/1, **Fig. 41B**) is here designated from a series of 3 shells from "India", "M.C", NHM (reg. no. NHMUK

20110234). These shells may be Pfeiffer syntypes, but they lack labelling in his handwriting and there is no indication that they are from Metcalf. Pfeiffer's description of *R. retifera* appeared in a paper titled "Descriptions of twenty-two new species of *Helix*, from the collections of Miss Saul, Walton, Esq., and H. Cuming, Esq". It is not clear if the types were obtained by Pfeiffer directly from Metcalf, or if he examined Metcalf material that was in the Saul, Walton and/or Cuming collections. We have designated a neotype with the express purpose of clarifying the taxonomic status of *R. retifera* (see the original description Pfeiffer, 1845b).

Other material: 1 of the 2 remaining shells from the above lot is illustrated (reg. no. NHMUK 20110234/2, **Fig. 41C**). Also, 1 of 12 shells from "Koonoor Ghat, Nilgiri Hills", "Coll. W.T. Blanford", "141.06.2.2", NHM (reg. no. NHMUK 1906.02.02.141/1, **Fig. 41D**).

Genus *Thysanota*

120. *Thysanota crinigera* (Benson, 1850)

Helix crinigera Benson, 1850, *Annals and Magazine of Natural History, Series 2*, 5: 214
Thysanota crinigera - Gude, 1914a, *FBI, Mollusca-II*: 12

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: on the east-facing side of the Nilgiri Hills (Jerdon).

Type material: 2 syntypes from "Nilgherries", "Bens. Col., R. MacAndrew Coll.

1873", UMZC (reg. no. I.103580), one of which is here designated as the lectotype (reg. no. I.103580.A, **Fig. 41E**). The paralectotype is also illustrated (reg. no. I.103580.B, **Fig. 41F**).

121. *Thysanota flavida* Gude, 1914

Thysanota flavida Gude, 1914b, *Proceedings of the Malacological Society of London*, 11: 52, text-figure
Thysanota flavida - Gude, 1914a, *FBI, Mollusca-II*: 12

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (Beddome).

Type material: holotype (**Fig. 42A**) from "Neilgherries, India", "1922.8.29.71", NHM (reg. no. NHMUK 1922.08.29.71, "Purchased of Mr. G.K. Gude"). The shell is labelled in Gude's handwriting, as "type". The species name and locality are also in his hand.

122. *Thysanota guerini* (Pfeiffer, 1842)

Helix guerini Pfeiffer, 1842a, *Revue Zoologique par la Société Cuvierienne*, année 1842: 304
Thysanota guerini - Gude, 1914a, *FBI, Mollusca-II*: 11

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats and from the Anaimalai Hills in the southern Western Ghats.

Original locality: "the plateau of the Nilgiris" (Perrotet).

Type material: 2 syntypes, labelled with species name and "Mon. N. 304, Neilgherries" in Pfeiffer's handwriting, "M.C.", NHM (reg. no. NHMUK 20110233). One of these shells is here designated as the lectotype (reg. no. NHMUK 20110233/1, **Fig. 42B**). The paralectotype is also illustrated (reg. no. NHMUK 20110233/2, **Fig. 42C**).

123. *Thysanota tabida* (Pfeiffer, 1855)

Helix tabida Pfeiffer, 1855c, *Malakozoolo-
gische Blätter*, 2: 106
Thysanota tabida - Gude, 1914a, *FBI, Moll-
usca-II*: 10

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (Monac collection).

Type material: authentic Pfeiffer material could not be traced. Although a figure of this species was not included in the original description, it was figured in one of Pfeiffer's later publications (Pfeiffer, 1854-1860 [1855], p. 45, pl. 12, figs. 11, 12, see **Fig. 34E**).

Other material: 1 of 4 shells from "Neddi-wuttom, Nilghiris", "coll. W.T. Blanford", "149.06.2.2", NHM (reg. no. 1906.02.02.149/1, **Fig. 42D**).

Genus *Philalanka*

**124. *Philalanka bidenticulata*
(Benson, 1852)**

Helix bidenticulata Benson, 1852b, *Annals
and Magazine of Natural History, Series
2*, 9: 405

Philalanka bidenticulata - Gude, 1914a,
FBI, Mollusca-II: 20

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: warmer valleys of the Nilgiri Hills (Jerdon).

Type material: 1 syntype from "Nilgherries", "Bens. col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103915). This shell is here designated as the lectotype (**Fig. 42E**).

**125. *Philalanka bilirata* (W.T. & H.F.
Blanford, 1861)**

Helix bilirata W.T. & H.F. Blanford, 1861,
Journal of the Asiatic Society of Bengal,
30: 352, pl. 1, fig. 7

Philalanka bilirata - Gude, 1914a, *FBI,
Mollusca-II*: 15

Distribution: endemic to the Western Ghats. Known from the Shevaroy and Kollimalai Hills in the central Western Ghats.

Original locality: Shevaroy Hills and Kollimalai Hills (= "Kolamullies") (W. King).

Type material: 2 syntypes from "Shev-
roys", "coll. W.T. Blanford", "766.06.1.1",
NHM (reg. no. NHMUK 1906.01.01.766,
registered as "T"), one of which is here
designated as the lectotype (reg. no. NHM
UK 1906.01.01.766/1, **Fig. 42F**).

**126. *Philalanka bolampattiensis*
Godwin-Austen, 1898**

Philalanka bolampattiensis Godwin-Austen,

1898, *Proceedings of the Malacological Society of London*, 3: 13, pl. 1, fig. 6
Philalanka bolampattiensis - Gude, 1914a, *FBI, Mollusca-II*: 22

Distribution: endemic to the Western Ghats. Known from the "Bolampatti Hills" in the central Western Ghats.

Original locality: "Bolampatti hills", "Southern India" (R. Beddome). According to Beddome (1892, p. 220) these hills were located "between Coimbatore and Palghat" and as stated in *The Imperial Gazetteer of India* (Meyer et al., 1908-1931, vol. 10, p. 364) the forests of these hills protected "the head-waters of the Noyil river".

Type material: authentic Godwin-Austen material could not be traced, but the original description included a figure (see **Fig. 34F**).

127. *Philalanka daghoba* (W.T. & H.F. Blanford, 1861)

Helix daghoba W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 356, pl. 2, fig. 2
Philalanka daghoba - Gude, 1914a, *FBI, Mollusca-II*: 19

Distribution: endemic to the Western Ghats. Known from the Pachamalai and Kalrayan Hills in the central Western Ghats.

Original locality: Pachamalai Hills (= "Pat-chamullies") and Kalrayan Hills (= "Kalry-enmullies") (R.B. Foote).

Type material: 1 syntype from "Nigiris", "Coll. Henry Blanford", "31.9.iii.15", NHM (reg. no. NHMUK 1909.03.15.31, registered as "Type", "figured in J.A.S.B. pl. ii,

1861"). This shell is here designated as the lectotype (**Fig. 43A**).

128. *Philalanka febrilis* (W.T. & H.F. Blanford, 1861)

Helix febrilis W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 357, pl. 2, fig. 4
Philalanka febrilis - Gude, 1914a, *FBI, Mollusca-II*: 22

Distribution: endemic to the Western Ghats. Known from the Kalrayan Hills in the central Western Ghats.

Original locality: Kalrayan Hills (= "Kalry-enmullies") (R. Bruce Foote).

Type material: authentic Blanford material could not be traced, but the original description included a figure (see **Fig. 44A**).

129. *Philalanka pirrieana* (Reeve, 1854)

Helix pirrieana Reeve, 1854, *Conchologia Iconica*, 7 (*Helix*): pl. 191, fig. 1341
Philalanka pirrieana - Gude, 1914a, *FBI, Mollusca-II*: 20

Distribution: endemic to the Western Ghats. Known from Walakkad in the Kundah Hills-region of the Nilgiris, central Western Ghats.

Original locality: Walakkad (= "Walaghat"), Kundah (= "Koondah") Hills, near Calicut (Pirrie, Cuming collection).

Type material: authentic Reeve/Cuming material could not be traced. Reeve's original figure of a specimen from the Cuming collection is reproduced (see **Fig. 44B**).

**130. *Philalanka quinquelirata*
Gude, 1914**

Philalanka quinquelirata Gude, 1914b, *Proceedings of the Malacological Society of London*, 11: 52, text-figure
Philalanka quinquelirata - Gude, 1914a, *FBI, Mollusca-II*: 17

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills (Bed-dome).

Type material: holotype (Fig. 43B) from "Annamullays", "J.H. Ponsonby Esq.", "1914.3.19.1", NHM (reg. no. NHMUK 1914.03.19.1, "Type", "Pres: by J.H. Ponsonby Esq.").

131. *Philalanka tertiana* (W.T. & H.F. Blanford, 1861)

Helix tertiana W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 355, pl. 1, fig. 11
Philalanka tertiana - Gude, 1914a, *FBI, Mollusca-II*: 22

Distribution: endemic to the Western Ghats. Known from Pykara and Naduvattam in the Nilgiri Hills, central Western Ghats.

Original locality: at Pykara, and also at Naduvattam (= "Neduvattam") in the Nilgiri Hills (W.T. and H.F. Blanford).

Type material: 1 syntype (labelled "auth.c" and "Typical") from "Nilgiris, S. India", "Godwin-Austen Coll.", "1906.1.1.2344", "34.9.iii.15", NHM (reg. nos. NHMUK 1906.01.01.2344 and NHMUK 1909.03.15.

34, not registered as "T", collector indicated as "H.F. Blanford"). This shell is here designated as the lectotype (Fig. 43C).

132. *Philalanka tricarinata* (W.T. & H.F. Blanford, 1861)

Helix tricarinata W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 355, pl. 1, fig. 10
Philalanka tricarinata - Gude, 1914a, *FBI, Mollusca-II*: 17

Distribution: endemic to the Western Ghats. Known from Pykara in the Nilgiri Hills, central Western Ghats.

Original locality: near Pykara on the peaks of the Nilgiri Hills (W.T. and H. Blanford).

Type material: 2 syntypes from "Pykara, Nilgiris (H. Blf)", "32.9.iii.15", NHM (reg. no. NHMUK 1909.03.15.32, registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1909.03.15.32/1, Fig. 43D). The paralectotype has also been illustrated (reg. no. NHMUK 1909.03.15.32/2, Fig. 43E).

Superfamily Gastrodontoidea

Family Chronidae

Genus *Kaliella*

133. *Kaliella aspirans* (W.T. & H.F. Blanford, 1861)

Helix aspirans W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 355, pl. 1, fig. 12
Kaliella aspirans - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 262

Distribution: endemic to the Western Ghats. Known from Pykara in the Nilgiri Hills, central Western Ghats.

Original locality: near Pykara (W.T. and/or H.F. Blanford).

Type material: 1 syntype from "Nilgiris, coll. W.T. Blanford", "42.1.1.06" (also labelled: "Nilgherrie Hills, Typ.l. No. 59 of glass slip, Fig.d. L.F.W.Moll: Ind. Pl. i, fig. 12", and on a separate label "Nilgherries Pl. 1, fig. 12, 59"), NHM (reg. no. NHMUK 1906.01.01.42, "Typical", 1 specimen). This shell is here designated as the lectotype (**Fig. 43F**). It is the shell taken from W.T. Blanford's type lot, "59.06.2.2" (reg. no. NHMUK 1906.02.02.59), by Godwin-Austen and figured by him (Godwin-Austen, 1882, p. 6, pl. 1, fig. 12). 5 paralecotypes from "Pykara, Nilghiri Hills", "coll. W.T. Blanford", "59.06.2.2", NHM (reg. no. NHMUK 1906.02.02.59, "T", 5 specimens, 1 taken by H.H.GA, fig.d in Moll. Ind. Pl. 1, fig. 12"), one of which has been illustrated (reg. no. NHMUK 1906.02.02.59/1, **Fig. 45A**).

The NHM type collection contains 5 shells, which were wrongly considered to be the types of *Kaliella aspirans*. This lot is labelled "Seegoor Ghat & Pykara", "Nilghiri Hills, coll. W.T. Blanford", "57.06.2.2" (reg. no. NHMUK 1906.02.02.57, not indicated as types in register). These shells lack the elevated spire and obtuse periphery of *K. aspirans*, and are somewhat larger than indicated in the description. They have also not been registered as types, but this, on its own, is not conclusive because there are a number of type lots that have not been registered as types in the older registers at the NHM.

**134. *Kaliella barrakporensis*
(Pfeiffer, 1853)**

Helix barrakporensis Pfeiffer, 1853a, *Monographia Heliceorum Viventium*, 3: 59
Kaliella barrakporensis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 258

Distribution: ranges across South Asia (India, Bangladesh, Nepal, Sri Lanka), and probably indigenous to it (Gude, 1914a; Mordan et al., 2003; Raheem et al., 2010). It has a wide distribution in other parts of the tropics, probably having been introduced with plants (Blanford and Godwin-Austen, 1908; Mordan et al., 2003) and, given suitable conditions, occurs even in some temperate countries (e.g. in hot-houses in the U.K., Preece and Naggs, in press). In India this species ranges across: the north ("Kashmir", Dun Valley below Landour, and Mussoorie at 7000 feet in Uttarakhand); the northeast (Pankhabari, and the Rangnu valley in West Bengal, Sikkim, Patharghata in Bihar); the east (Parasnath Hill in Jharkhand, Barrackpore, and near Calcutta in West Bengal); and the south, where it occurs in the northern (Khandala) and central (Kalrayan Hills) Western Ghats, and Madras in Tamil Nadu. In India it also occurs at "Titalya", a locality that could not be traced.

Original locality: Barrackpore, India (Bacon, Cuming collection).

Type material: 2 syntypes from "Barrackpore", "M.C.", NHM (reg. no. NHMUK 2011 0259), one of which is here illustrated (reg. no. NHMUK 20110259/1, **Fig. 45B**). The original Pfeiffer labels are missing, but because these specimens are from the Cuming collection they can be considered as syntypes. 1 syntype from "Barrackpore", "M.C.", NHM (reg. no.

NHMUK 20120289, **Fig. 45C**). This lot can no longer be traced and the images reproduced date from 1998-1999.

**135. *Kaliella sigurensis*
Godwin-Austen, 1882**

Kaliella sigurensis Godwin-Austen, 1882,
Land and Freshwater Mollusca of India,
1: 5, pl. 1, fig. 11

Kaliella sigurensis - Blanford & Godwin-
Austen, 1908, *FBI, Mollusca*: 259

Distribution: endemic to the Western Ghats. Known from "Sigur Ghat" and "Neddiwatam Ghat" in the Nilgiri Hills, central Western Ghats.

Original locality: "Seegoor Ghat" and Naduvattam (= "Neddiwuttom") passes, Nilgiri Hills (W.T. Blanford).

Type material: 1 syntype (figured) from "Sigur Ghat. Nilgiri Hills", "coll. W.T. Blanford", "213.06.1.1", NHM (reg. no. NHMUK 1906.01.01.213, registered as "T"). This shell is here designated as the lectotype (**Fig. 45D**).

Superfamily Helicarionoidea

Family Helicarionidae

Genus *Eurychlamys*

**136. *Eurychlamys platychlamys*
(Blanford, 1880)**

Macrochlamys? platychlamys Blanford,
1880, *Journal of the Asiatic Society of
Bengal*, 49 (2): 195, pl. 2, fig. 9

Eurychlamys platychlamys - Blanford &
Godwin-Austen, 1908, *FBI, Mollusca*:
188

Distribution: endemic to the Western Ghats. Known from Bombay and its vicinity in the northern Western Ghats, and from "Wynaad" in the central Western Ghats (Blanford, 1880).

Original locality: Bombay Island and neighbouring lowlands on the west coast of India, as well as the hills of "Wynaad" in "Southern India".

Type material: 16 syntypes (labelled "Typical") from "Bombay", "coll. W.T. Blanford, presented by H. Fulton Esq.", "96.06.1.1", NHM (reg. no. NHMUK 1906.01.01.96, registered as "Type", "14" specimens), one of which is here designated as the lectotype (reg. no. NHMUK 1906.01.01.96/1, **Fig. 45E**). One of the 15 paralectotypes is also illustrated (reg. no. 1906.01.01.96/2, **Fig. 45F**).

**137. *Eurychlamys todarum*²² (W.T. & H.F.
Blanford, 1861)**

Helix todarum W.T. & H.F. Blanford, 1861,
Journal of the Asiatic Society of Bengal,
30 (4): 353, pl. 1, fig. 8

Macrochlamys todarum - Blanford &
Godwin-Austen, 1908, *FBI, Mollusca*:
136

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Pykara and Naduvattam, at elevations of 6000 feet) and Shevaroy Hills in the central Western Ghats, and from "Tinnevelly" in the southern Western Ghats.

Original locality: near Pykara and Naduvattam (= "Neddiwuttom"), in the Nilgiri Hills (W.T. and/or H.F. Blanford).

Type material: 2 syntypes from "Pykara" in a lot of 6 shells from "S. India", "coll. W.T. Blanford", "13.06.2.2", NHM (reg. no. NHMUK 1906.02.02.13, registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.02.02.13 /1, **Fig. 46A**). The paralectotype is also illustrated (reg. no. NHMUK 1906.02.02.13 /2, **Fig. 46B**).

Other material: the remaining 4 shells (possible paralectotypes) from the above lot (reg. no. NHMUK 1906.02.02.13/3-6). These are smaller than the two Pykara specimens and are labelled "Ooty, and Segoor Ghat" and may also belong to Blanford's type series. Both of these localities are in the Nilgiri Hills. Ooty or Ootacamund is about 10-15 km southeast of Pykara and Naduvattam. "Segoor Ghat" lies about 40 km to the southwest.

138. *Eurychlamys vilipensa*²³
(Benson, 1853)

Helix vilipensa Benson, 1853, *Annals and Magazine of Natural History, Series 2*, 12: 93

Macrochlamys ? *vilipensa* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 137

Distribution: endemic to Sri Lanka and the Western Ghats, where it has been recorded from the Kalakkad Hills, "Travancore" in the southern Western Ghats. In Sri Lanka it occurs in the dry northern and southeastern parts of the island (D. Raheem, unpublished data).

Original locality: Mihintale (= "Mehintali") Rock, Ceylon (E.L. Layard).

Type material: 1 badly damaged syntype labelled "Nanina Vilipensa Bens., Bens. Col., Ceylon", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103965). This shell is here designated as the lectotype (**Fig. 46C**).

Other material: 3 of 4 shells (reg. nos. NHMUK 1888.12.04.469-470/1-3, **Figs. 46D-F**) from "Mahintali, Ceylon", "88.12.4. 469-470", NHM (reg. no. NHMUK 1888. 12.04.469-470, "vilipinsi", "Ceylon", "Purchased of W. Theobald Esq.", "2" specimens).

Genus *Mariaella*

**139. *Mariaella beddomei*
(Godwin-Austen, 1888)**

Girasia (Dekhania) beddomei Godwin-Austen, 1888, *Land and Freshwater Mollusca of India*, 1: 243, pl. 58, figs. 1-1b, 2-2b, pl. 62, figs. 7-7a

Mariaella beddomei - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 206

Distribution: endemic to the Western Ghats. Known from the "Travancore hills" in the southern Western Ghats.

Original locality: "Travancore hills" (R. Beddome).

Type material: 3 syntypes from "Travancore Hills (Beddome)", "coll: Godwin-Austen", "1130.03.vii.1", NHM (reg. no. NHMUK 1903.07.01.1130 (not registered as "T", "4" specimens), re-registered in error as NHMUK 1990027), one of which is here designated as the lectotype (reg. no.

NHMUK 1903.07.01.1130/1, **Fig. 47A**). One of the 2 paratypes is also illustrated (reg. no. NHMUK 1903.07.01.1130/2, **Fig. 47B**), and figures 1-1b from Godwin-Austen's plate are reproduced (see **Fig. 44C**).

***Mariaella beddomei* 'var. *maculosa*'
(Godwin-Austen, 1888)**

Girasia (Dekhania) beddomei, var. *maculosa* Godwin-Austen, 1888, *Land and Freshwater Mollusca of India*, 1: 243, pl. 58, figs. 4, 4a, 6-6b

Mariaella beddomei var. *maculosa* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 206

Distribution: unknown.

Original locality: not known (R. Beddome).

Type material: authentic Godwin-Austen material could not be traced, but the original description, which was very brief, included figures (pl. 58, figs. 4, 4a are reproduced, see **Fig. 44D**).

***Mariaella beddomei* 'var. *nigra*'
(Godwin-Austen, 1888)**

Girasia (Dekhania) beddomei, var. *nigra* Godwin-Austen, 1888, *Land and Freshwater Mollusca of India*, 1: 243, pl. 58, fig. 5

Mariaella beddomei var. *nigra* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 206

Distribution: endemic to the Western Ghats. Known from the "Travancore hills" in the southern Western Ghats (Godwin-Austen, 1888).

Original locality: "Travancore hills" (R. Beddome).

Type material: authentic Godwin-Austen material could not be traced, but the original description, which was very brief, included a figure (see **Fig. 44E**).

140. *Mariaella dussumieri* Gray, 1855

Mariaella dussumieri Gray, 1855, *Catalogue of Pulmonata or Air-breathing Mollusca in the Collection of the British Museum*, 1: 63

Mariaella dussumieri - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 205

Distribution: endemic to the Western Ghats, and introduced to Sri Lanka (first reported from the island in 1905 from rubber plantations, see Green, 1911), western Malaysia and Singapore (Godan, 1983; Hoong, 1995; Maassen, 2001). Godan (1983) reported it from the USA, but it has only been intercepted at US ports, and there is no evidence that it is currently present in the Americas (Cowie et al., 2009; D.G. Robinson, pers. comm.). This species is found across much of the central Western Ghats, possibly occurring as far as Mahabaleshwar in the northern Western Ghats; it has been recorded from Mahe on the Kerala coast and from the "Kadur District of Mysore" (Blanford and Godwin-Austen, 1908). In recent times it has been recorded from western and southern Karnataka (e.g. Udupi District, Biligiriran-gan Hills), where it occurs at elevations from sea level to 1800 m (N.A. Aravind, unpublished data). In Sri Lanka this species is restricted to the more mesic parts of the lowlands, where it is associated with cultivated and urban habitats below an

elevation of 1000 m (D. Raheem, unpublished data).

Original locality: "Mahi, near Sechelles" (M. Dussumier). This is almost certainly an error. The original locality is most likely the coastal town of Mahe, between Kozhikode (Calicut) and Kanur (Cannanore), Kerala (Blanford and Godwin-Austen, 1908).

Type material: 1 syntype from "Mahé, near Seychelles (M. Dussumier), Pres. Pentland, Esq.", "1849.5.14.46", NHM (reg. no. NHMUK 1849.05.14.46, **Fig. 47C**). This shell is here designated as the lectotype. The images used date from 1998/1999 – the condition of the specimen has deteriorated substantially since then.

Genus *Pseudaustenia*

141. *Pseudaustenia ater* (Godwin-Austen, 1888)

Africanion ater Godwin-Austen, 1888, *Land and Freshwater Mollusca of India*, 1: 244, pl. 57, figs. 1-1c, 2-2b, 5a
Pseudaustenia atra - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 207

Distribution: endemic to the Western Ghats. Known from the "Travancore and Tinnevelly hills" in the southern Western Ghats.

Original locality: "Travancore and Tinnevelly hills" (R. Beddome).

Type material: 3 syntypes (dried whole snails) labelled "Helicarion ater Aust Travancore." in Beddome's handwriting, "Col. R. H. Beddome Collection No. 8734", "Melvill-Tomlin Coll.", NMW, Cardiff (reg. no. NMW.1955.158.24930), one of which is

here designated as the lectotype (reg. no. NMW.1955.158.24930/1, **Fig. 47D**). One of the 2 paralectotypes is also illustrated (reg. no. NMW.1955.158.24930/2, **Fig. 47E**), and figures 1-1b from Godwin-Austen's original plate are reproduced (see **Fig. 44F**).

Pseudaustenia ater 'var. *aterrima*' (Godwin-Austen, 1888)

Africanion ater var. *aterrima* Godwin-Austen, 1888, *Land and Freshwater Mollusca of India*, 1: 245, pl. 57, figs. 3-3b, 3c, 4-4a, 5

Pseudaustenia atra var. *aterrima* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 207

Distribution: endemic to the Western Ghats. Known from the "Travancore" and "Tinnevelly" hills in the southern Western Ghats (Godwin-Austen, 1888).

Original locality: "Travancore and Tinnevelly hills" (Beddome).

Type material: authentic Godwin-Austen material could not be traced, but the original description, which was very brief, included figures (pl. 57, figs. 3-4a are reproduced, see **Fig. 48A**).

Pseudaustenia ater 'var. *castanea*' (Godwin-Austen, 1888)

Africanion ater var. *castaneus* Godwin-Austen, 1888, *Land and Freshwater Mollusca of India*, 1: 245

Pseudaustenia atra var. *castanea* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 207

Distribution: endemic to the Western Ghats. Known from the "Travancore" and

"Tinnevelly" hills in the southern Western Ghats (Godwin-Austen, 1888).

Original locality: "Travancore and Tinnevelly Hills" (Beddome).

Type material: authentic Godwin-Austen material could not be traced, and this taxon was not figured by him.

***Pseudaustenia ater 'var. cinerea'*
(Godwin-Austen, 1888)**

Africarion ater var. *cinereus* Godwin-Austen, 1888, *Land and Freshwater Mollusca of India*, 1: 245, pl. 57, fig. 6 (given in error as fig. 8 in text)

Pseudaustenia atra var. *cinerea* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 207

Distribution: endemic to the Western Ghats. Known from the "Travancore and Tinnevelly hills" in the southern Western Ghats (Godwin-Austen, 1888).

Original locality: "Travancore and Tinnevelly hills" (Beddome).

Type material: authentic Godwin-Austen material could not be traced, but the original description, which was very brief, included a figure (see **Fig. 48B**).

**142. *Pseudaustenia auriformis*
(Blanford, 1866)**

Vitrina auriformis Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 36
Pseudaustenia auriformis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 209

Distribution: endemic to the Western

Ghats. Known from "Sispara Ghat" on the western flank of the Nilgiri Hills, central Western Ghats.

Original locality: "Sispara ghat", on the western flank of the Nilgiri Hills, "Southern India" (W.T. Blanford).

Type material: 1 syntype from "Sispara Ghat, Nilgiri Hills" (labelled "Off slide No. 46, coll. Blf. Figg. F. Br. Ind. p. 209"), "coll. W. Blanford", "41.06.1.1", NHM (reg. no. NHMUK 1906.01.01.41, not registered as "T"). This shell is here designated as the lectotype (**Fig. 47F**). 1 paralectotype (**Fig. 49A**) from "Sispara, Nilgiri Hills", "coll. W.T. Blanford", "46.06.3.3", NHM (reg. no. NHMUK 1906.03.03.46, not registered as "T").

Genus *Satiella*

143. *Satiella compressa* Blanford & Godwin-Austen, 1908

Satiella compressa Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 224

Distribution: endemic to the Western Ghats. Known from "Tirrihot Ghat" (could not be traced), in "Wynaad" in the central Western Ghats.

Original locality: "Tirrihot Ghat" (locality could not be traced), "Wynaad".

Type material: 1 syntype labelled "Durgella compressa. type. Wynaad" in Beddome's hand, "coll. W.T. Blanford", "56.06.1.1", NHM (reg. no. NHMUK 1906.01.01.56, registered as "T"). This shell is here designated as the lectotype (**Fig. 49B**). 1 paralectotype (**Fig. 49C**) from "Tirrihot Ghat".

Wynaad (Col. R. Beddome)", "346.12.iv. 16", NHM (reg. no. NHMUK 1912.04.16. 346, registered as "T").

144. *Satiella dekhanensis* (Godwin-Austen, 1898)

Durgella dekhanensis Godwin-Austen, 1898, *Land and Freshwater Mollusca of India*, 2: 68, pl. 78, figs. 1-2d
Satiella dekhanensis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 221

Distribution: endemic to the Western Ghats. Known from the "Tinnevelly Hills"/"Travancore" in the southern Western Ghats. Although the original locality was given as South India by Godwin-Austen (1898), the labelling on the types gives the locality as the "Tinnevelly Hills, South India", and Blanford and Godwin-Austen (1908) state that this species occurs in "Travancore".

Original locality: "South India" (R. Beddome).

Type material: 7 syntypes (labelled "Typical"), "Tinnevelly Hills, South India (R.H. Beddome)", "186.03.vii.1", NHM (reg. no. NHMUK 1903.07.01.186, registered as "T", "8" specimens), one of which is here designated as the lectotype (reg. no. NHM UK 1903.07.01.186/1, **Fig. 49D**). One of the 6 paralectotypes is also illustrated (reg. no. NHMUK 1903.07.01.186/2, **Fig. 49E**).

***Satiella dekhanensis* 'var. *bicolor*' (Godwin-Austen, 1898)**

Durgella dekhanensis var. *bicolor* Godwin-Austen, 1898, *Land and Freshwater Mollusca of India*, 2: 68, pl. 78, figs. 3-5

Satiella dekhanensis var. *bicolor* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 221

Distribution: endemic to the Western Ghats. Although the original locality was given as South India by Godwin-Austen (1898), Blanford and Godwin-Austen (1908) have indicated "Travancore".

Original locality: "South India" (R. Beddome).

Type material: authentic Godwin-Austen material could not be traced, but the original description, which was very brief, included figures (pl. 78, fig. 3 is reproduced, see **Fig. 48C**).

145. *Satiella flexilis* Blanford & Godwin-Austen, 1908

Satiella flexilis Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 223

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (Beddome) and "Sispara Ghat", Nilgiri Hills (W.T. Blanford).

Type material: 1 syntype labelled "Type. Nilgiri Hills, L. Col. R. Beddome. des.d. Fau. Br. Ind. p. 223", "349.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.349, not registered as "T"). This shell is here designated as the lectotype (**Fig. 49F**). 1 paralectotype (**Fig. 50A**), "Nilgiris (Beddome)", "55.06.1.1", NHM (reg. no. NHMUK 1906. 01.01.55, registered as "T").

**146. *Satiella levidensis*
(Godwin-Austen, 1898)**

Durgella levidensis Godwin-Austen, 1898,
Land and Freshwater Mollusca of India,
2: 68, pl. 78, figs. 6-9
Satiella levidensis - Blanford & Godwin-
Austen, 1908, *FBI, Mollusca*: 223

Distribution: endemic to the Western Ghats. Known from the "Tinevelly Hills, Travancore" in the southern Western Ghats.

Original locality: "Tinevelly Hills, Travancore" (R. Beddome).

Type material: 1 syntype from "Travancore, S. India", "coll. Col. R. Beddome, Godwin-Austen colln.", "347.12.IV.16", NHM (reg. no. NHMUK 1912.04.16.347, not registered as "T"). This shell, which is here designated as the lectotype (Fig. 50B), is a little larger than the dimensions given by Godwin-Austen. Also, the locality data on the specimen label do not correspond exactly with the original description.

**147. *Satiella pertenuis* Blanford &
Godwin-Austen, 1908**

Satiella pertenuis Blanford & Godwin-
Austen, 1908, *FBI, Mollusca*: 224

Distribution: endemic to the Western Ghats. Known from "Wynaad" in the central Western Ghats.

Original locality: "Wynaad" (Beddome).

Type material: 3 syntypes, "Wynaard, S. India, des.d Fau. B. Ind. P. 224. 1908" (label in W.T. Blanford's handwriting?), "54.06. 1.1", NHM (reg. no. NHMUK 1906.01.01. 54, registered as "T"), one of which is here

designated as the lectotype (reg. no. NHM UK 1906.01.01.54/1, Fig. 50C). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1906.01.01.54/2, Fig. 50D). These shells are accompanied by a label in Beddome's handwriting: "Durgella pertenuis Blf types Wynaad S. India".

Genus *Sitala*

148. *Sitala infula* (Benson, 1848)

Helix infula Benson, 1848, *Annals and Magazine of Natural History, Series 2*, 2: 160
Sitala infula - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 225

Distribution: ranges across East and Northeast India to Myanmar (Arakan, "Bassein", and "Moulmein"), with unconfirmed records from Pune in the northern Western Ghats and from places in "Southern India". In East and Northeast India it has been recorded from: Calcutta, Murshidabad and Raniganj in West Bengal; Patharghata and the Rajmahal Hills in Bihar; and Talcher in Odisha.

Original locality: near the town of Murshidabad (= "Murshedabad") in "Bengal", and also near Patharghata (= "Patharghata") Hill, "Bahar province". Found on the leaves of trees and shrubs.

Type material: 13 syntypes from "Ind.", "R. MacAndrew Coll. 1873", UMZC (reg. nos. I.102405, I.102400), one of which is here designated as the lectotype (reg. no. I.102405.A, Fig. 50E). One of the 12 paralectotypes is also illustrated (reg. no. I.102405.B, Fig. 50F). 1 paralectotype (Fig. 51A), labelled "Helix infula", "Bengal" and "W.H. Benson Esq.", "1954.6.2.296", NHM

(reg. no. NHMUK 1954.06.02.296, "Purchased from Mrs M.G. Hawkins", "Coll J.S. Hawkins, Ann. Mag. Nat. Hist. 1859, p. 338").

149. *Sitala injussa*²⁴ (W.T. & H.F. Blanford, 1861)

Helix injussa W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 356, pl. 1, fig. 13
Sitala? injussa - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 234

Distribution: endemic to the Western Ghats. Known from Coonoor Ghat in the Nilgiri Hills, and "Wynaad" in the central Western Ghats.

Original locality: Coonoor Ghat, Nilgiri Hills (W.T. and/ or H.F. Blanford).

Type material: 1 syntype, "fig.d. Conch. Ind. CXXII f. 5.6, Moll. Ind. Pl. IX. f. 5.5a", from the "Nilgiri Hills", "coll. W. Blanford", "182.06.1.1", NHM (reg. no. NHM UK 1906.01.01.182, not registered as "T"). This shell is here designated as the lectotype (**Fig. 51B**). It is appreciably larger than the specimen/s described by Blanford.

150. *Sitala palmaria* (Benson, 1864)

Helix palmaria Benson, 1864a, *Annals and Magazine of Natural History, Series 3*, 13: 137
Sitala palmaria - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 230

Distribution: endemic to South India, where it is known from an isolated hill range (the Nandi Hills), 60 km north of Bangalore, and from "Wynaad" in the

central Western Ghats.

Original locality: "Nundydroog", north of Bangalore, in the "Mysore region", at an elevation of about 4000 feet (C.A. Benson, R.H. Sankey). This locality is the isolated fortified hill immediately southwest of Nandi, which is 60 km north of Bangalore.

Type material: 2 syntypes, "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103075), one of which is here designated as the lectotype (reg. no. I.103075.A, **Fig. 51C**). The paralectotype is also illustrated (reg. no. I.103075.B, **Fig. 51D**).

Family Ariophantidae

Genus *Ariophanta*²⁵

151. *Ariophanta albata* (Blanford, 1880)

Xestina albata Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 189, pl. 3, figs. 3, 3a, 3b

Ariophanta albata - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 37

Distribution: endemic to the Western Ghats. Known from Papanasam in the hills west of "Tinnevelly", southern Western Ghats.

Original locality: Papanasam (= "Papanasam"), in hills on the western side of "Tinnevelly province", "Southern India" (H. Beddome).

Type material: holotype (**Fig. 51E**) from "Papanassam, nr. Tinnevelly, South India (Beddome)", "coll. W.T. Blanford", "721.06.1.1", NHM (reg. no. NHMUK 1906.01.01.721, registered as "T").

152. *Ariophanta bajadera* (Pfeiffer, 1850)

Helix bajadera Pfeiffer, 1850b, *Zeitschrift für Malakozoologie*, 7: 69
Ariophanta bajadera - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 31

Distribution: endemic to the northern and central parts of the Western Ghats (common on the Western Ghats above Bombay) and to what was formerly "Bombay Presidency" as far north as the Narmada River and to Nagpur in the east.

Original locality: "Bengal". This locality must have been given in error – according to Blanford and Godwin-Austen (1908) *Ariophanta bajadera* is not found in "Bengal".

Type material: 3 syntypes mounted on a small board, "M.C.", NHM (reg. no. NHM UK 20110247). On the underside of the board there are two labels. The first label is inscribed by Pfeiffer as "H. Bajadera", followed by "Pfr. Bengal" in another hand. The second label is inscribed by Pfeiffer as "H. bajadera Pfr. var.", and by two other persons respectively as "Orisa, India, Rev. S. Hislop", and "intumescens Blanf.". It is unclear which of the shells these labels originally belonged to. We consider that all 3 shells are syntypes of *Ariophanta bajadera* – all of the shells broadly agree with Pfeiffer's description. As the largest shell corresponds most closely with the original description, it is here designated as the lectotype (reg. no. NHMUK 20110247/1, **Fig. 51F**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 20110247/2, **Fig. 52A**).

153. *Ariophanta basilessa* (Benson, 1865)

Helix basilessa Benson, 1865, *Annals and*

Magazine of Natural History, Series 3, 15: 11

Ariophanta basilessa - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 40

Distribution: endemic to the Western Ghats. Known only from the southern Western Ghats: from the hills near Kottayam, "Travancore", and from the Palni and Anaimalai Hills (at an elevation of 7000 feet).

Original locality: hills near Kottayam (= "Cottiyam"), "Travancore region" (F. Day).

Type material: 2 syntypes, "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103420), one of which is here designated as the lectotype (reg. no. I.103420.A, **Fig. 52B**). The paralectotype is also illustrated (reg. no. I.103420.B, **Fig. 52C**).

***Ariophanta basilessa* 'var. *enisa*'**
(Blanford, 1880)

Hemiplecta enisa Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 188, pl. 3, figs. 2, 2a

Ariophanta basilessa var. *enisa* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 40

Distribution: endemic to the Western Ghats. Known from the Agastyamalai range (at an elevation of 6000 feet) in the southern Western Ghats.

Original locality: Agastyamalai range (= "Aghastyamullay hills"), between the provinces of "Tinnevelley" and "Travancore", "Southern India" (H. Beddome).

Type material: 2 syntypes (1 adult and 1 immature) from "Agastyamalai Hills (6225 ft), Nr. Tinnevelly (Beddome)", "coll. W.T.

Blanford", "712.06.1.1", NHM (reg. no. NHMUK 1906.01.01.712, registered as "T"). These are the two types referred to by Blanford in his description. The adult shell is here designated as the lectotype (reg. no. NHMUK 1906.01.01.712/1, **Fig. 52D**); the paralectotype is also illustrated (reg. no. NHMUK 1906.01.01.712/2, **Fig. 52E**).

***Ariophanta basilessa* 'var. *tinostoma*'
(Blanford, 1880)**

Hemiplecta tinostoma Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 187, pl. 3, figs. 1, 1a

Ariophanta basilessa var. *tinostoma* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 40

Distribution: endemic to the Western Ghats. Known from the "Tinnevelly hills", east of Papanasam (at an elevation of 5000 feet), in the southern Western Ghats.

Original locality: "Tinnevelly Ghats", on the eastern side of "Travancore province", "Southern India" (H. Beddome). The exact locality is between "Tinnevelly" and "Travancore" and east of Papanasam (= "Papanassam"), at an elevation of 5000 feet.

Type material: 1 shell labelled "Xestina tinostoma BL Tinnevelly hills" (in Beddome's handwriting), "Col. R.H. Beddome Collection No. 5218", "Melville-Tomlin Coll.", NMW, Cardiff (reg. no. NMW 1955.158.24929). This shell is here designated as a neotype (**Fig. 52F**). While it agrees with the original description and the measurements given by Blanford for the width of the aperture and height of the axis, it is much larger in its major and minimum diameter. Only one shell was examined by Blanford and this was returned to Beddome. If the

figure accompanying the original description is accurate, the aperture of this shell is relatively wider than higher when compared with the NMW shell and the figured shell also has a notch on the upper part of the lip. This suggests that Beddome may have acquired the NMW shell after Blanford described this species, and the NMW shell is, therefore, probably not the holotype. This shell has been labelled by Beddome and broadly agrees with Blanford's description, and so has been designated as a neotype. The neotype designation has been made with the express purpose of clarifying the taxonomic status of *C. basilessa* 'var. *tinostoma*' (see the original description by Blanford, 1880).

154. *Ariophanta basileus* (Benson, 1861)

Helix basileus Benson, 1861, *Annals and Magazine of Natural History, Series 3*, 7: 81

Ariophanta basileus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 41

Distribution: endemic to the Western Ghats. Blanford and Godwin-Austen (1908) gave the locality as teak-forest, at an elevation of 2000-3000 feet, west of the main range of the Anaimalai Hills; this is in the general area of the original locality, the hills near Trichur or Thrissur (i.e. hills west of the main range of the Anaimalai Hills) in the southern Western Ghats.

Original locality: hills near Trichur or Thrissur (= "Trichoor"), "Eastern India" (G.W. Cox, through C.A. Benson).

Type material: 5 syntypes (labelled "type" and "Nellyampatty, 50m E of Trichoor Lieut. G.W. Cox"), "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103430), one of

which is here designated as the lectotype (reg. no. I.103430.A, **Fig. 53A**). One of the 4 paralectotypes is also illustrated (reg. no. I.103430.B, **Fig. 53B**).

Other material: 1 shell from "Travancore", "CE/11/11/07", NHM (reg. no. NHMUK 20110251, **Fig. 53C**).

**155. *Ariophanta beddomei*
(Blanford, 1874)**

Hemiplecta beddomei Blanford, 1874, *Annals and Magazine of Natural History, Series 4*, 14: 406

Ariophanta beddomei - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 42

Distribution: endemic to the Western Ghats. Known from the southern Western Ghats: south of Peermade and on the western side of the "Travancore hills".

Original locality: south of Peermade (= "Peermede") and on the western side of the "Travancore hills", in "Southern India" (Beddome).

Type material: holotype (**Fig. 53D**) from "South India", "75.3.6.2", NHM (reg. no. NHMUK 1875.03.06.2, "Helix Beddomei Blanf. Type", "Tinnevelly Hills, S. India", "Obtained by exchange with Lt. Col. Beddome", "Collected by Lt. Col. Beddome"). This shell agrees with Blanford's description, but the localities given by Blanford in his description and listed in the NHM register are different. Blanford's locality, Peermede, is in the Cardamom Hills and is more than 150 km north of the Tinnevelly Hills, the locality given in the NHM register for 1875. We consider this discrepancy to be an error made by Blanford during his

description of the species, or one made during the registration process.

Other material: 1 of 2 shells (**Fig. 53E**) labelled "Xestina Beddomei BL Travancore hills" in Beddome's handwriting, "Col. R.H. Beddome Collection No. 5261, No. 8942", "Melvill-Tomlin Coll.", NMW, Cardiff (reg. no. NMW.1955.158.24927/1).

**156. *Ariophanta belangeri*
(Deshayes, 1834)**

Helix belangeri Deshayes, Mollusques, in Bélanger 1834, *Voyage aux Indes Orientales, Zoologie*: 413, pl. 1, figs. 1-3

Ariophanta belangeri - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 36

Distribution: endemic to South India (probably ranging through much of Kerala and Tamil Nadu) and introduced to the Maldives Islands.

Original locality: shady (well-wooded) places in the environs of "Pondichéry" (Belanger). This is probably either the former French settlement of Pondicherry (also known as Puducherry) or its capital, the town of the same name, which is located on the eastern coast of South India, about 20 km north of Cuddalore, Tamil Nadu.

Type material: 2 syntypes labelled "syn-types *Helix belangeri*, deshayes 1832, obn E.N.S.M. 1978, coll. Deshayes, Pondichery, Voy. Indes. Or. Ch. Belanger, Vol. III, Zoo. 1834 p. 413 pl. I f. 1,2,3.E.N. 1832. Vers. II, 2: 233, 234." and "20318 syntypes *Helix belangeri* Deshayes, 1832 Coll. Deshayes, ENSM", MNHN, Paris (reg. nos. MNHN 25160, 20318). The larger of these syntypes is here designated as the lectotype (reg. no.

MNHN 25160, **Fig. 53F**); the paralectotype is also illustrated (reg. no. MNHN 20318, **Fig. 54A**). 2 paralectotypes labelled "Bélanger T.t.II p. 80, Types, Nanina belangeri Desh. Pondichéry", MNHN, Paris (both registered under reg. no. MNHN 23017, **Figs. 54B, C**).

***Ariophanta belangeri* 'var. *bombayana*'**
(Grateloup, 1840)

Helix bombayana Grateloup, 1840a, *Actes de la Société Linnéenne de Bordeaux*, 11 (55): 161

Ariophanta belangeri var. *bombayana* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 36

Distribution: uncertain, but may occur in the eastern coastal region of South India.

Original locality: Bombay. We consider this locality to be doubtful – it was most likely given in error for "Coromandel" (see below).

Type material: 1 shell, here designated a neotype (**Fig. 54D**), with discoloured label ("Coromandel, Hel. Bombayana Grat., pl. 1. f.1, Cap. Larsig"), "Grateloup Colln.", "1907.11.22.35", NHM (reg. no. NHMUK 1907.11.22.35, "Type. Coromadel. Purch.d of Messrs. Sowerby + Fulton, from the "Grateloup Collection" which was purchased by Messrs. Sowerby + Fulton."). Although this shell has been registered as a type specimen, the locality on the label does not agree with the original locality published by Grateloup (Bombay). According to *The Imperial Gazetteer of India* (Meyer et al., 1908-1931, vol. 11, pp. 51-52), Coromandel was an ill-defined historical name for the southeastern coastal region of India (i.e. the eastern coast of what used to be termed the Madras Presidency). *The East India Gazetteer* (Hamilton, 1815, p. 313), however, indicates that the Coromandel Coast extended from Point Calimere ($10^{\circ} 17' N$, $79^{\circ} 50' E$), the southern tip of India, to the mouth of the Krishna River ($15^{\circ} 40' N$, $80^{\circ} 50' E$), and this region falls within the distributional range given for *Ariophanta belangeri* by Blanford and Godwin-Austen (1908). Blanford and Godwin-Austen (1908, p. 36) considered the locality of Bombay as doubtful and it is possible that Grateloup gave Bombay in error as the original locality, and that the NHM shell is in fact the type as registered. We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. belangeri* 'var. *bombayana*' (see the original description by Grateloup, 1840a, and his later, more detailed description, Grateloup, 1840b, pp. 406-407).

***Ariophanta belangeri* 'var. *vitellina*'**
(Pfeiffer, 1849)

Helix vitellina Pfeiffer, 1849, *Proceedings of the Zoological Society of London*, proceedings for 1848: 109

Ariophanta belangeri var. *vitellina* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 36

Distribution: unknown.

Original locality: unknown (Cuming collection).

Type material: 2 syntypes (species name in Pfeiffer's handwriting) from "India", "M.C.", NHM (reg. no. NHMUK 20110249), one of which is here designated as the lectotype (reg. no. NHMUK 20110249/1, **Fig. 54E**). The paralectotype is also illustrated (reg. no. NHMUK 20110249/2, **Fig. 54F**).

**157. *Ariophanta bistrialis*
(Beck, 1837)**

Nanina bistrialis Beck, 1837, *Index Molluscorum Praesentis Aevi Musei Principis Augustissimi Christiani Frederici*, 1: 2
Ariophanta bistrialis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 39

Distribution: endemic to Sri Lanka and South India, where it has been recorded from the central Western Ghats (Shevaroy Hills), and from the former "Madras Presidency" (i.e. modern Tamil Nadu, northern Kerala, southern and coastal Andhra Pradesh, and parts of Karnataka and Odisha). In Sri Lanka it is widespread in the drier parts of the island and in cultivated habitats in the lowlands of the wet zone (D. Raheem, unpublished data).

Original locality: Tranquebar (= "Tranqbar"), "Eastern India". This is modern-day Tharangambadi in eastern coastal Tamil Nadu.

Type material: 2 syntypes from "Trqubar, Sch. Seide." (species name, locality and other data in Beck's hand), ZMUC, Copenhagen (reg. nos. ZMUC-GAS-386, ZMUC-GAS-387). A label in Beck's hand indicates that these shells are from "Trqubar". A recent label indicates: "Schumacher, Seidelin → Chr. VIII". One of these shells is here designated as the lectotype (reg. no. ZMUC-GAS-386, **Fig. 55A**); the paralectotype is also illustrated (reg. no. ZMUC-GAS-387, **Fig. 55B**).

Other material: 1 possible paralectotype (identified by T. Schiøtte, Assistant Curator, ZMUC), from "Tranquebar", "Sch. 23/17" (= from Schumacher's collection), ZMUC, Copenhagen, reg. no. ZMUC-GAS-238

(**Fig. 55C**). A label from 1999 in T. Schiøtte's hand states: "possible type ... but there is no direct evidence that it was in the CVIII (= King Christian VIII of Denmark, b.1786-d.1848) collection and thus belonged to the type series."

***Ariophanta bistrialis* 'var. *ceylanica*'
(Pfeiffer, 1850)**

Helix ceylanica Pfeiffer, 1850b, *Zeitschrift für Malakozoologie*, 7: 67
Ariophanta bistrialis var. *ceylanica* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 39

Distribution: endemic to South India and Sri Lanka.

Original locality: Ceylon (Cuming collection).

Type material: 1 syntype labelled "H. ceylanica Pfr", in Pfeiffer's handwriting, "MC.", NHM (reg. no. NHMUK 20110250/1). This shell is here designated as the lectotype (**Fig. 55D**). It is the largest of three shells pasted on the same board with three labels on the reverse side (NHMUK 20110250). We have assumed that the position of each label corresponds with the position of the shell on the upper side of the board. Although all the shells look similar, the names given differ and are respectively: 1) "11. H. ceylanica Pfr" (i.e. the lectotype); 2) "No. 257 H. ceylanica Pfr var., Ceylon, Mr. Thwaites"; and 3) "H. semirugata Beck".

**158. *Ariophanta canarica*
Blanford, 1901**

Ariophanta canarica Blanford, 1901, *Proceedings of the Malacological Society of*

London, 4: 248, pl. 25, fig. 1
Ariophanta canarica - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 32

Distribution: endemic to the Western Ghats. Known from "S. Canara" in the central Western Ghats.

Original locality: "South Canara", on the western side of the Indian Peninsula (Beddome).

Type material: 3 syntypes from "S. Canara", "(Colonel R. Beddome)", "220.12. iv.16", NHM (reg. no. NHMUK 1912.04.16. 220, registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1912.04.16.220/1, **Fig. 55E**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1912.04.16.220/2, **Fig. 55F**).

159. *Ariophanta cysis* (Benson, 1852)

Helix cysis Benson, 1852b, *Annals and Magazine of Natural History, Series 2*, 9: 404
Ariophanta cysis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 33

Distribution: endemic to the Western Ghats. Known from the western side of the Nilgiri Hills ("Sispara") in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: Nilgiri Hills, "Southern India" (Jerdon).

Type material: 3 syntypes from "So. India", "Bens col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103895), one of which is here designated as the lectotype (reg. no. I.103895.A, **Fig. 56A**). The 2

paralectotypes are also illustrated (reg. nos. I.103895.B, I.103895.C, **Figs. 56B, C**).

Ariophanta cysis 'var. *ampullarioides*' (Reeve, 1854)

Helix ampullarioides Reeve, 1854, *Conchologia Iconica*, 7 (Helix): pl. 202, no. 1423

Ariophanta cysis var. *ampullarioides* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 33

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (Jerdon, Taylor collection).

Type material: authentic Reeve material could not be traced, but Reeve's original figure is reproduced (see **Fig. 48D**).

Ariophanta cysis 'var. *dalyi*' Blanford, 1899

Ariophanta cysis dalyi Blanford, 1899a, *Proceedings of the Malacological Society of London*, 3: 280, pl. 25, text-figs

Ariophanta cysis var. *dalyi* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 33

Distribution: endemic to the Western Ghats. Known from Belur in the "province of Kadur, Mysore", central Western Ghats. Blanford and Godwin-Austen (1908) mistakenly gave the locality as "Hadur in Mysore".

Original locality: Belur (= "Balur"), "province of Kadur, Mysore" (W.M. Daly).

Type material: 1 syntype (figured) from "Balur, Kadur Prov., Mysore, (W.M. Daly)", "coll. W.T. Blanford", "697.06.1.1", NHM (reg. no. NHMUK 1906.01.01.697, not registered as "T", but stated that: "sp. desc. + fig.d. Pro. Mal. Soc. Vol. iii"). This shell is here designated as the lectotype (Fig. 56D).

160. *Ariophanta gassii* Blanford, 1901

Ariophanta (Xestina) gassii Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 249, pl. 25, fig. 3 [indicated as a Beddome manuscript name]

Ariophanta gassii - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 46

Distribution: endemic to the Western Ghats. Known from the southern Western Ghats: from "Travancore", the Anaimalai and Palni Hills, and possibly the higher ranges between the Palghat Gap and Cape Comorin.

Original locality: Anaimalai and Palni Hills, on the western side of the Indian Peninsula not far from the "Malabar coast", and also in the province of "Travancore" (Beddome).

Type material: 1 syntype from "Pulney Hills", "coll. W.T. Blanford", "716.06.1.1", NHM (reg. no. NHMUK 1906.01.01.716, registered as "gassii, Blf. Bedd. M.S."). This shell is here designated as the lectotype (Fig. 56E).

161. *Ariophanta immerita* (Blanford, 1870)

Nanina (Ariophanta) immerita Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 17

Ariophanta immerita - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 31

Distribution: endemic to the Western Ghats. Known from "South Canara" in the central Western Ghats.

Original locality: "South Canara" (Beddome).

Type material: according to Blanford's (1880) note on *A. immerita*, it was originally described from a single immature specimen, and this shell, the holotype, was figured in the *Conchologia Indica* (Hanley and Theobald, 1870-1876 [1876], p. 60, pl. 150, fig. 7, see Fig. 48E). Subsequently, Beddome obtained an adult shell from the same locality as the holotype, and this shell was figured by Blanford in his 1880 account (Blanford 1880, p. 185, pl. 3, figs. 4, 4a, see Fig. 48F). Neither the holotype, nor any other authentic Blanford or Beddome material of this species could be traced.

162. *Ariophanta interrupta* (Benson, 1834)

Helix interrupta Benson, 1834, *Proceedings of the Zoological Society of London*, proceedings for 1834: 90

Ariophanta interrupta - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 31

Distribution: globally restricted to the Indian subcontinent. Its range is centred in East India (Calcutta in West Bengal, Ganjam in Odisha, Parasnath in Jharkhand, and Bihar) and southwestern Bangladesh (Jessore), and extends into northern Andhra Pradesh (Golconda hills and Visakhapatnam) in South India. There is one confirmed record from "S. Canara" in the central Western Ghats (see below).

Original locality: near Sakrigali (= "Sicrigali") and the river Jalangi (= "Jellinghy"), "one of the mouths of the Ganges". Sakrigali is located east of Bhagalpur in the state of Bihar, and the Jalangi River is in West Bengal.

Type material: 7 syntypes labelled "Ariophanta interrupta Bens., Bens. col., Ind.", "R. MacAndrew Coll. 1873", "UMZC 2360", UMZC (reg. no. I.102100), one of which is here designated as the lectotype (reg. no. I.102100.A, **Fig. 56F**). Two of the 6 paralectotypes have also been illustrated (reg. nos. I.102100.B, I.102100.C, **Figs. 57A, B**).

Other material: 1 shell from "S. Canara, India", "H.F./W.T. Blanford Colln., Acc. No. 1944", NHM (reg. no. NHMUK 2011 0261, **Fig. 57C**). Although labelled both as "H. immerita var." and "Ariophanta immerita", this specimen is clearly *Ariophanta interrupta* (identification confirmed by comparing with the type series of *Ariophanta interrupta* at the UMZC).

163. *Ariophanta intumescens* (Blanford, 1866)

Nanina (Ariophanta) intumescens Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 32
Ariophanta intumescens - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 32

Distribution: endemic to the Western Ghats. Known from Mahabaleshwar in the northern Western Ghats.

Original locality: Mahabaleshwar at an elevation of 4500 feet, found on the ground (W.T. Blanford).

Type material: 1 syntype from "India, Dr. Blanford", "Figured in the Conch. India pl. CXI fig. 6, Mahabaleshwar, W. Ghats of India", "1901.6.18.2", NHM (reg. no. NHM UK 1901.06.18.2, "Mahabaleshwar, W. Ghats of India", "Presented by Dr. W.T. Blanford"). This shell is here designated as the lectotype (**Fig. 57D**).

164. *Ariophanta laevipes* (Müller, 1774)

Helix laevipes Müller, 1774, *Vermium Terrestrium et Flaviatilium, seu Animalium infusoriorum, Helminthicorum, et Testaceorum, Non Marinorum, Succincta Historia*, 2: 22

Ariophanta laevipes - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 29

Distribution: endemic to India. The earliest published locality, "Tranquebar" (Chemnitz, 1786), is modern-day Tharangambadi on the east coast of Tamil Nadu. Blanford and Godwin-Austen (1908) indicated that this species had been recorded from West India (Bombay in the northern Western Ghats, and the Rajpipla Hills, "east of Surat" in Gujarat), but we consider this to be a case of mistaken identity. There are several lots labelled as *Ariophanta laevipes* at the NHM, but they do not resemble the neotype of *Ariophanta laevipes* (see below), but clearly belong to another, unknown *Ariophanta* species.

Original locality: No locality data given, but Müller's description was based on several shells from Spengler's collection and these may have been from "Tranquebar", as indicated by Chemnitz (1786, p 83).

Type material: 1 possible syntype (**Fig. 57E**) with an old label inscribed "A. laevipes (O. Müll.) B.", "Catl. p. 5. n° 2."

and "Trgbr.", all probably in Beck's handwriting (as identified by T. Schiøtte), ZMUC, Copenhagen (reg. no. ZMUC-GAS-558). This label also has the brief inscription "Orig.". T. Schiøtte (pers. comm.) attributes this inscription to O.A.L. Mørch, a contemporary of Beck. Mørch often used this annotation to indicate material at the ZMUC that is now usually treated as type material. The abbreviation "Trgbr." on the old label indicates the historical locality of "Tranquebar", present-day Tharangambadi. The earliest published reference to associate *Ariophanta laevipes* with this locality was Chemnitz (1786, p. 83) in his description of *Helix hortensis tranquebarica*; this locality was later re-cited by Beck (1837, p. 5). Chemnitz's (1786) description and illustration of *Helix hortensis tranquebarica*, which he considered to be the same snail as Müller's *Helix laevipes*, were based on Spengler material from Tranquebar.

As indicated to us by T. Schiøtte, the ZMUC shell can be considered a possible type because of the inscription by Mørch. This shell corresponds well with Müller's original description, although it is slightly larger in diameter (29 mm, whereas Müller indicates 12 lines, which is approximately 25-27 mm). It is here designated a neotype with the express purpose of clarifying the taxonomic status of *A. laevipes* (see the original description by Müller, 1774).

165. *Ariophanta maderaspatana* (Gray, 1834)

Helix maderaspatana Gray, 1834, *Proceedings of the Zoological Society of London*, proceedings for 1834: 67

Ariophanta maderaspatana - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 45

Distribution: endemic to the central Western Ghats. It has been recorded from the "higher parts of Mysore", the Nilgiri, Kolimalai and Shevaroy Hills, and surrounding lower-elevational areas such as "Chittycolum Hill" (north of Tiruchirappalli, at an elevation of 1200 feet). The latter is most likely one of the two small, isolated hills lying immediately northeast of Chettikulam, which is about 40 km northeast of Tiruchirappalli.

Original locality: "Eastern India", 200 miles from Madras (= "Maderaspatanâ") towards the west (J.W. Heath, Gray collection).

Type material: 1 syntype, here designated the lectotype, in a lot of 2 shells, which were mounted on the same board with the label "43.4.5.238", NHM (reg. no. NHMUK 1843.04.05.238, "Purchased at Steven's"). The lectotype is also separately labelled "200 miles S.W. of Madras, J.W. Heath Esq.r.", "43.4.5.238" (reg. no. NHMUK 1843.04.05.238, **Fig. 57F**).

Other material: 1 possible paralectotype (**Fig. 58A**), the other shell in the above lot. This shell has the number "43.4.5.228" (reg. no. NHMUK 1843.04.05.228, "Purchased at Steven's") inscribed on its surface, but it is unclear if it is from the same locality as the lectotype.

166. *Ariophanta semirugata* (Beck, 1837)

Galaxias semirugata Beck, 1837, *Index*

Molluscorum Praesentis Aevi Musei
Principis Augustissimi Christiani Frederici, 1: 42

Ariophanta semirugata - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 35

Distribution: endemic to Sri Lanka, and the Indian Peninsula, mainly south of the Narmada and Son Rivers. Indian localities include: Tiruchirappalli on the southeastern limits of the Western Ghats, Tharangambadi in coastal Tamil Nadu, Kutch in Gujarat and also "Bengal". In Sri Lanka this species occurs in the dry, north-central, northern and southeastern parts of the island (D. Raheem, unpublished data).

Original locality: "Bengal", "Eastern India".

Type material: 1 shell, here designated a neotype, from "Tranquebar", "Sch. 23/4" (= Schumacher), and on a separate label "Bengal", ZMUC, Copenhagen, reg. no. ZMUC-GAS-240 (Fig. 58B). A label from 1999 in T. Schiøtte's hand states: "This is a possible type of *Galaxis semirugata* Beck, 1837, but there is no direct evidence that it belonged to the collection of King Chr. VIII and thus to the type series." We have designated a neotype with the express purpose of clarifying the taxonomic status of *C. semirugata* (see the original description by Beck, 1837 and the description by Blanford and Godwin-Austen, 1908).

***Ariophanta semirugata* 'var.
tranquebarica' (Pfeiffer, 1847)**

Helix tranquebarica Pfeiffer, 1847, *Monographia Heliceorum Viventium*, 1: 41
Ariophanta semirugata var. *tranquebarica* -
Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 35

Distribution: endemic to India. Originally recorded from Tharangambadi, but not clear from Blanford and Godwin-Austen's (1908) account if it occurs elsewhere.

Original locality: Tharangambadi (= "Tranquebar") (Cuming collection).

Type material: 2 syntypes (species name in Pfeiffer's handwriting) from "Tranquebar", "M.C.", NHM (reg. no. NHMUK 20110248), one of which is here designated as the lectotype (reg. no. NHMUK 20110248/1, Fig. 58C). The paralectotype is also illustrated (reg. no. NHMUK 20110248/2, Fig. 58D).

167. *Ariophanta sisparica* (Blanford, 1866)

Nanina (Hemiplecta?) sisparica Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 34
Ariophanta sisparica - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 37

Distribution: endemic to the Western Ghats. Known from "Sispara Ghat" (at an elevation of about 6000 feet) in the Nilgiri Hills, central Western Ghats.

Original locality: "Sispara ghat", Nilgiri Hills, "S. India" (W.T. Blanford). One of the two specimens found was collected "near the top of Sispara ghat".

Type material: 1 syntype (labelled: "type fig.d. Conch. Ind. pl.CX11 f.4,5,6") from "Sispara Ghat, Nilgiris", "coll. W.T. Blanford", "717.06.1.1", NHM (reg. no. NHM UK 1906.01.01.717, registered as "T"). This shell is here designated as the lectotype (Fig. 58E).

168. *Ariophanta solata* (Benson, 1848)

Helix solata Benson, 1848, *Annals and Magazine of Natural History, Series 2*, 2: 159

Ariophanta solata - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 46

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: western face of the Nilgiri Hills, "Southern India" (Jerdon).

Type material: 5 syntypes from the "Nilgherries", "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.102420), one of which is here designated as the lectotype (reg. no. I.102420.A, **Fig. 58F**). Two of the 4 paralectotypes are also illustrated (reg. nos. I.102420.B, I.102420.C, **Figs. 59A, B**).

169. *Ariophanta thyreus* (Benson, 1852)

Helix thyreus Benson, 1852b, *Annals and Magazine of Natural History, Series 2*, 9: 405

Ariophanta thyreus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 34

Distribution: endemic to the Western Ghats. Known from Brahmagiri ("Coorg") and the Nilgiri and Biligirirangan Hills in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: "Southern India" (Jerdon). As indicated by *The East India Gazetteer* (Hamilton, 1815, p. 769) in the early 19th century, the "South of India" referred to the Indian Peninsula south of the Krishna River. Later publications, such as *A Gazetteer of Southern India* (Pharoah and Co., 1855) considered "Southern India" to be a more extensive region, encompassing the modern states of Andhra Pradesh, Goa,

Karnataka, Kerala, Tamil Nadu, eastern Maharashtra, as well as a substantial area of Madhya Pradesh.

Type material: 4 syntypes from "So. India", "Bens col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103905), one of which is here designated as the lectotype (reg. no. I.103905.A, **Fig. 59C**). Two of the 3 paralectotypes are also illustrated (reg. nos. I.103905.B, I.103905.C, **Figs. 59D, E**).

Ariophanta thyreus 'var. *heteraea*' Blanford, 1901

Ariophanta thyrei heteraea Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 248, pl. 25, fig. 2

Ariophanta thyreus var. *heteraea* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 34

Distribution: endemic to the Western Ghats. Known from near "Sispara", on the western side of the Nilgiri Hills, central Western Ghats.

Original locality: near "Sispara", on the western side of the Nilgiri Hills, "Southern India".

Type material: 1 syntype from "Sispara Ghat, Nilgiri Hills, S. India", "presented by Dr W.T. Blanford", "1901.6.18.4", NHM (reg. no. NHMUK 1901.06.18.4). This shell is here designated as the lectotype (**Fig. 59F**).

Ariophanta thyreus 'var. *ryssolemma*' (Albers, 1852)

Nanina ryssolemma Albers, 1852, *Zeitschrift für Malakozoologie*, 9: 186

Ariophanta thyreus var. *ryssolemma* - Blanford & Godwin-Austen, 1908, *FBI*, *Mollusca*: 34

Distribution: endemic to the Western Ghats. Known from "Sispara Ghat" in the Nilgiri Hills, central Western Ghats.

Original locality: "island of Java?". This locality is doubtful and was most likely given in error. Material from "Sispara Ghat" in the Nilgiri Hills agrees with Albers' description (Blanford and Godwin-Austen, 1908).

Type material: authentic Albers material could not be traced, but an Albers specimen was figured by Pfeiffer (1854-1860 [1854], p. 37, pl. 10, figs., 13, 14, see **Fig. 48G**).

Genus *Indrella*

170. *Indrella ampulla* (Benson, 1850)

Helix ampulla Benson, 1850, *Annals and Magazine of Natural History, Series 2*, 5: 213
Indrella ampulla - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 49

Distribution: endemic to the Western Ghats. Blanford and Godwin-Austen (1908) stated that this species had been recorded at elevations of about 3000 feet, from the western side of "Wynaad" and the Nilgiri Hills in the central Western Ghats, and from the western slopes of the Anaimalai Hills in the southern Western Ghats. Recent surveys (N.A. Aravind, unpublished data) have shown this species to be widespread in the southern and central Western Ghats, between latitudes 8° 30' N and 13° 00' N (elevational range of 150-1800 m), and to vary in body

colour from red to orange and yellow.

Original locality: Kundah Hills (= "Koorda Ghat"), in the Nilgiri Hills, "Southern India" (Jerdon).

Type material: 2 syntypes, "Bens. Col.", "Ind.", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103585), one of which is here designated as the lectotype (reg. no. I.103585.A, **Fig. 60A**). The paralectotype is also illustrated (reg. no. I.103585.B, **Fig. 60B**).

Other material: 1 shell from "Anamully Hills, c. 3000ft", "H.F./W.T. Blanford Colln., Acc. No. 1944", NHM (reg. no. NHMUK 20110252, **Fig. 60C**).

Genus *Euplecta*²⁶

171. *Euplecta acalles* (Pfeiffer, 1857)

Helix acalles Pfeiffer, 1857d, *Proceedings of the Zoological Society of London*, proceedings for 1856: 327
Euplecta acalles - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 56

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri hills (Conway Shipley, Cuming collection).

Type material: authentic Pfeiffer material could not be traced. Although a figure was not included in the original description, a type specimen from the Cuming collection was figured by Hanley and Theobald (1870-1876 [1875], p. 52, pl. 128, figs. 1, 4, see **Fig. 61A**).

172. *Euplecta acuducta* (Benson, 1850)

Helix acuducta Benson, 1850, *Annals and Magazine of Natural History, Series 2*, 5: 214

Euplecta acuducta - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 67

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills ("Sispara Ghat", Kundah Hills) and "Kadur district", "Mysore", in the central Western Ghats, and from "Tinnevelly" and Trivandrum in the south.

Blanford and Godwin-Austen (1908) stated that this species occurred in Ceylon, attributing the records to G. Nevill and H.F. Blanford. However, we consider this to be doubtful because we have not recorded it in our wide-ranging surveys of Sri Lankan forests. There are three lots labelled as *Euplecta acuducta* from Ceylon at the NHM. Two of these lots, both from the V.W. MacAndrew Collection, have been misidentified – they are clearly examples of the Sri Lankan taxon *Euplecta travancorica* 'var. *praeminens*' Sykes 1898. The third lot of 2 shells corresponds closely with Indian examples of *Euplecta acuducta* and is labelled "Ceylon ex. Coll. H.F. Blanford", "42.9.iii.15" (reg. no. NHMUK 1909.03.15.42), and it seems likely that this lot has been labelled in error as Ceylon.

Original locality: forest on the peaks of the Nilgiri Hills, "Southern India" (Jerdon).

Type material: 1 syntype labelled "Thea Acuductus Bens., Bens. col.", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103645). This shell is here designated as the lectotype (Fig. 60D). The lip of the shell is broken, but there is no indication of this in Benson's description and in Reeve's

figure (Reeve, 1851-1854 [1852], pl. 124, fig. 739) of Benson's type, so the damage probably occurred in more recent times.

173. *Euplecta albizonata* (Dohrn, 1858)

Helix albizonata Dohrn, 1858, *Proceedings of the Zoological Society of London*, proceedings for 1858: 133

Euplecta albizonata - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 61

Distribution: endemic to Sri Lanka and the Western Ghats, where it has been recorded from "Travancore" in the south.

Original locality: Ceylon (Cuming collection).

Type material: 1 syntype, "Ceylon, Mr. Thwaites", "M.C.", "albizonata, Dohrn", NHM (reg. no. NHMUK 20110260). This shell is here designated as the lectotype (Fig. 60E). Although the original Dohrn labelling is missing, this shell can be considered a syntype because it corresponds closely with Dohrn's description and is from the Cuming collection.

174. *Euplecta apicata* (Blanford, 1870)

Nanina (Trochomorpha) apicata Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 16, pl. 3, fig. 13

Euplecta? apicata - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 72

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Coonoor, Naduvattam, Avalanche) in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: peaks of the Nilgiri Hills in

"Southern India" including Coonoor and Naduvattam (= "Neddiwuttom"); this species is found on the northern and eastern portion of the Nilgiri Hills (Beddome, Evezard, Fairbank and/or W.T. Blanford).

Type material: 4 syntypes from "Nilghiris, Avalanche" ("Nilgiri Hills, W.T. Blanford"), "52.06.2.2", NHM (reg. no. NHMUK 1906.02.02.52, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.02.02.52/1, **Fig. 60F**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 1906.02.02.52/2, **Fig. 62A**).

175. *Euplecta cacuminifera* (Benson, 1850)

Helix cacuminifera Benson, 1850, *Annals and Magazine of Natural History, Series 2*, 5: 214

Euplecta cacuminifera - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 68

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills ("Sispara") in the central Western Ghats.

Original locality: peaks of Nilgiri Hills (Jerdon).

Type material: 2 syntypes (from "Nilgherries", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103600), one of which is here designated as the lectotype (reg. no. I.103600.A, **Fig. 62B**). The paralectotype is also illustrated (reg. no. I.103600.B, **Fig. 62C**).

176. *Euplecta fluctuosa* Blanford, 1901

Euplecta fluctuosa Blanford, 1901, *Proceed-*

ings of the Malacological Society of London, 4: 251, fig. 1

Euplecta fluctuosa - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 63

Distribution: endemic to the Western Ghats. Known from the vicinity of the Gersoppa (Jog) Falls, "North Canara", central Western Ghats.

Original locality: Gersoppa Falls (= "Gairsopa Falls"), "North Kanara" (Ponsonby collection).

Type material: 1 syntype from "N. Canara, India", "purchased by J.H. Ponsonby Esq.", "1905.1.26.20" (also labelled "Type, Garsapa Falls, Canara"), NHM (reg. no. NHMUK 1905.01.26.20, "Pres: by J.H. Ponsonby Esq."). This shell is here designated as the lectotype (**Fig. 62D**).

177. *Euplecta foveolata* Preston, 1909

Euplecta foveolata Preston, 1909, *Records of the Indian Museum*, 3: 133

This species was published after the publication of the relevant volume of the *FBI* (i.e. Blanford and Godwin-Austen, 1908).

Distribution: endemic to South India (Preston, 1909).

Original locality: "South India".

Type material: 1 syntype from "S. India", "purch. of H.B. Preston", "1915.1.6.21", NHM (reg. no. NHMUK 1915.01.06.21, "Type", "Purchased of H.B. Preston."). This shell is here designated as the lectotype (**Fig. 62E**).

178. *Euplecta granulifera* Blanford, 1901

Euplecta granulifera Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 252, fig. 5

Euplecta granulifera - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 69

Distribution: endemic to the Western Ghats. Known from "N. Canara" in the central Western Ghats.

Original locality: "North Kanara" (Beddome).

Type material: 8 syntypes (labelled "Type" in Beddome's handwriting) from "N. Canara", "174 D56", NHM (reg. no. NHMUK 20110256), one of which is here designated as the lectotype (reg. no. NHMUK 20110256/1, **Fig. 62F**).

179. *Euplecta indica* (Pfeiffer, 1846)

Helix indica Pfeiffer, 1846c, *Symbolae ad Historiam Heliceorum*, 3: 66

Euplecta indica - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 60

Distribution: endemic to Sri Lanka and the central and southern Western Ghats, and introduced to the Maldives. In the southern Western Ghats this species has been recorded from the Anaimalai and Palni Hills, and from "Travancore". In the central part of the Western Ghats it is known from: the lower-elevational areas of "Malabar" (e.g. Beypore, Nilambur); the Nilgiri Hills, where it occurs from the base of the plateau to the top, and on both the eastern and western sides; "Wynaad"; "S. Canara"; and "Western Mysore as far north as the Kadur district". Recent surveys in the Western Ghats suggest that this is a

common species that occurs both in natural forest and synanthropic habitats, such as village home gardens (N.A. Aravind, unpublished data).

Original locality: Nilgiri Hills, "Eastern India" (Cuming collection).

Type material: 3 syntypes (species name in Pfeiffer's handwriting) from "Nilgirries (Perrottet)", "S. India", "M.C", "89.9.10.2", NHM (reg. no. NHMUK 1889.08.10.2, "Pres.d by Mrs. J.C.", "1" specimen, "about 30 other specimens also presented"). The registration number on the original labels (89.9.10.2) is incorrect, and should be given as 89.8.10.2. One of the shells is here designated as the lectotype (reg. no. NHM UK 1889.08.10.2/1, **Fig. 63A**). The lectotype is labelled "Type" and "Mrs. Aynsley, 89.9.10.2". One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1889.08.10.2/2, **Fig. 63B**). This lot has also been wrongly labelled as "Moreton Bay, Mr. Strange", which is probably one of two localities in eastern Australia (respectively in New South Wales and in Queensland, see the *Gazetteer of Australia Place Name Search*, <http://www.ga.gov.au/place-names>). As far as is currently known the genus *Euplecta* is largely restricted to South Asia, with *Euplecta indica* being indigenous to the south-western part of the Indian subcontinent, including Sri Lanka.

Euplecta indica 'var. *malabarica*' Blanford, 1901

Euplecta malabarica Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 250, pl. 25, fig. 5

Euplecta indica var. *malabarica* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 60

Distribution: endemic to the Western Ghats ("country near Malabar coast as far north as North Canara"), and introduced to the Maldivian Islands ("N. Mahlos Atoll").

Original locality: "Malabar coast" near Beyapore (= "Beypur") (Fairbank, Blanford), Nilambur (= "Nellambur"), etc., also in "Kanara province" (Beddome). Blanford (1901) indicated that this species "appears to be characteristic of the Malabar coastland as far north as North Canara".

Type material: 1 syntype from "Beypoor", "Dr. Blanford", "1901.6.18.7", NHM (reg. no. NHMUK 1901.06.18.7, "Presented by Dr. W.T. Blanford"), which is here designated as the lectotype (Fig. 63C).

Euplecta indica 'var. *shipayi*'
(Pfeiffer, 1857)

Helix shipayi Pfeiffer, 1857d, *Proceedings of the Zoological Society of London*, proceedings for 1856: 327

Euplecta indica var. *shipayi* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 60

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills, India (Conway Shipley, Cuming collection).

Type material: 2 syntypes (species name in Pfeiffer's handwriting) from "Neilgherries, Conway Shple.", "M.C.", NHM (reg. no. NHMUK 20110255), one of which is here designated as the lectotype (reg. no. NHM UK 20110255/1, Fig. 63D). The paralectotype is also illustrated (reg. no. NHMUK 20110255/2, Fig. 63E).

180. *Euplecta?* *mucosa* (W.T. & H.F. Blanford, 1861)

Helix mucosa W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 353, pl. 1, fig. 9, pl. 2, fig. 3
Euplecta? *mucosa* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 72

Distribution: endemic to the Western Ghats. Known from the higher parts of the Nilgiri Hills (Pykara, Coonoor Ghat, "Seeghoor Ghat") and the Kalrayan Hills in the central Western Ghats, and from the Palni Hills in the southern Western Ghats (Blanford and Blanford, 1861; Blanford and Godwin-Austen, 1908).

Original locality: Nilgiri Hills near Pykara, Coonoor Ghat and "Seegoor Ghat" (W.T. and/or H.F. Blanford).

Type material: 6 syntypes, "Nilghiries", "coll. W.T. Blanford", "44.06.2.2", NHM (reg. no. NHMUK 1906.02.02.44, not registered as "T", from the "Nilgiris. Pykara & Seegoor Ghat."), one of which is here designated as the lectotype (reg. no. NHMUK 1906.02.02.44/1, Fig. 63F). One of the 5 paralectotypes is also illustrated (reg. no. NHMUK 1906.02.02.44/2, Fig. 64A).

181. *Euplecta mucronifera* Blanford, 1901

Euplecta? *mucronifera* Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 252, fig. 3
Euplecta? *mucronifera* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 70

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills, "Southern India" (Beddome).

Type material: 2 syntypes labelled "Euplecta mucronifera BL Anamallays." (in Beddome's handwriting), "Col. R.H. Beddome Collection No. 5313", "Melvill-Tomlin Coll.", NMW, Cardiff (reg. no. NMW.1955.158.24934). The larger shell agrees with Blanford's description, his figure and 2 of the 3 shell measurements given by him (his measurement for the shell axis is clearly wrong). This shell is here designated as the lectotype (reg. no. NMW.1955.158.24934/1, **Fig. 64B**). The paralectotype (reg. no. NMW.1955.158.24934/2) looks substantially different from the lectotype, and may belong to another species.

182. *Euplecta oribates* Blanford, 1901

Euplecta (?) *oribates* Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 253, fig. 4

Euplecta ? *oribates* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 72

Distribution: endemic to the Western Ghats. Known from Mahendragiri, "Travancore" in the southern Western Ghats.

Original locality: Mahendragiri (= "Myhendra"), "Travancore" (Beddome).

Type material: 2 syntypes (labelled "Euplecta oribates BL Travancore" in Beddome's handwriting), "Col. R.H. Beddome Collection No. 5320", "Melvill-Tomlin Coll.", NMW, Cardiff (reg. no. NMW 1955.158.24935), one of which is here designated as the lectotype (reg. no. NMW 1955.158.24935/1, **Fig. 64C**). The paralectotype is also illustrated (reg. no. NMW 1955.158.24935/2, **Fig. 64D**).

183. *Euplecta pulchella* Blanford, 1905

Euplecta pulchella Blanford, 1905, *Proceedings of the Zoological Society of London*, proceedings for 1904: 447, pl. 25, fig. 18

Euplecta pulchella - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 56

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills, "Southern India" (Beddome).

Type material: 1 syntype from "Anaimalai Hills", "India", "Dr. W.T. Blanford", "1905.2.20.13", NHM (reg. no. NHMUK 1905.02.20.13, "Animalai Hills", "Pres: by Dr. W.T. Blanford"). This shell is here designated as the lectotype (**Fig. 64E**).

184. *Euplecta semidecussata* 'var. *transfretata*' Blanford, 1901

Euplecta transfretata Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 249, pl. 25, fig. 9

Euplecta semidecussata var. *transpetata* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 57

Distribution: endemic to the Western Ghats. Known from the "Travancore hills" in the southern Western Ghats. *Euplecta semidecussata* 'var. *semidecussata*' is endemic to the Central Highlands of Sri Lanka (D. Raheem, unpublished data).

Original locality: "Travancore hills", "Southern India" (Beddome).

Type material: 3 syntypes labelled "Euplecta

cta semidecussata Pfr. subsp. *transpetata*, W. Blf.", "Travancore, coll. Colonel R.H. Beddome", "165-12.IV.16", NHM (reg. no. NHMUK 1912.04.16.165, registered as "Euplecta semidecussata var. *transpetata* Blf.", not registered as "T"), one of which is here designated as the lectotype (reg. no. NHM UK 1912.04.16.165/1, **Fig. 64F**).

185. *Euplecta subcastor* (Beddome, 1891)

Nanina subcastor Beddome, 1891, *Proceedings of the Zoological Society of London*, proceedings for 1891: 313, pl. 29, figs. 1-3
Euplecta subcastor - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 58

Distribution: endemic to the Western Ghats. Known from Mahendragiri, "Travancore", in the southern Western Ghats.

Original locality: Mahendragiri (= "Myhedra"), at an elevation of about 2500 feet.

Type material: 2 syntypes from "Travancore", "coll. Colonel R. Beddome", "162.12. iv.16", NHM (reg. no. NHMUK 1912.04.16. 162, registered as "T?", "2" specimens), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.162/1, **Fig. 65A**). The paralectotype is also illustrated (reg. no. NHMUK 1912.04.16.162/2, **Fig. 65B**).

186. *Euplecta subdecussata* (Pfeiffer, 1857)

Helix subdecussata Pfeiffer, 1857b, *Proceedings of the Zoological Society of London*, proceedings for 1857: 107
Euplecta subdecussata - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 55

Distribution: endemic to India, with scattered records. Known from the vicinity of Bombay in the northern Western Ghats, from Madras in northeastern Tamil Nadu, and from Puri in Odisha.

Original locality: Bombay (Cuming collection).

Type material: 3 syntypes from "Bombay" (species name in Pfeiffer's handwriting), "M.C.", NHM (reg. no. NHMUK 201102 53), one of which is here designated as the lectotype (reg. no. NHMUK 20110253/1, **Fig. 65C**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 201102 53/2, **Fig. 65D**).

187. *Euplecta travancorica* (Benson, 1865)

Helix travancorica Benson, 1865, *Annals and Magazine of Natural History, Series 3*, 15: 13
Euplecta travancorica - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 58

Distribution: endemic to southwestern Sri Lanka and the Western Ghats, where it occurs not far from Kottayam, in "Travancore", in the south.

Original locality: "Travancore hills", not far from Kottayam (= "Cottiyam") (D. Kohlhoff).

Type material: holotype (1 of a lot of 2 shells), labelled "Nanina Travancorica Var.? Bens., Bens. col.", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103530.A, **Fig. 65E**). This shell corresponds closely with the single specimen with the damaged aperture described by Benson in 1865.

Other material: 1 shell labelled "Nanina Travancorica, Bens., Bens. col., Travancore", and "TYPE, fide W.T. Blanford May, 1901", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103530.B, **Fig. 65F**). This shell, which is a completely intact adult shell, has been wrongly labelled as Benson's type.

***Euplecta travancorica* 'var. *agastya*'**
Blanford, 1901

Euplecta agastya Blanford, 1901, *Proceedings of the Malacological Society of London*, 4: 250, pl. 25, fig. 10 [indicated as a Beddome manuscript name]

Euplecta travancorica var. *agastya* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 59

Distribution: endemic to the Western Ghats. Known from Agastyamalai in the southern Western Ghats.

Original locality: Agastyamalai (= "Agastya mountain"), not far from the extremity of "Southern India", at an elevation of 4000 feet (Beddome).

Type material: 1 syntype (labelled "typical") from "Agastyamullay, near Cape Comorin", "coll. W.T. Blanford", "387.06.1. 1", NHM (reg. no. NHMUK 1906.01.01. 387, not registered as "T"). This shell is here designated as the lectotype (**Fig. 66A**).

Genus *Macrochlamys*^{27, 28}

188. *Macrochlamys*? *atoma*
Blanford, 1905

Macrochlamys (?) *atoma* Blanford, 1905, *Proceedings of the Zoological Society of London*, proceedings for 1904: 443, pl.

25, fig. 6 [indicated as a Fairbank manuscript name]

Macrochlamys ? *atoma* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 140

Distribution: endemic to India. Its range is centred in the Godavari Valley of West and South India, where it has been recorded from Paithan (near Ahmadnagar on the northeastern limits of the Western Ghats), Dummagudem on the left bank of the Godavari, and the valleys of the Wardha and Penganga Rivers. It also apparently occurs in the Narmada Valley.

Original locality: near the banks of the Godavari River (W.T. Blanford).

Type material: 4 syntypes labelled "6 Types", "Paitan, Upper Godavari R.", "India", "Dr. W.T. Blanford", "1905.2.20.14-17", NHM (reg. no. NHMUK 1905.02.20.14-17, registered as "Types", "4 specimens"). These 4 shells have been mounted together on a sheet of paper, 2 with the dorsal surface uppermost, and 2 with the ventral surface uppermost (**Fig. 66B**).

189. *Macrochlamys indica* Benson in Godwin-Austen, 1883

Macrochlamys indica Benson in Godwin-Austen, 1883, *Land and Freshwater Mollusca of India*, 1: 97, pl. 18, figs. 1-8b, pl. 21, fig. 1, pl. 25, figs. 9, 10

Macrochlamys indica - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 95

Distribution: ranging across East India (Calcutta in West Bengal, "Orissa") and Bangladesh (Sylhet), and recently recorded from Nepal (Raheem et al., 2010). It is probably indigenous across much of this

range. This species has been introduced to Sri Lanka, where we have only encountered it in some urban habitats in southwestern Sri Lanka (D. Raheem, unpublished data). It is likely to occur in cultivated and settled habitats in the Western Ghats.

Original locality: Calcutta.

Type material: 3 syntypes from "Calcutta (GA)", "2351.03.VII.1", NHM (reg. no. NHMUK 1903.07.01.2351, registered as "T", "3" specimens, "Moll. Ind. Pl. XVIII, f. 5, 5a"), one of which is here designated as the lectotype (reg. no. NHMUK 1903.07.01.2351/1, **Fig. 66C**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1903.07.01.2351/2, **Fig. 66D**).

190. *Macrochlamys? neherensis* (Benson, 1864)

Helix neherensis Benson, 1864b, *Annals and Magazine of Natural History, Series 3*, 13: 210
Macrochlamys? neherensis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 139

Distribution: endemic to the Western Ghats. Known from Mahabaleshwar (Malcom Peth) and Khandala in the northern Western Ghats.

Original locality: Malcom Peth (= "Neher"), Mahabaleshwar (S.B. Fairbank).

Type material: 2 syntypes from "Neher, Ind.", "Bens. col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.103240), one of which is here designated as the lectotype (reg. no. I.103240.B, **Fig. 66E**). The paralectotype is also illustrated (reg. no. I.103240.A, **Fig. 66F**).

191. *Macrochlamys pedina* (Benson, 1865)

Helix pedina Benson, 1865, *Annals and Magazine of Natural History, Series 3*, 15: 13
Macrochlamys pedina - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 132

Distribution: endemic to the central ("South Canara") and northern (Bombay, Pune, Sinhgarh, Ahmadnagar) parts of the Western Ghats, and to the country to the north as far as Kutch in Gujarat.

Original locality: near Bombay and Ahmadnagar (= "Ahmednugger") (Jerdon, H. Alexander, Fairbank).

Type material: 4 syntypes from "Bombay", "Bens. Col., R. MacAndrew Coll. 1873", UMZC (reg. nos. I.103085, I.103080, I.103090), one of which is here designated as the lectotype (reg. no. I.103085, **Fig. 67A**). One of the 3 paralectotypes is also illustrated (reg. no. I.103080, **Fig. 67B**).

192. *Macrochlamys? peringundensis* Beddome, 1891

Macrochlamys peringundensis Beddome, 1891, *Proceedings of the Zoological Society of London*, proceedings for 1891: 313, pl. 29, figs. 13, 14
Macrochlamys? peringundensis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 138

Distribution: endemic to the Western Ghats. Known from "Peringunda Hill" (could not be traced) in the Anaimalai Hills, southern Western Ghats.

Original locality: near the summit of "Per-

ingunda Hill" (could not be traced), on the Coimbatore side of the Anaimalai Hills, at an elevation of about 5000 feet, in moist forest (R.H. Beddome).

Type material: holotype from "India", "Colonel Beddome", "91.6.7.1" ("Anamul-lays 5000 ft", "presented by Colonel Beddome", "1" specimen), NHM (reg. no. NHMUK 1891.06.07.1, **Fig. 67C**).

193. *Macrochlamys perrotteti* (Pfeiffer, 1851)

Helix perrotteti Pfeiffer, 1851b, *Zeitschrift für Malakozoologie*, 8: 13
Macrochlamys ? perrotteti - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 136

Distribution: endemic to the Western Ghats. Known from the central region, from the plateau of the Nilgiris (Pykara, Avalanche), at elevations of 6000-7000 feet, and from the Kalrayan, Kollimalai and Pachamalai Hills (Blanford and Blanford, 1861; Blanford and Godwin-Austen, 1908).

Original locality: Nilgiri Hills, India (Perrottet).

Type material: authentic Pfeiffer material could not be traced, and this species was not figured by him. The original description is insufficient for recognising *M. perrotteti*, and we therefore consider this species to be a *nomen dubium*.

194. *Macrochlamys? prava* Blanford, 1905

Macrochlamys prava Blanford, 1905, *Proceedings of the Zoological Society of London*, proceedings for 1904, 2: 443, pl. 25, fig. 9

Macrochlamys ? prava - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 137

Distribution: endemic to the Western Ghats. Known from Beypore in "Malabar", and Coonoor Ghat in the Nilgiri Hills, central Western Ghats, and from the Anaimalai Hills and "Travancore" in the southern Western Ghats.

Original locality: the town of Beypore (= "Beypur") near the "Malabar coast" (Fairbank), on the western side of the Nilgiri Hills (W.T. Blanford); the Anaimalai Hills (Beddome); and the province of "Travancore" (Day).

Type material: 1 syntype from "Beypur", "Dr. W.T. Blanford", "1905.2.20.5", NHM (reg. no. NHMUK 1905.02.20.5, "Pres: by Dr. W.T. Blanford"). This shell is here designated as the lectotype (**Fig. 67D**).

195. *Macrochlamys? rutila* Blanford, 1905

Macrochlamys rutila Blanford, 1905, *Proceedings of the Zoological Society of London*, proceedings for 1904, 2: 443, pl. 25, fig. 11

Macrochlamys ? rutila - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 135

Distribution: endemic to the Western Ghats. Known from "Anagundi shola" (locality could not be traced), Anaimalai Hills in the southern Western Ghats.

Original locality: "Anagundi shola" (locality could not be traced), Anaimalai Hills (Beddome).

Type material: 1 syntype from "Anagundi,

Anaimalai", "Dr. W.T. Blanford", "1905.2. 20.3", NHM (reg. no. NHMUK 1905.02. 20.3, "Pres: by Dr. W.T. Blanford"). This specimen is here designated as the lectotype (**Fig. 67E**).

196. *Macrochlamys? tenuicula*
H. Adams, 1868

Macrochlamys tenuicula H. Adams, 1868, *Proceedings of the Zoological Society of London*, proceedings for 1868: 14, pl. 4, fig. 9

Macrochlamys? tenuicula - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 130

Distribution: endemic to the northern part of the Western Ghats (Bombay, Khandala, Satara) and the country to the north, as far as Surat, and "Dholgaum" (could not be traced) in the Rajpipla Hills (the western extremity of the Satpura Range).

Original locality: Satara (= "Sattara"), Bombay (F. Layard).

Type material: authentic Adams material could not be traced, but the original description included a figure (see **Fig. 61B**). Neither this figure nor the description is sufficient for recognising this species, and we therefore consider it to be a *nomen dubium*.

197. *Macrochlamys? vallicola*
(Pfeiffer, 1855)

Helix vallicola Pfeiffer, 1855b, *Proceedings of the Zoological Society of London*, proceedings for 1854: 289

Macrochlamys? vallicola - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 136

Distribution: endemic to the Western Ghats. Known from the Kundah Hills in the western Nilgiris, central Western Ghats.

Original locality: Kundah (= "Koondah") Hills, India (Pirrie, Cuming collection).

Type material: 2 syntypes (species name in Pfeiffer's handwriting) from "Koondah Mountains, near Calicut, Mr. Pirrie", "M. C.", NHM (reg. no. NHMUK 20110258), one of which is here designated as the lectotype (reg. no. NHMUK 20110258/1, **Fig. 67F**). The paralectotype is also illustrated (reg. no. NHMUK 20110258/2, **Fig. 68A**).

198. *Macrochlamys? woodiana*
(Pfeiffer, 1853)

Helix woodiana Pfeiffer, 1853b, *Proceedings of the Zoological Society of London*, proceedings for 1851: 254

Macrochlamys? woodiana - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 135

Distribution: endemic to Sri Lanka and South India, where it occurs in the southern and central regions of the Western Ghats (Mahendragiri in "Travancore", Kollimalai Hills, Tiruchirappalli) and in Arcot in north-eastern Tamil Nadu.

Original locality: Ceylon (Layard, Cuming collection).

Type material: 2 syntypes from "Ceylon Mr. Layard, M.C., 1851" (species name, locality, collector and date in Pfeiffer's handwriting, but faded), NHM (reg. no. NHMUK 20110257), one of which is here designated as the lectotype (reg. no. NHM UK 20110257/1, **Fig. 68B**). The paralecto-

type is also illustrated (reg. no. NHMUK 20110257/2, **Fig. 68C**).

Genus *Microcystina*

199. *Microcystina shevaroyana* Blanford, 1905

Microcystina shevaroyana Blanford, 1905, *Proceedings of the Zoological Society of London*, proceedings for 1904: 446, pl. 25, fig. 17

Microcystina shevaroyana - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 256

Distribution: endemic to the Western Ghats. Known from the Shevaroy Hills in the central Western Ghats.

Original locality: Shevaroy Hills, "Southern India" (W.M. Daly, Fulton collection).

Type material: 1 syntype from "Shevaroys", "Dr. W.T. Blanford", "1905.2.20.2", NHM (reg. no. NHMUK 1905.02.20.2, "Pres: by Dr. W. T. Blanford"). This shell is here designated as the lectotype (**Fig. 68D**).

Superfamily Helicoidea

Family Camaenidae

Genus *Chloritis*

200. *Chloritis leithi* Gude, 1914

Chloritis (Trichochloritis) leithi Gude, 1914b, *Proceedings of the Malacological Society of London*, 11: 53, text-figure
Chloritis leithi - Gude, 1914a, *FBI, Mollusca-II*: 170

Distribution: endemic to the Western Ghats. Known from Bombay in the northern Western Ghats.

Original locality: Bombay, India (Leith).

Type material: holotype (**Fig. 68E**) from "Bombay", "Dr. A.H. Leith", "71.8.2.2", NHM (reg. no. NHMUK 1871.08.02.2, "Unjuneera, Bombay", "Presented by Dr. A.H. Leith"); labelled "Type", and with species name, locality and collector in Gude's handwriting. The locality "Unju-neera" could not be traced.

201. *Chloritis propinqua* (Pfeiffer, 1857)

Helix propinqua Pfeiffer, 1857b, *Proceedings of the Zoological Society of London*, proceedings for 1857: 109

Chloritis propinqua - Gude, 1914a, *FBI, Mollusca-II*: 169

Distribution: endemic to India, where it ranges across the Western Ghats to Broach (Bharuch) in Gujarat to the north and to Ganjam in Odisha to the east. In the Western Ghats it has been recorded from the Palni Hills in the south, Belgaum in the central region, and from Bombay, Satara, Khandala, Pune and Mahabaleshwar in the north.

Original locality: Bombay (Cuming collection).

Type material: 3 syntypes from "Bombay, India, M.C.", NHM (reg. no. NHMUK 2011 0236), one of which is here designated as the lectotype (reg. no. NHMUK 20110236/1, **Fig. 68F**). The specimens are not accompanied by any labelling in Pfeiffer's own hand, but because they are from the original locality and from the Cuming collection they can be considered as syntypes.

Genus *Beddomea*²⁹

202. *Beddomea? bontia* (Gray, 1825)

Bulimus bontia Gray, 1825, *Annals of Philosophy, New Series*, 9: 414

Amphidromus (Beddomea) bontiae - Gude, 1914a, *FBI, Mollusca-II*: 188

Distribution: uncertain. Only reported from the original locality ("Bontia" in "Bengal"), and from "Southern India (Jerdon, Stoliczka)". Given the poor description and original figure, the records attributed to Jerdon and Stoliczka are doubtful.

Original locality: in swampy, salty soil in "Bontia" (locality could not be traced) in "Bengal" (D. Koenig from/of "Tranquebar", Spengler collection). Tranquebar is modern-day Tharangambadi.

Type material: the original description by Gray was based on a specimen figured by Chemnitz (1786, p. 156, pl. 134, figs. 1216, 1217, see **Fig. 61C**). Chemnitz's figure is poor – the specimen illustrated could be either a species of *Rachis*, *Rhachistia* or *Beddomea*. We therefore consider *B. bontia* to be a *nomen dubium*.

203. *Beddomea calcadensis* (Blanford, 1870)

Bulimus calcadensis Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 18 [indicated as a Beddome manuscript name]

Amphidromus (Beddomea) calcadensis - Gude, 1914a, *FBI, Mollusca-II*: 192

Distribution: endemic to the Western Ghats. Known from the Kalakkad Hills,

"Travancore", in the southern Western Ghats. Recently recorded from Ponmudi, which is on the northwestern slope of the range extending from Agastyamalai to Kalakkad (N.A. Aravind, unpublished data).

Original locality: Kalakkad (= "Calcad" Hills, "Travancore" (Beddome).

Type material: a neotype (reg. no. NHMUK 1912.04.16.300/1, **Fig. 69A**) is here designated from a lot of 3 adult shells from the "Calcad Hills", "coll. Colonel R. Beddome", "300.12.iv.16", NHM (reg. no. NHMUK 1912.04.16.300, registered as "T", "3" specimens). Two of the 3 shells correspond closely with Blanford's description, which however was based on a single specimen. As Blanford's holotype cannot be unambiguously identified, one of the specimens has been designated as a neotype. We have designated a neotype with the express purpose of clarifying the taxonomic status of *B. calcadensis* (see the original description by Blanford, 1870).

204. *Beddomea physalis* (Benson, 1857)

Bulimus physalis Benson, 1857, *Annals and Magazine of Natural History, Series 2*, 19: 328

Amphidromus (Beddomea) physalis - Gude, 1914a, *FBI, Mollusca-II*: 189

Distribution: endemic to the Western Ghats. Known from "Khoonda Ghat" in the Nilgiris, central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: Khoonda Ghát, Nilgiri Hills, "Southern India" (T. Jerdon).

Type material: 3 syntypes (2 adult and 1 immature) from "E. Ind.", "Bens. col., R. MacAndrew Coll. 1873", UMZC (reg. nos. I.102805, I.102810), possibly the three specimens mentioned by Benson in his description (i.e. the "perfect specimen" from the "Museum in the Indian House", and the two shells from Jerdon, one "young" and one "adult"). One of the adult shells is here designated as the lectotype (reg. no. I.102805.A, **Fig. 69B**). One of the 2 paralectotypes (i.e. the adult shell) is also illustrated (reg. no. I.102805.B, **Fig. 69C**).

Genus *Apatetes*

205. *Apatetes bourdillonii* (Theobald, 1876)

Corasia bourdillonii Theobald, 1876, *Journal of the Asiatic Society of Bengal*, 45 (2): 185, pl. 14, fig. 3
Apatetes bourdillonii - Gude, 1914a, *FBI, Mollusca-II*: 193

Distribution: endemic to the Western Ghats. Known from near Trivandrum, "province of Travancore", southern Western Ghats.

Original locality: hills in the shady (well-wooded) "province of Travancore", not far from Trivandrum, "Southern India" (F. Bourdillon).

Type material: 1 shell, here designated a neotype (**Fig. 69D**), from "Trevandrum, Travancore", "Trenchmann Acc. No. 2176", NHM (reg. no. NHMUK 20110237). It is the only specimen of this species in the NHM collections, and corresponds closely with the original description and figure. However, there is no documentation to support this shell being a Theobald syntype. We have designated a neotype with the

express purpose of clarifying the taxonomic status of *A. bourdillonii* (see the original description by Theobald, 1876).

Genus *Trachia*³⁰

206. *Trachia albicostis* (Pfeiffer, 1860)

Helix albicostis Pfeiffer, 1860, *Proceedings of the Zoological Society of London*, proceedings for 1860: 134
Planispira (Trachia) albicostis - Gude, 1914a, *FBI, Mollusca-II*: 155

Distribution: endemic to India, with the only published record from Ahmadnagar, on the northeastern limits of the Western Ghats.

Original locality: Ahmadnagar (= "Ahmed-nugger") (Cuming collection).

Type material: authentic Pfeiffer material could not be traced, and this taxon was not figured by him.

207. *Trachia crassicostata* (Benson, 1848)

Helix crassicostata Benson, 1848, *Annals and Magazine of Natural History, Series 2*, 2: 159
Planispira (Trachia) crassicostata - Gude, 1914a, *FBI, Mollusca-II*: 158

Distribution: endemic to the northern Western Ghats, where it is known from Pune.

Original locality: "Southern India", in thorn bushes (Jerdon).

Type material: 1 syntype in a lot of 6 shells belonging to at least 3 species of *Trachia*, labelled "Ind.", "Bens. col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.102380). This shell is here designated as the lectotype

of *Trachia crassicostata* (reg. no. I.102380. A, **Fig. 69E**). It agrees with Benson's description, and Reeve's figure (Reeve, 1851-1854 [1852], pl. 125, fig. 747) of a shell of *T. crassicostata* from Benson's collection. Of the 5 remaining shells, one closely corresponds with Reeve's figure (Reeve, 1851-1854 [1852], pl. 125, fig. 748) of a Benson specimen of *T. ruginosa* (reg. no. I.102380.B); one has characteristics of both *T. crassicostata* and *T. ruginosa* (reg. no. I.102380.F); and the rest appear to be an entirely different species of *Trachia* (reg. no. I.102380.C-E).

208. *Trachia fallaciosa* (Férussac, 1832)

Helix (Helicella) fallaciosa Férussac, 1832, *Histoire Naturelle Générale et Particulière des Mollusques Terrestres et Fluviatiles*, Livraison 22-27: pl. 71, figs. 1-3 [fig. 1 shows 3 views of one large specimen, figs. 2 and 3 are single figures of two other smaller specimens]

Planispira (Trachia) fallaciosa - Gude, 1914a, *FBI, Mollusca-II*: 157

Distribution: endemic to Sri Lanka, and South India, where it has been recorded from the central Western Ghats (Coimbatore) and from Tiruchirappalli on the southeastern limits of the Western Ghats. In Sri Lanka it occurs in the dry, northern part of the island (D. Raheem, unpublished data).

Original locality: not known, but possibly "the province of Coimbatore (Leschenault)". The original description (Férussac, 1832) consists only of the species name and the figures. The name *Helix fallaciosa* was first published by Férussac in 1821 (p. 43), but no description was given, simply the name and a locality, "the province of Coimbatore

(Leschenault)". Thus, *Helix fallaciosa* Férussac, 1821 is a *nomen nudum*. Deshayes in his continuation of Férussac's work (Férussac and Deshayes, 1850, pp. 54-55) cited the Férussac (1821) reference to *Helix fallaciosa* and the Férussac (1832) figures. He gave two localities: "the province of Coimbatore in the centre of the peninsula of Gange (Leschenaud)", and "the island of Ceylan, Templeton (coll. Cuming)". The first of these corresponds with the locality given by Férussac (1821), the second locality was from Pfeiffer (1848, p. 368-369).

Type material: 4 syntypes labelled "Helicella Fallaciosa, nobis comm. Leschenault, la Provincia de Coimbatore., an centre de la bengu'il deca du gange", MNHN, Paris (all registered under reg. no. MNHN 2338), 3 of which are illustrated (**Figs. 69F, 70A, B**).

Other material: 5 possible syntypes labelled "Helicella fallaciosa Fer. de Pondichéry. Mr. Leschenault.", MNHN, Paris. (all registered under reg. no. MNHN 2339). Although these shells are from Férussac's collection, their status as syntypes is uncertain. The original description did not give a locality, but the only Indian locality given by Férussac (1821) and Férussac and Deshayes (1850) was "the province of Coimbatore", whereas these specimens are labelled "Pondichéry". Two of these shells have been illustrated. The smaller of these two shells (**Fig. 70C**) has a modern label stating "Figure Ferussac Histoire pl. 71, f. 2", and broadly agrees with Férussac's plate 71, figure 2, in form and markings. The larger shell (**Fig. 70D**) is similar to figure 1 of the same plate, and the dimensions of both the shell and the figure correspond with those given by Férussac and Deshayes (1850).

209. *Trachia footei* Stoliczka, 1873

Trachia footei Stoliczka, 1873, *Journal of the Asiatic Society of Bengal*, 42 (2): 170
Planispira (Trachia) footei - Gude, 1914a, *FBI, Mollusca-II*: 159

Distribution: endemic to the Western Ghats. Known from Belgaum in the central Western Ghats.

Original locality: cotton soil district near Belgaum (= "Belgaom"), "Western India" (Foote).

Type material: authentic Stoliczka material could not be traced. According to Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*, Stoliczka's types were at the Indian Museum in Calcutta, and so should now be in the collections of the ZSI.

210. *Trachia nilagirica* (Pfeiffer, 1846)

Helix nilagirica Pfeiffer, 1846d, *Proceedings of the Zoological Society of London*, proceedings for 1845: 130
Planispira (Trachia) nilagerica - Gude, 1914a, *FBI, Mollusca-II*: 159

Distribution: endemic to the Western Ghats, where it has been recorded from the Nilgiri Hills in the central region, and from Tiruchirappalli on the southeastern limits of the Western Ghats.

Original locality: Nilgiri Hills, "East Indies" (Cuming collection).

Type material: 3 syntypes (species name and "Mon. N. 958, India" in Pfeiffer's hand), "M.C.", NHM (reg. no. NHMUK 20110235), one of which is here designated as the lectotype (reg. no. NHMUK 201102

35/1, **Fig. 70E**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 201102 35/2, **Fig. 70F**).

211. *Trachia proxima* (Férussac, 1832)

Helix (Helicella) proxima Férussac, 1832, *Histoire Naturelle Générale et Particulière des Mollusques Terrestres et Fluviatiles*, Livraison 22-27: pl. 71, fig. 5 [fig. 5 consists of 3 different views of one specimen]

Planispira (Trachia) proxima - Gude, 1914a, *FBI, Mollusca-II*: 162

Distribution: endemic to the Western Ghats, where it has been recorded from the southern (Anaimalai and Palni Hills) and central (Coimbatore, Nilgiri Hills) parts of the Western Ghats and from Tiruchirappalli on the southeastern margin of the Western Ghats.

Original locality: not known, but possibly "the province of Coimbatore (Leschenault)". The original description (Férussac, 1832) consists only of the species name and the figures. The name *Helix proxima* was first published by Férussac in 1821 (p. 43), but no description was given, simply the name, and a locality, "the province of Coimbetore, peninsula below the Ganges (Leschenault)". Thus, *Helix proxima* Férussac, 1821 is a *nomen nudum*. Deshayes in his continuation of Férussac's work (Férussac and Deshayes 1839, p. 29) cited the Férussac (1821) reference to *Helix proxima* and the Férussac (1832) figures, and referred to the Férussac (1821) locality of "Coimbetore" (given by Deshayes as "Coimbetor").

Other material: 2 possible syntypes from MNHN, Paris (both registered under reg. no. MNHN 1970), labelled "Coll. Ferussac

1837, *Planispira proxima* Fer. Pondichery", and "Coll. Ferussac. 1970, Syntypes, *Helix* (*Helicella*) *proxima*, Ferussac 1832, Pondichery, Fer. Hist. pl. 71 f.5 (1832), Fer + Desh. Hist I: 29 (1829)". The larger shell (**Fig. 71A**) is similar in form and colouration to Féruccac's original figure, and the dimensions of both the shell and the figure correspond with those given by Féruccac and Deshayes (1839). The smaller shell is also shown (**Fig. 71B**). Although these shells are from Féruccac's collection, their status as syntypes is uncertain. The original description did not give a locality. The only locality given by Féruccac (1821) and Féruccac and Deshayes (1839) was "the province of Coimbatore", whereas these specimens are labelled "Pondichéry". The latter is either the former French settlement of Pondicherry or its capital, the town of the same name located on the eastern coast of South India.

212. *Trachia ruginosa* (Féruccac, 1832)

Helix ruginosa Féruccac, 1832, *Histoire Naturelle Générale et Particulière des Mollusques Terrestres et Fluviatiles*, Livraison 22-27: pl. 71, fig. 4 [fig. 4 consists of one view of a small shell and 3 views of a large shell]

Planispira ruginosa - Gude, 1914a, *FBI, Mollusca-II*: 161

Distribution: probably endemic to India. It is known from "Bengal", and has been recorded from Tiruchirappalli and Madurai on the southeastern limits of the Western Ghats.

Original locality: not known, but possibly "Bengale" (Leschenault). The original description (Féruccac, 1832) consists only of the species name and the figures. The name

Helix ruginosa was first published by Féruccac in 1821 (p. 43), but no description was given, simply the name, and a locality, "the forests of the interior of Bengale (Leschenault)". Thus, *Helix ruginosa* Féruccac, 1821 is a *nomen nudum*. Deshayes in his continuation of Féruccac's work (Féruccac and Deshayes, 1839, pp. 38-39) cited the Féruccac (1821) reference to *Helix ruginosa* and the Féruccac (1832) figures, and referred to the Féruccac (1821) locality of "Bengale".

Type material: 2 syntypes (1 adult and 1 immature) labelled "Helix ruginosa Feru." "du. Be" (label torn at this point), "par M. Leschenault.1820", "Bengale", MNHN, Paris (reg. nos. MNHN 25161, MNHN 1982). The adult shell is similar in form and colour pattern to Féruccac's original figure, but the three narrow bands evident in the larger specimen figured by Féruccac are barely discernible. The dimensions of the adult shell correspond with the smaller specimen figured by Féruccac and those given by Féruccac and Deshayes (1839). This shell is here designated as the lectotype (reg. no. MNHN 25161, **Fig. 71C**). The paralectotype is also illustrated (reg. no. MNHN 1982, **Fig. 71D**).

213. *Trachia vittata* (Müller, 1774)

Helix vittata Müller, 1774, *Vermium Terrestrium et Fluviatilium, seu Animalium infusoriorum, Helminthicorum, et Testaceorum, Non Marinorum, Succincta Historia*, 2: 76

Planispira (Trachia) vittata - Gude, 1914a, *FBI, Mollusca-II*: 164

Distribution: endemic to South India and Sri Lanka. It occurs in the southern and central Western Ghats ("Travancore", "Ma-

labar", Tiruchirappalli), and was originally recorded from the "Coromandel coast" (see p. 89), the eastern coastal region of southern Andhra Pradesh and Tamil Nadu, where it has been reported from Tharangambadi. In Sri Lanka it occurs in the dry, northern part of the island (D. Raheem, unpublished data).

Original locality: coastal Asia, "Coromandel" (= "Coromandel") (Spengler collection).

Type material: 2 syntypes labelled "Spengler's coll.", ZMUC, Copenhagen, reg. no. ZMUC-GAS-239 (identified as possible types by G. Mandahl-Barth and T. Schiøtte). Label in T. Schiøtte's hand (dated 1999) indicates: "Müller states that his type(s) is/are from Spengler's collection." The smaller, striped shell is here designated as the lectotype (reg. no. ZMUC-GAS-239, **Fig. 71E**). It broadly agrees with Müller's description, but is a little larger in diameter. The paralectotype is also illustrated (reg. no. ZMUC-GAS-241, **Fig. 71F**).

***Trachia vittata* 'var. *albina*'**
(Grateloup, 1840)

Helix vittata Var. b. *albina* Grateloup,
1840a, *Actes de la Société Linnéenne de
Bordeaux*, 11 (55): 163, pl. 1, fig. 19
Planispira vittata var. *albina* - Gude, 1914a,
FBI, Mollusca-II: 165

Distribution: endemic to Sri Lanka and the southern Western Ghats ("Malabar coast") (Grateloup, 1840a, p. 163; Grateloup, 1840b, 401).

Original locality: in the very brief original description Grateloup only mentions Ceylon, but in the longer account (Grateloup, 1840b, p. 401), which he published in the same journal volume, in the same year, he

gives the locality as "the island of Ceylon, the Malabar coast".

Type material: authentic Grateloup material could not be traced, but this species was figured by him (Grateloup, 1840b, p. 401, pl. 1, fig. 19, see **Fig. 61D**).

Genus *Landouria*³¹

214. *Landouria huttonii* (Pfeiffer, 1842)

Helix huttonii Pfeiffer, 1842b, *Symbolae ad
Historiam Heliceorum*, 2: 82
Plectotropis huttoni - Gude, 1914a, *FBI,
Mollusca-II*: 211

Distribution: globally restricted to North and Northeast India, northern Myanmar and southwest China ("Ponsee"(?) in Yunnan). The records from Myanmar include the "Upper Salween Valley" (see the Salween River in Meyer et al., 1908-1931, vol. 21, p. 422), and the "Puppa Hills" (could not be traced), near Ava (Inwa) in Mandalay Region. In India this species ranges from "Kashmir", Simla (Himachal Pradesh) and Landour (Uttarakhand) in the north, to Darjeeling (West Bengal) and the Dafla Hills (Arunachal Pradesh and Assam) and Naga Hills (Nagaland) in the northeast, with an outlying record from the Shevaroy Hills in the central Western Ghats.

Original locality: Simla and Mahasu (= "Mahássú"), under leaf litter and moss, on damp rocks and among the roots of trees (Hutton).

Type material: 3 syntypes labelled "Hab. "In Himalayah, prope Simla, Mahassu" (Hutton)", "M.C", "N. India", NHM (reg. no. NHMUK 20110245), one of which is here designated as the lectotype (reg. no.

NHMUK 20110245/1, **Fig. 72A**). One of the 2 paratypes is also illustrated (reg. no. NHMUK 20110245/2, **Fig. 72B**).

Achatinoid Clade

Superfamily Achatinoidea

Family Achatinidae

Genus *Lissachatina*³²

215. *Lissachatina fulica* (Bowdich, 1822)

Achatina fulica "Lamarck" Bowdich, 1822, *Elements of Conchology*, 1: pl. 13, fig. 3
Achatina fulica - Gude, 1914a, *FBI, Mollusca-II*: 340

Distribution: exotic to South Asia. Over the past century it has become widespread in India and Sri Lanka, and it has recently been recorded from Bhutan and Nepal (Raut, 1999; Budha and Naggs, 2008). This species, which is indigenous to East Africa, has been spread through human agency throughout the tropics (Raut and Barker, 2002). A recent study has shown that populations of *Lissachatina fulica* now present in South Asia, Southeast Asia and the Pacific region all belong to the same haplotype (Fontanilla, 2010), traceable to two individuals that were released into a garden in Chowringhee, Calcutta in 1847 (Naggs, 1997). At the beginning of the 20th century this species was only known to be present in Calcutta (Gude, 1914a), and even by the middle of the last century it was still considered to be restricted to Bengal (Mead, 1979). By the early 1990s this snail ranged from East India (West Bengal, Odisha) to North (Bihar, Uttar Pradesh) and Northeast India (Assam, Meghalaya, Nagaland), being particularly widespread in West Bengal and

Bihar (Raut and Ghose, 1984; Srivastava, 1992). At this time it also occurred in West and South India, in the states of Maharashtra, Karnataka, Kerala and Tamil Nadu (Raut and Ghose, 1984; Srivastava, 1992). Records from the Western Ghats include Palghat and Calicut in the central region, the Anaimalai Hills in the south (Raut and Ghose, 1984; Srivastava, 1992), and more recently Bombay in the north (A. Shankar, pers. comm.).

Original locality: unknown, but Bequaert (1950) indicated that in Bowdich's time all known examples of *Lissachatina fulica* came from Mauritius.

Type material: Bowdich's name accompanies a figure, but no description or locality was given, and the type material on which his figure was based is lost (Bequaert, 1950, p. 63).

Other material: 1 of 4 shells (reg. no. NHMUK 20110263/1, **Fig. 72C**) from "Victoria Park, Colombo 20.12.24", "R. Winckworth colln., Acc. No: 1838", NHM.

Family Ferussaciidae

Genus *Ceciliooides*³³

216. *Ceciliooides balanus* (Reeve, 1850)

Achatina balanus Reeve, 1850, *Conchologia Iconica*, 5 (Achatina): pl. 20, fig. 109
 [indicated as a Benson manuscript name]
Caeciliooides (Geostilbia) balanus - Gude, 1914a, *FBI, Mollusca-II*: 374

This species is very similar to *Ceciliooides bensonii* and although it has not been reported from the Western Ghats to date, it is possible that like *C. bensonii* it occurs there.

Distribution: globally restricted to the Indian Subcontinent, where its distribution is centred in the northern and northwestern regions. It ranges from Sind in southern Pakistan to North India and extends southwards as far as the Deccan. In North India it has been recorded from the Kashmir Valley in Jammu and Kashmir, Agra and "Kattiwār" (locality near Agra that could not be traced) in Uttar Pradesh, and Hamirpur in Himachal Pradesh.

Original locality: found in 1825 by Benson on the banks of the river Yamuna (Jumna in British colonial times), near Hamirpur (= "Hameerpore"), "Bundelkhund" (see p. 69), and subsequently on a porphyritic hill on the border of the desert south of "Hawee" (could not be traced), and at Agra, "on the right bank of the Jumna".

Type material: 7 syntypes in a lot of 8 shells (7 *C. balanus* and 1 of another species) labelled "Balanus Achatina + Auricula Carychium, Taj Agra", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.102435). One of the syntypes is here designated as the lectotype (reg. no. I.102435.A, **Fig. 72D**). Two of the 6 paralectotypes are also illustrated (reg. nos. I.102435.B, I.102435.C, **Figs. 72E, F**). This lot may well be the material collected by W.J. Boys and referred to by Benson in 1864 (Benson, 1864a, p. 137): "about the year 1843, Capt. W.J. Boys took specimens of *Achatina Balanus* at the Taj, near Agra, in company with a minute *Carychium*, very similar to the Himalayn species *C. indicum*". The lectotype broadly corresponds with the Benson specimen figured by Reeve (1848-1850 [1850], pl. 20, fig. 109), but not with Reeve's scale bar (length = 6.82 mm), which is incorrect. The lectotype is approximately 3 mm in length and agrees with the

measurements in *Monographia Heliceorum Viventium* (Pfeiffer, 1853a, p. 506) and the figure and scale in Hanley and Theobald (1870-1876 [1875], pl. 102, fig. 10).

217. *Ceciliooides bensonii* Gude, 1914

Ceciliooides (Geostilbia) bensonii Gude, 1914a, *FBI, Mollusca-II*: 375, fig. 121

Distribution: endemic to India. The original locality ("Plains of India") is vague, but may refer to the extensive low-lying terrain of the Indo-Gangetic depression, the region that separates the Himalayas from peninsular India (see Meyer et al., 1908-1931, vol. 1, p. 22, also Schwartzberg, 1992, p. 5). This species has recently been recorded from Aralasurali (13° 48' N, 75° 10' E) in Shimoga District, Karnataka in the central Western Ghats (N. A. Aravind, unpublished data).

Original locality: "Plains of India".

Type material: holotype (**Fig. 73A**) from the "Plains of India", "1888.12.4.654", NHM (reg. no. NHMUK 1888.12.04.654, "Purchased of W. Theobald Esq.").

Family Subulinidae

Genus *Subulina*

218. *Subulina octona* (Bruguière, 1789)

Bulimus octonus Bruguière, 1789, *Encyclopédie Méthodique. Histoire Naturelle des Vers*, Tome premier: 325
Subulina octona - Gude, 1914a, *FBI, Mollusca-II*: 341

Distribution: exotic to South Asia, where it has been reported from India and Sri Lanka

(Gude, 1914a; Mordan et al., 2003). This species has been considered to be indigenous to tropical South America and the Caribbean (Pilsbry, 1946), but its native range is far from certain, and its reproductive anatomy closely resembles that of two African species, *Subulina angustior* Dohrn (Odhner, 1932) and *Subulina striatella* Rang (F. Naggs, unpublished data). It has become widespread in the tropics and subtropics, travelling with cultivated plants. The current distribution extends from the Americas, to Africa, Asia, Australasia and Oceania, and it occurs in hot-houses in Europe and North America (Gude, 1914a; Godan, 1983; Anderson, 2005). Published records (Gude, 1914a) for India include Bombay in the northern Western Ghats and Tharangambadi on the eastern coast of Tamil Nadu, but it almost certainly has a much wider distribution on the peninsula.

Original locality: "the islands of the Antilles". Very abundant on "the island of Guadeloupe" (de Badier), and material from "the island of Saint-Domingue" (seen by Bruguière in the d'Antic collection).

Type material: Bruguière's types should be at the MNHN, Paris, but can no longer be traced because the original labels are missing for much of the Bruguière material in Paris. However, there are numerous references to and figures of this species in the literature, and there are many examples in museum reference collections. The identity of *S. octona* is not controversial, making the designation of a neotype inappropriate (ICZN, 1999, Article 75.2).

Other material: 2 of 23 shells from "Cinnamon Gdns, Mt. Lavinia", "Mrs. J. Longstaff, Acc. No: 906", NHM (reg. no. NHMUK 20110240/1-2, **Figs. 73B, C**).

Genus *Allopeas*³⁴

219. *Allopeas gracile* (Hutton, 1834)

Bulimus? gracilis Hutton, 1834, *Journal of the Asiatic Society of Bengal*, 3: 84, 93
Opeas gracile - Gude, 1914a, *FBI, Mollusca-II*: 355

Distribution: the indigenous range of this widespread pan-tropical species is unknown. Its current distribution extends from the Americas to Africa, Asia, and Oceania including Australia (Pilsbry, 1906; Neubert, 1998; Sherley, 2000; Shea, 2007; Robinson et al., 2009), and in South Asia it has been recorded from India, Pakistan and Sri Lanka (Gude 1914a; Mordan et al., 2003). In India it ranges across the north (Nainital and Roorkee in Uttarakhand, "Kashmir", Mirzapur and Fatehpur Sikri in Uttar Pradesh, between Agra in Uttar Pradesh and Neemuch in Madhya Pradesh); the northeast (Khasi Hills in Meghalaya, Dafla Hills in Assam and Arunachal Pradesh); and the east (Patna in Bihar, Calcutta in West Bengal, Rajmahal in Jharkhand). In West and South India it has been recorded from the northern (Bombay, Pune) and central (Erode) Western Ghats, from Madras in Tamil Nadu, and recently from Bangalore in Karnataka (Gude, 1914a; N.A. Aravind, unpublished data). Gude (1914a) has also reported it from the Laccadive Islands and from the Andaman and Nicobar Islands.

Original locality: Mirzapur (= "Mirzapoor"), Fatehpur Sikri (= "Futtehpur Sikri"), and between Agra and Neemuch.

Type material: 11 syntypes from "Mirzapur, India", "leg. and pres. T. Hutton", NHM (reg. no. 1856.09.15.68, "Mirzapore", "Presented by Capt. J. Hutton", "10 speci-

mens"), one of which is here designated as the lectotype (reg. no. 1856.09.15.68/1, **Fig. 73D**). Two of the 10 paralectotypes are also illustrated (reg. no. 1856.09.15.68/2-3, **Figs. 73E, F**).

Genus *Prosopeas*

220. *Prosopeas hebes* (W.T. & H.F. Blanford, 1861)

Spiraxis hebes W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 361, pl. 1, fig. 15
Prosopeas hebes - Gude, 1914a, *FBI, Mollusca-II*: 362

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills (W.T. and/or H.F. Blanford).

Type material: 2 syntypes from "Nilgiris", "coll. W.T. Blanford", "231.06.2.2", NHM (reg. no. NHMUK 1906.02.02.231, not registered at "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.02.02.231/1, **Fig. 74A**). The paralectotype is also illustrated (reg. no. NHMUK 1906.02.02.231/2, **Fig. 74B**).

Genus *Zootecus*

221. *Zootecus insularis* (Ehrenburg, 1831)

Pupa insularis Ehrenburg, 1831, *Symbolae physicae, Animalia Evertebrata exclusis insectis, Series prima cum tabularum decade prima, Animalia Mollusca*: 15 (unnumbered)

Zootecus insularis - Gude, 1914a, *FBI, Mollusca-II*: 367

Distribution: the current range of this species extends from the Cape Verde Islands and West, North and East Africa through the Arabian Peninsula to South Asia (India, Pakistan, Sri Lanka, Afghanistan) and northern Myanmar (Pilsbry, 1906; Gude, 1921; Neubert, 2003). This is a species of dry and semi-arid, often coastal habitats (Neubert, 1998; Mordan et al., 2003). In India it ranges from the west (Kutch in Gujarat), and north ("Bundelkhand", "Kashmir", Delhi, Lake Sambhar in Rajasthan, Barwani hills in Madhya Pradesh), through to the east (Patna in Bihar, Saharanpur in Odisha) and south (Cuddapah in the Eastern Ghats of Andhra Pradesh). In the Western Ghats it has been recorded from the northern (Bombay Island, Pune) and central (Tiruchirappalli) regions. For a definition of "Bundelkhand" (see p. 69).

Original locality: Kamaran (= "Cameran") Island, in the Red Sea and off the coast of Yemen.

Type material: lectotype (designated by E. Neubert, see Neubert, 2003), one of a series of 21 shells, labelled "Bulimus insularis Ehrenburg", "Insula Cameran", "Hemprich & Ehrenburg", ZMB, Berlin. The lectotype (**Fig. 74C**) and 20 paralectotypes are all registered under the same number (reg. no. ZMB 109990).

Other material: 1 of 7 shells from "Nilghiris, Trichinopoly", "Godwin-Austen Colln.", "2056.03.vii.1", NHM (reg. no. NHMUK 1903.07.01.2056/1, **Fig. 74D**).

222. *Zootecus pullus* (Gray, 1834)

Bulimus pullus Gray, 1834, *Proceedings of the Zoological Society of London*, proceedings for 1834: 66

Zootecus pullus - Gude, 1914a, *FBI, Mollusca-II*: 371

Distribution: globally restricted to the Indian subcontinent and to northern Myanmar, where it has been recorded from Ava (Inwa). Originally described from the banks of the Ganges River, this species may occur on both the Indian and Bangladeshi sides of the Ganges. Indian localities include: Delhi and Agra (Uttar Pradesh) in North India, Kutch (Gujarat) in West India, and Tiruchirappalli on the southeastern limits of the Western Ghats.

Original locality: in Eastern India, on the banks of the Ganges (= "Gangis") (Dr. Royle).

Type material: 2 syntypes from "Banks of the Ganges", "Royle", "(Gray)", "From Gray Colln.", "1986252", NHM (reg. no. NHM UK 1986252), the larger shell of which is here designated as the lectotype (reg. no. NHMUK 1986252/1, **Fig. 74E**). The paralectotype (reg. no. NHMUK 1986252/2, **Fig. 74F**) is also illustrated.

Genus *Glessula*

223. *Glessula anamullica* (Blanford, 1866)

Achatina anamullica Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 37

Glessula anamullica - Gude, 1914a, *FBI, Mollusca-II*: 395

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills and "Travancore hills" in the southern Western Ghats.

Original locality: "Travancore" and Anaimalai Hills.

Type material: authentic Blanford material could not be traced, and this taxon was not figured by him. Blanford's description is insufficient for recognising *G. anamullica*, and we therefore consider this species to be a *nomen dubium*.

224. *Glessula arthuri* (Benson, 1864)

Achatina arthuri Benson, 1864b, *Annals and Magazine of Natural History, Series 3*, 13: 209

Glessula arthuri - Gude, 1914a, *FBI, Mollusca-II*: 423

Distribution: endemic to the Western Ghats. Known from the Mahabaleshwar hills (Mahabaleshwar, Malcom Peth) in the northern Western Ghats.

Original locality: "Neher (Malcolm Peth)", in the Mahabaleshwar hills (S.B. Fairbank).

Type material: 3 syntypes from "Mahabaleshwar", "Benson coll.", NHM (reg. no. NHMUK 1946.10.16.35-37, "Pres. by The University Museum of Zool., Cambridge", "3", "Benson Coll"), one of which is here designated as the lectotype (reg. no. NHM UK 1946.10.16.35, **Fig. 75A**).

225. *Glessula beddomei* (Blanford, 1866)

Achatina beddomei Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 41

Glessula beddomei - Gude, 1914a, *FBI, Mollusca-II*: 398

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills at an elevation of 5000-7000 feet (Beddome).

Type material: 2 syntypes from "Anaimalai Hills, (Beddome)", "W.T. Blanford Colln.", "83.06.3.3", "1985146", NHM (reg. no. NHMUK 1906.03.03.83 (registered as "T"), re-registered in error as NHMUK 1985146), one of which is here designated as the lectotype (reg. no. NHMUK 1906.03.03.83/1, **Fig. 75B**). The paralectotype is also illustrated (reg. no. NHMUK 1906.03.03.83/2, **Fig. 75C**).

226. *Glessula bensoniana* (Pfeiffer, 1851)

Achatina bensoniana Pfeiffer, 1851b, *Zeitschrift für Malakozoologie*, 8: 27

Glessula bensoniana - Gude, 1914a, *FBI, Mollusca-II*: 415

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Kotagiri, Ootacamund) in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: Nilgiri Hills, India (Perrottet).

Type material: authentic Pfeiffer material could not be traced. Although a figure of this species was not included in the original description, it was figured in one of Pfeiffer's later publications (Küster and Pfeiffer, 1840-1865 [1860-1863], p. 325, pl. 26, figs. 12, 13, see **Fig. 61E**). This figure and the original description are, however, insufficient for recognising *G. bensoniana*, and we therefore consider this species to be a *nomen dubium*.

227. *Glessula blanda* Gude, 1914

Glessula blanda Gude, 1914a, *FBI, Mollusca-II*: 415, fig. 131

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills (Beddome), India.

Type material: holotype (**Fig. 75D**) from "Anamullays, type, Beddome Coll.", "824.12.iv.16", "1985137", NHM (reg. no. NHM UK 1912.04.16.824 (not registered as "T", "a lot of 23" specimens), re-registered in error as NHMUK 1985137).

228. *Glessula botellus* (Benson, 1860)

Achatina botellus Benson, 1860, *Annals and Magazine of Natural History, Series 3*, 5: 465

Glessula botellus - Gude, 1914a, *FBI, Mollusca-II*: 422

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Pykara) in the central Western Ghats.

Original locality: Nilgiri Hills (T. Jerdon).

Type material: a neotype (reg. no. NHM UK 1946.10.16.43, **Fig. 75E**) is here designated from a lot of 2 shells from "Nilgherries", "Benson coll.", NHM (reg. no. NHM UK 1946.10.16.43-44, "Pres. By The University Museum of Zool., Cambridge", "2", "Benson Coll."). Benson's description was based on a single shell, but as it is unclear which of the 2 NHM shells could be his

type, we have designated one as a neotype. The neotype designation has been made with the express purpose of clarifying the taxonomic status of *G. botellus* (see the original description by Benson, 1860).

Other material: the other shell (lacks the apical portion) from the above lot is also illustrated (reg. no. NHMUK 1946.10.16.44, **Fig. 75F**).

229. *Glessula bottampotana* (Hanley & Theobald, 1876)

Achatina bottampotana Hanley & Theobald, 1876, *Conchologia Indica*: 63, pl. 156, fig. 1 [indicated as a Beddome manuscript name]

Glessula bollampattiana - Gude, 1914a, *FBI, Mollusca-II*: 401

Distribution: endemic to the Western Ghats. Known from the Palghat and "Bolampatti" Hills in the central Western Ghats.

Original locality: the only indication of a locality by Hanley and Theobald (1876) was their comment "Lent to us by Col. Beddome with this local name" (i.e. bottampotana). Beddome subsequently indicated to Nevill (1881) that the locality was "Bolampatty hill, near Coimbatore at 7000 [feet]" (see account of *Philalanka bolampattiensis* in Nevill, 1881, p. 139), and that Hanley had misread the original label.

Type material: 1 syntype labelled "G. Bolampottiana Bedd. S. India ex auct." and "bollampattiana Han. (Em.) [Bolampatty Hills]", "Ex. Coll.: Beddome", "Melville-Tomlin Coll.", NMW, Cardiff (NMW 1955.158.24 931). This shell is here designated as the lectotype (**Fig. 76A**). Hanley and Theobald's original figure is also reproduced (**Fig. 61F**).

230. *Glessula brevis* (Pfeiffer, 1862)

Achatina brevis Pfeiffer, 1862b, *Proceedings of the Zoological Society of London*, proceedings for 1861: 387

Glessula brevis - Gude, 1914a, *FBI, Mollusca-II*: 439

Distribution: endemic to India, occurring in the northern Western Ghats (Pune), on the northeastern limits of the Western Ghats (Ahmadnagar), and in the northern part of the Eastern Ghats (hills around Jeypore in the state of Odisha).

Original locality: Ahmadnagar (= "Ahmednugger") (Cuming collection).

Type material: 4 syntypes (3 adult and 1 immature) from "Ahmednager", (species name and locality in Pfeiffer's handwriting), "Mus. Cuming", NHM (reg. no. NHMUK 1989003), one of which is here designated as the lectotype (reg. no. NHMUK 1989 003/1, **Fig. 76B**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 1989003/2, **Fig. 76C**). Of the 4 shells, only the immature one corresponds with Pfeiffer's measurements ("Long. 8-9, diam. 5-5 1/3 mill."); the 3 adult shells are approximately 11 mm in length and 6.65 mm in width. However, given their status as authentic Pfeiffer specimens and their generally similar appearance, we accept all 4 shells as syntypes.

231. *Glessula canarica* Beddome, 1906

Glessula canarica Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 164, pl. 15, fig. 4

Glessula canarica - Gude, 1914a, *FBI, Mollusca-II*: 394

Distribution: endemic to the Western Ghats. Known from Kudremukh, in the "South Canara Ghats", central Western Ghats.

Original locality: Kudremukh (= "Kudra Mukh"), "South Canara Ghats".

Type material: 1 syntype from "South Canara Ghats", "Col. Beddome", NHM (reg. no. NHMUK 1906.11.24.9, "Type", "Pres. By Col. Beddome"). This shell is here designated as the lectotype (**Fig. 76D**).

232. *Glessula chessoni* (Benson, 1860)

Achatina chessoni Benson, 1860, *Annals and Magazine of Natural History, Series 3*, 5: 462

Glessula chessoni - Gude, 1914a, *FBI, Mollusca-II*: 388

Distribution: endemic to the Western Ghats. Known from the Mahabaleshwar hills, Torna, Purandar, and Igatpuri in the northern Western Ghats, and from the "North Canara" forests (Sirsi) in the central Western Ghats.

Original locality: Mahabaleshwar hills (J. Chesson).

Type material: 5 syntypes from "India", "Benson coll.", NHM (reg. no. NHMUK 1946.10.16.16-20, "Type?", "Pres. by The University Museum of Zool., Cambridge", "5", "Benson Coll."), one of which is here designated as the lectotype (reg. no. NHMUK 1946.10.16.16, **Fig. 76E**). One of the 4 paralectotypes is also illustrated (reg. no. NHMUK 1946.10.16.17, **Fig. 76F**).

233. *Glessula corrosula* (Pfeiffer, 1856)

Achatina corrosula Pfeiffer, 1856a, *Proceedings of the Zoological Society of London*, proceedings for 1856: 35

Glessula corrosula - Gude, 1914a, *FBI, Mollusca-II*: 414

Distribution: endemic to India, with published records from the Western Ghats (Nilgiri Hills) and the northern part of the Eastern Ghats (Kurnool).

Original locality: Nilgiri Hills (Conway Shipley, Cuming collection).

Type material: 2 syntypes from "Nilgiris", "Mus. Cuming", NHM (reg. no. NHMUK 1985159), one of which is here designated as the lectotype (reg. no. NHMUK 1985159/1, **Fig. 77A**). The paralectotype is also illustrated (reg. no. NHMUK 1985159/2, **Fig. 77B**). The specimens are not accompanied by any labelling in Pfeiffer's own hand, but because they are from the original locality and from the Cuming collection they can be considered as syntypes.

234. *Glessula courtallica* Gude, 1914

Glessula courtallica Gude, 1914a, *FBI, Mollusca-II*: 436, fig. 137

Distribution: endemic to the Western Ghats. Known from Courtalam, "Tinnevelly", in the southern Western Ghats.

Original locality: Courtalam (= "Courtalam"), "Tinnevelly" (Beddome).

Type material: holotype (**Fig. 77C**) from "Courtallum, Tinnevelly", "coll. Colonel Beddome", "800.12.iv.16" and "1985149", NHM (reg. no. NHMUK 1912.04.16.800 (not registered as "T", "2", "12" and "14" specimens), re-registered in error as NHM UK 1985149).

235. *Glessula facula* (Benson, 1860)

Achatina facula Benson, 1860, *Annals and Magazine of Natural History, Series 3*, 5: 466
Glessula facula - Gude, 1914a, *FBI, Mollusca-II*: 421

Distribution: endemic to India, with published records from the central (Nilgiri Hills) and southern (Anaimalai and Palni Hills) regions of the Western Ghats, and from the Eastern Ghats (Kurnool, hills around Jeypore).

Original locality: Nilgiri Hills (T. Jerdon).

Type material: authentic Benson material could not be traced. Reeve figured a specimen, which was from Jerdon and had been collected from the Nilgiri Hills (Reeve, 1848-1850 [1850], *Achatina* pl. 21, fig. 102, see **Fig. 78A**). This figure and Benson's description are, however, insufficient for recognising *G. facula*, and we therefore consider this species to be a *nomen dubium*.

236. *Glessula fairbanki* (Benson, 1865)

Achatina fairbanki Benson, 1865, *Annals and Magazine of Natural History, Series 3, 15*: 14
Glessula fairbanki - Gude, 1914a, *FBI, Mollusca-II*: 383

Distribution: endemic to the Western Ghats. Known from Mahabaleshwar in the northern Western Ghats.

Original locality: Mahabaleshwar hills.

Type material: 2 syntypes from "India", "Bens. col.", NHM (reg. no. NHMUK 1946.

10.16.41-42, "Pres. by The University Museum of Zool., Cambridge", "2", "Benson Coll."), one of which is here designated as the lectotype (reg. no. NHMUK 1946.10.16.41, **Fig. 77D**). The paralectotype is also illustrated (reg. no. NHMUK 1946.10.16.42, **Fig. 77E**).

237. *Glessula filosa* Blanford, 1870

Glessula filosa Blanford 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 19, pl. 3, fig. 16
Glessula filosa - Gude, 1914a, *FBI, Mollusca-II*: 440

Distribution: endemic to the Western Ghats. Known from "Travancore" and "Tinnevelly" in the southern Western Ghats, and from the Shevaroy Hills in the central region.

Original locality: "Travancore" (Beddome).

Type material: 2 syntypes from "Travancore" (Beddome), "fig.d J.A.S.B. Pl. iii. fig. 16 (1870)", "896.06.1.1", "1985143", NHM (reg. no. NHMUK 1906.01.01.896 (registered as "T"), re-registered in error as NHMUK 1985143), one of which is here designated as the lectotype (reg. no. NHMUK 1906.01.01.896/1, **Fig. 77F**). The paralectotype is also illustrated (reg. no. NHMUK 1906.01.01.896/2, **Fig. 79A**).

***Glessula filosa* 'var. *exigua*' Gude, 1914**

Glessula filosa var. *exigua* Gude, 1914a, *FBI, Mollusca-II*: 441, fig. 139

Distribution: endemic to the Western Ghats. Known from the Sirumalai range in the southern Western Ghats.

Original locality: Sirumalai range (= "Sirumallay Hills"), Dindigul (Beddome collection).

Type material: 1 syntype from "Sirumallay Hills", "Bedd. coll.", NHM (reg. no. NHM UK 1985144). This shell is here designated as the lectotype (Fig. 79B).

238. *Glessula gemma* (Reeve, 1850)

Achatina gemma Reeve, 1850, *Conchologia Iconica*, 5 (*Achatina*): pl. 22, fig. 123
[indicated as a Benson manuscript name]
Glessula gemma - Gude, 1914a, *FBI*,
Mollusca-II: 428

Distribution: globally restricted to India (Northeast, East and South India), Bangladesh (Jessore District, Chittagong) and Myanmar (Arakan). In India its range extends from West Bengal (Barrackpore, and Chandannagar), Odisha (Chandbali) and Jharkhand (Rajmahal) in the east to Meghalaya (Garo Hills) in the northeast, and the central Western Ghats ("Malabar plains" and Beypore) in South India. It has also been recorded from "Moisraka" and "Chandpore". The former according to Godwin-Austen (1882, p. 21) refers to "Moisraka, Midnapur district"; Midnapur, which is now known as Midnapore or Medinipur, is in West Bengal, but Moisraka could not be traced. There are several places with the modern name Chandpur or Chandpura in North and Northeast India (see Meyer et al., 1908-1931, vol. 10, pp. 167-8, and the *Fall-in-grain Global Gazetteer*, <http://www.fallin-grain.com/world/index.html>).

Original locality: Barrackpore, "Bengal" (Bacon and Benson, Benson collection).

Type material: authentic Reeve material could not be traced, but the species was figured in the original description (see Fig. 78B). The shell figured by Reeve is considerably larger than the shells in the Benson lot described below.

Other material: 2 in lot of 9 shells labelled "7 Type", "Bens. col.", "Univ., Mus., Cambridge", "1946.10.16.45-53", NHM (reg. no. NHMUK 1946.10.16.45-53, "Type", "Pres. by The University Museum of Zool., Cambridge", "9", "Benson Coll."). This lot consists of 8 shells of *Glessula gemma* (2 of these are illustrated) and a single shell labelled "2nd from left, top row is different sp. Remaining are TYPES?" (this label indicates that some or all of the shells in the lot were attached to a board at one time). The 2 shells illustrated have the reg. nos. NHMUK 1946.10.16.45 (Fig. 79C) and NHMUK 1946.10.16.46 (Fig. 79D). It is not clear if Reeve based his description on a single specimen or several shells. Reeve's description and figure do not provide an indication of shell size, so although the specimen illustrated in Fig. 79C looks similar to the original description and figure, it is difficult to be certain that the lot of 8 Benson shells at the NHM are indeed Reeve's *Glessula gemma*.

239. *Glessula gracilis* Beddome, 1906

Glessula gracilis Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 170, pl. 15, fig. 9
Glessula gracilis - Gude, 1914a, *FBI*,
Mollusca-II: 434

Distribution: endemic to India, where it has been recorded from the central (Nilgiri and Shevaroy Hills) and southern ("Travan-

core") parts of the Western Ghats, and from the northern region of the Eastern Ghats (Jeypore).

Original locality: Nilgiri Hills, and Jeypore hills near the east coast of Madras.

Type material: 1 syntype from "Nilgiris", Col. Beddome, NHM (reg. no. NHMUK 1906.11.24.8, "Type", "Pres. By Col. Beddome"). This shell is here designated as the lectotype (**Fig. 79E**).

240. *Glessula hebes* (Blanford in Pfeiffer, 1868)

Achatina hebes Blanford in Pfeiffer, 1868, *Monographia Heliceorum Viventium*, 6: 230

Glessula hebes - Gude, 1914a, *FBI, Mollusca-II*: 382

Distribution: endemic to India. It occurs in Northeast India (Dafla Hills in Arunachal Pradesh, and Assam) and in the Western Ghats, where it has been recorded from the northern (Mahabaleshwar, and "Deo Ghat" in Pune, which could not be traced), central (Coonoor Pass in the Nilgiri Hills, Shevaroy Hills), and southern (Palni Hills) regions.

Original locality: unknown.

Type material: 2 syntypes from "British India", "Mus. Cuming", NHM (reg. no. NHMUK 1985155), one of which is here designated as the lectotype (reg. no. NHM UK 1985155/1, **Fig. 79F**). The paralectotype is also illustrated (reg. no. NHMUK 1985155/2, **Fig. 80A**). Pfeiffer's original handwritten labels are missing, but because these specimens are from the Cuming collection they can be considered as syntypes.

241. *Glessula indica* Gude, 1914

Glessula indica Gude, 1914a, *FBI, Mollusca-II*: 392, fig. 123

Distribution: endemic to the Western Ghats. Known from the "Tinnevelly Hills" and the Anaimalai Hills in the southern Western Ghats.

Original locality: holotype from "Tinnevelly Hills" (Beddome), paratypes from Anaimalai Hills (Beddome), India.

Type material: holotype (**Fig. 80B**) from "Tinnevelly", "Beddome coll.", "709.12.iv. 16", "1985226", NHM (reg. no. NHMUK 1912.04.16.709 (registered as "T", number of specimens listed as "3", "4" and "7"), and re-registered in error as NHMUK 1985226). 4 paratypes from "Anamallays", "832.12.iv. 16", "1985227", NHM (reg. no. NHMUK 1912.04.16.832, re-registered in error as NHMUK 1985227), one of which is illustrated (reg. no. NHMUK 1912.04.16.832/1, **Fig. 80C**).

242. *Glessula isis* (Hanley, 1876)

Achatina (Glessula) isis Hanley, 1876, *Proceedings of the Zoological Society of London*, proceedings for 1875: 606

Glessula isis - Gude, 1914a, *FBI, Mollusca-II*: 393

Distribution: endemic to the Western Ghats. Known from the Palni Hills in the southern Western Ghats.

Original locality: "Southern India" (Hanley collection).

Type material: authentic Hanley material could not be traced, but this distinctive

species was figured in a later Hanley publication (Hanley and Theobald, 1870-1876 [1876], p. 62, pl. 155, fig. 5, see **Fig. 78C**).

243. *Glessula jerdoni* (Reeve, 1850)

Achatina jerdoni (Reeve, 1850, *Concholologia Iconica*, 5 (Achatina): pl. 21, fig. 80 [indicated as a Benson manuscript name]
Glessula jerdoni - Gude, 1914a, *FBI, Mollusca-II*: 418

Distribution: endemic to India, where it occurs in the southern (Palni and Anaimalai Hills) and central (Nilgiri Hills) parts of the Western Ghats, and in Cherrapunji (= "Cherra Poonjee") in Meghalaya.

Original locality: Nilgiri Hills, "Hindoo-stan" (Jerdon, Benson collection).

Type material: authentic Reeve material could not be traced, but the species was figured in the original description (see **Fig. 78D**).

Other material: 1 (reg. no. NHMUK 1946.10.16.8) of 4 shells from "Nilgherries", "Bens. Col.", NHM (reg. no. NHMUK 1946.10.16.8-12, "Pres. by The University Museum of Zool., Cambridge", "Benson Coll.", "5", **Fig. 80D**). None of the shells in this lot correspond closely with Reeve's figure in shape and dimensions.

244. *Glessula lyrata* Blanford, 1870

Glessula lyrata Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 20
Glessula lyrata - Gude, 1914a, *FBI, Mollusca-II*: 441

Distribution: endemic to the Western Ghats. Known from Mahabaleshwar and Khandala in the northern Western Ghats.

Original locality: Mahabaleshwar.

Type material: 1 syntype from "Mahableshwar", "14.06.3.3", "1986008", NHM (reg. no. NHMUK 1906.03.03.14 (registered as "T", "2 specimens"), re-registered in error as NHMUK 1986008). This shell is here designated as the lectotype (**Fig. 80E**).

Glessula lyrata 'var. *matheranica*' Blanford, 1870

Glessula lyrata var. *matheranica* Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 21, pl. 3, fig. 19

Glessula lyrata var. *matheranica* - Gude, 1914a, *FBI, Mollusca-II*: 442

Distribution: endemic to the Western Ghats. Known from Matheran, near Bombay, in the northern Western Ghats.

Original locality: Matheran, not far from Bombay.

Type material: 3 syntypes from "Matheran Hills, Bombay", "coll. W.T. Blanford, Esq.", NHM (reg. no. NHMUK 1989007), one of which is here designated as the lectotype (reg. no. NHMUK 1989007/1, **Fig. 80F**). One of the 2 paratypes is also illustrated (reg. no. NHMUK 1989007/2, **Fig. 81A**).

245. *Glessula malabarica* Gude, 1914

Glessula malabarica Gude, 1914a, *FBI, Mollusca-II*: 430, fig. 135

Distribution: endemic to the Western Ghats. Known from "Malabar" in the central Western Ghats, and from "Travancore" in the southern Western Ghats.

Original locality: "Malabar" (the locality of the holotype) and "Travancore" (Beddome), India.

Type material: holotype from "Malabar, India, type, Beddome Coll.", "798.12.iv.16", "1986012", NHM (reg. no. NHMUK 1912.04.16.798 (not registered as "T", "2", "4" and "6" specimens), re-registered in error as NHMUK 1986012, **Fig. 81B**).

246. *Glessula neglecta* Gude, 1914

Glessula neglecta Gude, 1914a, *FBI, Mollusca-II*: 435, fig. 136

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills, India (Beddome).

Type material: holotype (**Fig. 81C**) from "Anamullays, type, Beddome Coll.", "810.12.iv.16", "1985215", NHM (reg. no. NHM UK 1912.04.16.810 (not registered as "T", "6" and "8" specimens), re-registered in error as NHMUK 1985215).

247. *Glessula nilagirica* (Reeve, 1850)

Achatina nilagirica Reeve, 1850, *Conchologia Iconica*, 5 (Achatina): pl. 21, fig. 87 [indicated as a Benson manuscript name]

Glessula nilagirica - Gude, 1914a, *FBI, Mollusca-II*: 382

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills in the central Western Ghats.

Original locality: Nilgiri Hills, India (Jerdon, Benson collection).

Type material: 3 syntypes from "Nilgherries", "Bens. col.", NHM (reg. no. NHMUK 1946.10.16.58-60, "Type?", "Pres. by The University Museum of Zool., Cambridge", "3", "Benson Coll."), one of which is here designated as the lectotype (reg. no. NHMUK 1946.10.16.58, **Fig. 81D**). One of the 2 paralectotypes is illustrated (reg. no. NHMUK 1946.10.16.59, **Fig. 81E**), and Reeve's original figure is also reproduced (see **Fig. 78E**).

248. *Glessula notigena* (Benson, 1860)

Achatina notigena Benson, 1860, *Annals and Magazine of Natural History, Series 3*, 5: 462

Glessula notigena - Gude, 1914a, *FBI, Mollusca-II*: 412

Distribution: endemic to India, where it is restricted to the northern part of the Western Ghats (near Bombay, Mahabaleshwar hills, Pune and Khandala) and to East and Northeast India (Sikkim and Darjeeling).

Original locality: hills of Mahabaleshwar (J. Chesson), and also near Bombay (W. Theobald).

Type material: 5 syntypes from "Mahabaleshwar", "Bens. Col.", NHM (reg. no. NHMUK 1946.10.16.73-77, "Type?", "Pres. by The University Museum of Zool., Cambridge", "5", "Benson Coll."), one of which is here designated as the lectotype (reg. no. NHMUK 1946.10.16.73, **Fig. 81F**). One of

the 2 paralectotypes is also illustrated (reg. no. NHMUK 1946.10.16.74, **Fig. 82A**).

249. *Glessula oreas* (Reeve, 1850)

Achatina oreas Reeve, 1850, *Conchologia Iconica*, 5 (Achatina): pl. 21, fig. 113
[indicated as a Benson manuscript name]
Glessula oreas - Gude, 1914a, *FBI, Mollusca-II*: 424

Distribution: endemic to India, with published records from the southern and central Western Ghats (Nilgiri Hills, "Tinnevelly and Travancore Hills", and "South Canara Ghats") and the southern part of the Eastern Ghats (Kurnool and the Nallamalai Hills).

Original locality: Nilgiri Hills, "Hindoo-stan" (Jerdon, Benson collection).

Type material: authentic Reeve material could not be traced, but the species was figured in the original description (see **Fig. 78F**).

Other material: largest (reg. no. NHMUK 1946.10.16.21, **Fig. 82B**) of 3 shells from "Nilgerries", "Bens. col.", NHMUK, "Pres. by The University Museum of Zool., Cambridge", "3", "Benson Coll." (reg. no. NHM UK 1946.10.16.21-23). None of these 3 shells correspond closely with Reeve's figure in shape and dimensions – they are all much smaller.

250. *Glessula orophila* (Reeve, 1849)

Achatina orophila Reeve, 1849, *Conchologia Iconica*, 5 (Achatina): pl. 19, fig. 105
[indicated as a Benson manuscript name]
Glessula orophila - Gude, 1914a, *FBI, Mollusca-II*: 423

Distribution: this species has been recorded from the southern (Anaimalai Hills), central (Nilgiri Hills, "S. Canara") and northern (Mahabaleshwar) regions of the Western Ghats, from Colombo on the southwest coast of Sri Lanka, and from Bago (formerly known as "Pegu") in southern Myanmar.

Original locality: Nilgiri Hills, India (Jerdon), Colombo, Ceylon (Templeton).

Type material: authentic Reeve material could not be traced. Although *G. orophila* was figured in the original description (see **Fig. 83A**), the figure and Reeve's description are insufficient for recognising this species. The shell illustrated by Reeve was from the Cuming collection (no Cuming material could be traced by us), but Reeve has given no indication as to whether the specimen was from the Indian or Sri Lankan localities, or from Jerdon or Templeton. For these reasons, we consider *G. orophila* to be a *nomen dubium*.

251. *Glessula paupercula* (W.T. & H.F. Blanford, 1861)

Achatina paupercula W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 362, pl. 1, fig. 16
Glessula paupercula - Gude, 1914a, *FBI, Mollusca-II*: 431

Distribution: endemic to South India. It has been recorded from the southern (Anaimalai Hills, "Tinnevelly" and "Travancore Hills") and central (Kollimalai, Pachamalai and Shevaroy Hills, and Salem) parts of the Western Ghats, and from the southern region of the Eastern Ghats ("Kurnool Hills").

Original locality: Kollimalai Hills (= "Kol-amullies"), Pachamalai Hills (= "Patchamullies") and Shevaroy Hills (W.B. Foote).

Type material: a neotype (reg. no. NHMUK 20110264/1, **Fig. 82C**) is here designated from a series of 45 shells from the "Shevroys", "ex. W. Mahon Daly, Blanford Colln.", NHM (reg. no. NHMUK 2011 0264). We have designated a neotype with the express purpose of clarifying the taxonomic status of *G. paupercula* (see the original description by Blanford and Blanford, 1861).

Other material: one of the other shells from the above lot is also illustrated (reg. no. NHMUK 20110264/2, **Fig. 82D**).

Glessula paupercula 'var. *nana*'
Beddome, 1906

Glessula paupercula var. *nana* Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 170

Glessula paupercula var. *nana* - Gude 1914a, *FBI, Mollusca-II*: 431

Distribution: endemic to the Western Ghats. Known from "Travancore" and "Tinnevelly" (Gude, 1914a) in the southern Western Ghats.

Original locality: not given, but Beddome stated that this form occurs "occasionally with the type form".

Type material: 18 syntypes from "Travancore", "Coll. Col. Beddome", "797.12.iv. 16", NHM (reg. no. NHMUK 1912.04.16. 797, not registered as "T", "20" specimens), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16. 797/1, **Fig. 82E**). One of the 17 paralecto-

types is also illustrated (reg. no. NHMUK 1912.04.16.797/2, **Fig. 82F**).

252. *Glessula perroteti* (Pfeiffer, 1842)

Achatina perroteti Pfeiffer, 1842a, *Revue Zoologique par la Société Cuvierienne*, année 1842: 305

Glessula perroteti - Gude, 1914a, *FBI, Mollusca-II*: 386

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills (Naduvattam) in the central Western Ghats, and from the Palni Hills in the south.

Original Locality: "the plateau of the Nilgiris" (Perrotet).

Type material: authentic Pfeiffer material could not be traced. Although this species was not figured in the original description, a figure was included in one of Pfeiffer's later publications (Küster and Pfeiffer, 1840-1865, p. 324, pl. 26, figs., 16, 17, see **Fig. 83B**). This figure and Pfeiffer's original description are, however, insufficient for recognising *G. perroteti*. We, therefore, consider this species to be a *nomen dubium*.

253. *Glessula pseudoreas* (Nevill, 1881)

Stenogyra (Glessula) pseudoreas Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 136

Glessula pseudoreas - Gude, 1914a, *FBI, Mollusca-II*: 425

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills and the "S. Canara Ghats" in the central Western Ghats, and from the "Tinnevelly Hills" in the southern Western Ghats.

Original locality: Nilgiri Hills (Blanford).

Type material: this taxon was described after the publication of Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*, and it was not figured by him. Nevill's types are likely to have been from the Indian Museum collections (i.e. presently at the ZSI), but could not be traced, and examples from neither Blanford nor Nevill could be traced in the NHM. Nevill's brief description is insufficient for recognising *G. pseudoreas*, and we therefore consider this species to be a *nomen dubium*.

Glessula pseudoreas 'var.
subdeshayesiana' (Nevill, 1881)

Stenogyra (Glessula) pseudoreas var. *subdeshayesiana* Nevill, 1881, *Journal of the Asiatic Society of Bengal*, 50 (2): 136
Glessula pseudoreas var. *subdeshayesiana* - Gude, 1914a, *FBI, Mollusca-II*: 425

Distribution: endemic to the Western Ghats. Known from the Anaimalai and Palni Hills in the southern Western Ghats.

Original locality: Anaimalai Hills (Beddome), and also from the Palni Hills (Fairbank).

Type material: this snail was described after the publication of Nevill's (1878a) *Hand List of Mollusca in the Indian Museum*, and it was not figured by him. The type material is likely to have been from the Indian Museum collections (i.e. presently at the ZSI), but could not be traced, and material from Beddome, Fairbank or Nevill could not be located at the NHM. Nevill's brief description is insufficient for recognising *G. pseudoreas* 'var. *subdeshayesiana*',

and we therefore consider it to be a *nomen dubium*.

254. *Glessula pulla* Blanford, 1870

Glessula pulla Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 21, pl. 3, fig. 20

Glessula pulla - Gude, 1914a, *FBI, Mollusca-II*: 430

Distribution: endemic to the Western Ghats. Known from Torna, near Pune, in the northern Western Ghats.

Original locality: Torna (Evezard).

Type material: 3 syntypes (labelled "authentic", "typical" and "Topotypes") from "Torna, N. Dekhan", "H.F. Blanford Coll.", "49.9.iii.15", NHM (reg. no. NHMUK 1909.03.15.49, registered as "Typical"), one of which is here designated as the lectotype (reg. no. NHMUK 1909.03.15.49/1, **Fig. 84A**). One of the 2 paratypes is also illustrated (reg. no. NHMUK 1909.03.15.49/2, **Fig. 84B**).

255. *Glessula pusilla* Beddome, 1906

Glessula pusilla Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 171, pl. 15, fig. 5

Glessula pusilla - Gude, 1914a, *FBI, Mollusca-II*: 436

Distribution: endemic to Sri Lanka (Ramboda hills), and the southern (Anaimalai Hills) and central (Nilgiri and Shevaroy Hills) regions of the Western Ghats.

Original locality: Ramboda hills (= "Rambaddy Ghat"), Ceylon, and Anaimalai, Shevaroy and Nilgiri Hills, "South India".

Type material: 5 syntypes from the NHM, one of which is here designated as the lectotype. The lectotype (**Fig. 84C**) is from "Ceylon", "Rambaddy", "816.12.iv.16", "1988144" (reg. no. NHMUK 1912.04.16. 816 (not registered as "T"), re-registered in error as NHMUK 1988144). Three of the 4 paralectotypes are also illustrated: 1 paralectotype from "Ootacamund", "817.12.iv.16", "1988146" (reg. no. NHMUK 1912.04.16. 817 (not registered as "T"), and re-registered in error as NHMUK 1988146, **Fig. 84D**); 1 paralectotype from "Anamallay Hills, Col. Beddome", "1906.11.24.2" (reg. no. NHM UK 1906.11.24.2, "Type", "Pres. By Col. Beddome", **Fig. 84E**); and 1 of 2 paralectotypes (reg. no. NHMUK 1912.04.06.818/1, **Fig. 84F**) from "Shevroys", "818.12.iv.6", "1988145" (reg. no. NHMUK 1912.04.06. 818 (not registered as "T"), re-registered in error as NHMUK 1988145).

256. *Glessula reynelli* 'var. *immitis*' Gude, 1914

Glessula reynelli var. *immitis* Gude, 1914a, *FBI, Mollusca-II*: 398

Distribution: endemic to Sri Lanka and the Western Ghats, where it is has been recorded from the Anaimalai Hills in the south. *Glessula reynelli* 'var. *reynelli*' is endemic to southwestern Sri Lanka.

Original locality: Ceylon (Preston) and Anaimalai Hills, India (Beddome).

Type material: 2 syntypes from "Ceylon" (species name in Gude's handwriting), "presented by H.B. Preston", "1907.2.23. 15-16", NHM (reg. no. NHMUK 1907.02. 23.15-16, "Pres.d by H.B. Preston Esq."), one of which is here designated as the lectotype (reg. no. NHMUK 1907.02.23.

15, **Fig. 85A**). The paralectotype is also illustrated (reg. no. NHMUK 1907.02.23.16, **Fig. 85B**).

No Beddome specimens from the Anaimalai Hills could be traced for this species at either the NHM or the NMW.

257. *Glessula rugata* Blanford, 1870

Glessula rugata Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 20, pl. 3, fig. 18

Glessula rugata - Gude, 1914a, *FBI, Mollusca-II*: 442

Distribution: endemic to the Western Ghats. Known from Sinhgarh, near Pune, and Purandar in the northern Western Ghats.

Original locality: Sinhgarh (= "Singhur"), near Pune (= "Poona").

Type material: 9 syntypes from "Ginghur Hills near Poona" ("Singhur" on another label with same lot), "coll. W.T. Blanford, Esq.", NHM (reg. no. NHMUK 20110241), one of which is here designated as the lectotype (reg. no. NHMUK 20110241/1, **Fig. 85C**). Two of the 8 paralectotypes are also illustrated (reg. no. NHMUK 201102 41/2-3, respectively **Figs. 85D, E**).

258. *Glessula sarissa* (Benson, 1860)

Achatina sarissa Benson, 1860, *Annals and Magazine of Natural History, Series 3*, 5: 463

Glessula sarissa - Gude, 1914a, *FBI, Mollusca-II*: 412

Distribution: globally restricted to Bangladesh (Kumarkhali and Jessore District) and India, where it has been recorded from East India (Uluberia in West Bengal) and the

Western Ghats (Bombay). It has also been recorded from "Moisraka", a British Indian locality which could not be traced (see p. 124).

Original locality: "near Comercolly, Bengal on the banks of the Ganges" (Theodore Cantor). This locality is most likely Kumar-khali, located just south of Kushtia on the south bank of the Ganges, Western Bangladesh.

Type material: 4 syntypes from "Bengal", "Bens. col.", NHM (reg. no. NHMUK 1946.10.16.69-72, "Pres. by The University Museum of Zool., Cambridge", "Benson Coll."), one of which is here designated as the lectotype (reg. no. NHMUK 1946.10.16.69, **Fig. 85F**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 1946.10.16.70, **Fig. 86A**).

259. *Glessula sattaraensis* (Hanley & Theobald, 1873)

Achatina sattaraensis Hanley & Theobald, 1873, *Conchologia Indica*: 33, pl. 78, fig. 4 [indicated as a manuscript name of H. Adams]

Glessula sattaraensis - Gude, 1914a, *FBI, Mollusca-II*: 432

Distribution: endemic to the northern part of the Western Ghats. This species was originally recorded from Satara in the Western Ghats near Bombay, but Hanley and Theobald (1873) mistakenly gave the locality as "Saharumpore, Ceylon". Saharumpore is almost certainly modern-day Saharanpur in India's Uttar Pradesh. The Sri Lankan records of this species from the hills around Ramboda (= "Rambaddy Ghats") and Nuwara Eliya (Gude, 1914a) are doubtful. It is unlikely that a species

occurring in the wet montane habitat of Ramboda and Nuwara Eliya also occurs in the far drier, strongly seasonal habitats of the northern Western Ghats. This snail should, therefore, be treated as a species restricted to the Western Ghats.

Original locality: Satara (= "Sattara"), Bombay (F. Layard), as indicated by Adams (1868) in his description of *Glessula fusca*. Hanley and Theobald's (1873) *sattaraensis* was a replacement name for *fusca*, which was pre-occupied (*Achatina fusca* Pfeiffer, 1854, see Pfeiffer, 1854c, p. 67), but the locality they gave ("Saharumpore, Ceylon") was clearly an error.

Type material: 1 shell, here designated a neotype (**Fig. 86B**), from "Sattara", "Layard through G. Nevill WTB", "Satara, Blanford Colln.", "77.06.3.3", "1986032", NHM (reg. no. NHMUK 1906.03.03.77 (registered as "T"), re-registered in error as NHMUK 1986032).

Adams' type, which was in the NHM collections (reg. no. NHMUK 1878.01.28.632) no longer exists – the specimen box is empty apart from the labels ("?fusca, H. Ad. Sattara, Bombay", "=sattaraensis", "from the Coll. of H. Adams.", "78.1.28.632") and a note stating "crushed in box". Adams' description was based on at least 3 specimens from Sattara, but authentic Adams material can no longer be traced. Adams' original figure of *Glessula fusca* is reproduced (Adams, 1868, p. 15, pl. 4, figs. 10, 10a, see **Fig. 83C**). Adams obtained his material from F. Layard and there is one Layard shell at the NHM. This shell is from Sattara and is labelled *G. sattaraensis*. We have designated it as a neotype with the express purpose of clarifying the taxonomic status of *G. sattaraensis*; see the original description and figure of *G. sattaraensis* by

Hanley and Theobald (1873) and the description and figure of *Glessula fusca* by Adams (1868).

260. *Glessula scrutillus* (Benson, 1860)

Achatina scrutillus Benson, 1860, *Annals and Magazine of Natural History, Series 3*, 5: 463

Glessula scrutillus - Gude, 1914a, *FBI, Mollusca-II*: 427

Distribution: endemic to India, where it has been recorded from Cuttack (state of Odisha) in East India, the upper valley of the Narmada River, and from "Malabar" in the southern Western Ghats.

Original locality: Province of "Orissa (Cuttack)", and also the upper valley of the Narmada River, central India (W. Theobald).

Type material: 1 syntype labelled "Narbadha Valley", "88.12.4.1279", NHM (reg. no. NHMUK 1888.12.04.1279, "Purchased of W. Theobald", "1"). This shell is here designated as the lectotype (Fig. 86C).

261. *Glessula senator* (Hanley, 1876)

Achatina (Glessula) senator Hanley, 1876, *Proceedings of the Zoological Society of London*, proceedings for 1875: 606

Glessula senator - Gude, 1914a, *FBI, Mollusca-II*: 393

Distribution: endemic to the Western Ghats. Known from the Kottayam and Peermade Hills, "Travancore", southern Western Ghats.

Original locality: Kottayam (= "Cottayam") hills, "Southern India" (Beddome collection and MacAndrew/Benson collection).

Type material: authentic Hanley material of this distinctive species could not be traced. Although this taxon was not figured in the original description, it was figured in another Hanley publication (Hanley and Theobald, 1870-1876 [1876], p. 62, pl. 155, fig. 4). A neotype is here designated from a series of 4 shells from "Peermade Hills, Travancore", "coll. Col. Beddome", "710. 12.IV.16", NHM (reg. no. NHMUK 1912. 04.16.710, not registered as "T"). This shell (reg. no. NHMUK 1912.04.16.710/1, Fig. 86D) agrees with the colour, form and dimensions of the Hanley and Theobald figure, apart from the lip, which is intact (it is damaged in the figure). We have designated a neotype with the express purpose of clarifying the taxonomic status of *G. senator* (see the original description by Hanley, 1876 and the figure by Hanley and Theobald, 1876).

262. *Glessula shiplayi* (Pfeiffer, 1856)

Achatina (Subulina) shiplayi Pfeiffer, 1856, *Malakozoologische Blätter*, 2: 169

Glessula shiplayi - Gude, 1914a, *FBI, Mollusca-II*: 381

Distribution: endemic to the Western Ghats. Known from the central Western Ghats: from the Nilgiri, Pachamalai, Kalrayan and Shevaroy Hills.

Original locality: Nilgiri Hills, India (Conway Shiplay).

Type material: 2 syntypes from "Nilgiris", "Mus. Cuming", NHM (reg. no. NHMUK 1989047), one of which is here designated as the lectotype (reg. no. NHMUK 1989 047/1, Fig. 86E). Pfeiffer's original handwritten labels are missing, but because these

specimens are from the Cuming collection they can be considered as syntypes.

263. *Glessula singhurensis* Blanford, 1870

Glessula singhurensis Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 19, pl. 3, fig. 17

Glessula singhurensis - Gude, 1914a, *FBI, Mollusca-II*: 418

Distribution: endemic to the Western Ghats. Known from Sinhgarh, near Pune in the northern Western Ghats.

Original locality: Sinhgarh (= "Singhur"), near Pune (= "Poona").

Type material: 1 syntype from "Singhur, nr. Poona", "Fig.d J.A.S.B. 1870. Pl. iii. fig. 17", "895.06.1.1", "1986029", NHM (reg. no. NHMUK 1906.01.01.895 (registered as "T"), re-registered in error as NHMUK 1986029). This shell is here designated as the lectotype (Fig. 86F).

264. *Glessula sisparica* Gude, 1914

Glessula sisparica Gude, 1914a, *FBI, Mollusca-II*: 410, fig. 128

Distribution: endemic to the Western Ghats. Known from "Sispara" in the Nilgiri Hills, central Western Ghats.

Original locality: "Sispara", Nilgiri Hills (Beddome).

Type material: holotype (Fig. 87A) from "Sispara, Nilgiris, type, Beddome Coll.", "739a.12.iv.16", "1986031", NHM (reg. no. NHMUK 1912.04.16.739b, "5" shells). This shell has been incorrectly labelled as 739a.12.iv.16 (= reg. no. NHMUK 1912.04.

16.739a) on the specimen box, and has been re-registered in error as NHMUK 1986031.

265. *Glessula subfilosa* Beddome, 1906

Glessula subfilosa Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 171, pl. 15, fig. 8

Glessula subfilosa - Gude, 1914a, *FBI, Mollusca-II*: 441

Distribution: endemic to South India, where it occurs in the southern Western Ghats (Sirumalai range) and the southern part of the Eastern Ghats (Kurnool).

Original locality: Sirumalai range (= "Sirumallay Hills"), Dindigul.

Type material: 1 syntype from "Sirumallay Hills, near Dindigul", "Col. Beddome", "1906.11.24.1", NHM (reg. no. NHMUK 1906.11.24.1, "Type", "Pres. By Col. Beddome"). This shell is here designated as the lectotype (Fig. 87B).

266. *Glessula subinornata* Beddome, 1906

Glessula subinornata Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 164, pl. 15, figs. 3, 3a

Glessula subinornata - Gude, 1914a, *FBI, Mollusca-II*: 396

Distribution: endemic to the Western Ghats. Known from "Sispara Ghat" in the Nilgiri Hills, central Western Ghats.

Original locality: "Sispara Ghat" in the Nilgiris.

Type material: 1 syntype from "Sispara Ghat, on the Nilgiris", "Col. Beddome", "1906.11.24.3", NHM (reg. no. NHMUK

1906.11.24.3, "Type", "Pres. By Col. Beddome"). This shell is here designated as the lectotype (**Fig. 87C**).

***Glessula subinornata* 'var. *minor*'**
Beddome, 1906

Glessula subinornata var. *minor* Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 164

Glessula subinornata var. *minor* - Gude, 1914a, *FBI, Mollusca-II*: 397

Distribution: endemic to the Western Ghats. Known from the Brahmagiris, "Wynaad", in the central Western Ghats.

Original locality: Brahmagiris (= "Brumagherry Hills"), "Wynaad".

Type material: 3 syntypes from "Wynad, Bramagherry", "Coll. Col. Beddome", "725. 12.iv.16", NHM (reg. no. NHMUK 1912.04. 16.725, not registered as "T"), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.725/1, **Fig. 87D**). One of the 2 paralectotypes is also illustrated (reg. no. NHMUK 1912.04.16.725/2 **Fig. 87E**).

267. *Glessula subjerdoni* Beddome, 1906

Glessula subjerdoni Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 170, pl. 15, fig. 2

Glessula subjerdoni - Gude, 1914a, *FBI, Mollusca-II*: 434

Distribution: endemic to India, where it has been recorded from Northeast, East and South India. It occurs in Sikkim in the northeast, and Darjeeling in the east, Jeypore in the Eastern Ghats of southeast Odisha, the Golconda hills in the Deccan,

and in the southern part of the Western Ghats (Anaimalai Hills, "Tinnevelly").

Original locality: Jeypore and Golconda (= "Golcondah") hills, east side of "Madras Presidency".

Type material: authentic Beddome material could not be traced, but the original description included a figure (see **Fig. 83D**). The figure and Beddome's description are, however, insufficient for recognising *G. subjerdoni*, and we therefore consider this species to be a *nomen dubium*.

268. *Glessula subperrotteti* Beddome, 1906

Glessula subperrotteti Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 163, pl. 15, fig. 1

Glessula subperrotteti - Gude, 1914a, *FBI, Mollusca-II*: 394

Distribution: endemic to the Western Ghats. Known from the "Travancore hills", above Kalakkad in the southern Western Ghats.

Original locality: "Travancore hills", above Kalakkad (= "Calcad").

Type material: 1 syntype from "Travancore Hills, above Calcad", "Col. Beddome", "1906.11.24.4", NHM (reg. no. NHMUK 1906.11.24.4, "Type", "Pres. By Col. Beddome"). This shell is here designated as the lectotype (**Fig. 87F**).

269. *Glessula subserena* Beddome, 1906

Glessula subserena Beddome, 1906, *Proceedings of the Malacological Society of London*, 7: 166, pl. 15, fig. 7

Glessula subserena - Gude, 1914a, *FBI, Mollusca-II*: 391

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills ("Sispara") and "S. Canara" in the central Western Ghats, and from the Anaimalai Hills and Peermade in "Travancore" in the southern Western Ghats.

Original locality: Peermade (= "Peermede") in "Travancore", and the Anaimalai Hills.

Type material: 1 syntype from "Travancore, Peermede", "Col. Beddome", "1906.11.24.7", NHM (reg. no. NHMUK 1906.11.24.7, "Type", "Pres. By Col. Beddome"). This shell is here designated as the lectotype (Fig. 88A).

270. *Glessula subtornensis* Gude, 1914

Glessula subtornensis Gude, 1914a, *FBI, Mollusca-II*: 390, fig. 122

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills (Beddome).

Type material: holotype (Fig. 88B) from "Anamalais", "coll. Colonel Beddome", "705b.12.iv.16", "1986047", NHM (reg. no. NHMUK 1912.04.16.705b (registered as "T", number of specimens listed as "2" and "4"), re-registered in error as NHMUK 1986047).

271. *Glessula tamulica* (W.T. & H.F. Blanford, 1861)

Achatina tamulica W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 362

Glessula tamulica - Gude, 1914a, *FBI, Mollusca-II*: 385

Distribution: endemic to India, with the only published record from Kallakudi, near Tiruchirappalli, on the southeastern limits of the Western Ghats.

Original locality: Kallakudi, near Tiruchirappalli.

Type material: 3 syntypes labelled "Cully-goody, nr. Trichinopoly, typical locality", "241a.06.2.2", "Coll. W.T. Blanford", NHM (reg. no. NHMUK 1906.02.02.241a, registered as "2 specimens"), one of which is here designated as the lectotype (reg. no. NHMUK 1906.02.02.241a/1, Fig. 88C). One of the paralectotypes is also illustrated (reg. no. NHMUK 1906.02.02.241a/2, Fig. 88D).

272. *Glessula tenuitestata* Gude, 1914

Glessula tenuitestata Gude, 1914a, *FBI, Mollusca-II*: 411, fig. 129

Distribution: endemic to the Western Ghats. Known from "Sispara" in the Nilgiri Hills in the central Western Ghats.

Original locality: "Sispara", Nilgiri Hills (Beddome).

Type material: holotype (Fig. 88E) from "Sispara, Nilgiris", "Beddome Coll.", "739.12.iv.16", "1986039", NHM (reg. no. NHMUK 1912.04.16.739a/1 ("1" shell), not NHMUK 1912.04.16.739 as labelled on specimen box, re-registered in error as NHMUK 1986039). Paratype (Fig. 88F) from "Sispara", "coll. Col. Beddome",

"739a.12.iv.16", "1986040", NHM (reg. no. NHMUK 1912.04.16.739a/2 ("1" shell), not NHMUK 1912.04.16.739 as labelled on specimen box, re-registered in error as NHMUK 1986040).

273. *Glessula textilis* (Blanford, 1866)

Achatina textilis Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 41

Glessula textilis - Gude, 1914a, *FBI, Mollusca-II*: 390

Distribution: endemic to the Western Ghats. Known from the Anaimalai and Palni Hills and the "Tinnevelly and Travancore Ghats" in the southern Western Ghats, "South Canara" in the central region, and Mahabaleshwar in the northern Western Ghats.

Original locality: Anaimalai Hills, at an elevation of 6000 feet (Beddome).

Type material: 4 syntypes from "Anaimalai Hills", "Beddome, W.T. Blanford Colln.", "26.06.3.3", "1986038", NHM (reg. no. NHMUK 1906.03.03.26 (registered as "T", "1-4. 1 & 2 fig.d"), re-registered in error as NHMUK 1986038,), one of which is here designated as the lectotype (reg. no. NHMUK 1906.03.03.26/1, **Fig. 89A**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 1906.03.03.26/2, **Fig. 89B**).

274. *Glessula tinnevellica* Gude, 1914

Glessula tinnevellica Gude, 1914a, *FBI, Mollusca-II*: 416, fig. 132

Distribution: endemic to the Western Ghats. Known from "Tinnevelly" in the southern Western Ghats.

Original locality: "Tinnevelly", India (Beddome).

Type material: 5 syntypes from "Tinnevelly", "Beddome coll.", "770.12.iv.16", "1984041", NHM (reg. no. NHMUK 1912.04.16.770 (registered as "T", "2" and "4" specimens), re-registered in error as NHM UK 1984041), one of which is here designated as the lectotype (reg. no. NHMUK 1912.04.16.770/1, **Fig. 89C**). One of the 4 paralectotypes is also illustrated (reg. no. NHMUK 1912.04.16.770/2, **Fig. 89D**).

275. *Glessula tornensis* Blanford, 1870

Glessula tornensis Blanford, 1870, *Journal of the Asiatic Society of Bengal*, 39 (2): 22, pl. 3, fig. 22

Glessula tornensis - Gude, 1914a, *FBI, Mollusca-II*: 389

Distribution: endemic to the Western Ghats. Known from Torna Hill, near Pune in the northern Western Ghats, and from the Anaimalai Hills, "Tinnevelly", and the "Travancore Ghats" in the southern Western Ghats.

Original locality: Torna Hill not far to the west of the town of Pune (= "Poona") (Evezard).

Type material: 6 syntypes from "Torna, Deccan, W.T.B", NHM (reg. no. NHMUK 1989038), one of which is here designated as the lectotype (reg. no. NHMUK 1989038/1, **Fig. 89E**).

276. *Glessula travancorica* Gude, 1914

Glessula travancorica Gude, 1914a, *FBI, Mollusca-II*: 417, fig. 133

Distribution: endemic to the Western Ghats. Known from Peermade, "Travancore", in the southern Western Ghats.

Original locality: Peermade (= "Peermede"), "Travancore" (Beddome).

Type material: holotype (Fig. 89F) from "Peermede, Travancore", "Beddome Coll.", "822.12.iv.16", "1986045", NHM (reg. no. NHMUK 1912.04.16.822 (registered as "T", "4", "3" and "7" specimens), re-registered in error as NHMUK 1986045).

277. *Glessula vadalica* (Benson, 1865)

Achatina vadalica Benson, 1865, *Annals and Magazine of Natural History, Series 3*, 15: 15

Glessula vadalica - Gude, 1914a, *FBI, Mollusca-II*: 384

Distribution: endemic to India, with the only published record from the vicinity of Ahmadnagar, on the northeastern limits of the Western Ghats.

Original locality: "Wadale" (could not be traced), near Ahmadnagar (= "Ahmednugger") (S.B. Fairbank).

Type material: 3 syntypes, "Bens. col.", NHM (reg. no. NHMUK 1946.10.16.24-26, "Pres. by The University Museum of Zool., Cambridge", "3", "Benson Coll."), one of which is here designated as the lectotype (reg. no. NHMUK 1946.10.16.24, Fig. 90A). One of the 2 paralectotypes is also

illustrated (reg. no. NHMUK 1946.10.16.25, Fig. 90B).

Genus *Rishetia*³⁵**278. *Rishetia tenuispira* (Benson, 1836)**

Achatina tenuispira Benson, 1836, *Journal of the Asiatic Society of Bengal*, 5: 353

Glessula tenuispira - Gude, 1914a, *FBI, Mollusca-II*: 378

Distribution: globally largely restricted to the Indian subcontinent, where it occurs in the east (Darjeeling) and northeast (Khasi and Dafla Hills), and has also been reported from the Western Ghats ("North Canara"), and northeastern Bangladesh (Sylhet). Its range also includes Mynamar, where it has been recorded from the area of "Akoutong" (could not be located), and the "Banks of Irawaddy" (see the Irrawaddy River in Meyer et al., 1908-1931, vol. 13, p. 367). Godwin-Austen (1920, p. 14) considered the occurrence of this species in the Western Ghats to be doubtful.

Original locality: locality unknown, but the material described by Benson was part of a collection "chiefly made in the hills on the N.E. Frontier, which was purchased by the Asiatic Society of Bengal in 1833." As indicated in the title of his paper Benson (1836) specifically referred to the "North-East Frontier of Bengal"; the running header for the paper was "Catalogue of Terrestrial and Fluvial Shells from Sylhet". Precise locality data were not given for much of the material described by him in this paper, but the localities explicitly cited were Sylhet (in present-day northeastern Bangladesh) and "Patharghata in Behar" (northeastern part of modern Jharkhand state), both mentioned

several times, and Calcutta (in modern-day West Bengal).

Type material: no types could be traced, and material from Benson was not figured. According to Nevill (1878a, p. 169), there was material of this species from the Asiatic Society of Bengal in the Indian Museum in Calcutta; this material is now presumably in the ZSI.

Other material: 1 shell from "Teria Ghat", "Bens. col., R. MacAndrew Coll. 1873", UMZC (reg. no. I.102045, **Fig. 90C**), but this differs from Benson's description in being much smaller and lacking the white transverse bands that are usually present on the later whorls.

Superfamily Streptaxoidea

Family Streptaxidae

Genus *Perrottetia*³⁶

279. *Perrottetia beddomei* (Blanford, 1899)

Streptaxis beddomii Blanford, 1899b, *Proceedings of the Zoological Society of London*, proceedings for 1899: 765, pl. 50, figs. 4-7 [indicated as a Nevill manuscript name]

Streptaxis beddomii - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 11

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills in the southern Western Ghats.

Original locality: Anaimalai Hills, "Southern India" (Beddome).

Type material: 1 syntype from "India",

"Col. Beddome", "99.7.4.7", NHM (reg. no. NHMUK 1899.07.04.7, "Type", "Animalais, India", "Pres.d by Colonel Beddome"). This shell is here designated as the lectotype (**Fig. 90D**).

Perrottetia beddomei 'var. *pleurostomoides*' (Gude, 1903)

Streptaxis pleurostomoides Gude, 1903, *Proceedings of the Malacological Society of London*, 5: 324, pl. 12, figs. 14-16

Streptaxis beddomii var. *pleurostomoides* - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 11

Distribution: endemic to the Western Ghats. Known from the Courtalam hills, "Tinnevelly", at an elevation of 4000 feet, southern Western Ghats.

Original locality: Courtalam (= "Courtalam") Hills, "Tinnevelly", India (Beddome).

Type material: holotype (**Fig. 90E**) from "Courtalam (Courtallum Hills), Tinnevelly, India", "1922.8.29.7", NHM (reg. no. NHM UK 1922.08.29.7, "Purchased of Mr. G.K. Gude").

280. *Perrottetia canarica* (Blanford, 1869)

Streptaxis canarica Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 142, pl. 16, fig. 11 [indicated as a Beddome manuscript name]

Streptaxis canaricus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 15

Distribution: endemic to the Western Ghats. Known from "South Canara" in the central Western Ghats.

Original locality: the province of "South Canara", not far from the western coast of India (Beddome).

Type material: holotype (Fig. 90F) from "S. India", "75.3.6.73 ex.", NHM (reg. no. NHMUK 1875.03.06.73, "S. Canara, S. India", "Obtained by exchange with Lt. Col. Beddome").

**281. *Perrottetia compressa*
(Blanford, 1880)**

Streptaxis compressus Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 201, pl. 2, fig. 13

Streptaxis compressus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 15

Distribution: endemic to the Western Ghats. Known from the Sivagiri range, with a variety from the hills near Cumbum, "Tinnevelly District", southern Western Ghats.

Original locality: Sivagiri range (= "Sivagiri hills"), "Southern India" (H. Beddome).

Type material: 2 syntypes from "Tinnevelly, India", "obtained by exchange with Lt. Col. Beddome, Coll. Beddome", "75.3.6.37 ex", NHM (reg. no. NHMUK 1875.03.06.37, "Obtained by exchange with Lt. Col. Beddome"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.03.06.37/1, Fig. 91A). The paralectotype is also illustrated (reg. no. NHMUK 1875.03.06.37/2, Fig. 91B).

**282. *Perrottetia concinnus*
(Blanford, 1880)**

Streptaxis concinnus Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 203, pl. 2, fig. 11

Streptaxis concinnus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 12

Distribution: endemic to the Western Ghats. Known from the Biligirirangan Hills in the central Western Ghats.

Original locality: Biligirirangan (= "Balaramgam") Hills (Mysore), "Southern India" (H. Beddome).

Type material: 1 syntype from "Balaramgam Hills, Mysore", "coll. W.T. Blanford", "916.06.1.1", NHM (reg. no. NHMUK 1906.01.01.916, registered as "T"). This shell is here designated as the lectotype (Fig. 91C).

**283. *Perrottetia footei* (W.T. & H.F.
Blanford, 1861)**

Streptaxis footei W.T. & H.F. Blanford, 1861, *Journal of the Asiatic Society of Bengal*, 30 (4): 358, pl. 2, figs. 6, 6a

Streptaxis footei - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 11

Distribution: endemic to the Western Ghats. Known from near "Shoolamullay" (could not be traced) in the Pachamalai Hills, with a variety from the Kalrayan Hills, central Western Ghats.

Original locality: near "Shoolamullay" (locality could not be traced), Pachamalai (= "Patchamullay") Hills, "Southern India", at an elevation of 3000 feet (R.B. Foote).

Type material: 2 syntypes from "Sholamullay plateau, Pachamalais, S. India", "1753", "Coll. H.F. Blf., Coll. Godwin-Austen", "78.9.iii.15", NHM (reg. no. NHMUK 1909.

03.15.78, registered as "Typical"), one of which is here designated as the lectotype (reg. no. NHMUK 1909.03.15.78/1, **Fig. 91D**).

284. *Perrottetia peroteti* (Petit de la Saussaye, 1841)

Helix peroteti Petit de la Saussaye, 1841,

Revue Zoologique par la Société Cuvierienne, année 1841: 100

Streptaxis peroteti - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 10

Distribution: endemic to the Western Ghats and Sri Lanka. In the Western Ghats known from the plateau of the Nilgiris in the central region, and from the Anaimalai Hills and the hills near "Tinnevelly" in the south. The species is represented in Sri Lanka by a larger variety.

Original locality: plateau of the Nilgiri Hills in "Eastern India" (Perotet).

Type material: Petit de la Saussaye's types, which were at the MNHN in Paris, can no longer be traced, so one of a series of 5 shells from the "Nilgiris, Coll.n. Godwin-Austen", "1001-coll. H.F. Blf.", "76.9.iii.15", NHM (reg. no. NHMUK 1909.03.15.76) is here designated as a neotype (reg. no. NHMUK 1909.03.15.76/1, **Fig. 91E**). We have designated a neotype with the express purpose of clarifying the taxonomic status of *P. peroteti* (see the original description by Petit de la Saussaye, 1841).

Other material: one of the other shells in the same lot as the neotype is also illustrated (reg. no. NHMUK 1909.03.15.76/2, **Fig. 91F**).

285. *Perrottetia personatus* (Blanford, 1880)

Streptaxis personatus Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 202, pl. 2, fig. 10

Streptaxis personatus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 14

Distribution: endemic to the Western Ghats. Known from the hills near Cumbum, Madurai, and Peermade, "Travancore", in the southern Western Ghats, and from the Shevaroy Hills in the central Western Ghats.

Original locality: hills not far from the town of "Cumbum (Madura)", "Southern India" (H. Beddome). This locality is Cumbum (or Kambam) in southwestern Tamil Nadu.

Type material: authentic material from Beddome or Blanford could not be traced, but the original description included a figure (see **Fig. 83E**).

286. *Perrottetia pronus* (Blanford, 1880)

Streptaxis pronus Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 204, pl. 2, fig. 12

Streptaxis pronus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 14

Distribution: endemic to the Western Ghats. Known from the "Tinnevelly Hills" in the southern Western Ghats.

Original locality: in hills not far from the town of Tirunelveli (= "Tinnevelly"), "Southern India" (H. Beddome).

Type material: 1 syntype from "Tinnevelly Hills", "coll. W.T. Blanford", "917.06.1.1",

NHM (reg. no. NHMUK 1906.01.01.917, registered as "T" and "Fig. d"). This shell is here designated as the lectotype (**Fig. 92A**).

287. *Perrottetia sculptus* (Blanford, 1899)

Streptaxis sculptus Blanford, 1899b, *Proceedings of the Zoological Society of London*, proceedings for 1899: 766, pl. 50, figs. 8-10

Streptaxis sculptus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 12

Distribution: endemic to the Western Ghats. Known from the Kollimalai Hills, and Belur in "Kadur district", "Mysore state", central Western Ghats.

Original locality: Kollimalai (= "Kolamalai") Hills, not far from the town of Salem, "Southern India" (Beddome), and the "province of Kadur, Princely State of Mysore" (Day).

Type material: 1 syntype from "Kolamalai, India", "Col. Beddome", "99.7.4.9", NHM (reg. no. NHMUK 1899.07.04.9, "Pres.d by Colonel Beddome"). This shell is here designated as the lectotype (**Fig. 92B**). According to Blanford's description, the number of palatal teeth in the aperture is variable – usually there are 4 palatal teeth, but sometimes there can be 2, 3 or 5 palatal teeth. The lectotype, like the figure in Blanford's description, has 5 palatal teeth.

288. *Perrottetia subacutus* (Blanford, 1899)

Streptaxis subacutus Blanford, 1899b, *Proceedings of the Zoological Society of London*, proceedings for 1899: 767, pl. 50, figs. 1-3

Streptaxis subacutus - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 15

Distribution: endemic to the Western Ghats. Known from "South Canara" in the central Western Ghats.

Original locality: "South Kanara" (Beddome).

Type material: 1 syntype from "S. Canara", "Col. Beddome", "99.7.4.10", NHM (reg. no. NHMUK 1899.07.04.10, "Pres.d by Colonel Beddome"). This shell is here designated as the lectotype (**Fig. 92C**).

289. *Perrottetia watsoni* (W.T. & H.F. Blanford, 1860)

Streptaxis watsoni W.T. & H.F. Blanford, 1860, *Journal of the Asiatic Society of Bengal*, 29 (2): 126

Streptaxis watsoni - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 11

Distribution: endemic to the Western Ghats. Known from the Nilgiri Hills and "Wynaad" in the central Western Ghats, and from the Anaimalai Hills in the southern Western Ghats.

Original locality: on the peaks of the Nilgiri Hills, found in forest, particularly near the roots of trees.

Type material: 1 of 8 syntypes (4 adult shells with 4 apertural teeth, 3 adult shells with 5 apertural teeth, and 1 immature shell), labelled "typical", from "Nilgiris", "H.F. Blanford Colln., c. Godwin-Austen", "79.9.iii.15", NHM (reg. no. NHMUK 1909.03.15.79, registered as "Typical"). This shell, like the figure in the original description, possesses 4 apertural teeth, and is here

designated the lectotype (reg. no. NHMUK 1909.03.15.79/1, **Fig. 92D**). Two of the paralectotypes are also illustrated, one with 4 apertural teeth (reg. no. NHMUK 1909.03.15.79/2, **Fig. 92E**), and one with 5 apertural teeth (reg. no. NHMUK 1909.03.15.79/3, **Fig. 92F**).

Although Blanford explicitly stated in his original description that *P. watsoni* is characterised by 3 apertural teeth, the shell figured in the description has 4 apertural teeth, and he also referred to an unnamed variety from Avalanche with 5 apertural teeth. It appears that Blanford's failure to explicitly state that *P. watsoni* may have 4 apertural teeth was an error. Blanford and Godwin-Austen's (1908) description of *P. watsoni*, which indicated that the "teeth in the peristome" vary from "3 to 5 in number", is consistent with this, and supports our view that the type series of this species would include shells with 3-5 apertural teeth. There are no authentic Blanford types with 3 apertural teeth at the NHM. The only Blanford specimens labelled as *P. watsoni* from the Nilgiris have 4-6 apertural teeth, and of these we only consider shells with 4 or 5 apertural teeth as belonging to the syntype series.

Genus *Gulella*³⁷

290. *Gulella bicolor* (Hutton, 1834)

Pupa bicolor Hutton, 1834, *Journal of the Asiatic Society of Bengal*, 3: 86, 93
Ennea bicolor - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 19

Distribution: ranging across India and Sri Lanka and elsewhere in Asia, and occurring in other tropical regions including North, Central and South America, the Seychelles and Mascarene Islands, and Oceania (Blan-

ford and Godwin-Austen, 1908; Naggs, 1989; Neubert, 1998; Gerlach and van Bruggen, 1999; Sherley, 2000; Santos et al., 2008; Simone, 2013). Its widespread distribution, at least in part, reflects the spread of this species by man. According to Blanford and Godwin-Austen (1908), it occurs "chiefly in open or cultivated plains, not, as a rule, in forest". It is unclear if this species is indigenous to India. *G. bicolor* belongs to an African group of streptaxids, the 'true *Gulella*' clade of Rowson et al. (2011). While one of us (Naggs, 1989) has suggested that the available distributional evidence supports an Indian origin, other authors (e.g. Benthem Jutting, 1961) have suggested an African origin.

Original locality: discovered first at Mirzapur (= "Mirzapoor"), then also between Agra and Neemuch.

Type material: 4 syntypes (1 fragmented) "Mirzapore & Agra, Capt. T. Hutton", "56.9.15.75", NHM (reg. no. NHMUK 1856.09.15.75). Of the 3 intact shells, 2 are at a more advanced stage of growth, and the smaller of these is here designated as the lectotype (reg. no. NHMUK 1856.09.15.75/1, **Fig. 93A**). The two intact paralectotypes are also illustrated (reg. no. NHMUK 1856.09.15.75/2-3, **Figs. 93B, C**).

Family Diapheridae

Genus *Sinoennea*³⁸

291. *Sinoennea beddomei* (Blanford, 1880)
Ennea beddomei Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 210
Ennea beddomei - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 23

Distribution: endemic to the Western Ghats. Known from the Sivagiri range, "Tinnevelly" in the southern Western Ghats.

Original locality: Sivagiri range (= "Sivagiri" hills), "Tinnevelly", "Southern India" (H. Beddome).

Type material: 4 syntypes from "Sivagherry Hills, S. India", "obtained by exchange with Lt. Col. Beddome, Coll. Beddome", "75.3.6.75", NHM (reg. no. NHMUK 1875.03.06.75, "Obtained by exchange with Lt. Col. Beddome"), one of which is here designated as the lectotype (reg. no. NHMUK 1875.03.06.75/1, **Fig. 93D**). One of the 3 paralectotypes is also illustrated (reg. no. NHMUK 1875.03.06.75/2, **Fig. 93E**).

292. *Sinoennea canarica* (Blanford, 1880)

Ennea canarica Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 210 [indicated as a Beddome manuscript name]

Ennea canarica - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 23

Distribution: endemic to the Western Ghats. Known from "South Canara" in the central Western Ghats.

Original locality: the western side of "South Kanara", "Southern India" (H. Beddome).

Type material: holotype (**Fig. 93F**) from "South Canara", "75.3.6.74", NHM (reg. no. NHMUK 1875.03.06.74, "Obtained by exchange with Lt. Col. Beddome").

293. *Sinoennea exilis* (Blanford, 1880)

Ennea exilis Blanford, 1880, *Journal of the*

Asiatic Society of Bengal, 49 (2): 207, pl. 2, fig. 14 (lower fig.)

Ennea exilis - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 22

Distribution: endemic to the Western Ghats. Known from the Biligirirangan Hills in the central Western Ghats.

Original locality: Biligirirangan (= "Balarangam") Hills, "Mysore province", "Southern India" (H. Beddome).

Type material: 3 syntypes labelled "Ennea exilis BL Balarangans" in Beddome's handwriting, "Melville-Tomlin Coll.", NMW, Cardiff (reg. no. NMW.1955.158.24928), one of which is here designated as the lectotype (reg. no. NMW.1955.158.24928/1, **Fig. 94A**). One of the 2 paralectotypes is also illustrated (reg. no. NMW.1955.158.24928/2, **Fig. 94B**).

294. *Sinoennea macrodon* (Blanford, 1880)

Ennea macrodon Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 205, pl. 2, fig. 15

Ennea macrodon - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 21

Distribution: endemic to the Western Ghats. Known from near Pykara in the Nilgiri Hills, central Western Ghats.

Original locality: near Pykara on the peaks of the Nilgiri Hills, "Southern India" (W.T. Blanford).

Type material: 1 sytype (shell figured by Blanford) from "Nilgiris", "Dr. W.T. Blanford", "99.6.29.2", NHM (reg. no. NHMUK 1899.06.29.2, "Type", Pres.d by Dr. W.T.

Blanford"). This shell is here designated as the lectotype (**Fig. 94C**).

295. *Sinoennea pirriei* (Pfeiffer, 1855)

Pupa pirriei Pfeiffer, 1855b, *Proceedings of the Zoological Society of London*, proceedings for 1854: 295
Ennea pirriei - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 22

Distribution: endemic to the Western Ghats. Known from the central Western Ghats, from the Kundah Hills in the western Nilgiris, and the Kollimalai and Shevaroy Hills (Blanford and Blanford, 1861; Blanford and Godwin-Austen, 1908).

Original locality: Kundah (= "Koondah") Hills, near Calicut (Pirrie, Cuming collection).

Type material: 4 syntypes from "Koondah Mts. near Calicut", "Mr. Pirrie", "M.C.", NHM (reg. no. NHMUK 20110265), one of which is here designated as the lectotype (reg. no. NHMUK 20110265/1, **Fig. 94D**). Two of the 3 paralectotypes from this lot are also illustrated (reg. nos. NHMUK 20110265/2-3, **Figs. 94E, F**). The NHM collection also contains a second lot of 3 paralectotypes from "Koondah near Calicut, India", "55.4.5.6-8" (reg. no. NHMUK 1855.04.05.6-8, "Purchased of Mr. Cuming"). Both of these type lots lack labelling in Pfeiffer's own hand. They have been recognised as Pfeiffer types because they are from the original locality and from the Cuming collection (and in the case of the lot of 4 shells, from the original collector).

296. *Sinoennea planguncula* (Benson, 1863)

Pupa planguncula Benson, 1863, *Annals and Magazine of Natural History, Series 3*, 12: 426
Ennea planguncula - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 23

Distribution: endemic to India and Sri Lanka. In India it ranges from the north (vicinity of Hoshangabad in the Narmada Valley) and east (Russellkonda in Odisha) to the south, where it occurs in the Golconda hills and Visakhapatnam (northern Andhra Pradesh) and in Kurnool (Eastern Ghats of southern Andhra Pradesh). To date there are no published records of this species from the Western Ghats but, given its wide distribution, it may occur there.

Original locality: in the "Orissa region", and near the river Narmada (= "Nerbudda") (W. Theobald).

Type material: 3 syntypes from "Nerbudda", "R. MacAndrew Coll. 1873", UMZC (reg. no. I.103310), one of which is here designated as the lectotype (reg. no. I.103310.B, **Fig. 95A**). One of the 2 paralectotypes is also illustrated (reg. no. I.103310.A, **Fig. 95B**).

297. *Sinoennea sculpta* (Blanford, 1869)

Ennea sculpta Blanford, 1869, *Journal of the Asiatic Society of Bengal*, 38 (2): 141, pl. 16, fig. 10
Ennea sculpta - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 22

Distribution: endemic to the Western Ghats. Known from the Palni Hills in the southern Western Ghats.

Original locality: Palni Hills, "Southern India" (S. Fairbank).

Type material: 9 syntypes from "Palney Hills, S. India", "W.T. Blanford colln.", "80.06.3.3", NHM (reg. no. NHMUK 1906.03.03.80, not registered as "T", but source given as "Fairbank"), one of which is here designated as the lectotype (reg. no. NHM UK 1906.03.03.80/1, **Fig. 95C**). One of the 8 paralectotypes is also illustrated (reg. no. NHMUK 1906.03.03.80/2, **Fig. 95D**).

**298. *Sinoennea subcostulata*
(Blanford, 1880)**

Ennea subcostulata Blanford, 1880, *Journal of the Asiatic Society of Bengal*, 49 (2): 206, pl. 2, fig. 14 (upper fig.).

Ennea subcostulata - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 21

Distribution: endemic to the Western Ghats. Known from the Shevaroy Hills in the central Western Ghats.

Original locality: Shevaroy Hills, not far from the town of Salem, "Southern India" (H. Beddome).

Type material: 1 syntype (shell figured by Blanford) from "Shevroy Hills", "Coll. W.T. Blanford", "954.06.1.1", NHM (reg. no. NHMUK 1906.01.01.954, registered as "T fig. d"). This shell is here designated as the lectotype (**Fig. 95E**).

**299. *Sinoennea turricula*
(Blanford, 1899)**

Ennea turricula Blanford, 1899b, *Proceedings of the Zoological Society of London*, proceedings for 1899: 768, pl. 50, figs. 16, 17

Ennea turricula - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 22

Distribution: endemic to the Western Ghats. Known from the Anaimalai Hills (at an elevation of 4000 feet) in the southern Western Ghats, and from "Wynaad", "S. Canara", in the central Western Ghats.

Original locality: Anaimalai Hills, and in the province of "Wynaad", "Southern India" (Beddome).

Type material: 1 syntype from "Anamalais", "Col. Beddome", "99.7.4.12", NHM (reg. no. NHMUK 1899.07.04.12, "Pres.d by Colonel Beddome"). This shell is here designated as the lectotype (**Fig. 95F**).

Species Excluded from the Revision

1. *Macrochlamys? hebescens* (Blanford, 1866)

Nanina (Macrochlamys ?) hebescens Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 34

Macrochlamys ? hebescens - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 131

According to Blanford and Godwin-Austen (1908, p. 132), this species ranges from Odisha (formerly Orissa) to northern Andhra Pradesh, and the original locality was given in error as the Anaimalai Hills.

2. *Macrochlamys infausta* (Blanford, 1866)

Nanina (Macrochlamys) infausta Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 36

Macrochlamys infausta - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 133

According to Blanford and Godwin-Austen (1908, p. 134), the range of this species extends from northern Andhra Pradesh and Odisha to Rajasthan in North India, and the original locality was given in error as the Anaimalai Hills.

3. *Macrochlamys? lixa* (Blanford, 1866)

Nanina (Macrochlamys ?) lixa Blanford, 1866b, *Journal of the Asiatic Society of Bengal*, 35 (2): 35

Macrochlamys ? hebescens - Blanford & Godwin-Austen, 1908, *FBI, Mollusca*: 131

According to Blanford and Godwin-Austen (1908, p. 131), this species ranges from Odisha to northern Andhra Pradesh, and the original locality was given in error as the Anaimalai Hills.

4. *Glessula deshayesi* (Pfeiffer, 1853)

Achatina deshayesi Pfeiffer, 1853a, *Mono-graphia Heliceorum Viventium*, 3: 495
Glessula deshayesi - Gude, 1914a, *FBI, Mollusca-II*: 408

The original locality as given by Pfeiffer was the island of Ceylon. Pfeiffer's material was from Cuming as indicated by the former in his 1854 account of *G. deshayesi* (Pfeiffer, 1854d, p. 86), which also re-stated the locality as Ceylon. There are two lots of this species from Ceylon and from the Cuming collection at the NHM (each lot contains 2 shells). Both lots lack labels in Pfeiffer's handwriting, and one lot has larger shells than the other. The larger shells (reg. no. NHMUK 20120287) broadly agree with Pfeiffer's description and measurements and should be considered as syntypes of *G. deshayesi*.

Gude (1914a, p. 408) stated that this species occurs both in Ceylon and India, giving the Indian locality as the "Koondah Mountains, Calicut (Pfeiffer)". There is a single shell at the NHM, which is labelled in Pfeiffer's hand with the species name and the following data: "Koondah M. Near Calicut Mr. Perrie", "PZS 1852", "Mus. Cuming". The Koondah specimen is narrower in form than the types from Ceylon. Until detailed studies of the distribution, reproductive anatomy, shell characteristics and molecular systematics of Indian and Sri Lankan *Glessula* are carried out, we recommend that *G. deshayesi* should be treated as being endemic to Sri Lanka.

5. *Glessula inornata* (Pfeiffer, 1853)

Achatina inornata Pfeiffer, 1853b, *Proceedings of the Zoological Society of London*, proceedings for 1851: 259
Glessula inornata - Gude, 1914a, *FBI, Mollusca-II*: 395

The original locality as given by Pfeiffer is the island of Ceylon, and his type material was from the Cuming collection. There is a single syntype of this species at the NHM (reg. no. NHMUK 1986001). This syntype (species name in Pfeiffer's handwriting) is labelled "Ceylon", "Mr. Thwaites", and "Mus. Cuming".

Gude (1914a, p. 395) stated that this species occurs both in Ceylon and India, and gave the Indian locality as the "South Canara forests (Beddome)". The only Indian

material of this species at the NHM is a lot from the "Annamullys from Beddome", "1673-03.vii.1" (reg. no. NHMUK 1903.07.01.1673, "3" shells). This lot of 3 shells consists of two distinct species, a larger species (1 adult and 1 damaged immature) that superficially resembles *G. inornata*, and a smaller, smoother-shelled species (1 adult). In comparison to the type of *G. inornata*, the larger-shelled specimens are somewhat smaller, with coarser, more distant and indistinct collabral (*sensu* Cox, 1960) striations. The occurrence of *G. inornata* in the Anaimalai Hills can only be confirmed by carrying out detailed studies of the distribution, reproductive anatomy, shell characteristics and molecular systematics of Indian and Sri Lankan *Glessula*, and until such time we recommend that *G. inornata* should be treated as a species endemic to Sri Lanka.

Taxonomic Notes

¹ The type species of *Lagocheilus* Blanford, 1864 is *Cyclostoma scissimargo* Benson, 1856, by original designation (*Lagochilus* Kobelt and Möllendorff, 1897 is an unjustified emendation under ICZN, 1999, Article 32). We previously (Naggs and Raheem, 2000, 2002) followed Vaught (1989, p. 15) in accepting the name *Japonia* Gould, 1859 for this genus. However, Yen (1941) concluded that the status of *Japonia* was uncertain. The type series of the type species of *Japonia*, *Cyclostoma (Japonia) barbata* Gould, 1859, has not been traced and, in advocating use of *Lagocheilus*, Yen (1939, 1942) effectively treated *Japonia* as a *nomen dubium*. The status of *Japonia* has not been resolved in the intervening years and *Lagocheilus* has been widely used for Southeast Asian species (Bentham Jutting, 1948, 1963; Maassen, 1997, 2001). Some authors, such as Hemmen and Hemmen (2001), have continued to use *Japonia (Lagochilus)*, as originally used by Kobelt (1902, p. 35). *Japonia* is currently used for Japanese species, but we note that, in his illustrated review of the land snails of Japan, Azuma (1995) did not list any of the three Japanese species originally placed in *Japonia* by Gould.

² The morphology of the shell and operculum indicates that this species should be placed in *Lagocheilus* rather than in *Theobaldius*.

³ *Leptopomatoides* Martens, 1878 is an unjustified emendation (ICZN, 1999, Article 32) of *Leptopomoides* Nevill, 1878.

⁴ *Ditropopsis* Smith, 1897 is a replacement name for *Ditropis* Blanford, 1869, the latter being a junior homonym of *Ditropis* Kirschbaum, 1868 [Insecta] (Fukuda, 2000). Raheem et al. (2009) mistakenly used the more recent replacement name *Ditropiphorus* Fukuda, 2000 for *Ditropis*. *Diaspira* Soos, 1911 is another junior synonym of *Ditropopsis* (Greke, 2011).

⁵ We have elevated *Theobaldius anguis* to the status of a full species. It can be distinguished from *T. stenostoma* by the distinctive radial dents on its body whorl, and its considerably larger size.

⁶ Kobelt (1907, p. 557) listed this species as *Theobaldius (annulatus?) nilgiricus*. Although this suggests that he was referring to a subgenus, the name *annulatus* was shown entirely in lower case font. In his description Kobelt referred to the new taxon as "Unterart" (= subspecies) and as the South Indian form of *T. annulatus*. Gude (1921, p. 32) treated *nilgiricus* as a variety of *annulatus* and we follow him.

⁷ The placement of this species in this genus is doubtful; although the operculum is similar to *Theobaldius*, the peristome of the shell is more like *Pterocyclos* than *Theobaldius*.

⁸ *Pterocyclus* Agassiz, 1848 is an unjustified emendation (ICZN, 1999, Article 32) of *Pterocyclos* Benson, 1832.

⁹ Use of *Chamalycaeus* Kobelt and Möllendorff, 1897 follows Wenz (1938, p. 477). For the placement of species in this genus, we follow Gude (1921, pp. 236, 249, 251), who included *expatriatus* and *footei* in the subgenus *Dicharax*, and Wenz

(1938, 477-478), who treated *Dicharax* as a subgenus of *Chamalyceus*.

¹⁰ Neubert (2009, p. 119) questioned the placement of *spurca* with the other Indian species of *Cyclotopsis* on the basis of differences in shell sculpture; the type of *spurca* is characterised by well-defined collabral striae (*sensu* Cox, 1960), but lacks the strong spiral cords found in the other Indian species.

¹¹ Use of the name *Laevicaulis alte* follows Forcart (1969).

¹² The generic placement of the species *gravelyi* and *raoi* is uncertain, so we have retained them in *Succinea*. The former may belong in *Quickia* Odhner, 1950; Patterson (1970, p. 35, 1971, pp. 136, 170-172) refers to the material she examined from a "mud bank of Periyar River, Madras State, India" as *Quickia* cf. *gravelyi*. The species *raoi* may belong in *Catinella* Pease, 1870 or *Quickia* (Patterson, 1970, pp. 34-35).

¹³ Elevated to species rank by Patterson (1971, pp. 152-155), who described and figured the shell and soft anatomy of specimens from the type locality, Khandala.

¹⁴ Use of *Quickia* Odhner, 1950 and the placement of *bensonii* in this genus follow Patterson (1970, pp. 25-30, 1971, pp. 164-167).

¹⁵ Following Gude (1914a, pp. 457-458) and Patterson (1971) we treat *Lithotis* as a distinct genus.

¹⁶ Use of *Microstele* Boettger, 1886 and the inclusion of *muscerda* follow Pilsbry (1921, pp. 147-148).

¹⁷ Use of *Gastrocopta* Wollaston, 1878 and the placement of species in this genus follow Pilsbry (1917, pp. 6-7, 136-138).

¹⁸ Use of *Mirus* Albers, 1850 follows Zilch (1959, p. 186); the placement of species in this genus follows Gude (1914a, pp. 230-232).

¹⁹ *Rachisellus* Bourguignat, 1889 is a junior synonym of *Rachis* Albers, 1850 (Connolly, 1922, p. 158), of which *punctatus* is the type species (Connolly, 1922, p. 159). *Rhachis* Pfeiffer, 1855 is an unjustified emendation (ICZN, 1999, Article 32) of *Rachis*; it is the former spelling that was used by Connolly (1922). *Rachis* ranges widely in Africa and India, and occurs on some islands of the Indian Ocean (Mordan, 1992).

²⁰ On the advice of P.B. Mordan (pers. comm.), the following taxa are placed in *Rhachistia* Connolly, 1922 (Connolly 1922, p. 163): *bengalensis*, *praetermissus*, *pulcher*, *trutta* and the Sri Lankan species *adumbratus*. *Rhachistia* ranges from Africa (where it is widespread south of the Sahara) to Madagascar, India, Sri Lanka and a number of the islands in the Indo-West Pacific (Mordan, 1992).

²¹ Use of *Gittenedouardia* Bank & Menkhorst, 2008 and the placement of *orbus* in this genus follow Bank and Menkhorst (2008, p. 101).

²² In the *FBI* (Blanford and Godwin-Austen, 1908, p. 136) *Macrochlamys todarum* was included in the genus *Macrochlamys*. A handwritten note by Godwin-Austen in his extensively annotated copy of Blanford and Godwin-Austen (1908, p. 136), which is in the NHM's Mollusca Library,

indicates that this species should be transferred to the genus *Eurychlamys*. This note states that on the 2nd March 1909 Godwin-Austen dissected material received from N. Annandale from the western side of the Western Ghats.

²³ In the *FBI* (Blanford and Godwin-Austen, 1908, p. 137) *Eurychlamys vilipensa* was included in the genus *Macrochlamys*. The reproductive anatomy of this species, however, does not resemble *Macrochlamys indica* (Blanford and Godwin-Austen, 1908, pp. 95-96), which is treated as the type species of *Macrochlamys sensu* Godwin-Austen (1883-1888) (see Note 27), but is similar to *Eurychlamys platychlamys* (Blanford and Godwin-Austen, 1908, pp. 188-190), the type of *Eurychlamys* (D. Raheem, unpublished data).

²⁴ The shell of this species is similar to other species of *Sitala* from the Western Ghats, and it is unclear why Blanford and Godwin-Austen (1908, p. 234) were doubtful of its placement in *Sitala*.

²⁵ Blanford and Godwin-Austen's (1908, pp. 29-48) concept of the genus *Ariophanta* Desmoulin, 1829 included both sinistral and dextral species; the former were placed in the section 'Ariophanta', the latter in the section 'Cryptozona, Xestina, or Nilgiria'. In the past, we have followed Zilch (1959, pp. 318, 317) in treating the sinistral- and dextral-shelled groups as different genera, respectively *Ariophanta* and *Cryptozona* Mörch, 1872. However, as Godwin-Austen (1898, p. 77) and Blanford and Godwin-Austen (1908, p. 28) indicated, the only basis for this distinction is shell chirality. A number of land-snail genera (e.g. some camaenid and

clausiliid genera) include both dextral and sinistral species, and the camaenid genus *Amphidromus* has a number of species with co-occurring sinistral and dextral morphs (Gittenberger et al., 2012). Here, therefore, we follow Blanford and Godwin-Austen (1908) and include both dextral and sinistral species in *Ariophanta*.

²⁶ Blanford and Godwin-Austen (1908, pp. 57, 70, 72) were doubtful about their inclusion of the species *apicata*, *mucosa*, *mucronifera* and *oribates* in the genus *Euplecta*. The form and sculpture of the shells of *apicata*, *mucronifera* and *oribates* are characteristic of *Euplecta*, and we believe their placement in the genus is justified. The generic affinities of *mucosa*, however, are uncertain; it may well belong to *Eurychlamys*, or possibly to *Macrochlamys*, but anatomical data are not available, so it is retained in *Euplecta* for the time being.

²⁷ The species-rich genus *Macrochlamys sensu* Godwin-Austen (1883-1888, pp. 76-92, 97-122, 209-215; 1899, pp. 87-90, 136-137, 151-170) and Blanford and Godwin-Austen (1908, pp. 77-141) is indigenous to and widespread in South and Southeast Asia. The name *Macrochlamys* was first introduced but not made available (see ICZN, 1999, Articles 10-12) by Benson in 1832 (p. 13). Benson stated "a new genus of the Helicidae, separated by me from *Helix*, in consequence of the wide departure of the animal from the type of that genus". Later in the same volume (p. 76) the species *Macrochlamys indicus* Benson was mentioned, but again neither *Macrochlamys* nor *indicus* were made available and the description was limited to the difference

between the new species and *Helix*. The current generic concept of *Macrochlamys* dates from Godwin-Austen (1883, pp. 76-92, 97-122), who denoted *Macrochlamys indica* Benson in Godwin-Austen (1883, p. 97, pl. 18, figs. 1-8b, pl. 21, fig. 1, pl. 25, figs. 9, 10) as the type species. Key characteristics of *Macrochlamys* as treated by Godwin-Austen (1883-1888, 1899) and Blanford and Godwin-Austen (1908) include a glossy, vitrinoid shell that is perforate and usually less than 25 mm in diameter; a pair of retractable, elongated extensions to the dorsal part of the mantle lobe (these are highly mobile when the snail is active); and a well-defined, posteriorly-coiled epiphalllic caecum (*sensu* Raheem and Naggs, 2006b). Although the generic concept of *Macrochlamys sensu* Godwin-Austen (1883) is well-defined, there are two available names that have priority over it: *Macrochlamys* Gray, 1847 (p. 169) and *Orobia* Albers, 1860 (p. 57). The type species of both of these names is the poorly-known *Helix vitrinoides* of Deshayes (1831, p. 26), of which the locality is unknown and the type no longer traceable. *H. vitrinoides*, as described by Deshayes, has a small, imperforate shell, but imperforate-shelled species are rare among South Asian *Macrochlamys sensu* Godwin-Austen 1883 – only 6 of the 116 species listed in the *FBI* (Blanford and Godwin-Austen, 1908) are imperforate and these may not be correctly attributed to *Macrochlamys sensu* Godwin-Austen. Some authors, such as Stoliczka (1871, pp. 246-247), have argued that the Indian taxon or taxa referred to as *H. vitrinoides* by Gray and Albers is not the *H. vitrinoides* of Deshayes, and Blanford and Godwin-Austen (1908, pp. 95, 97, 99, 132) suggested that

the name *H. vitrinoides* has been applied to at least 3 different Indian taxa (all of these have perforate shells). Until this issue is resolved, we therefore follow the current generic concept of *Macrochlamys sensu* Godwin-Austen (1883), which treats *Macrochlamys indica* Benson in Godwin-Austen, 1883 as the type species of *Macrochlamys*.

²⁸The generic placement of the taxa *neherensis*, *peringundensis*, *prava*, *rutila*, *tenuicula*, *vallicola* and *woodiana* are uncertain. The taxon *peringundensis* may belong to *Ariophanta*, *Euplecta* or *Macrochlamys*, and the other species may belong to *Eurychlamys*, but anatomical data are not available, so they are retained in *Macrochlamys* following the *FBI* (Blanford and Godwin-Austen, 1908, see p. 130 for *tenuicula*, pp. 135-139 for the other taxa).

²⁹Use of *Beddomea* Nevill, 1878 follows Zilch (1960, p. 622) and the placement of species in this genus follows Gude (1914a, pp. 185-192).

³⁰Use of *Trachia* Albers, 1860 follows Zilch (1960, p. 610) and the placement of species in this genus follows Gude (1914a, pp. 153-164).

³¹Use of *Landouria* and the placement of the species *huttonii* follow Godwin-Austen (1918, p. 604).

³²Anatomical evidence indicates that *Achatina*, as currently understood, is a polyphyletic group (Mead, 1950, 1994, 1995). Notably, West African *Achatina* has a reproductive anatomy similar to that of *Archachatina*, whereas that of the East African *Lissachatina* is distinct. Thus,

Lissachatina should be recognised as a distinct genus, rather than as a subgenus of *Achatina*, and we have followed this use in our illustrated guides to South Asian land snails (Mordan, 2003; Raheem and Naggs, 2006; Raheem et al., 2010). This combination has also been adopted by the Invasive Species Compendium (<http://www.cabi.org/isc>).

³³ *Caecilioides* Herrmannsen, 1846 is an unjustified emendation (ICZN, 1999, Article 32) of *Cecilioides* Féruccac, 1814.

³⁴ Use of the name *Allopeas gracile* follows Naggs (1992).

³⁵ *Rishetia* was described by Godwin-Austen (1920, p. 7) as a subgenus of *Glessula*. It includes *R. longispira* (the type species), *R. tenuispira* (see Godwin-Austen 1920, p. 33) and several other species. As indicated by Godwin-Austen, *Rishetia* and *Glessula* are distinct from each other in their shell morphology and genital anatomy, and are treated by us as separate genera.

³⁶ Use of *Perrottetia* Kobelt, 1905 follows Zilch (1960, p. 562). The placement of species in this genus follows Kobelt's (1906, pp. 108-126) arrangement for the subgenus *Perrottetia* in the genus *Odontartemon* Möllendorff, 1905. Zilch elevated *Perrottetia* to genus level.

³⁷ See Rowson et al. (2011) for placement of *bicolor* in the 'true *Gulella*' clade.

³⁸ We follow Peile (1935), who combined the two sections (*Sinoennea* and *Indoennea*) proposed by Kobelt (1904, pp. 26-28) for the genus *Ennea*, under the genus *Sinoennea*. Apart from *planguncula*, all the other species in the Western Ghats revision were included by Moellendorff and Kobelt (1904, pp. 142-162) in *Ennea*, in the sections *Sinoennea* and *Indoennea*. We are not aware of any revised attribution of *planguncula*, but its placement in *Ennea sensu stricto* is unlikely, because the group has an Afrotropical distribution (Sutcharit et al., 2010). Therefore, we provisionally include *planguncula* in *Sinoennea*.

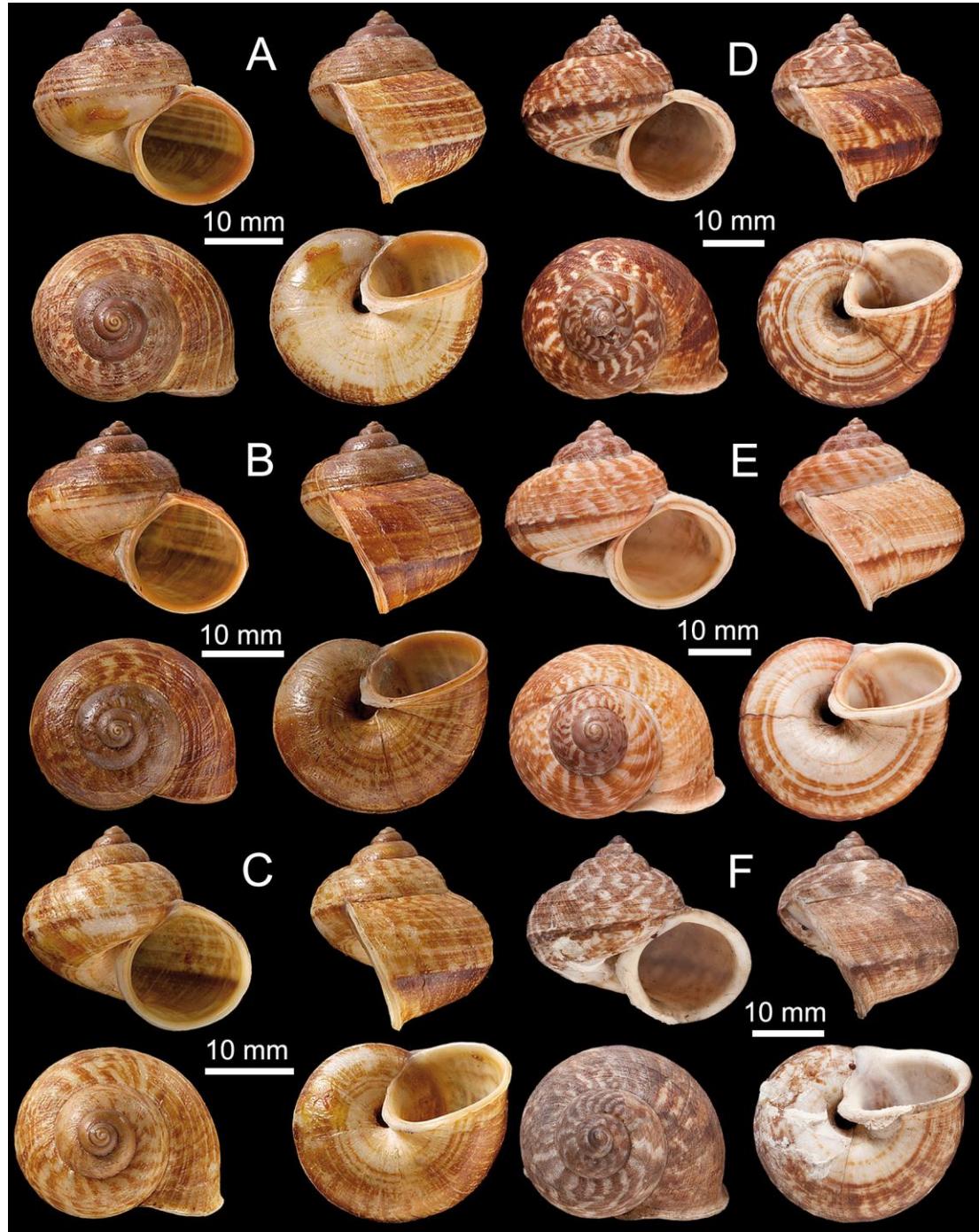


FIGURE 7. A-C. *Cyclophorus altivagus* Benson, 1854, neotype (A) and two other shells from the same lot as the neotype (B, C). D-F. *Cyclophorus indicus* (Deshayes, 1834), lectotype (D) and paralectotypes (E, F).

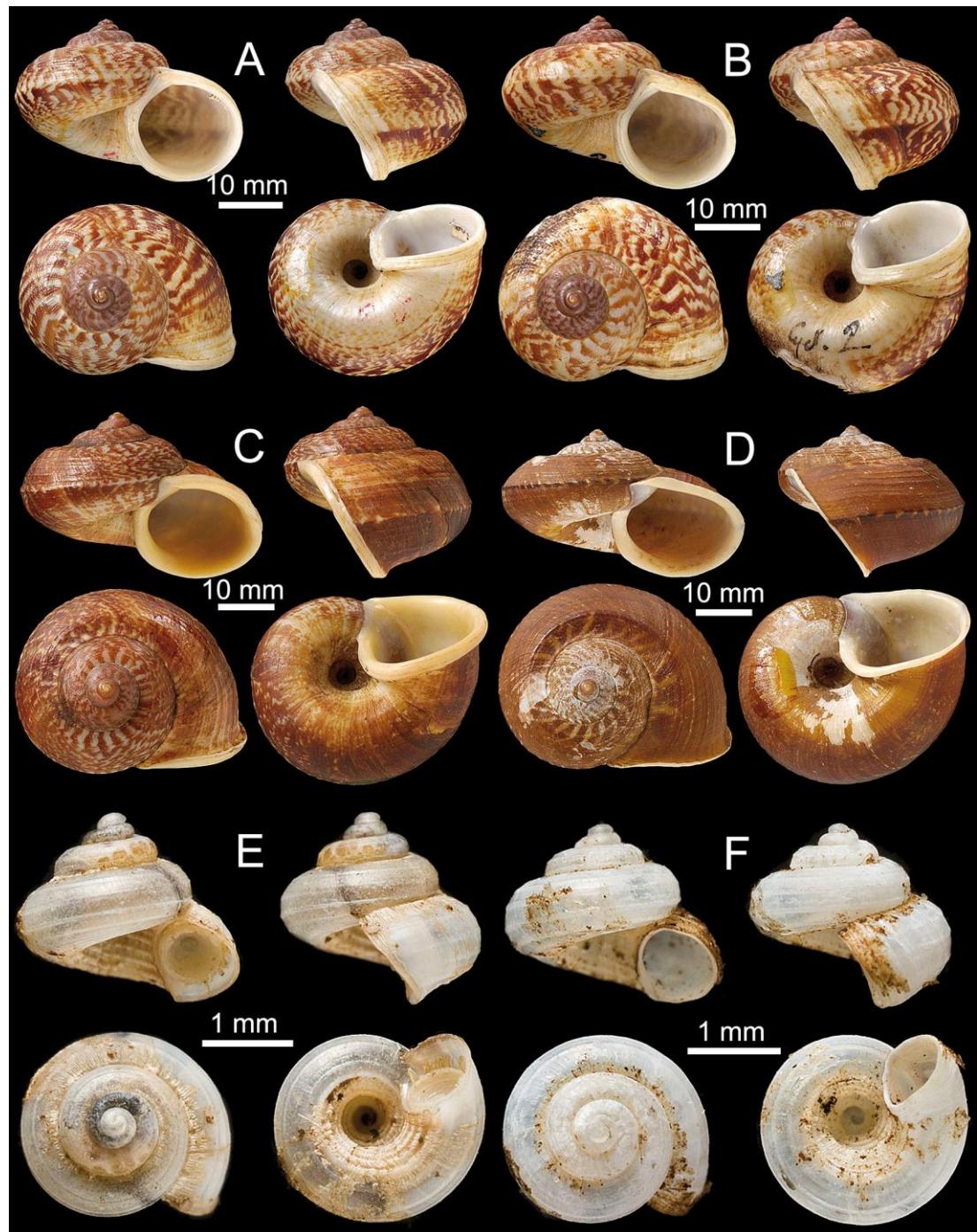


FIGURE 8. **A-B.** *Cyclophorus jerdoni* (Benson, 1851), lectotype (**A**) and paralectotype (**B**). **C-D.** *Cyclophorus nilagiricus* (Benson, 1852), lectotype (**C**) and paralectotype (**D**). **E-F.** *Cyathopoma album* Beddome, 1875, lectotype (**E**) and paralectotype (**F**).

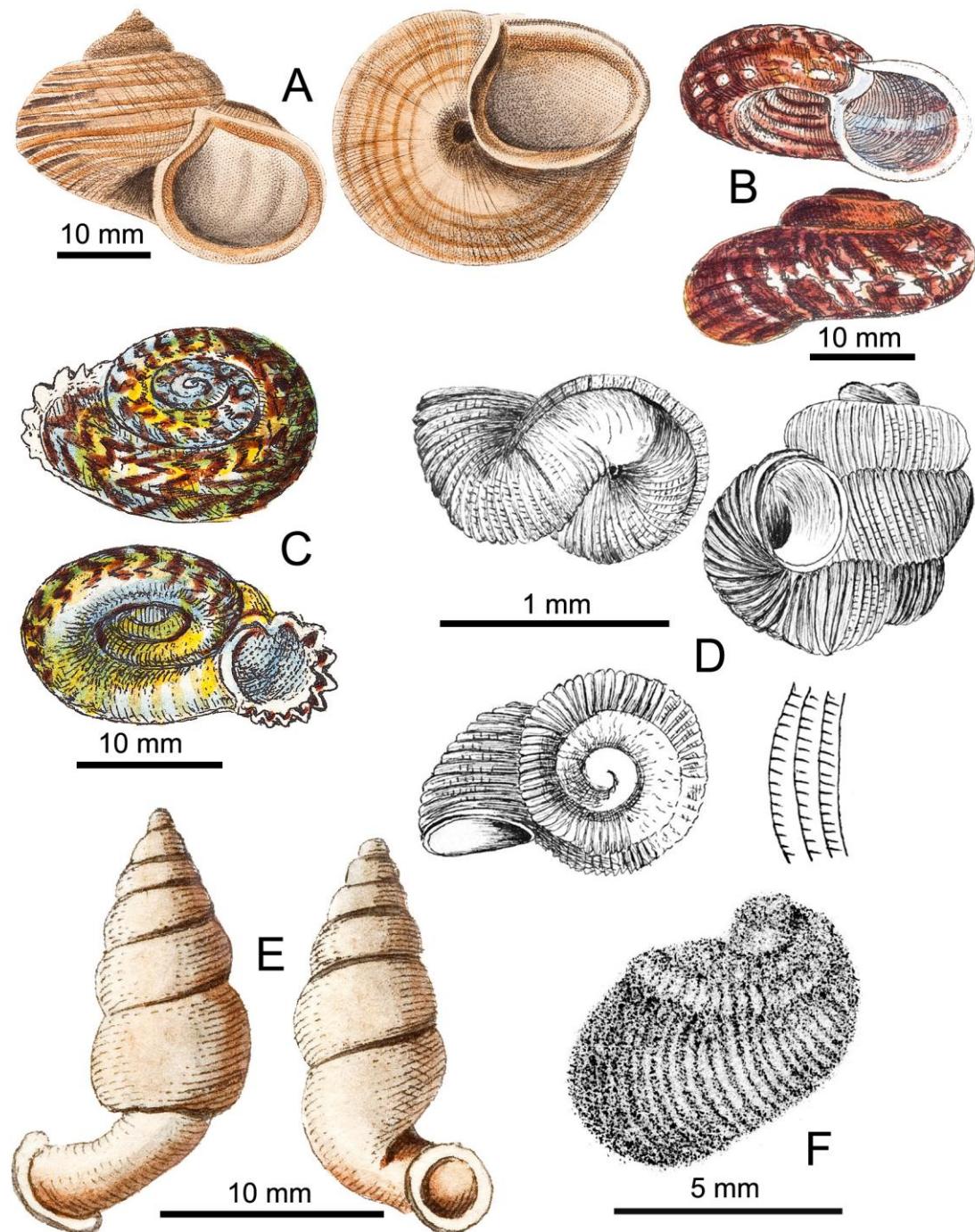


FIGURE 9. Historical figures. **A.** *Cyclophorus stenomphalus* (Pfeiffer, 1846). **B.** *Theobaldius maculosus* (Sowerby, 1843). **C.** *Pterocyclos bilabiatus* Benson, 1835. **D.** *Opisthostoma nilgiricum* (W.T. & H.F. Blanford, 1860). **E.** *Tortulosa tortuosa* (Gray, 1825). **F.** *Lithotis tumida* 'var. *subcostulata*' (Blanford, 1870).

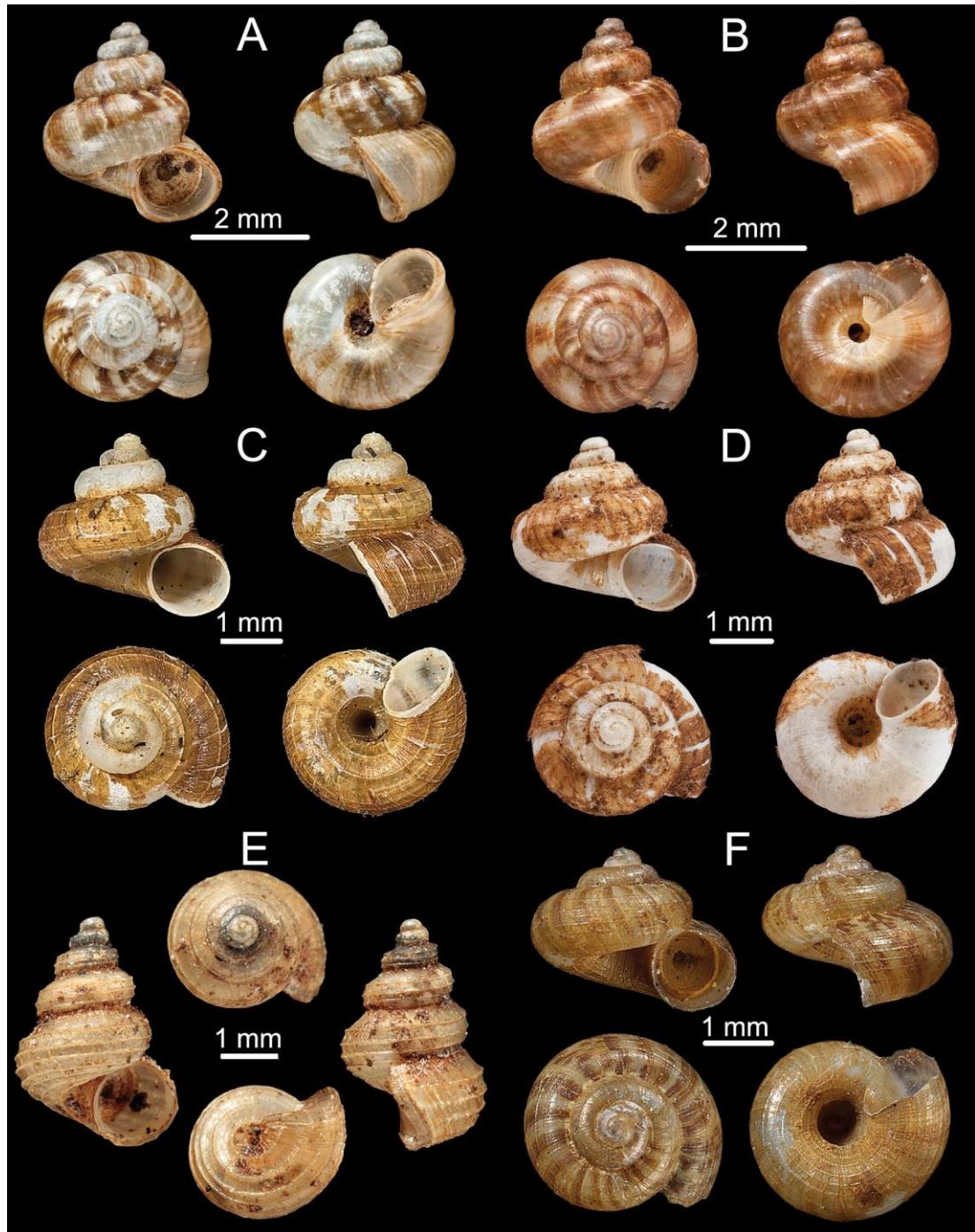


FIGURE 10. **A-B.** *Cyathopoma anamallayanum* Beddome, 1875, lectotype (A) and paralectotype (B). **C-D.** *Cyathopoma atrosetosum* Beddome, 1875, lectotype (C) and paralectotype (D). **E.** *Cyathopoma beddomeanum* Nevill, 1881, lectotype. **F.** *Cyathopoma coonoorense* Blanford, 1868, lectotype.

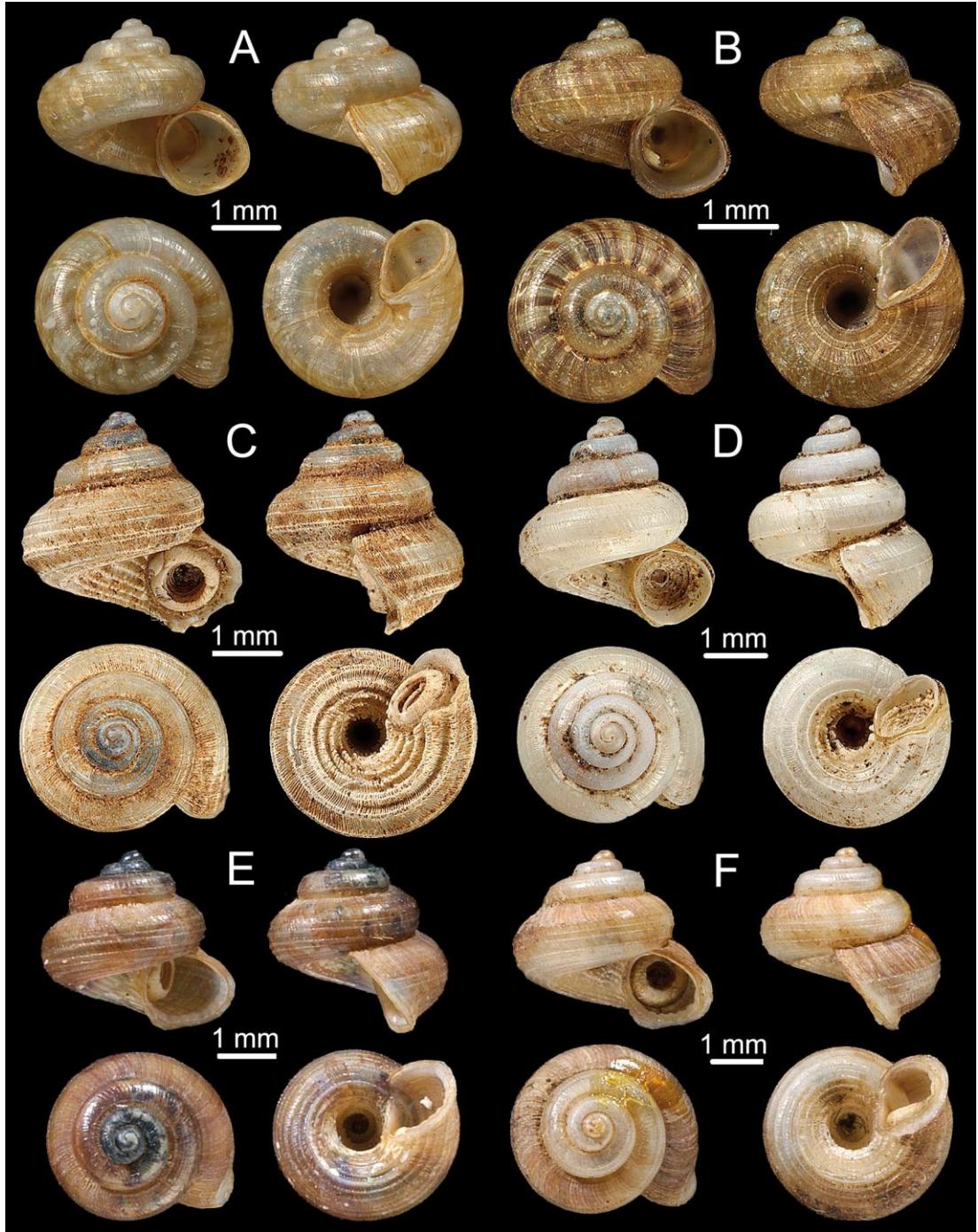


FIGURE 11. **A-B.** *Cyathopoma coonooreense* Blanford, 1868, paralectotype (A), and a shell from the Cuming collection, NHM (B). **C-D.** *Cyathopoma decanense* Blanford, 1868, lectotype (C) and paralectotype (D). **E-F.** *Cyathopoma filocinctum* (Benson, 1851), lectotype (E) and paralectotype (F).

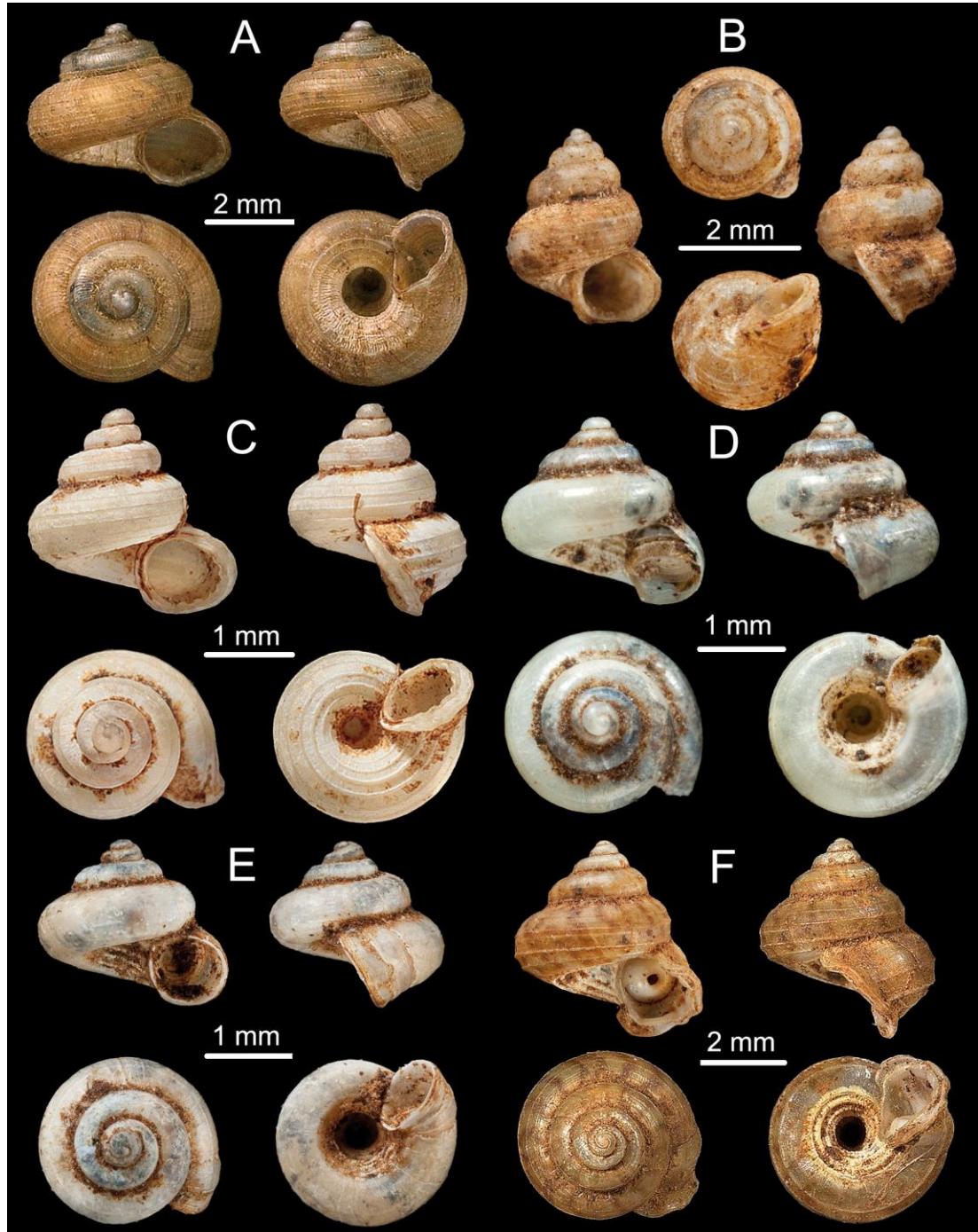


FIGURE 12. **A.** *Cyathopoma filocinctum* (Benson, 1851), from the Cuming collection, NHM. **B.** *Cyathopoma imperforatum* Nevill, 1881, lectotype. **C.** *Cyathopoma kalyrenense* (W.T. & H.F. Blanford, 1861), lectotype. **D-****E.** *Cyathopoma kolamulliense* (W.T. & H.F. Blanford, 1861), neotype (**D**) and another shell from the same lot as the neotype (**E**). **F.** *Cyathopoma latilabre* Beddome, 1875, lectotype.

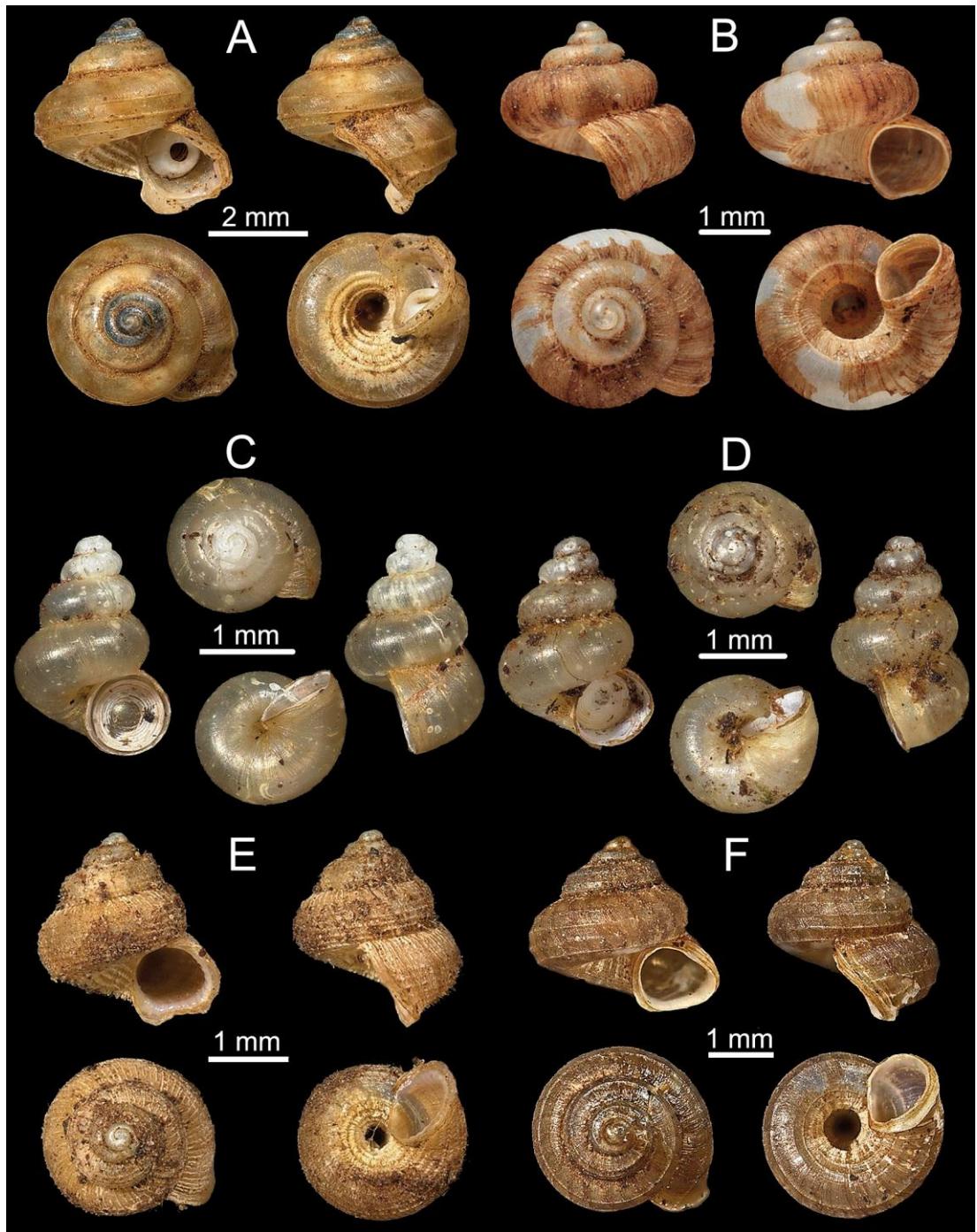


FIGURE 13. **A.** *Cyathopoma latilabre* Beddome, 1875, paralectotype. **B.** *Cyathopoma malabaricum* (W.T. & H.F. Blanford, 1860), lectotype. **C-D.** *Cyathopoma nitidum* Beddome, 1875, lectotype (**C**) paralectotype (**D**). **E.** *Cyathopoma ovatum* Beddome, 1875, neotype. **F.** *Cyathopoma peilei* Preston, 1903, lectotype.

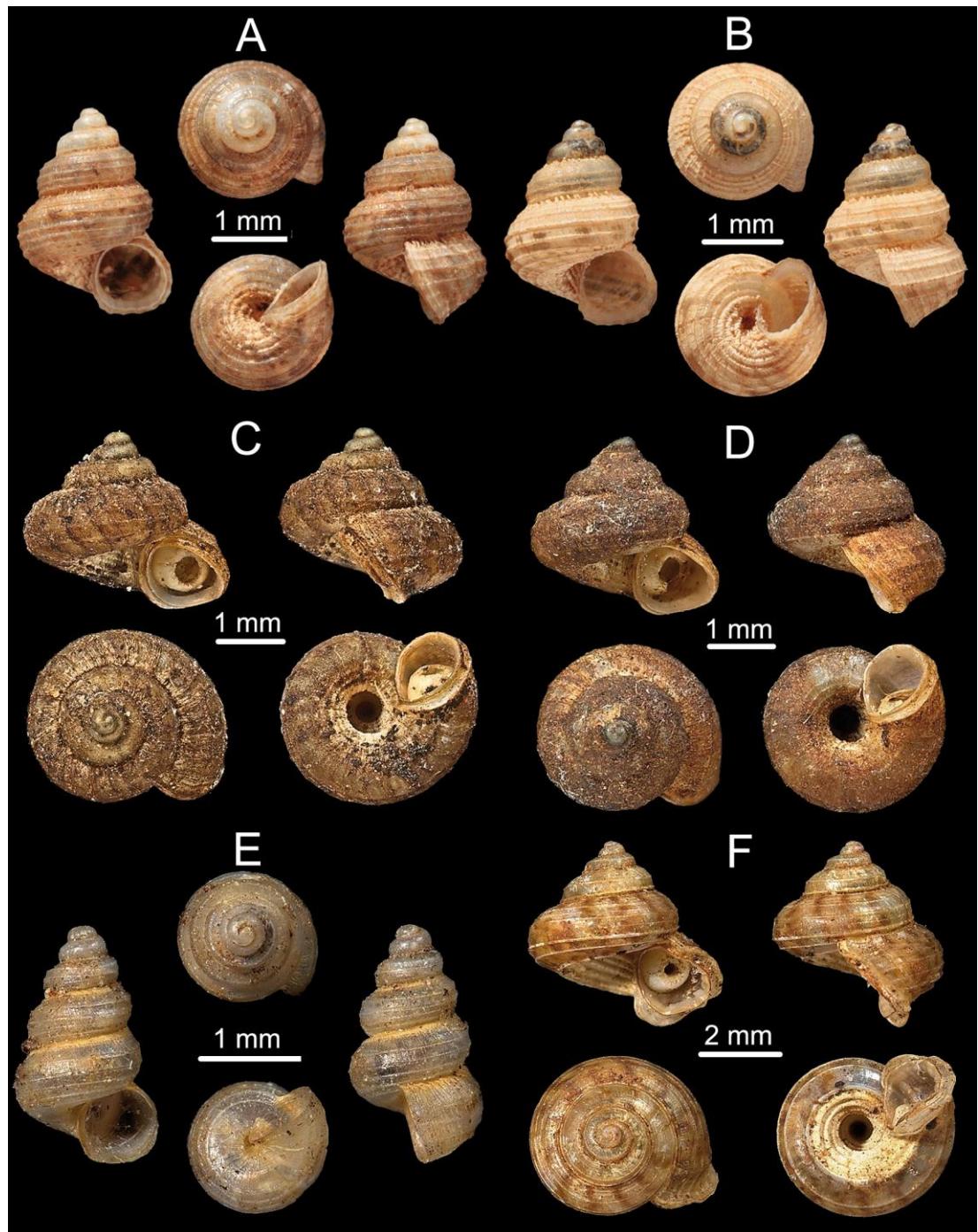


FIGURE 14. **A-B.** *Cyathopoma procerum* Blanford, 1868, lectotype (A) and paralectotype (B). **C-D.** *Cyathopoma shevaroyanum* Beddome, 1875, lectotype (C) and paralectotype (D). **E.** *Cyathopoma sivagherrianum* Beddome, 1875, lectotype. **F.** *Cyathopoma travancoricum* Beddome, 1875, lectotype.

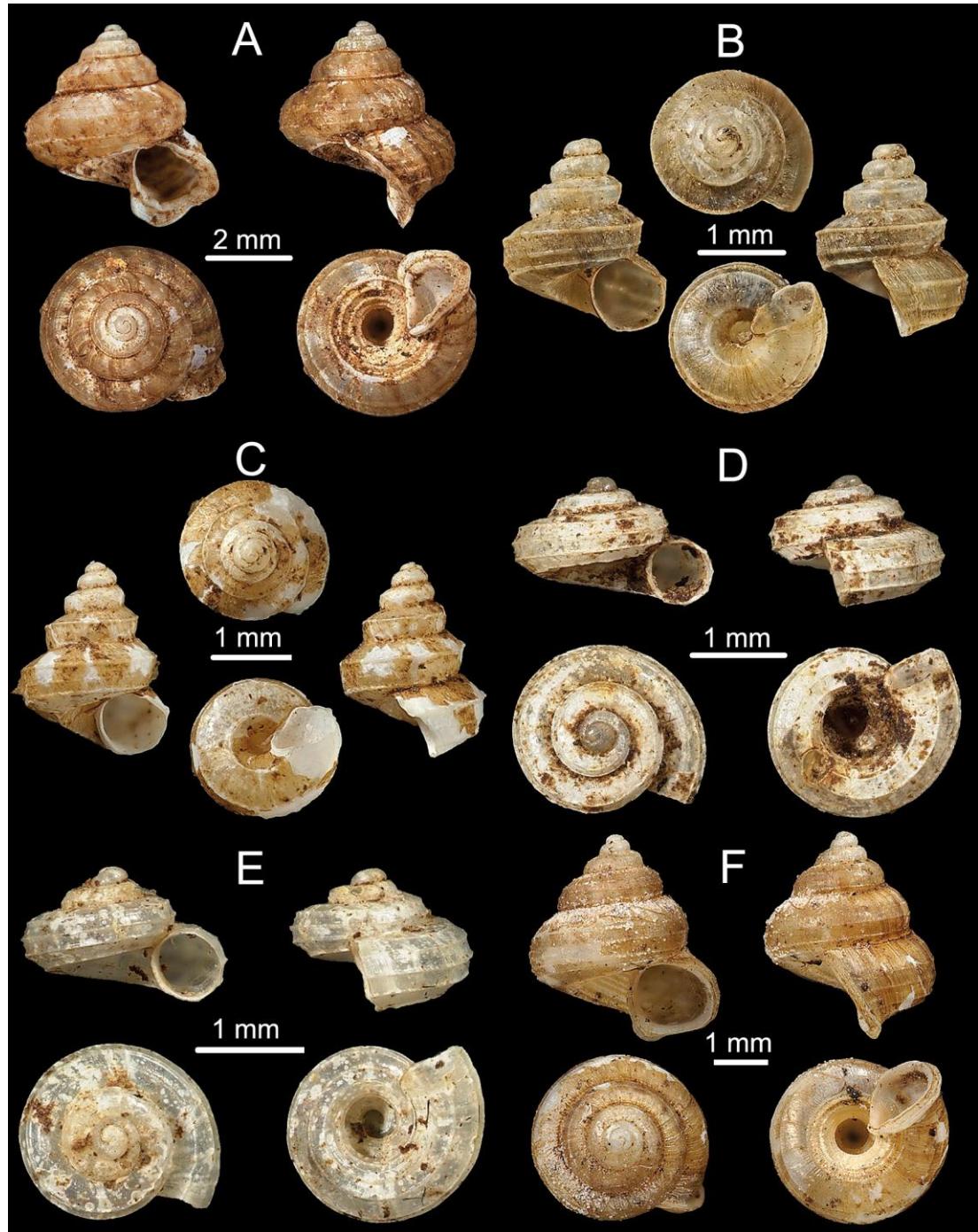


FIGURE 15. **A.** *Cyathopoma travancoricum* Beddome, 1875, paralectotype. **B-C.** *Cyathopoma trochlea* (Benson, 1851), neotype (**B**) and the other shell from the same lot as the neotype (**C**). **D-E.** *Cyathopoma vitreum* Beddome, 1875, lectotype (**D**) and paralectotype (**E**). **F.** *Cyathopoma wynaudense* Blanford, 1868, lectotype.

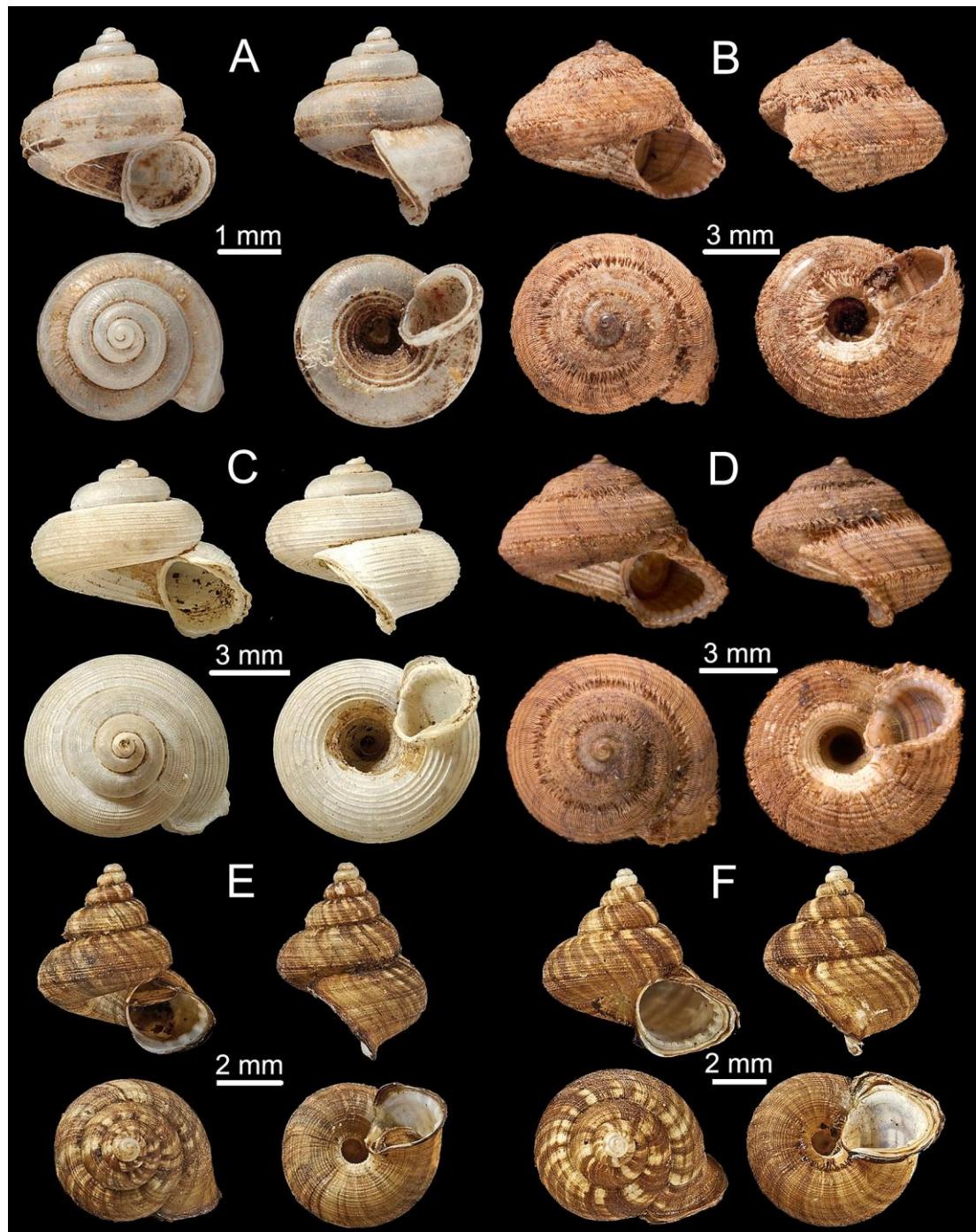


FIGURE 16. **A.** *Cyathopoma wynnaadense* Blanford, 1868, paralectotype. **B-D.** *Mychopoma hirsutum* Blanford, 1869, lectotype (**B**), paralectotype (**C**), and a shell from the Beddome collection, NHM (**D**). **E-F.** *Mychopoma limbiferum* Blanford, 1869, lectotype (**E**) and paralectotype (**F**).

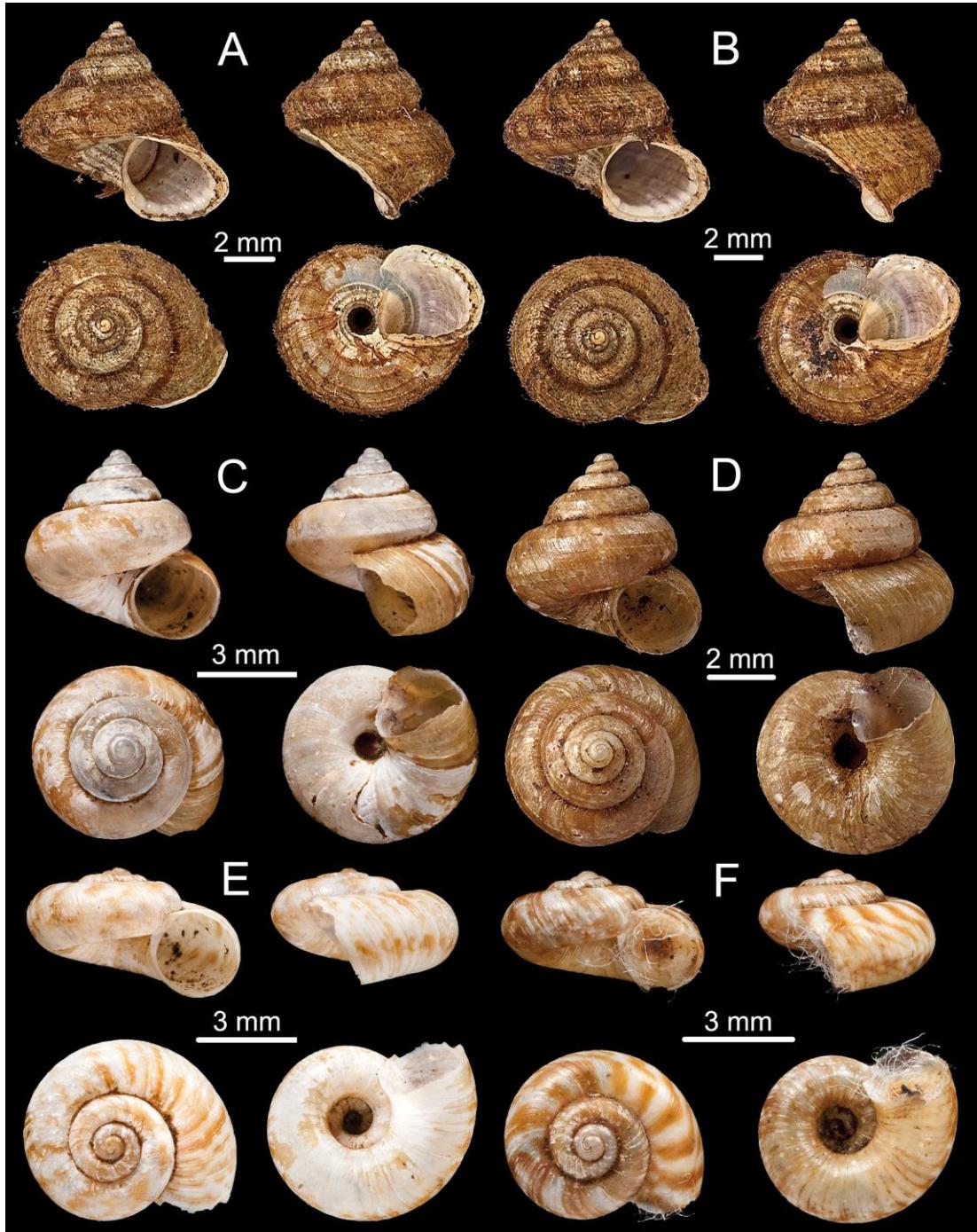


FIGURE 17. **A-B.** *Mychopoma seticinctum* (Beddome, 1875), lectotype (A) and paralectotype (B). **C-D.** *Lagocheilus malleatus* (W.T. & H.F. Blanford, 1861), lectotype (C) and a shell collected by Beddome, NHM (D). **E-F.** *Lagocheilus shipayi* (Pfeiffer, 1857), lectotype (E) and a shell from the same lot as the lectotype (F).

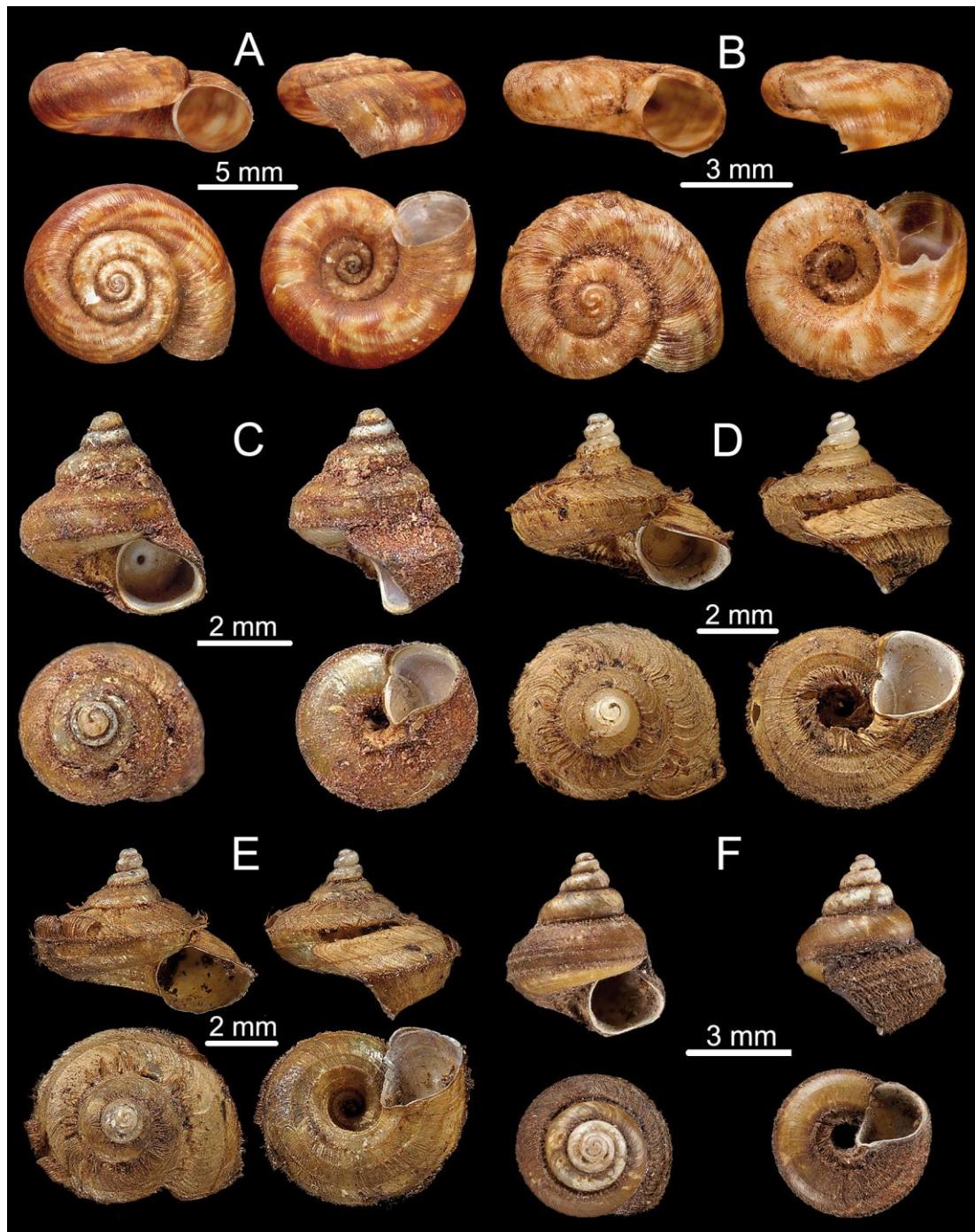


FIGURE 18. **A-B.** *Lagocheilus shiplayi* (Pfeiffer, 1857), from the Barnacle collection, NHM. **C.** *Craspedotropis bilirata* (Beddome, 1875), lectotype. **D-E.** *Craspedotropis cuspidata* (Benson, 1851), neotype (**D**) and a shell from the NHM (**E**). **F.** *Craspedotropis salemensis* (Beddome, 1875), lectotype.

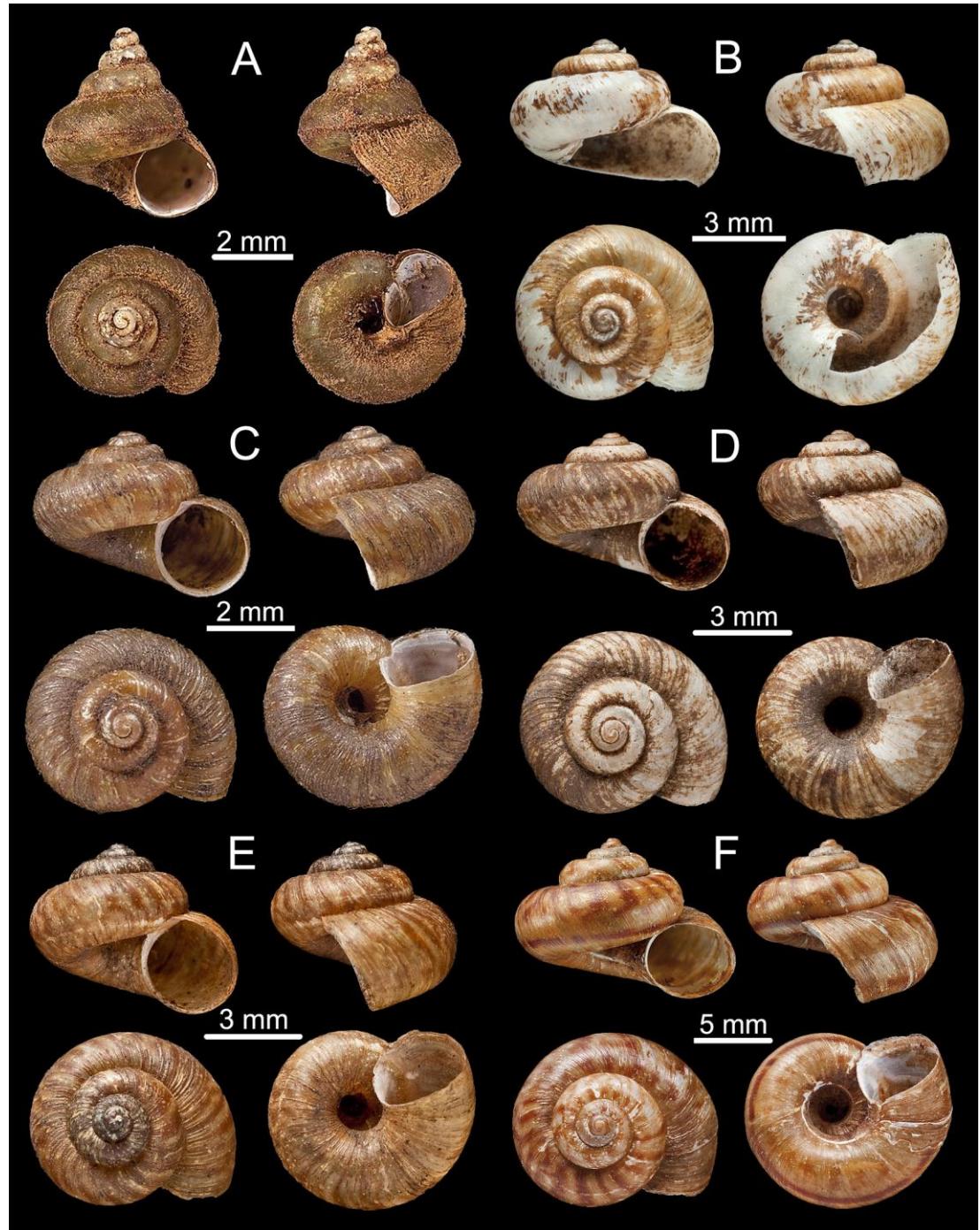


FIGURE 19. **A.** *Craspedotropis salemensis* (Beddome, 1875), paralectotype. **B-E.** *Leptopomoides valvatus* Blanford in Möllendorff, 1897, lectotype (**B**), a shell from Beddome, NHM (**C**), and shells from "S. Canara", NHM (**D-E**). **F.** *Micraulax coeloconus* (Benson, 1851), lectotype.

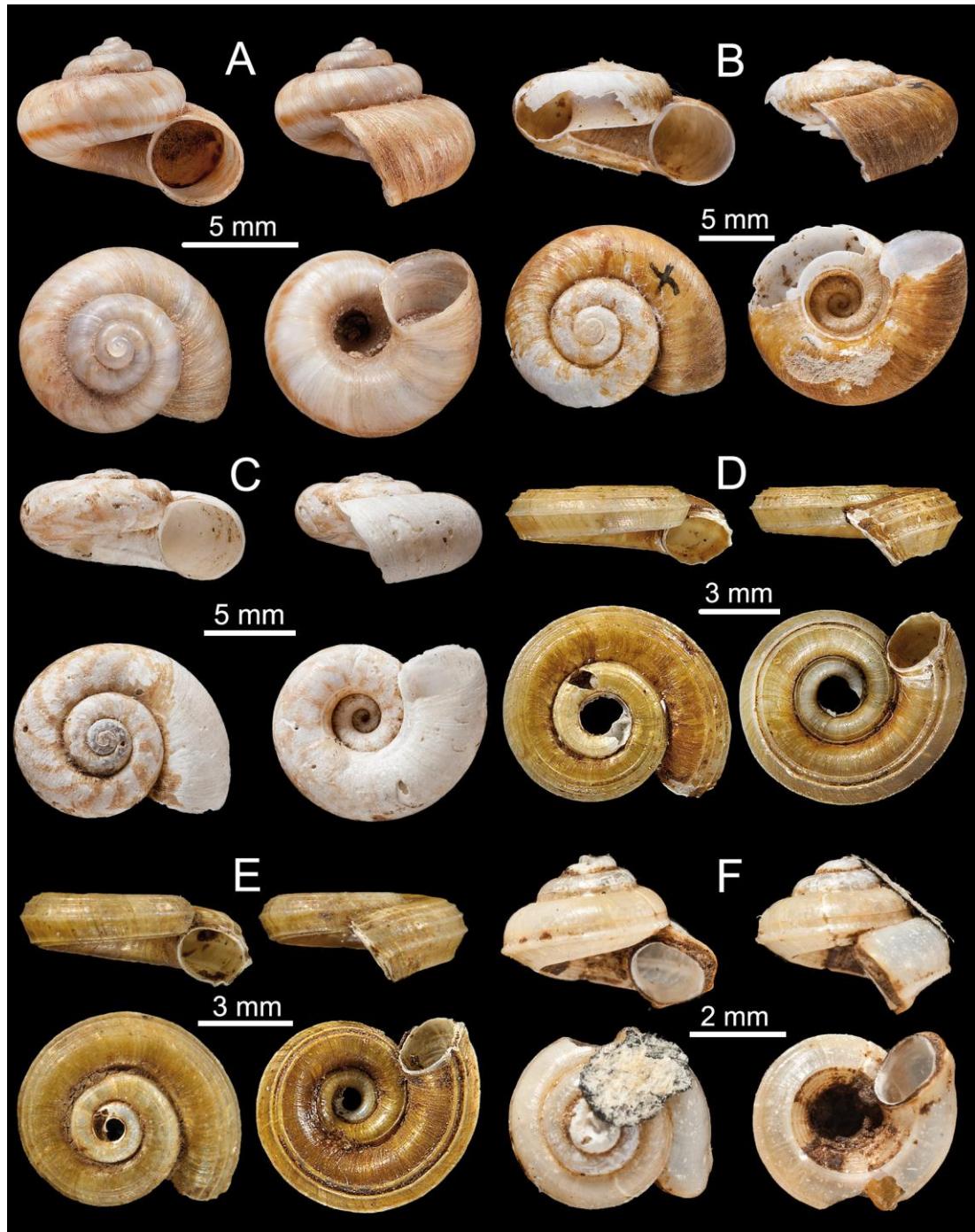


FIGURE 20. **A.** *Micraulax coeloconus* (Benson, 1851), paralectotype. **B-C.** *Micraulax scabra* Theobald, 1876, lectotype (**B**) and paralectotype (**C**). **D-E.** *Ditropopsis beddomei* (Blanford, 1869), lectotype (**D**) and paralectotype (**E**). **F.** *Ditropopsis convexus* (Blanford, 1869), lectotype.

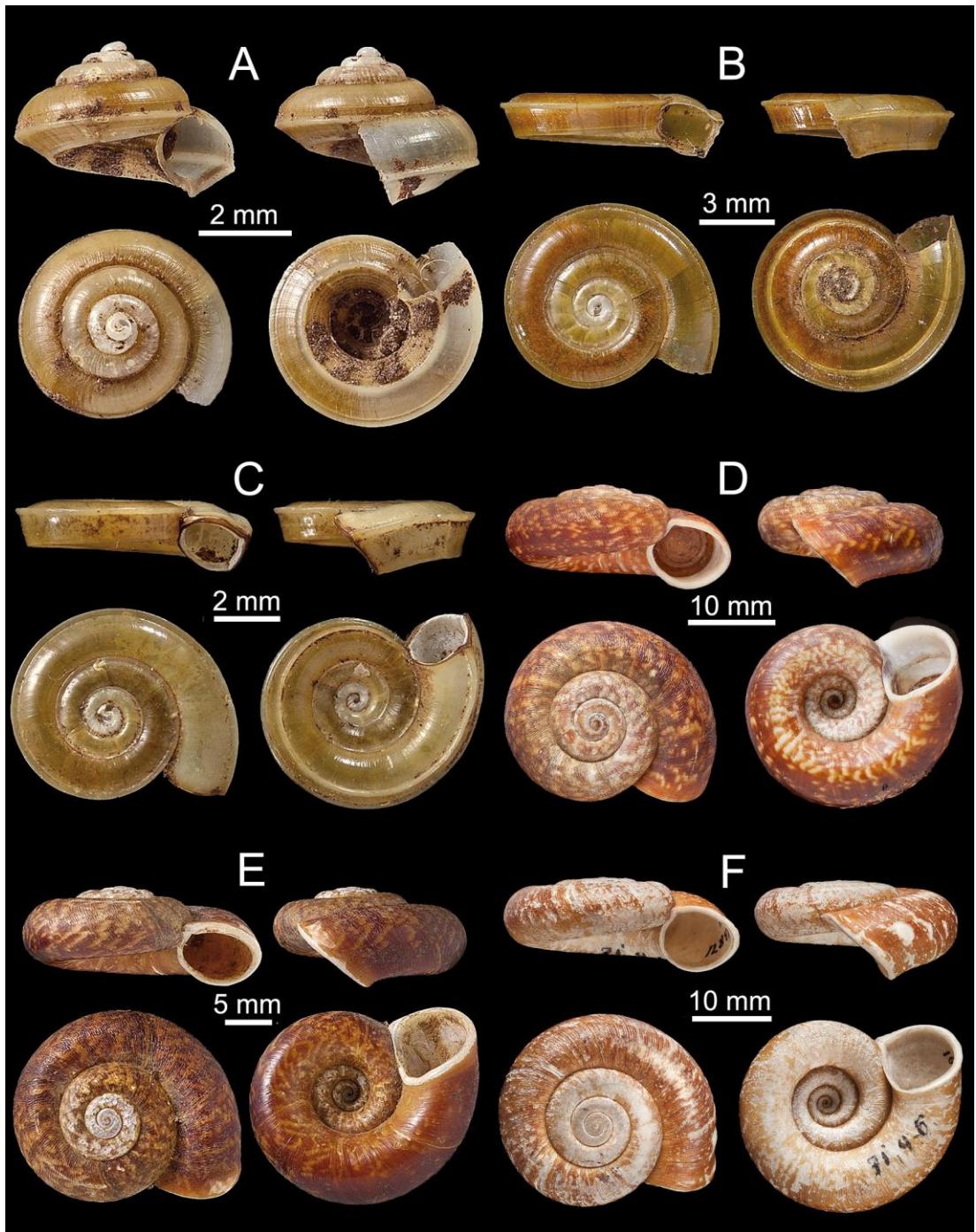


FIGURE 21. **A.** *Ditropopsis convexus* (Blanford, 1869), from the Beddome collection, NHM. **B-C.** *Ditropopsis planorbis* (Blanford, 1869), lectotype (**B**) and paralectotype (**C**). **D-E.** *Theobaldius anguis* (Sowerby in Hanley & Theobald, 1874), neotype (**D**) and a shell from the Beddome collection, NHM (**E**). **F.** *Theobaldius annulatus* 'var. *nilgiricus*' Kobelt, 1907, holotype.

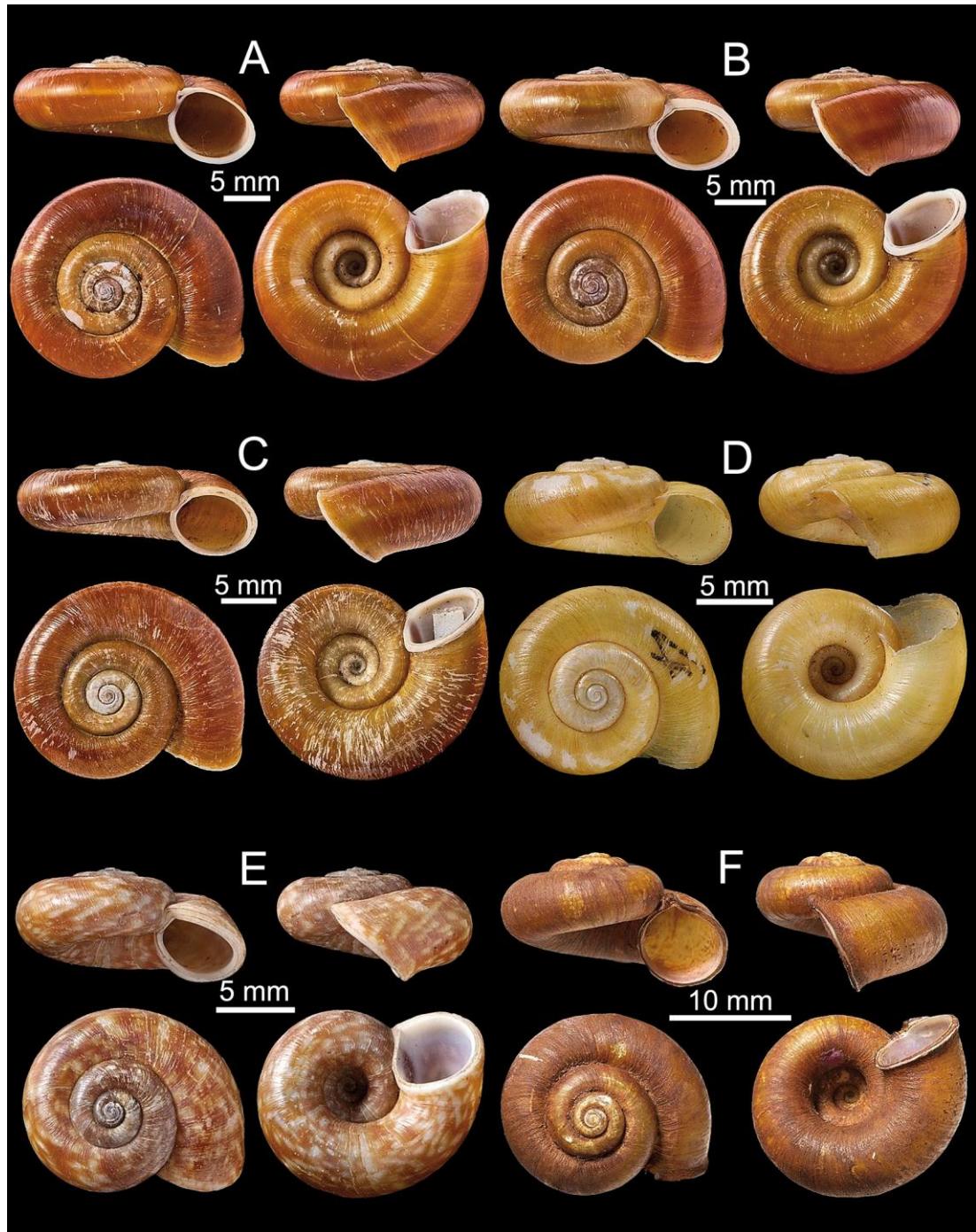


FIGURE 22. **A-C.** *Theobaldius deplanatus* (Pfeiffer, 1855), lectotype (A) and paralectotypes (B, C). **D.** *Theobaldius ravidus* (Benson, 1851), holotype. **E.** *Theobaldius stenostoma* (Sowerby, 1843), lectotype. **F.** *Theobaldius? tristis* (Blanford, 1869), lectotype.

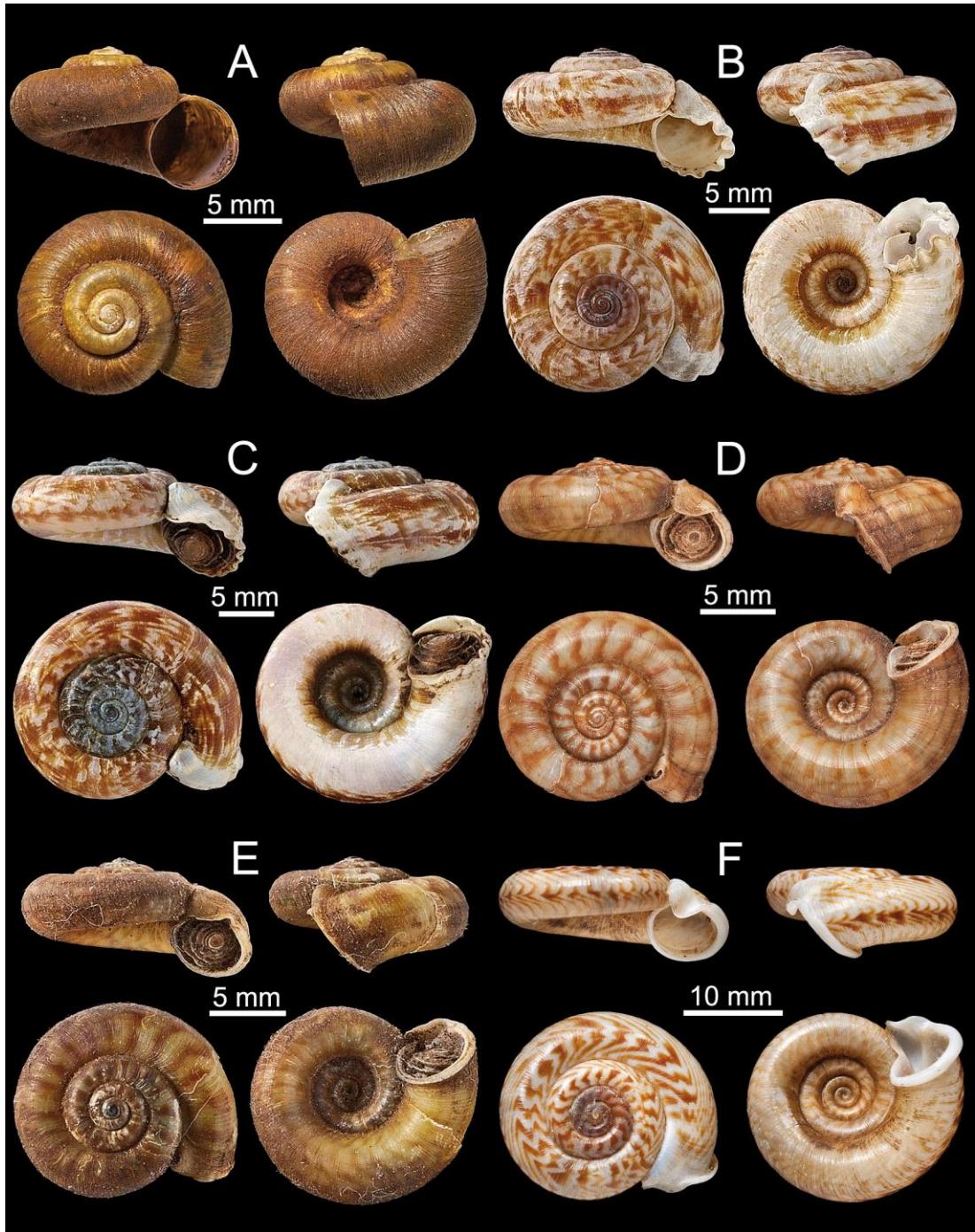


FIGURE 23. **A.** *Theobaldius? tristis* (Blanford, 1869), paralectotype. **B-C.** *Pterocyclos bilabiatus* Benson, 1835, from the Cuming collection, NHM (**B**), and from the J.R. Henderson collection, NHM (**C**). **D-E.** *Pterocyclos comatus* Beddoe in Nevill, 1881, lectotype (**D**) and paralectotype (**E**). **F.** *Pterocyclos cumingi* Pfeiffer, 1851, lectotype.

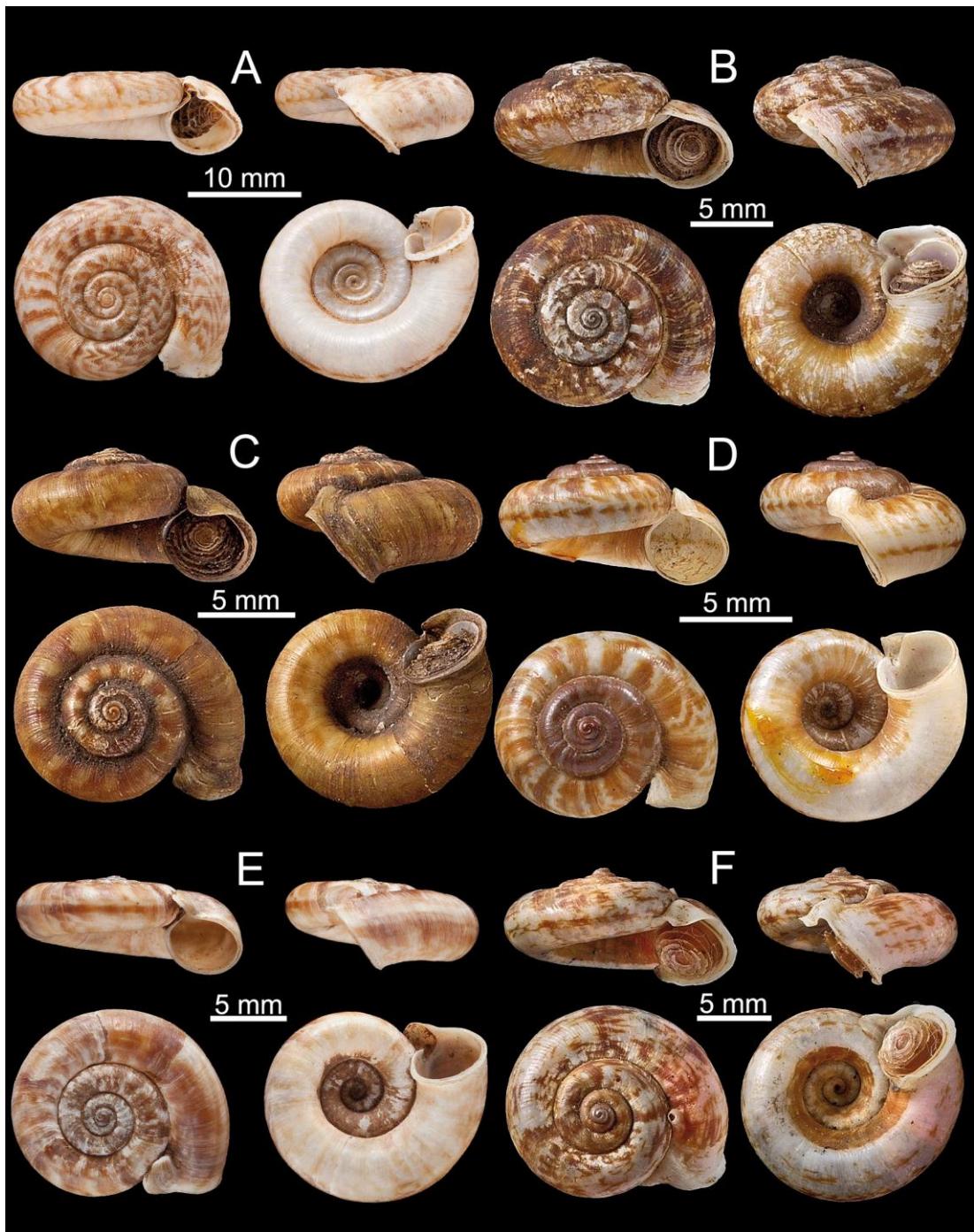


FIGURE 24. **A.** *Pterocyclos cumingi* Pfeiffer, 1851, one of the shells from the same lot as the lectotype. **B-C.** *Pterocyclos cyclophoroideus* Nevill, 1881, from the Beddome collection, NHM. **D.** *Pterocyclos nanus* Benson, 1851, lectotype. **E.** *Pterocyclos pseudocumingi* Nevill in Möllendorff, 1897, holotype. **F.** *Pearsonia fairbanki* (Blanford, 1869), lectotype.

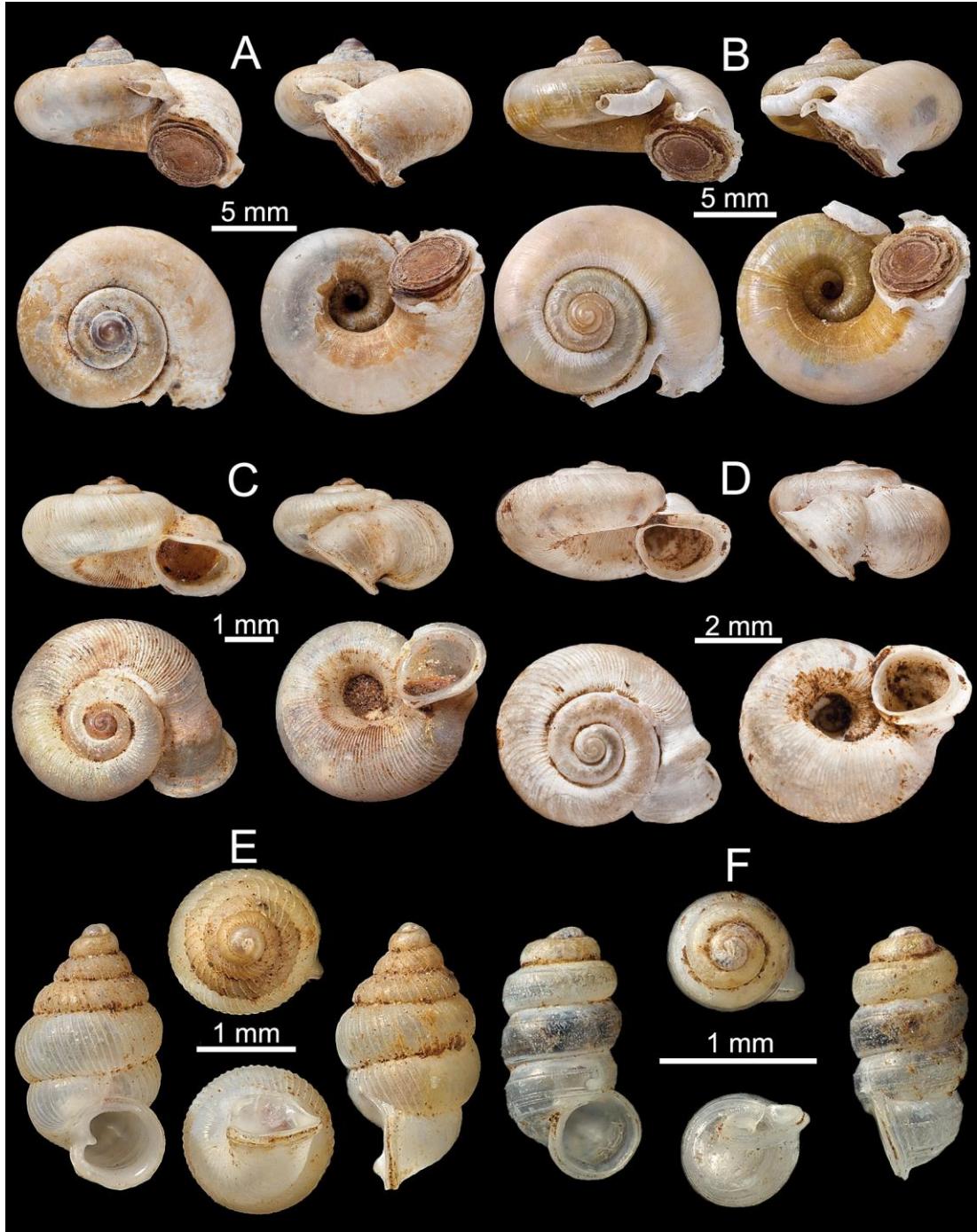


FIGURE 25. **A-B.** *Pearsonia travancorica* (Blanford, 1880), holotype (A) and the other shell from the same lot as the holotype (B). **C.** *Chamalycaeus expatriatus* (W.T. & H.F. Blanford, 1860), lectotype. **D.** *Chamalycaeus footei* (W.T. & H.F. Blanford, 1861), lectotype. **E.** *Diplommatina canarica* Beddome, 1875, lectotype. **F.** *Nicida anamallayana* (Beddome, 1875), lectotype.

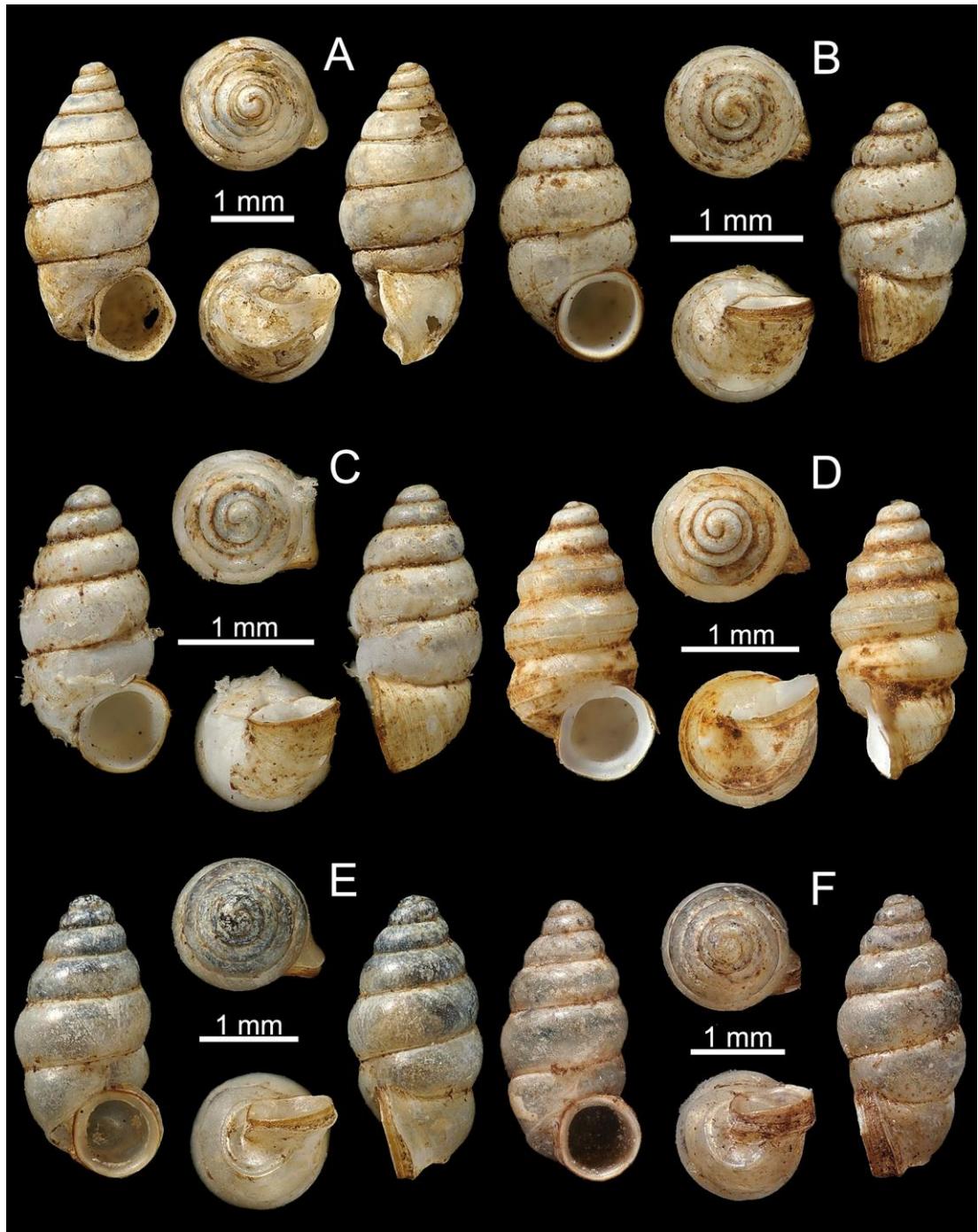


FIGURE 26. **A.** *Nicida fairbanki* (Blanford, 1868), neotype. **B-C.** *Nicida kingiana* (W.T. & H.F. Blanford, 1861), neotype (**B**) and one of the other shells from the same lot as the neotype (**C**). **D.** *Nicida liricincta* (Blanford, 1868), lectotype. **E-F.** *Nicida nilgirica* (W.T. & H.F. Blanford, 1860), lectotype (**E**) and paralectotype (**F**).

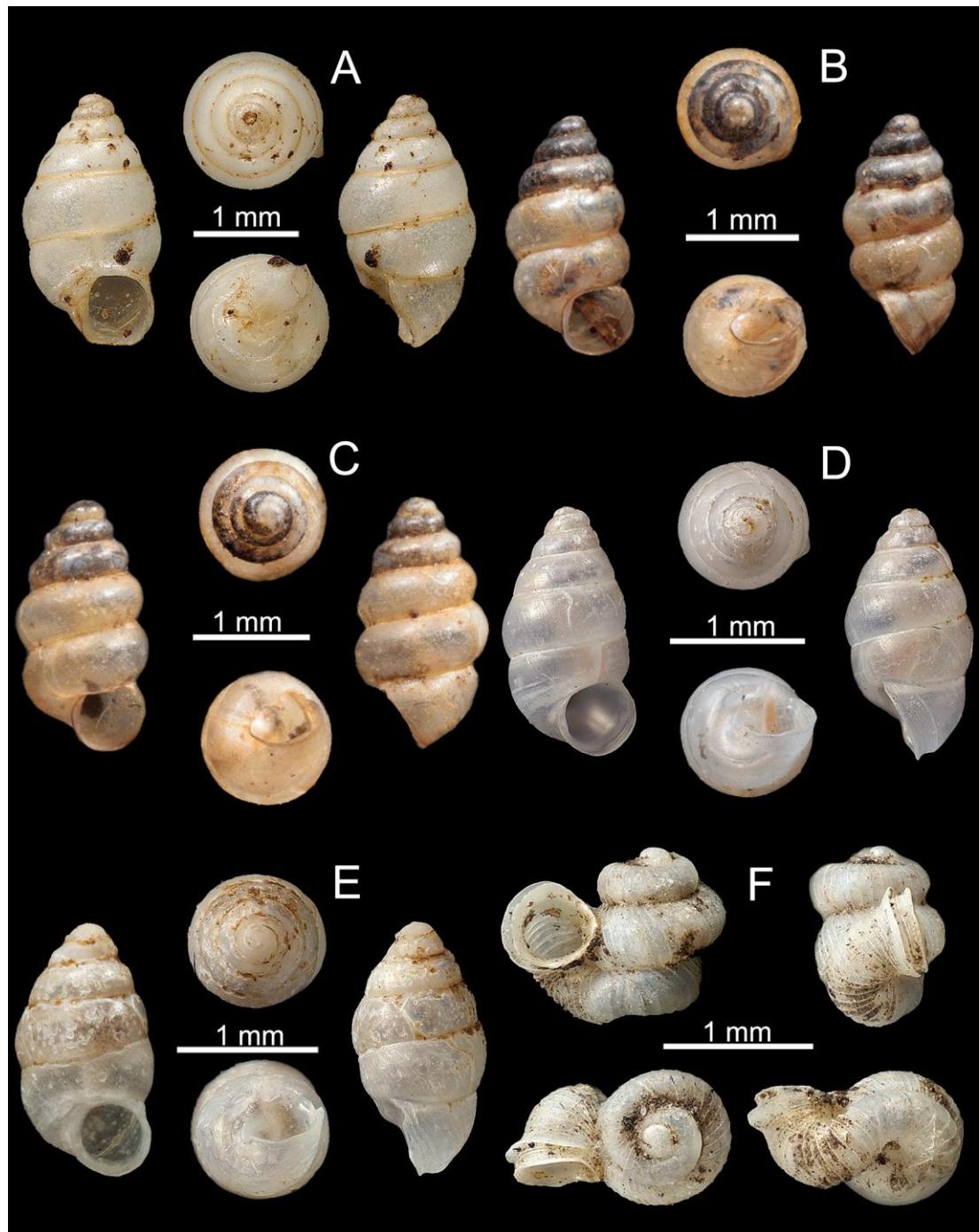


FIGURE 27. **A.** *Nicida nitidula* (Blanford, 1868), neotype. **B-C.** *Nicida pulneyana* (Blanford, 1868), lectotype (**B**) and paralectotype (**C**). **D-E.** *Nicida subovata* (Beddome, 1875), lectotype (**D**) and paralectotype (**E**). **F.** *Opisthostoma deccanense* Beddome, 1875, lectotype.

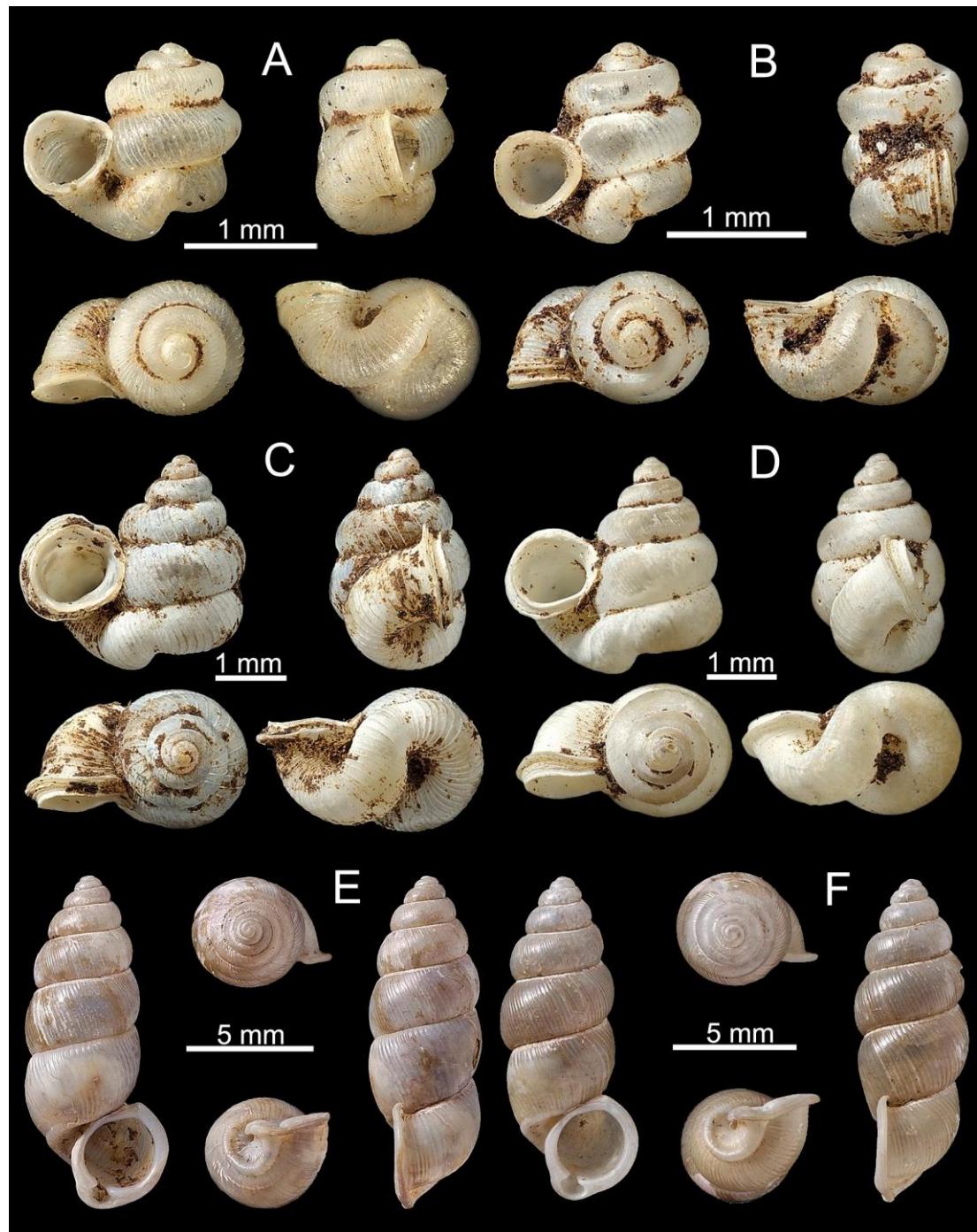


FIGURE 28. **A.** *Opisthostoma deccanense* Beddome, 1875, from the Kennard collection, NHM. **B.** *Opisthostoma fairbanki* Blanford, 1866, lectotype. **C-D.** *Opisthostoma macrostoma* Blanford, 1869, lectotype (**C**) and paralectotype (**D**). **E-F.** *Tortulosa albescens* (Blanford, 1880), lectotype (**E**) and paralectotype (**F**).

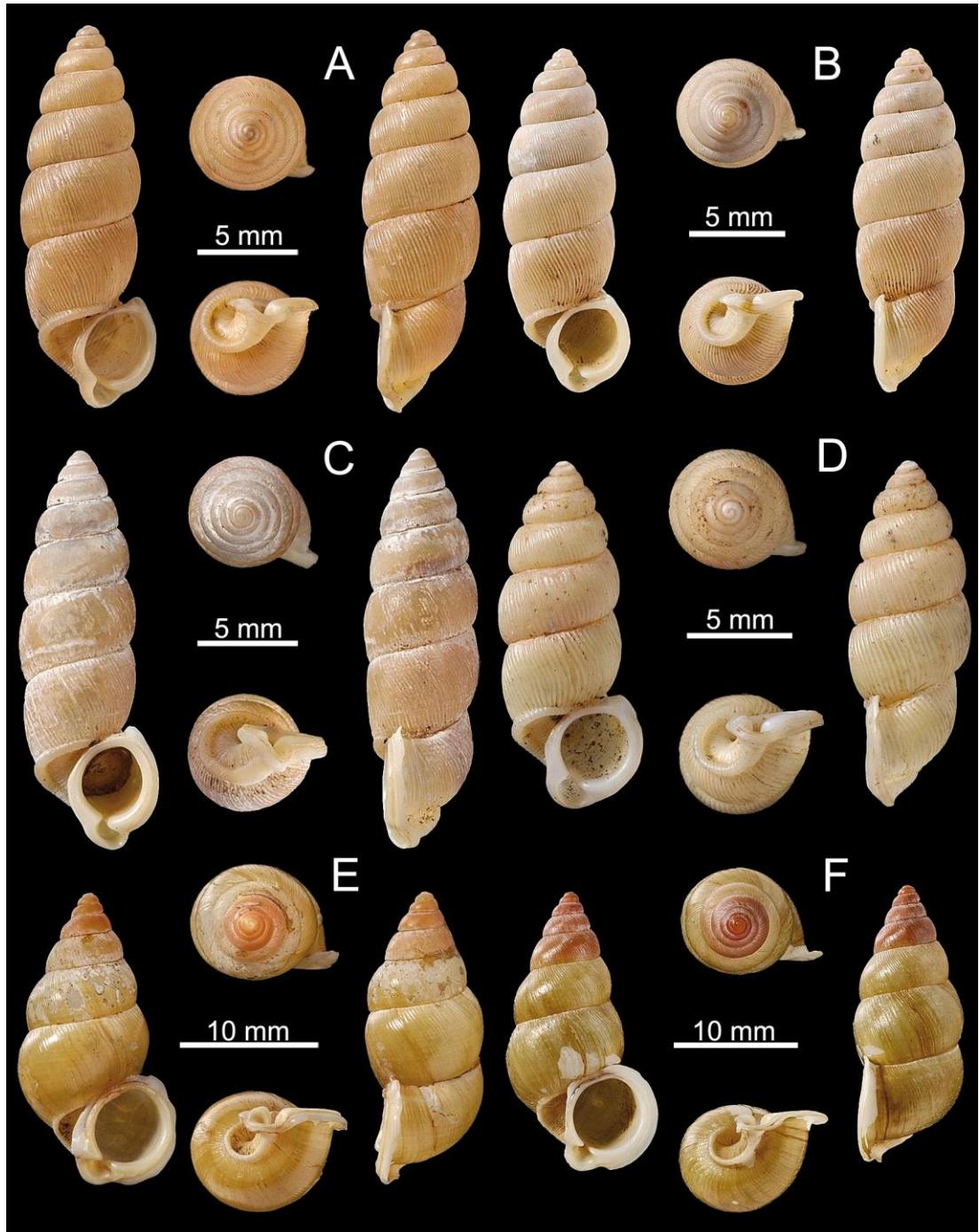


FIGURE 29. A-C. *Tortulosa calcadensis* (Blanford, 1869), neotype (A) and the two other shells from the same lot as the neotype (B, C). D. *Tortulosa costulata* (Blanford, 1880), neotype. E-F. *Tortulosa recurvata* (Pfeiffer, 1862), lectotype (E) and paralectotype (F).

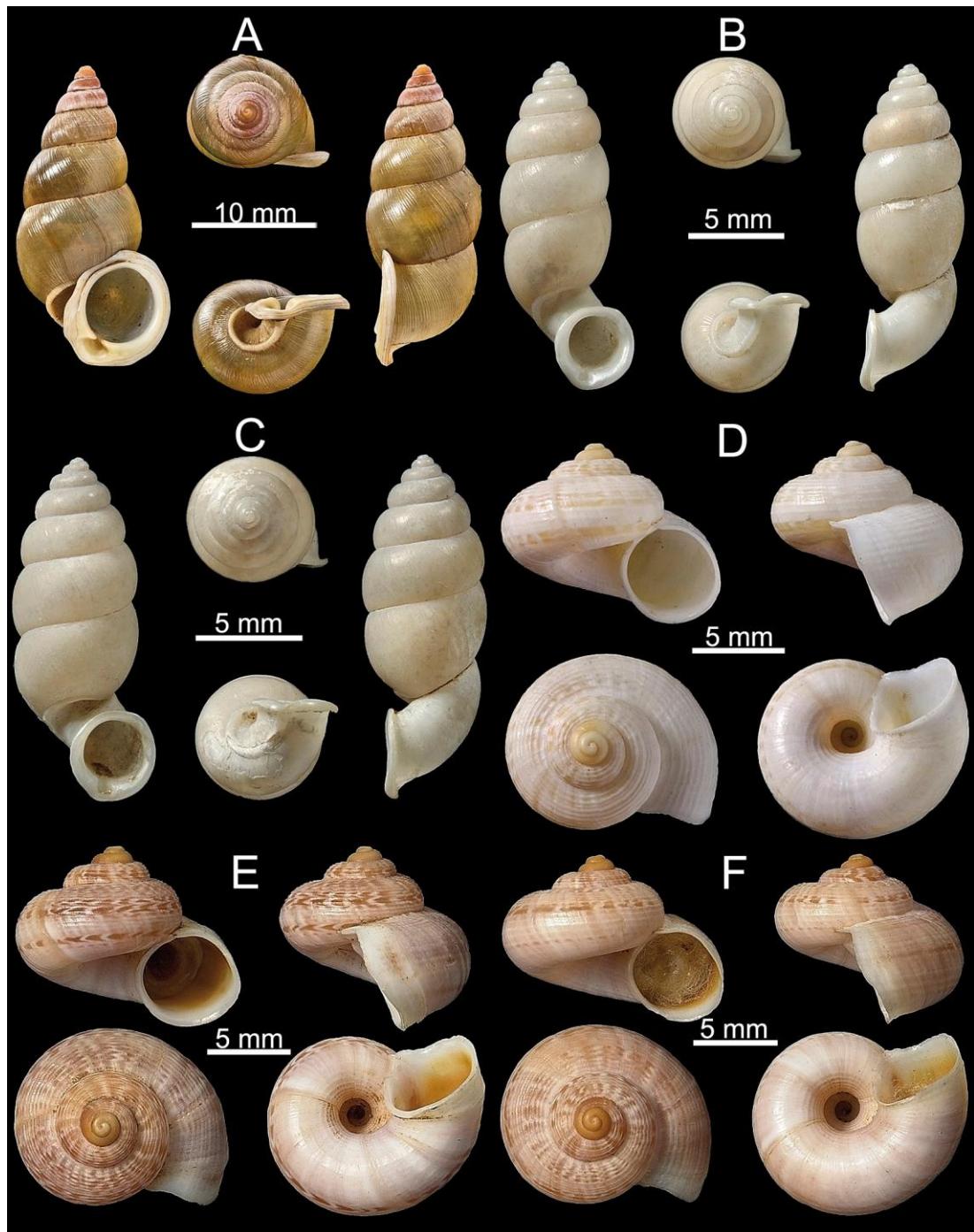


FIGURE 30. **A.** *Tortulosa recurvata* (Pfeiffer, 1862), from the W.T. Blanford collection, NHM. **B-C.** *Tortulosa* (Gray, 1825), from the Cuming collection, NHM. **D.** *Cyclotopsis montana* (Pfeiffer, 1855), lectotype. **E-F.** *Cyclotopsis semistriata* (Sowerby, 1843), neotype (E) and one of the two other shells from the same lot as the neotype (F).

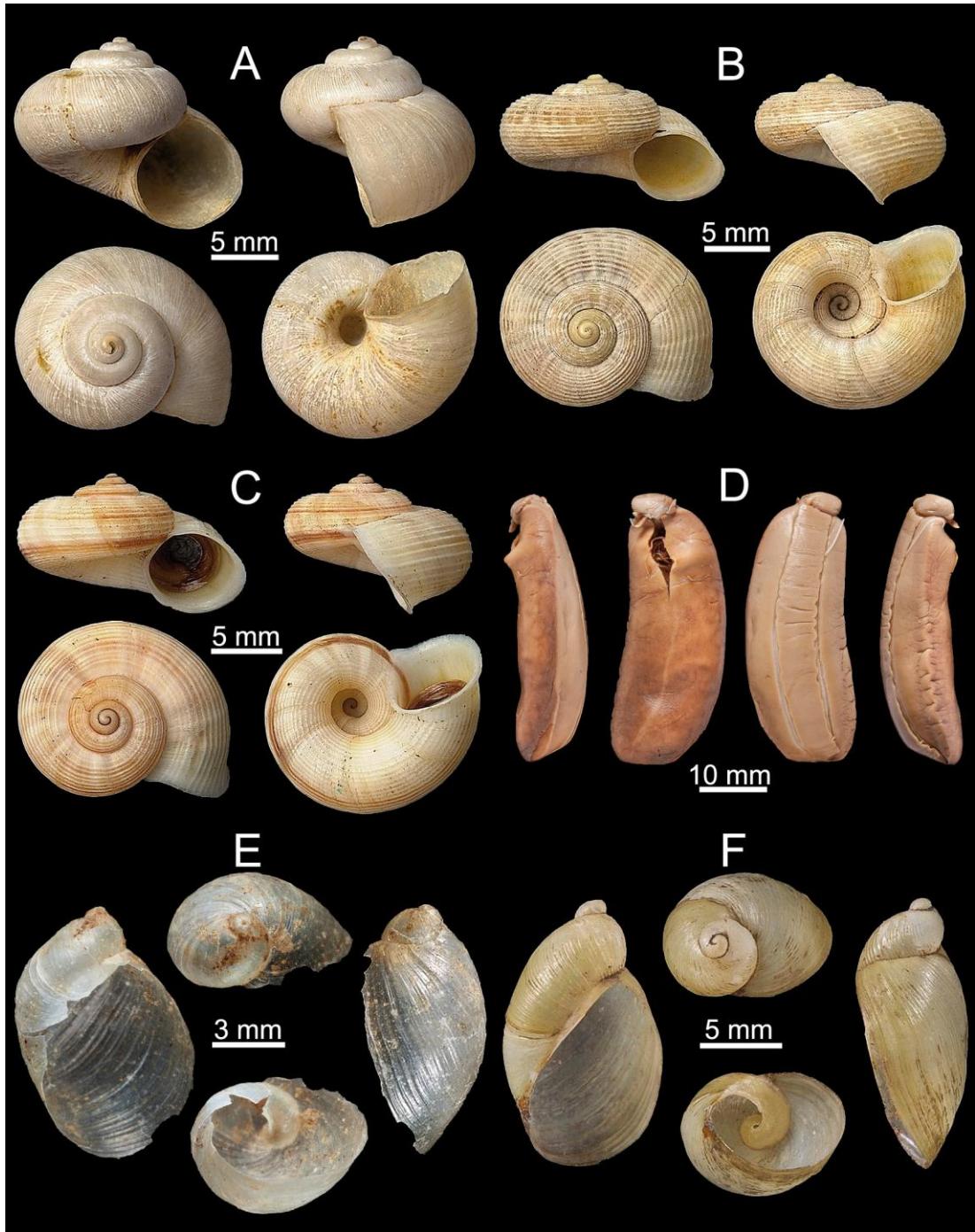


FIGURE 31. **A.** *Cyclotopsis? spurca* (Grateloup, 1840), neotype. **B-C.** *Cyclotopsis subdiscoidea* (Sowerby, 1850), neotype (**B**) and one of the two other shells from the same lot as the neotype (**C**). **D.** *Laevicaulis alte* (Férussac, 1822), lectotype. **E.** *Succinea baconi* Pfeiffer, 1855, lectotype. **F.** *Succinea collina* Hanley & Theobald, 1873, lectotype.

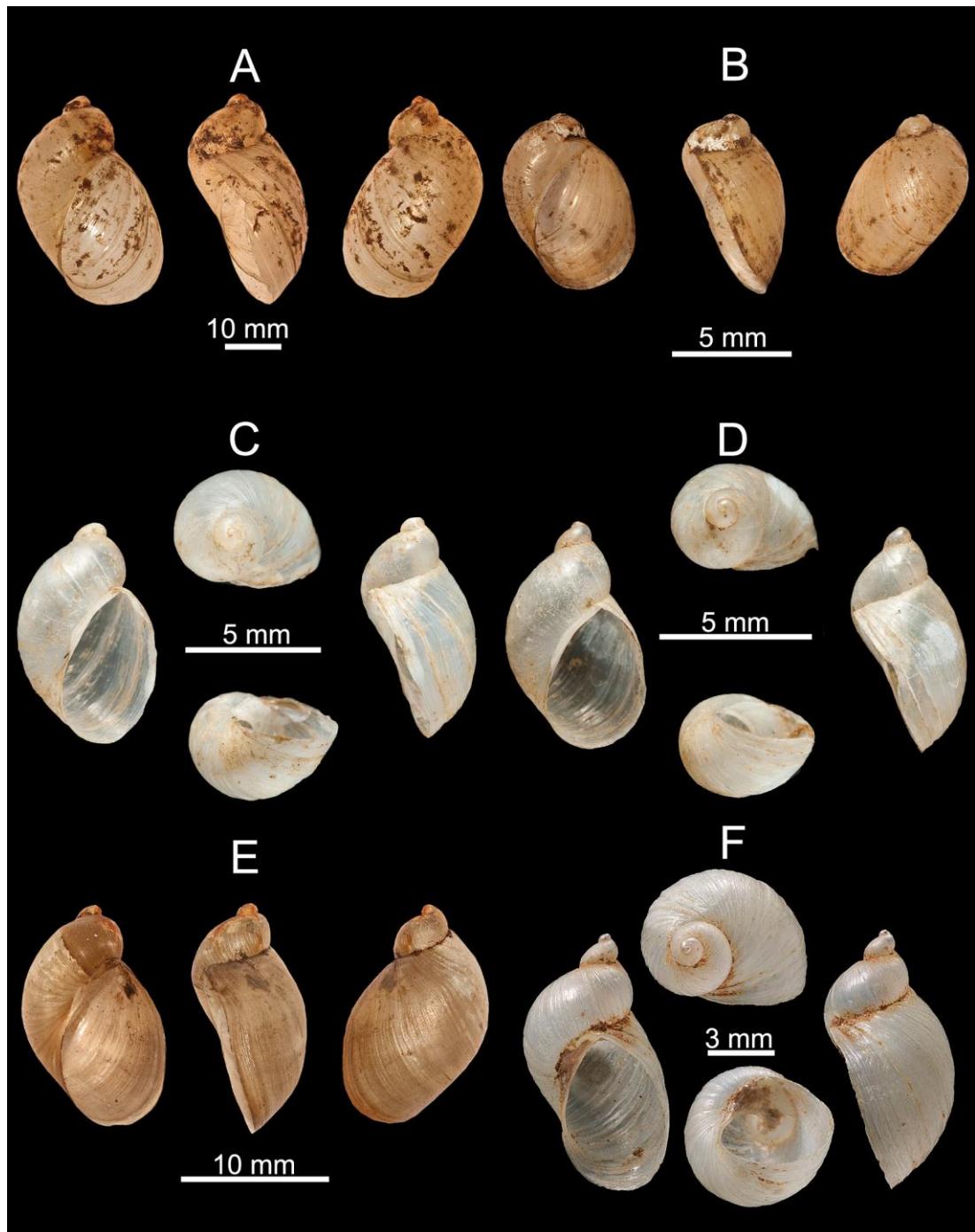


FIGURE 32. **A.** *Succinea?* *gravelyi* ‘var. *bombayensis*’ Rao, 1925, holotype. **B.** *Succinea?* *raoi* Rao and Mitra, 1976, holotype. **C-D.** *Succinea subgranosa* Pfeiffer, 1850, lectotype (**C**) and paralectotype (**D**). **E.** *Succinea tornadri* Rao, 1924, holotype. **F.** *Succinea vitrea* Pfeiffer, 1855, lectotype.

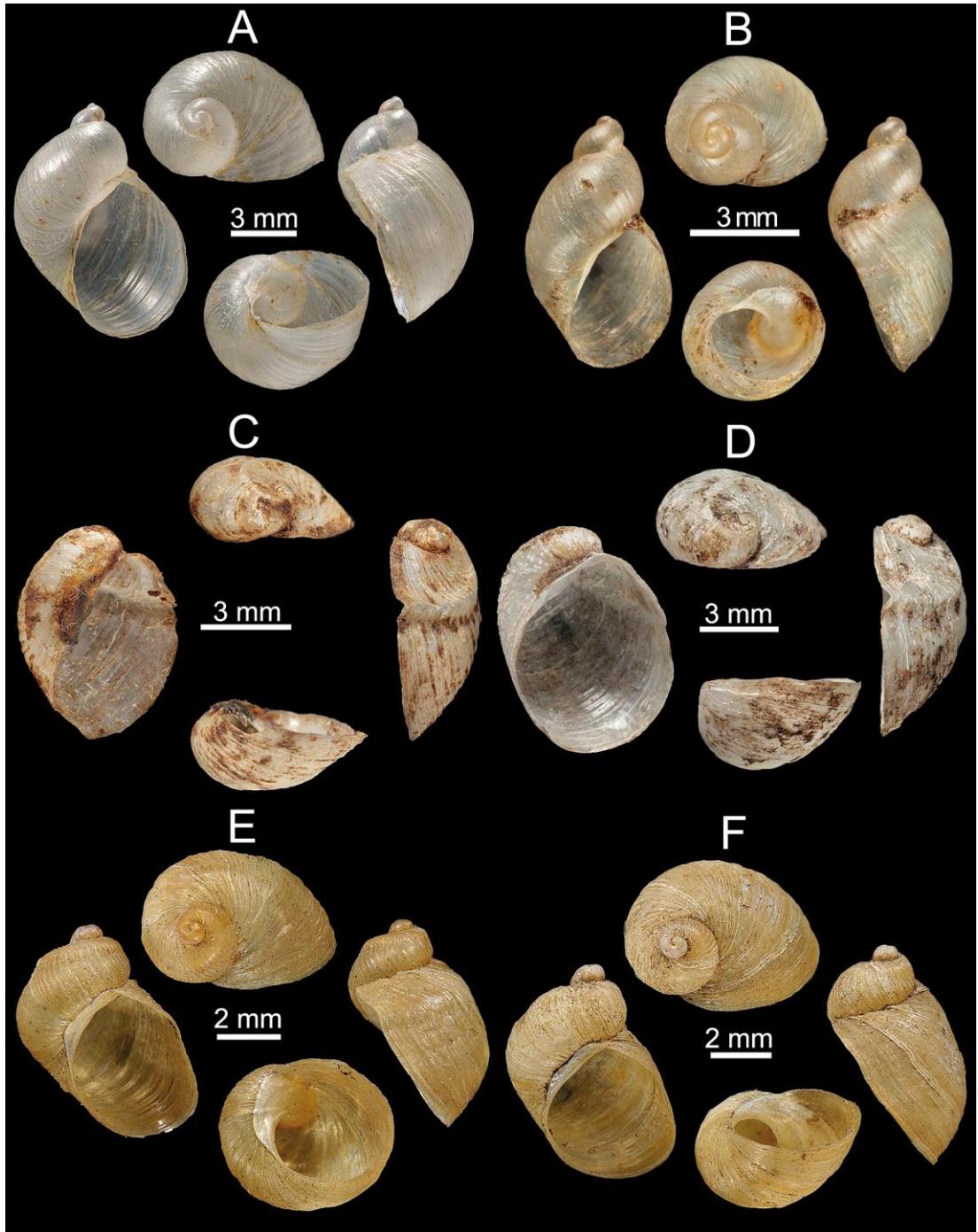


FIGURE 33. **A.** *Succinea vitrea* Pfeiffer, 1855, paralectotype. **B.** *Quickia bensonii* Pfeiffer, 1850, lectotype. **C-D.** *Lithotis rupicola* (Blanford, 1863), lectotype (**C**) and a shell from the Leith collection, NHM (**D**). **E-F.** *Lithotis tumida* (Blanford, 1870), lectotype (**E**) and paralectotype (**F**).

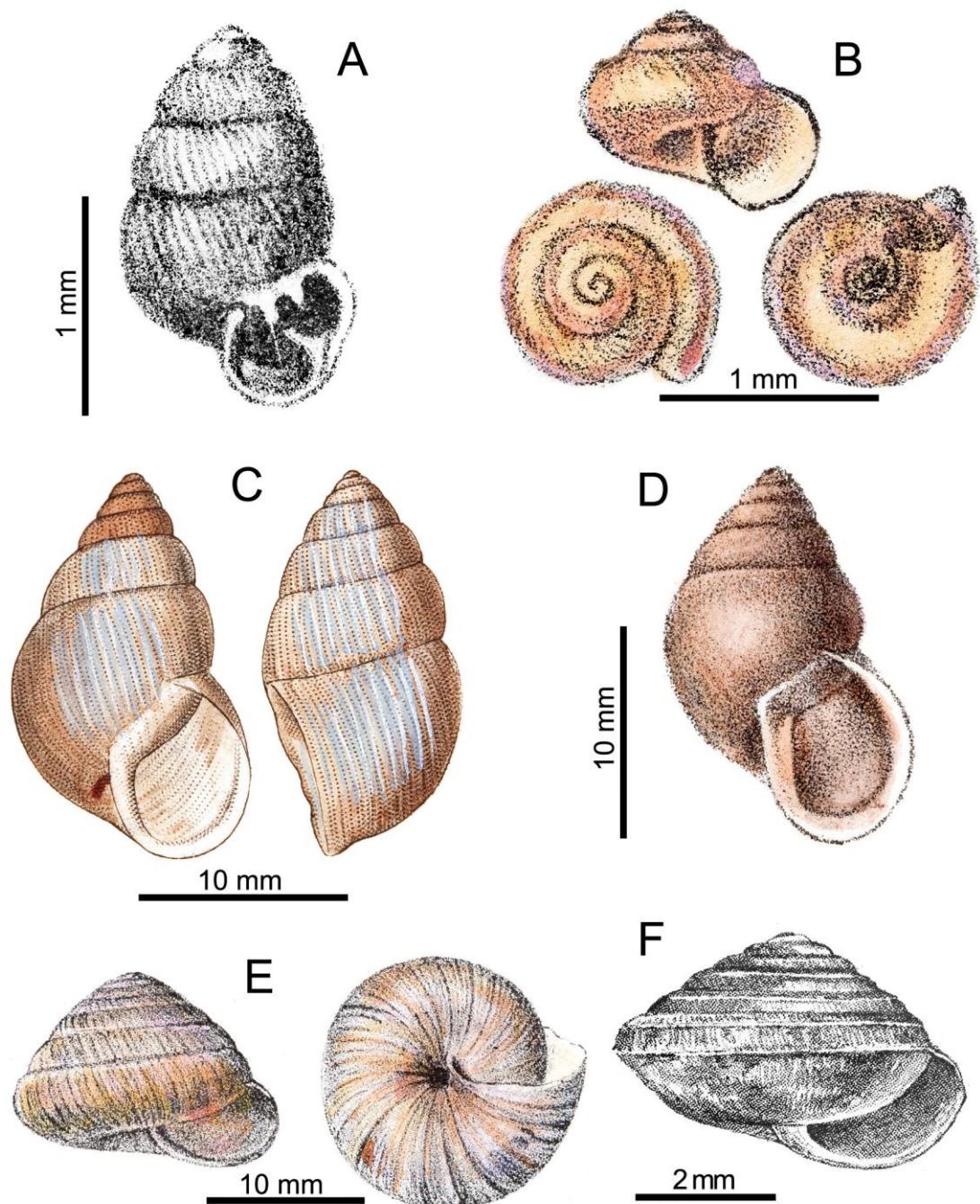


FIGURE 34. Historical figures. **A.** *Pupilla salemensis* (W.T. & H.F. Blanford, 1861). **B.** *Pyramidula euomphalus* (W.T. & H.F. Blanford, 1861). **C.** *Cerastus abyssinicus* (Rüppell in Pfeiffer, 1845). **D.** *Cerastus jerdoni* (Reeve, 1848). **E.** *Thysanota tabida* (Pfeiffer, 1855). **F.** *Philalanka bolampattiensis* Godwin-Austen, 1898.

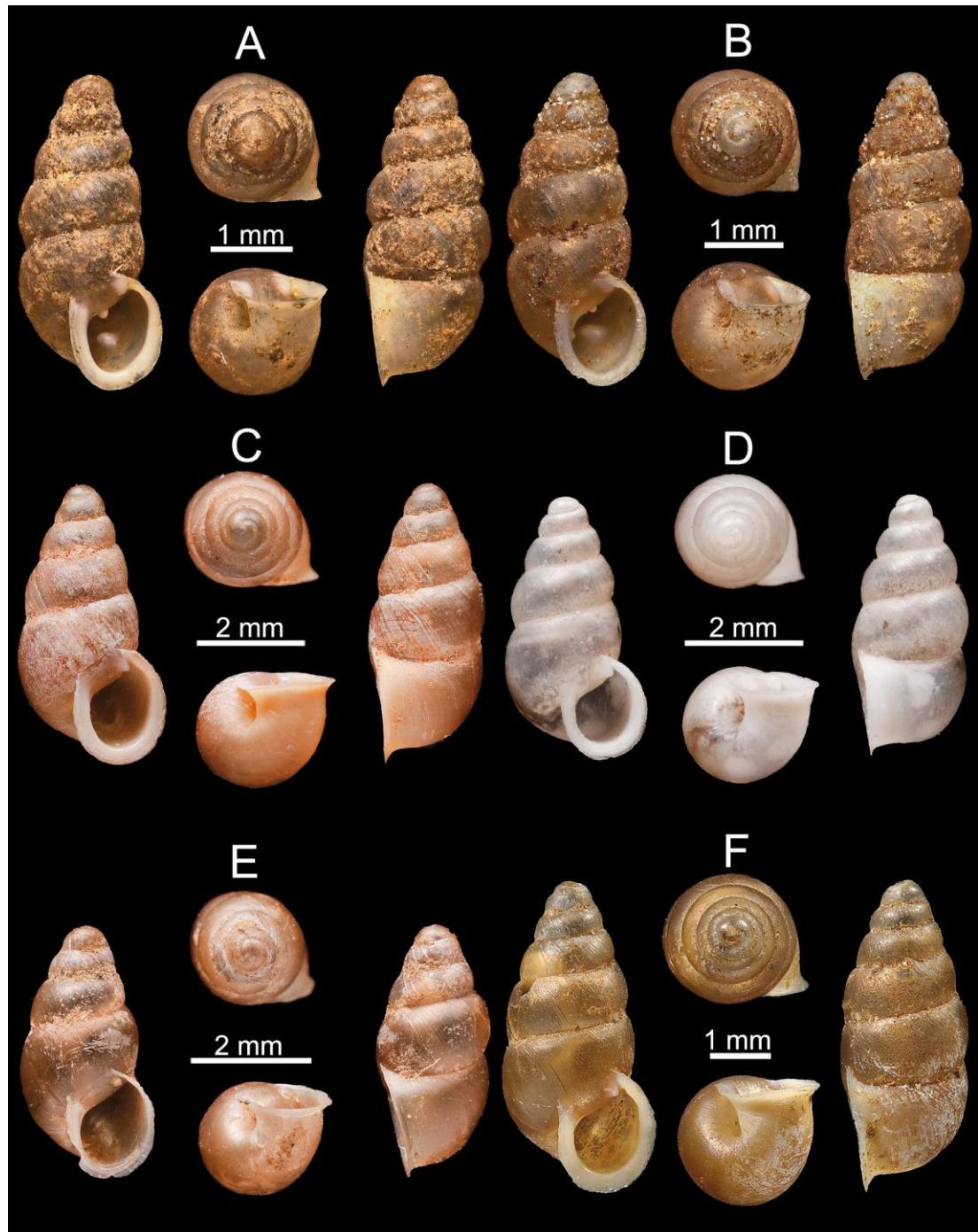


FIGURE 35. **A-B.** *Microstele muscerda* (Benson, 1853), lectotype (A) and possible paralectotype (B). **C-E.** *Pupoides coenopictus* (Hutton, 1834), lectotype (C) and paralectotypes (D, E). **F.** *Pupoides lardeus* (Pfeiffer, 1854), lectotype.

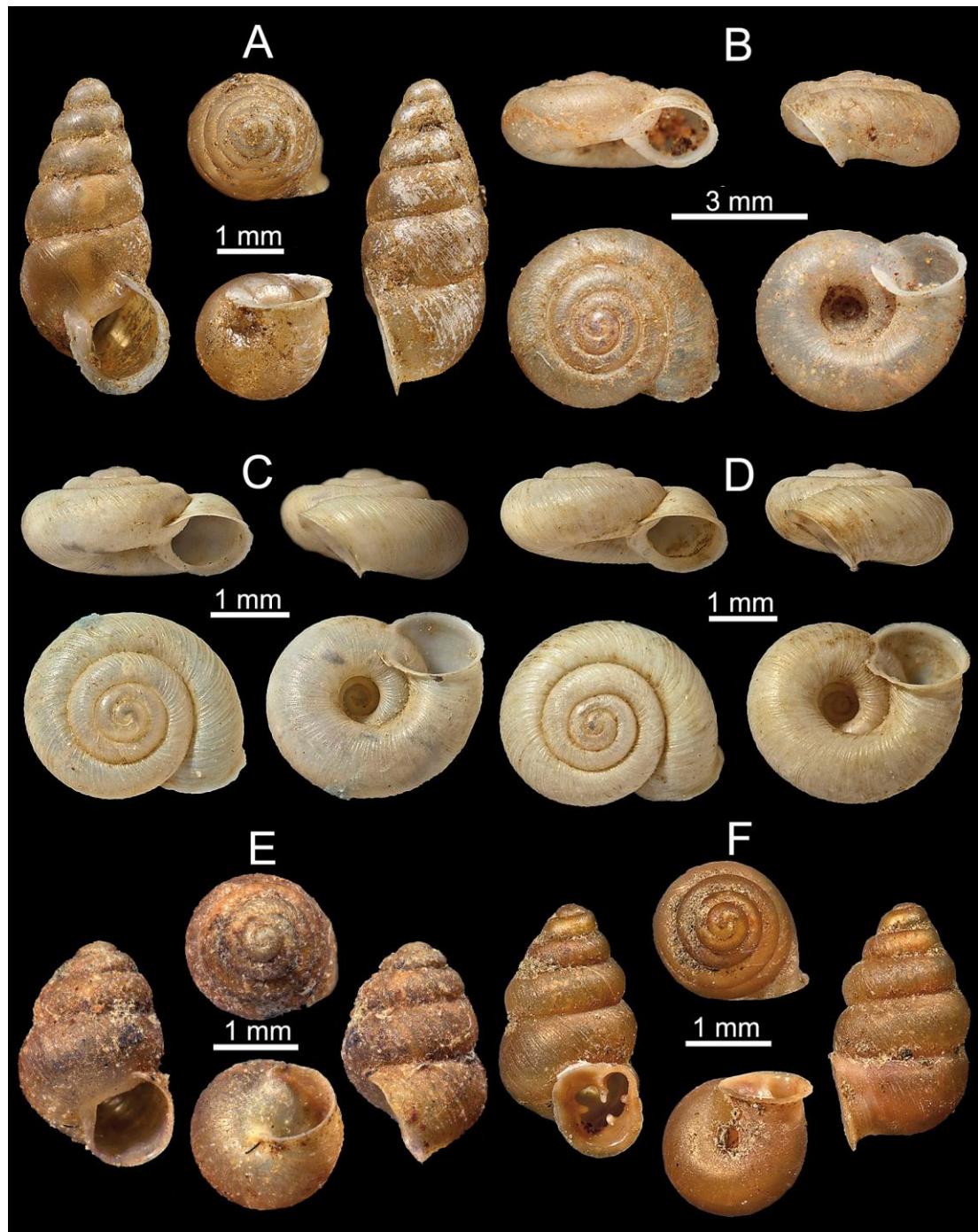


FIGURE 36. **A.** *Pupoidea lardeus* (Pfeiffer, 1854), paralectotype. **B-D.** *Vallonia ladacensis* (Nevill, 1878) [= *Vallonia miserrima* Gude, 1907], paralectotype (**B**); lectotype of *V. miserrima* (**C**) and paralectotype of *V. miserrima* (**D**). **E.** *Pupisoma evezardi* (Hanley & Theobald, 1874), possible syntype. **F.** *Gastrocopta bathyodon* (Benson, 1863), lectotype.

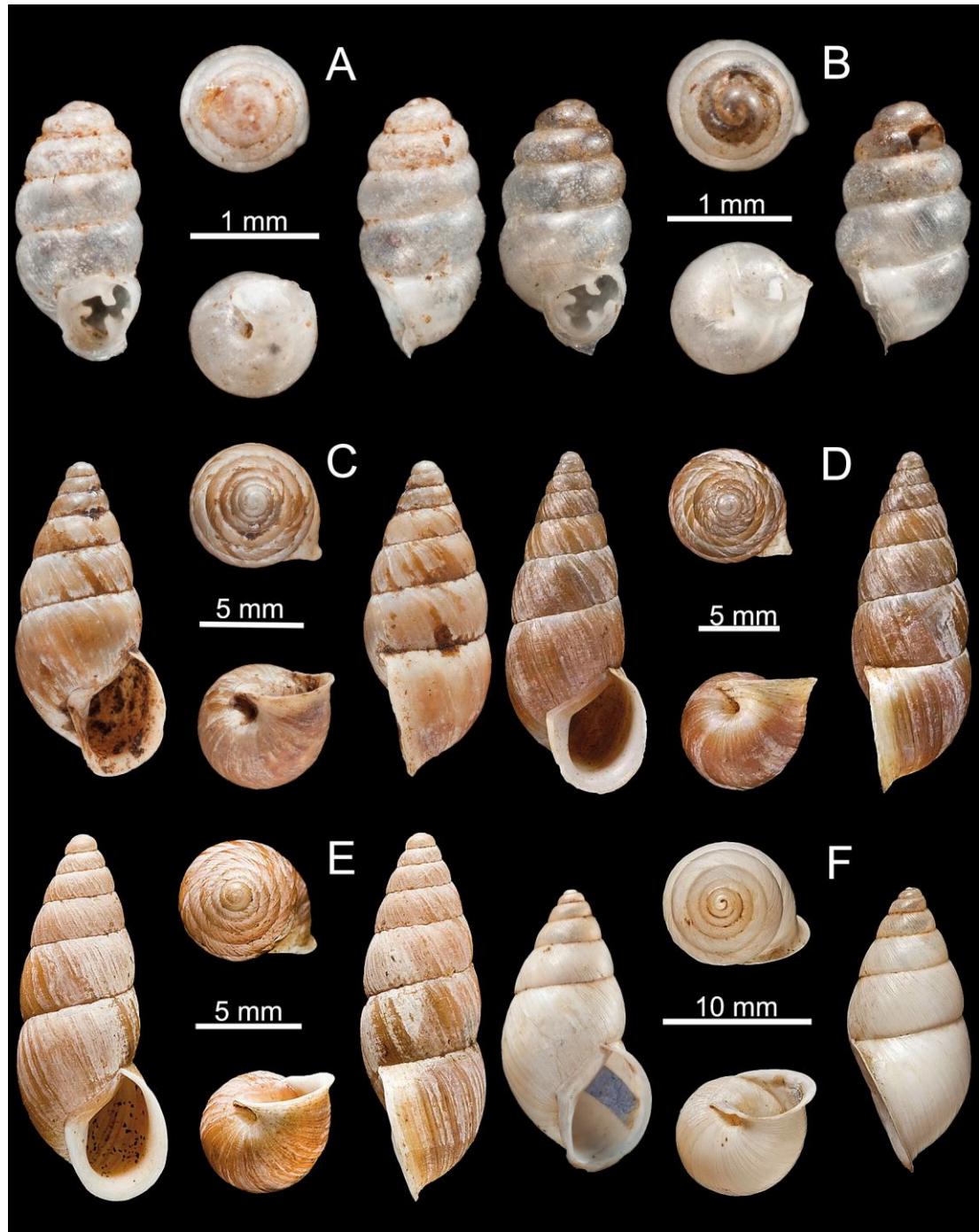


FIGURE 37. **A-B.** *Gastrocopta huttoniana* (Benson, 1849), lectotype (A) and paralectotype (B). **C.** *Mirus hanleyanus* (Kobelt, 1902), lectotype. **D-E.** *Mirus nilagiricus* (Pfeiffer, 1846), lectotype (D) and paralectotype (E). **F.** *Cerastus densus* (Pfeiffer, 1856), neotype.

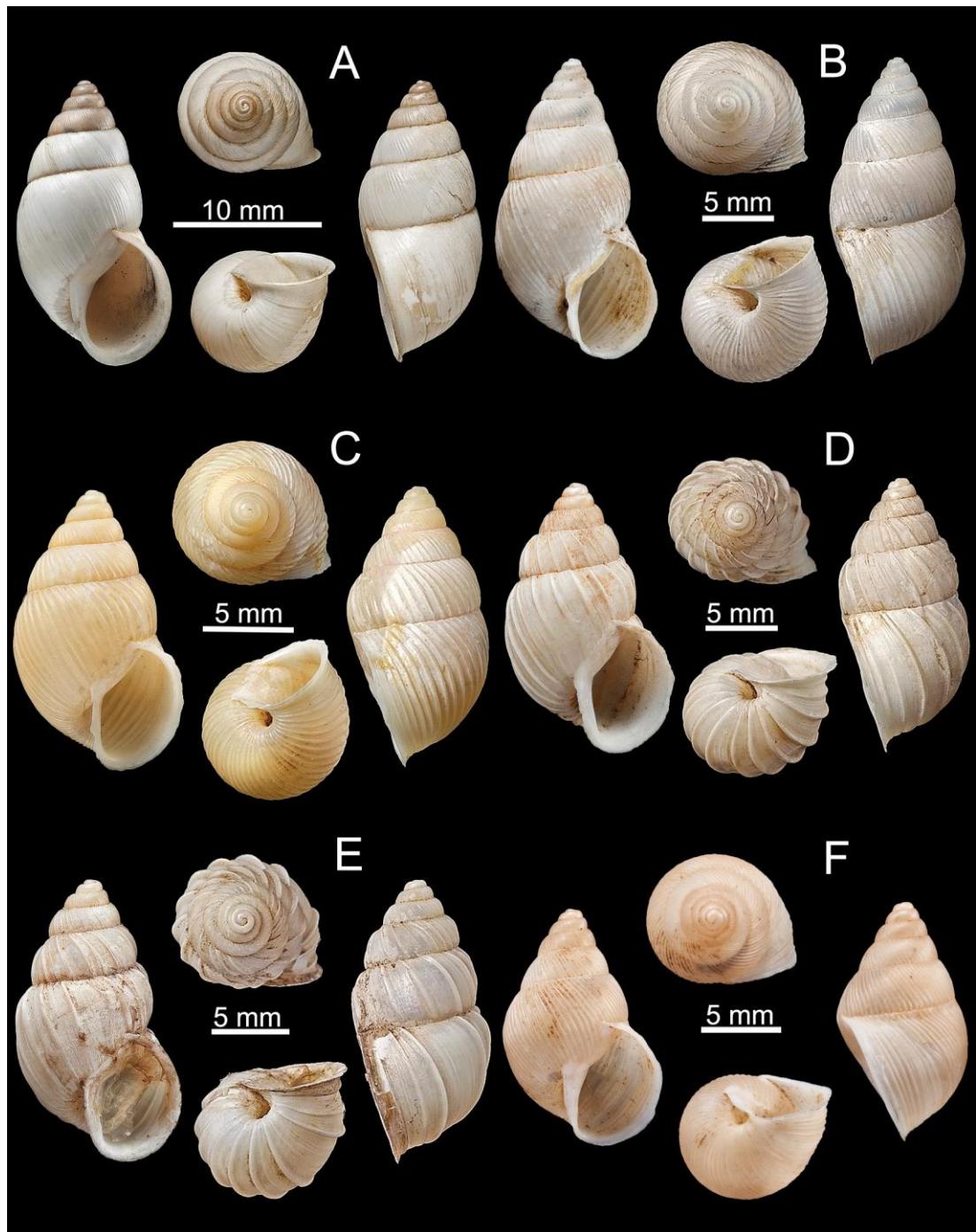


FIGURE 38. **A.** *Cerastus densus* (Pfeiffer, 1856), the other shell from the same lot as the neotype. **B-C.** *Cerastus distans* (Pfeiffer, 1857), lectotype (**B**) and paralectotype (**C**). **D-E.** *Cerastus fairbanki* (Pfeiffer, 1857), lectotype (**D**) and paralectotype (**E**). **F.** *Cerastus moussonianus* (Petit de la Saussaye, 1851), lectotype.



FIGURE 39. **A.** *Rachis punctatus* (Anton, 1838), from Benson in the J.S. Hawkins collection, NHM. **B.** *Rhachistia bengalensis* (Lamarck, 1822), holotype. **C-E.** *Rhachistia praetermissus* (W.T. & H.F. Blanford, 1861), lectotype (C) and paralectotypes (D, E). **F.** *Rhachistia pulcher* (Gray, 1825), lectotype.

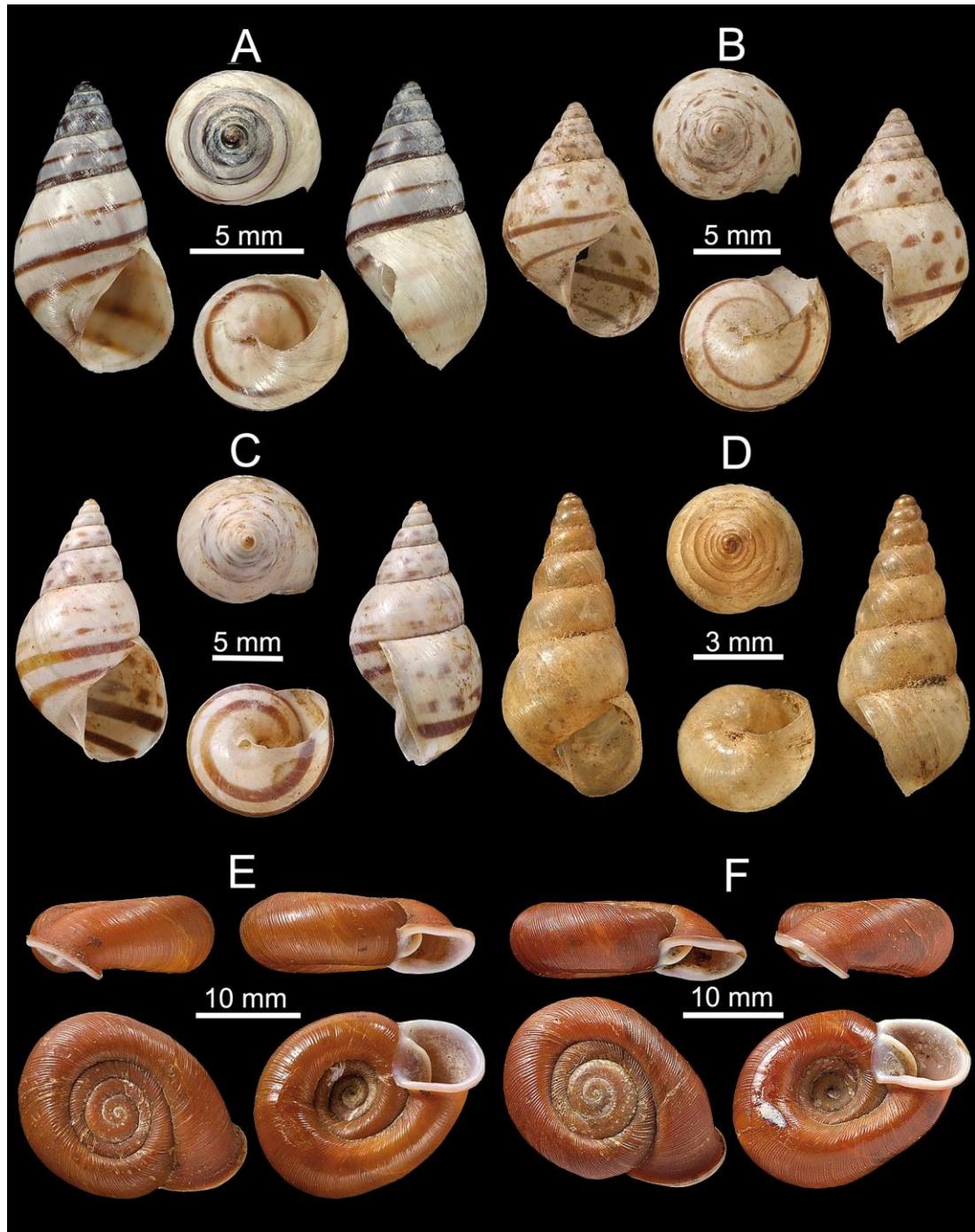


FIGURE 40. **A.** *Rhachistia pulcher* (Gray, 1825), paralectotype. **B-C.** *Rhachistia trutta* (Blanford, 1866), lectotype (**B**) and a shell from the H.F. Blanford collection, NHM (**C**). **D.** *Gittenedouardia orbus* (W.T. & H.F. Blanford, 1861), lectotype. **E-F.** *Corilla anax* (Benson, 1865), lectotype (**E**) and paralectotype (**F**).

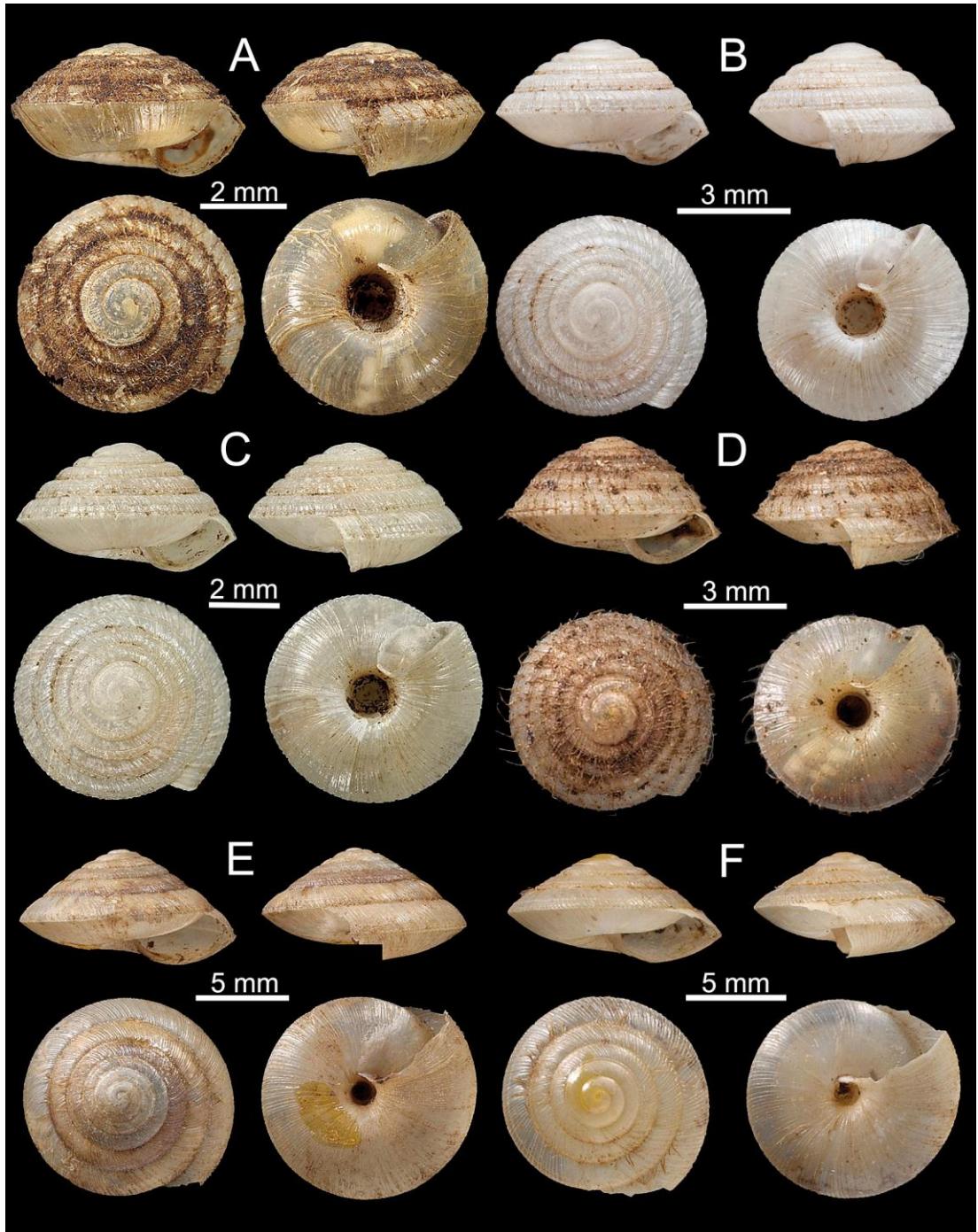


FIGURE 41. **A.** *Ruthvenia clathratuloides* (Gude, 1897), neotype. **B-D.** *Ruthvenia retifera* (Pfeiffer, 1845), neotype (**B**), one of the 2 other shells from the same lot as the neotype (**C**), and a shell from the W.T. Blanford collection, NHM (**D**). **E-F.** *Thysanota crinigera* (Benson, 1850), lectotype (**E**) and paralectotype (**F**).

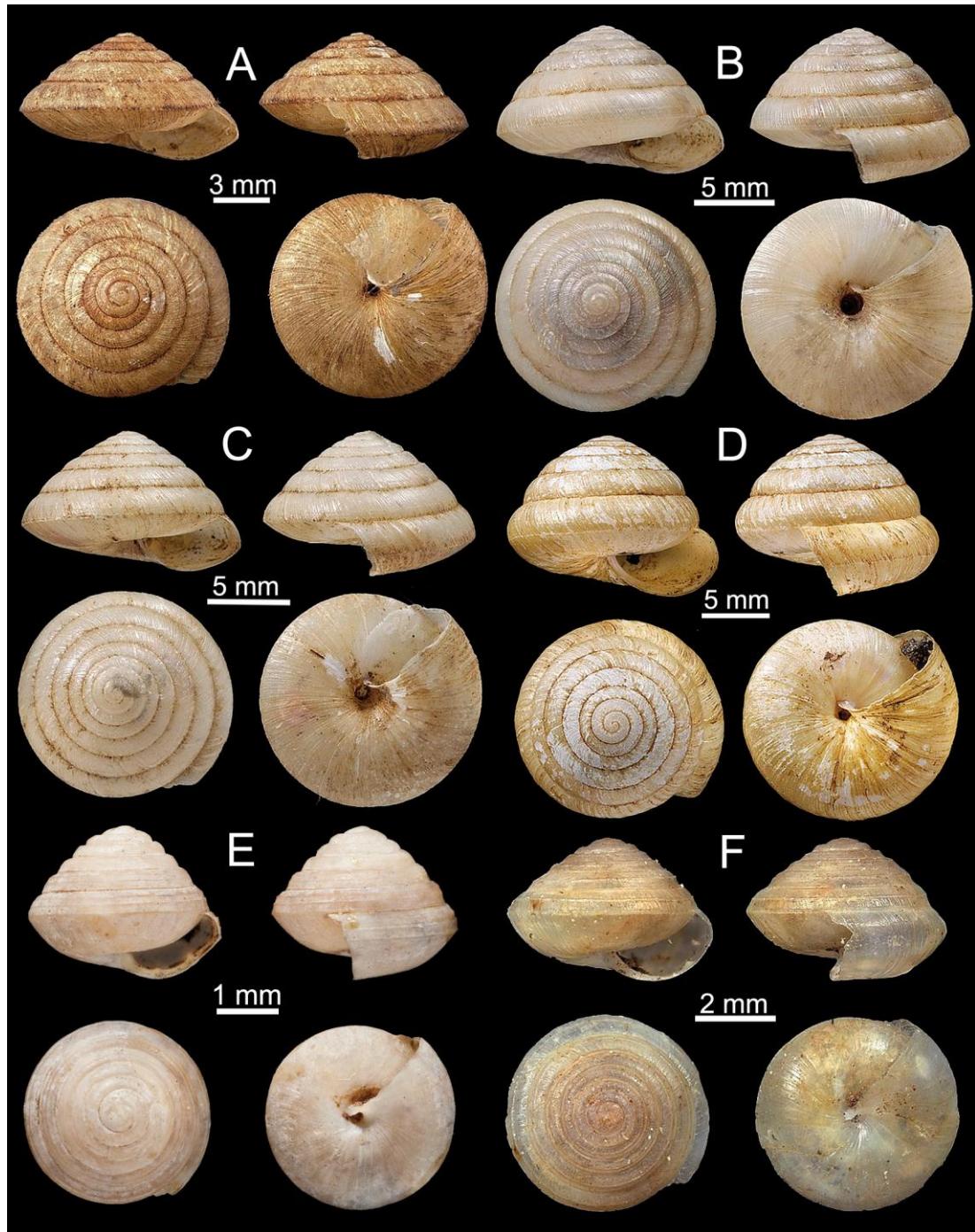


FIGURE 42. **A.** *Thysanota flava* Gude, 1914, holotype. **B-C.** *Thysanota guerini* (Pfeiffer, 1842), lectotype (**B**) and paralectotype (**C**). **D.** *Thysanota tabida* (Pfeiffer, 1855), from the W.T. Blanford collection, NHM. **E.** *Philalanka bidenticulata* (Benson, 1852), lectotype. **F.** *Philalanka bilirata* (W.T. & H.F. Blanford, 1861), lectotype.

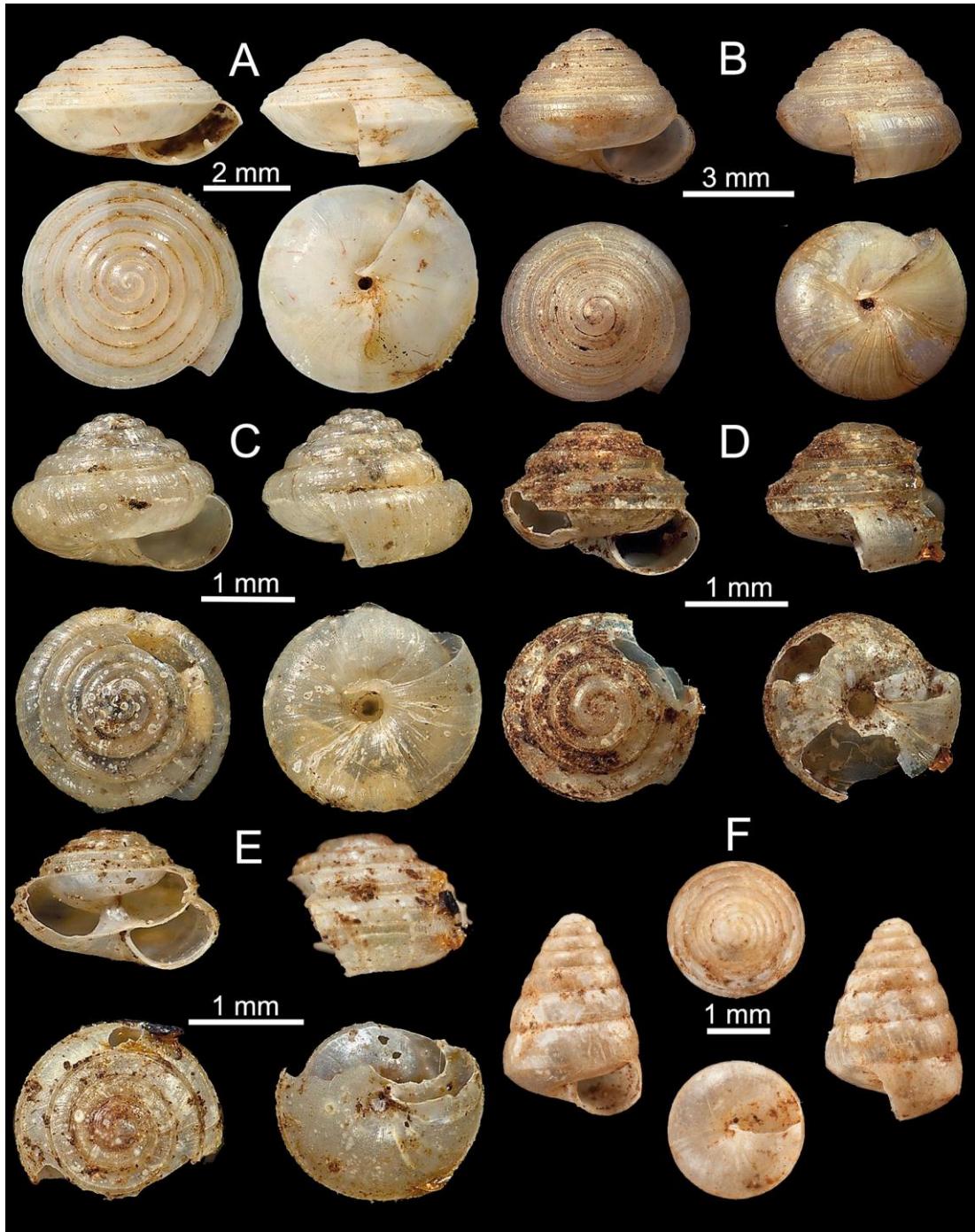


FIGURE 43. **A.** *Philalanka daghoba* (W.T. & H.F. Blanford, 1861), lectotype. **B.** *Philalanka quinquelirata* Gude, 1914, holotype. **C.** *Philalanka tertiana* (W.T. & H.F. Blanford, 1861), lectotype. **D-E.** *Philalanka tricarinata* (W.T. & H.F. Blanford, 1861), lectotype (**D**) and paralectotype (**E**). **F.** *Kaliella aspirans* (W.T. & H.F. Blanford, 1861), lectotype.

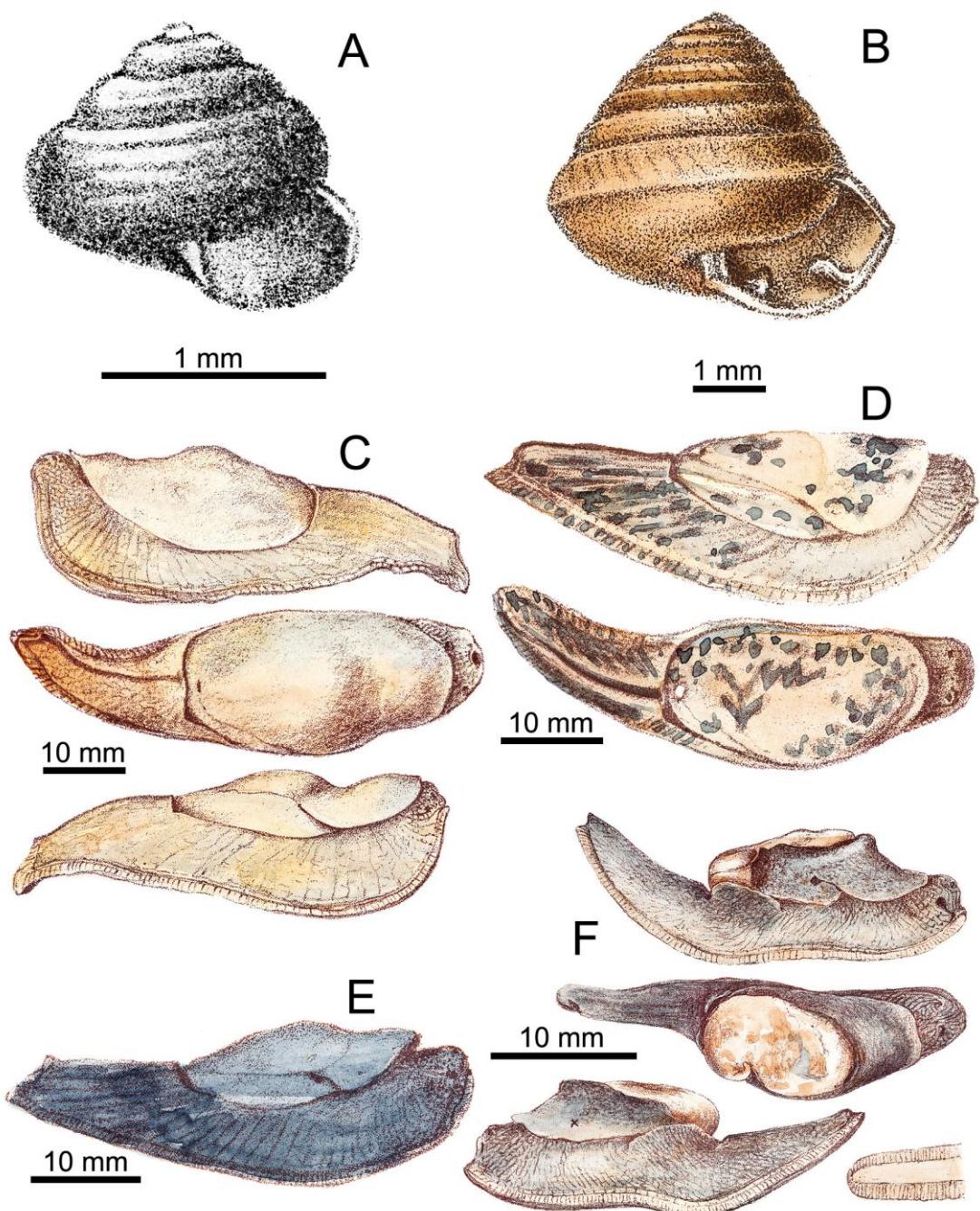


FIGURE 44. Historical figures. **A.** *Philalanka febrilis* (W.T. & H.F. Blanford, 1861). **B.** *Philalanka pirrieana* (Reeve, 1854). **C.** *Mariaella beddomei* (Godwin-Austen, 1888). **D.** *Mariaella beddomei* 'var. *maculosa*' (Godwin-Austen, 1888). **E.** *Mariaella beddomei* 'var. *nigra*' (Godwin-Austen, 1888). **F.** *Pseudaustenia ater* (Godwin-Austen, 1888).

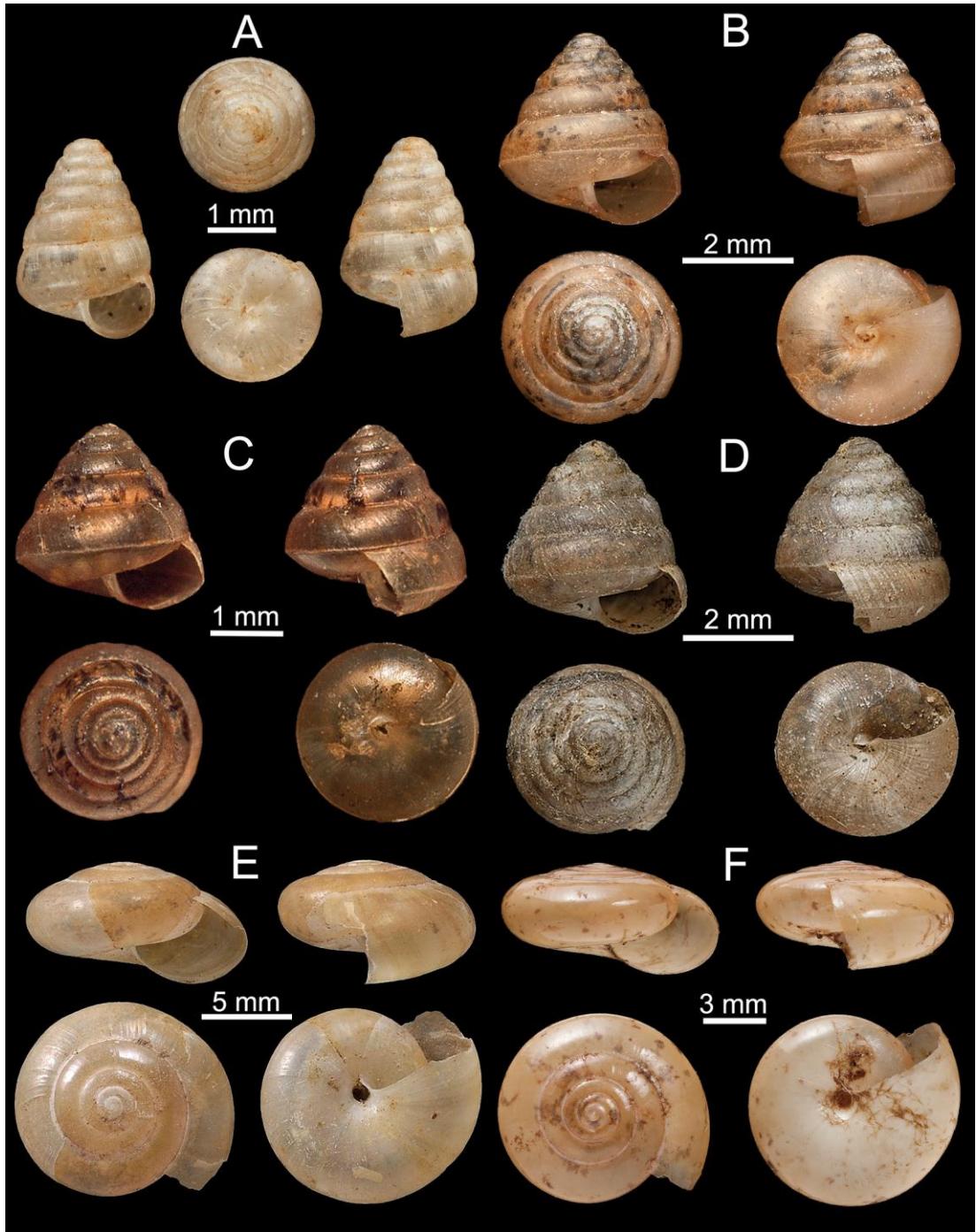


FIGURE 45. **A.** *Kaliella aspirans* (W.T. & H.F. Blanford, 1861), paralectotype. **B-C.** *Kaliella barrakporensis* (Pfeiffer, 1853), syntype with reg. no. NHMUK 20110259/1 (**B**) and syntype with reg. no. NHMUK 20120289 (**C**). **D.** *Kaliella sigurensis* Godwin-Austen, 1882, lectotype. **E-F.** *Eurychlamys platychlamys* (Blanford, 1880), lectotype (**E**) and paralectotype (**F**).

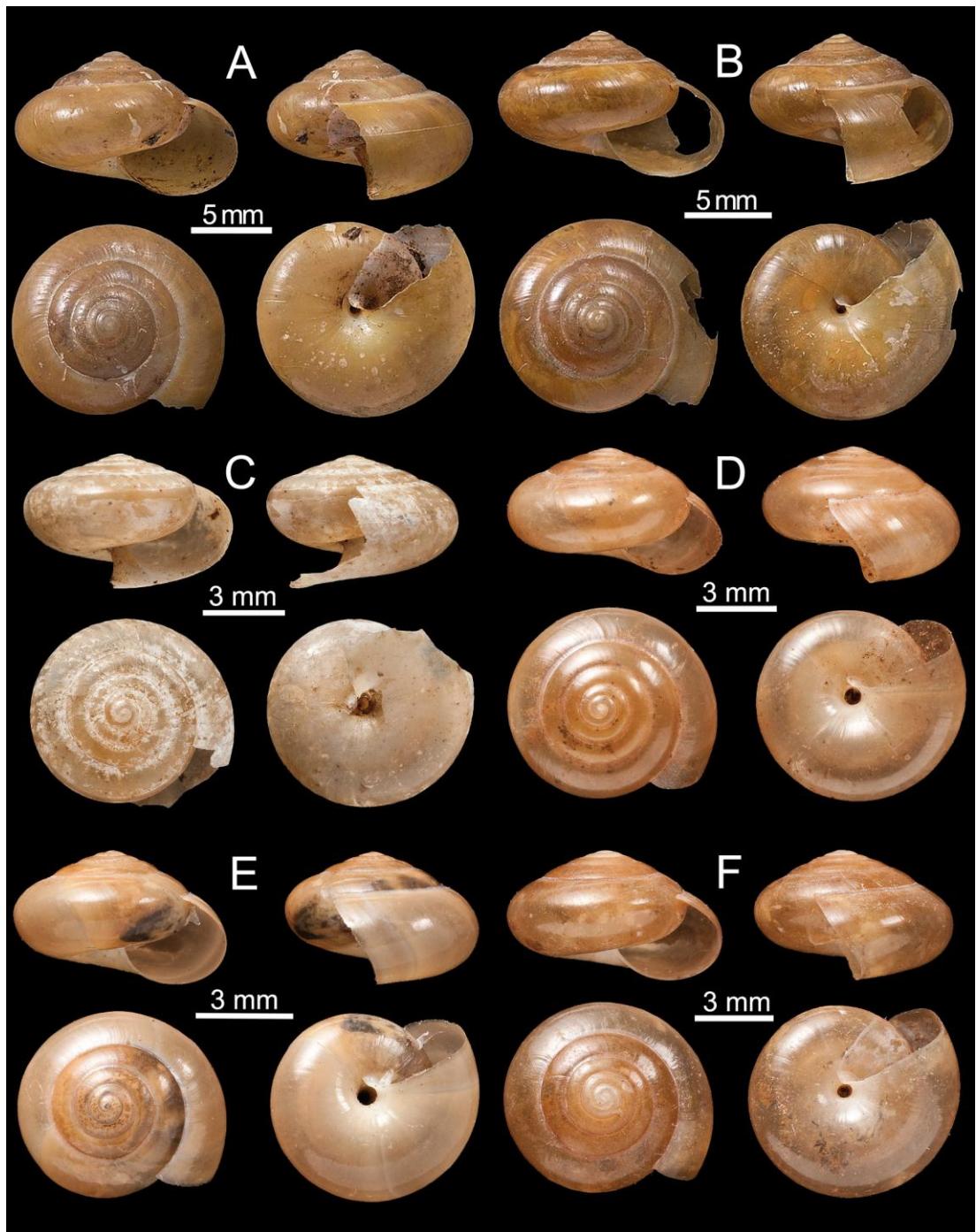


FIGURE 46. **A-B.** *Eurychlamys todarum* (W.T. & H.F. Blanford, 1861), lectotype (**A**) and paralectotype (**B**). **C-F.** *Eurychlamys vilipensa* (Benson, 1853), lectotype (**C**) and three of a lot of four shells from the type locality, NHM (**D-F**).

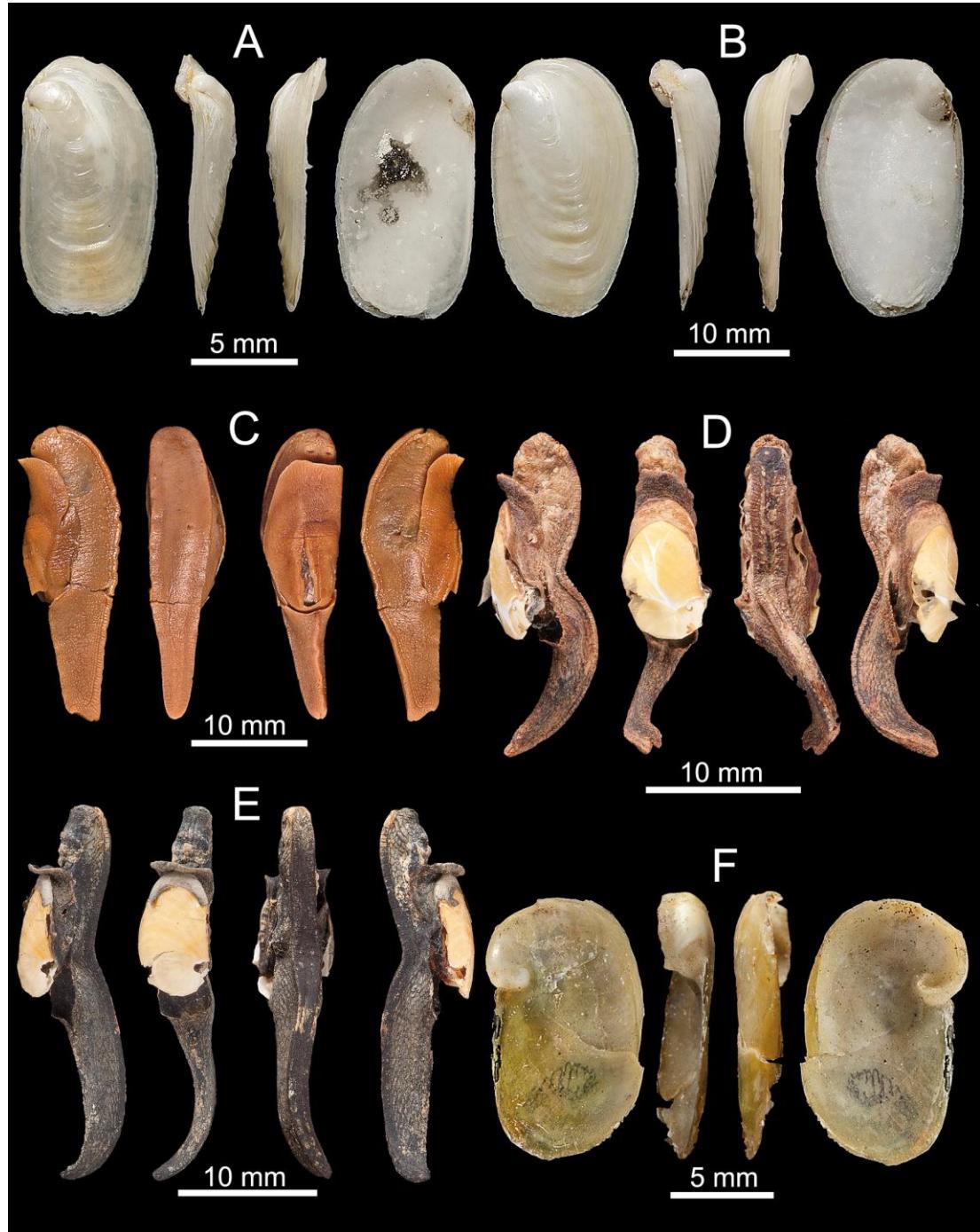


FIGURE 47. **A-B.** *Mariaella beddomei* (Godwin-Austen, 1888), lectotype (A) and paralectotype (B). **C.** *Mariaella dussumieri* Gray, 1855, lectotype. **D-E.** *Pseudaustenia ater* (Godwin-Austen, 1888), lectotype (D) and paralectotype (E). **F.** *Pseudaustenia auriformis* (Blanford, 1866), lectotype.

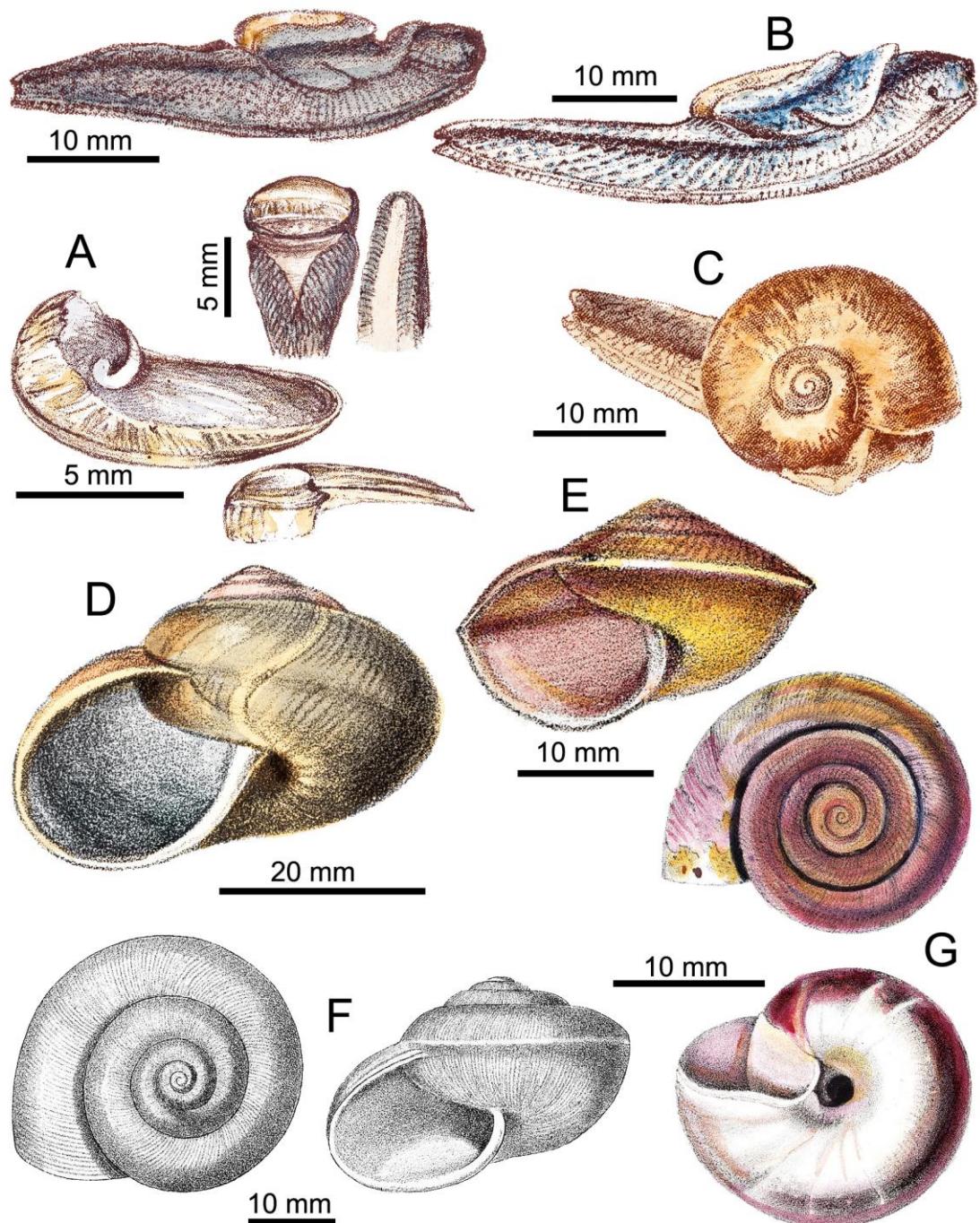


FIGURE 48. Historical figures. **A.** *Pseudaustenia ater* ‘var. *aterrima*’ (Godwin-Austen, 1888). **B.** *Pseudaustenia ater* ‘var. *cinerea*’ (Godwin-Austen, 1888). **C.** *Satiella dekhanensis* ‘var. *bicolor*’ (Godwin-Austen, 1898). **D.** *Ariophanta cysis* ‘var. *ampullarioides*’ (Reeve, 1854). **E-F.** *Ariophanta immerita* (Blanford, 1870). **G.** *Ariophanta thyreus* ‘var. *ryssolemma*’ (Albers, 1852).

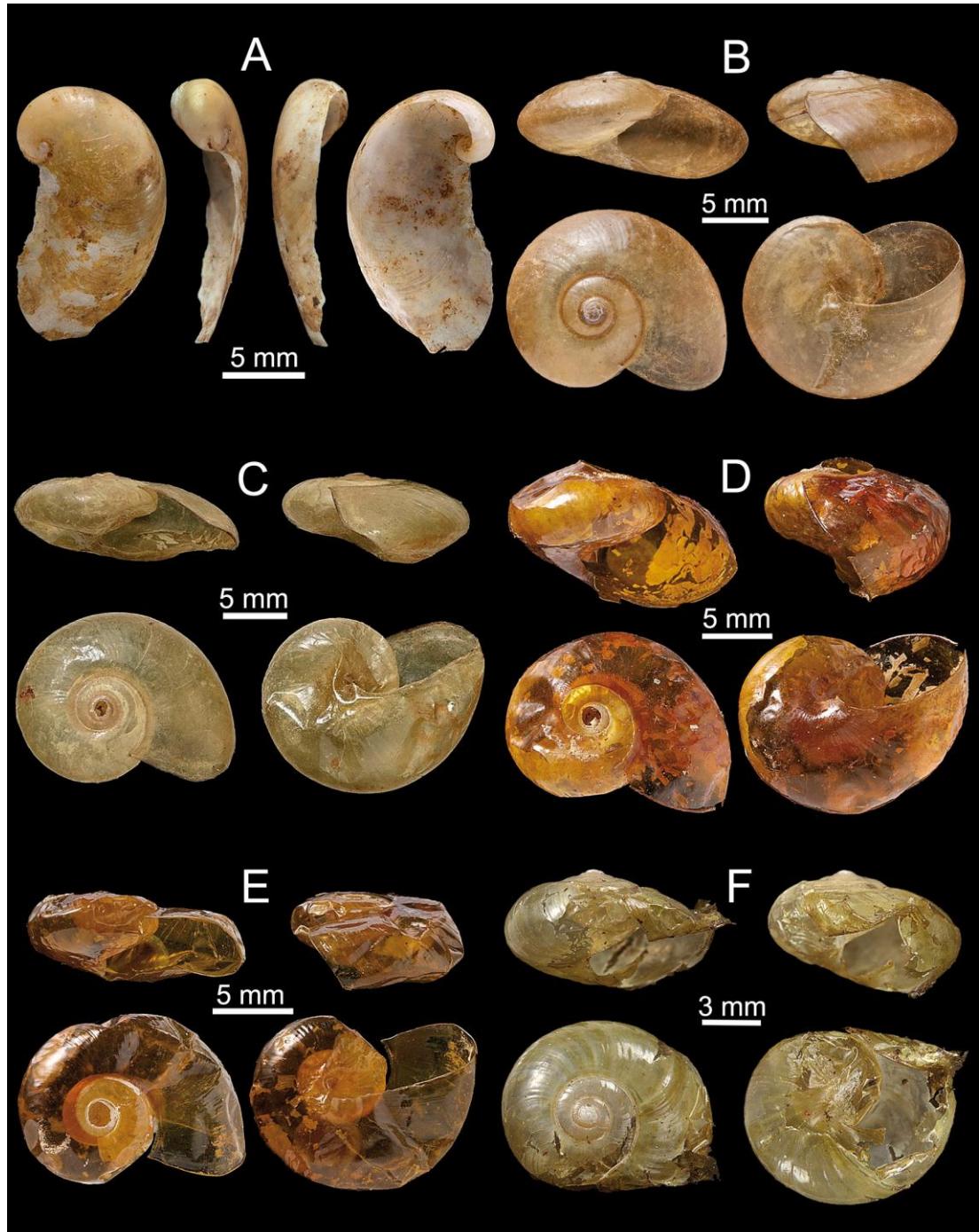


FIGURE 49. **A.** *Pseudaustenia auriformis* (Blanford, 1866), paralectotype. **B-C.** *Satiella compressa* Blanford and Godwin-Austen, 1908, lectotype (**B**) and paralectotype (**C**). **D-E.** *Satiella dekhanensis* (Godwin-Austen, 1898), lectotype (**D**) and paralectotype (**E**). **F.** *Satiella flexilis* Blanford and Godwin-Austen, 1908, lectotype.

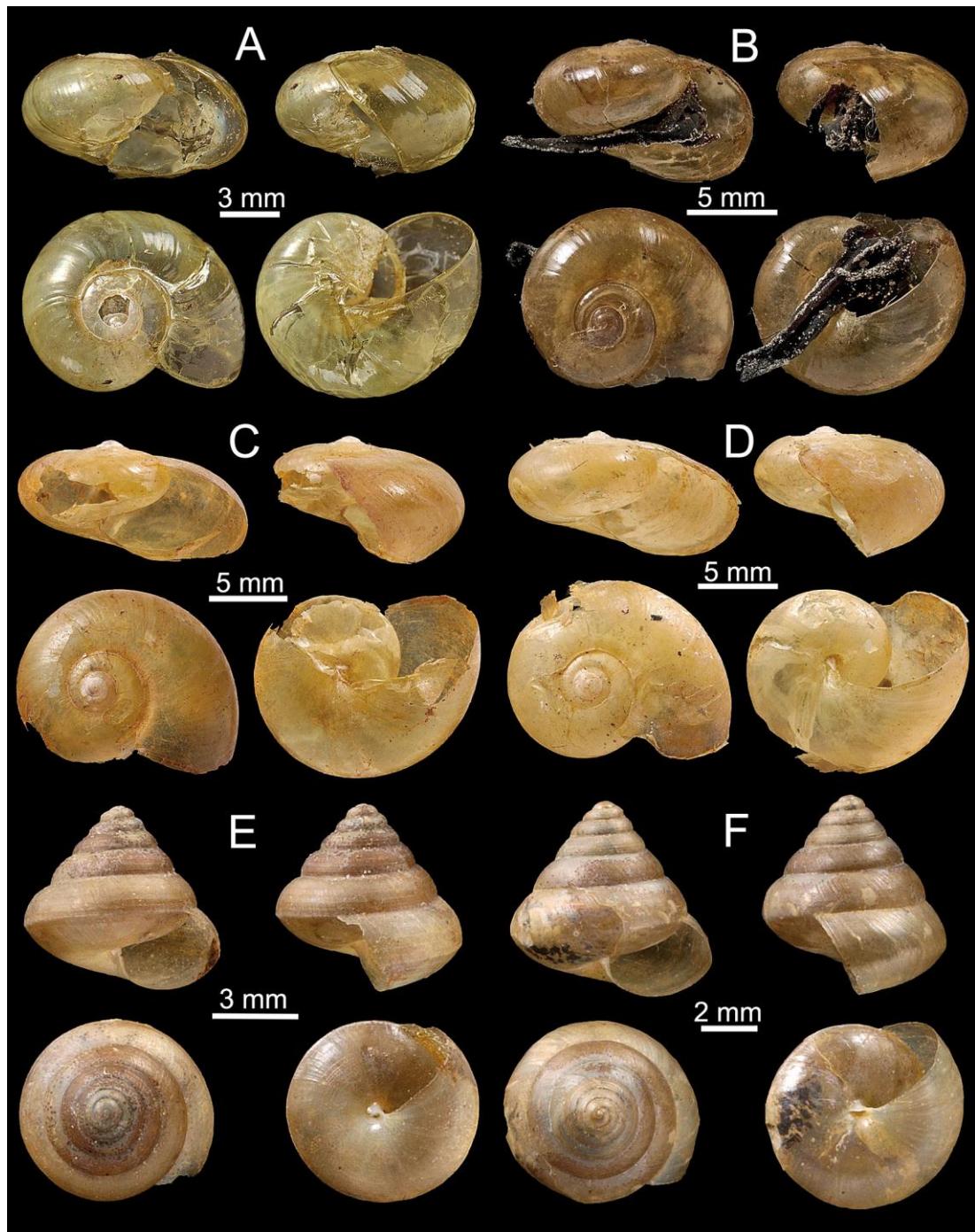


FIGURE 50. **A.** *Satiella flexilis* Blanford and Godwin-Austen, 1908, paralectotype. **B.** *Satiella levidensis* (Godwin-Austen, 1898), lectotype. **C-D.** *Satiella pertenuis* Blanford and Godwin-Austen, 1908, lectotype (**C**) and paralectotype (**D**). **E-F.** *Sitala infula* (Benson, 1848), lectotype (**E**) and paralectotype (**F**).

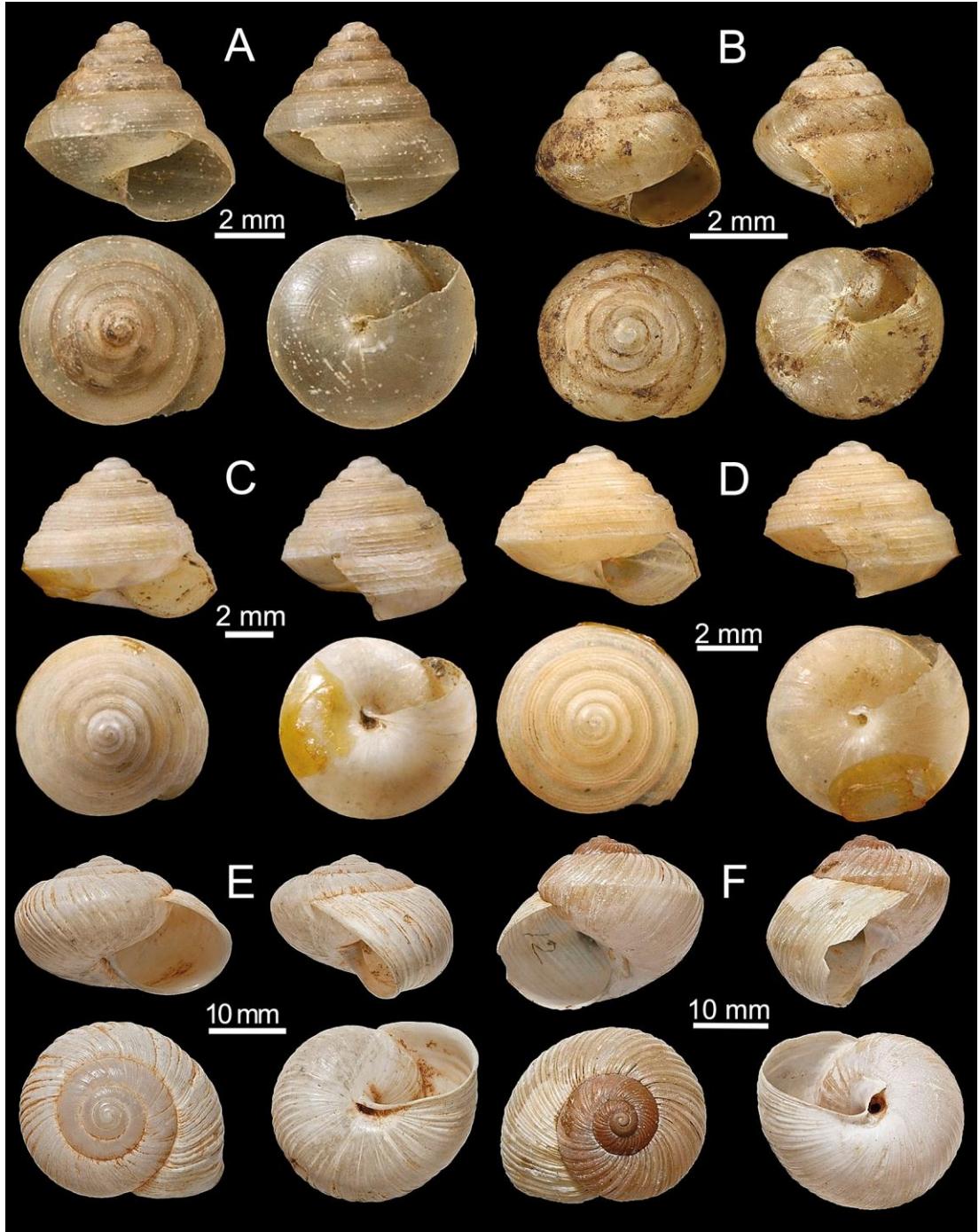


FIGURE 51. **A.** *Sitala infula* (Benson, 1848), paralectotype. **B.** *Sitala injussa* (W.T. & H.F. Blanford, 1861), lectotype. **C-D.** *Sitala palmaria* (Benson, 1864), lectotype (**C**) and paralectotype (**D**). **E.** *Ariophanta albata* (Blanford, 1880), holotype. **F.** *Ariophanta bajadera* (Pfeiffer, 1850), lectotype.

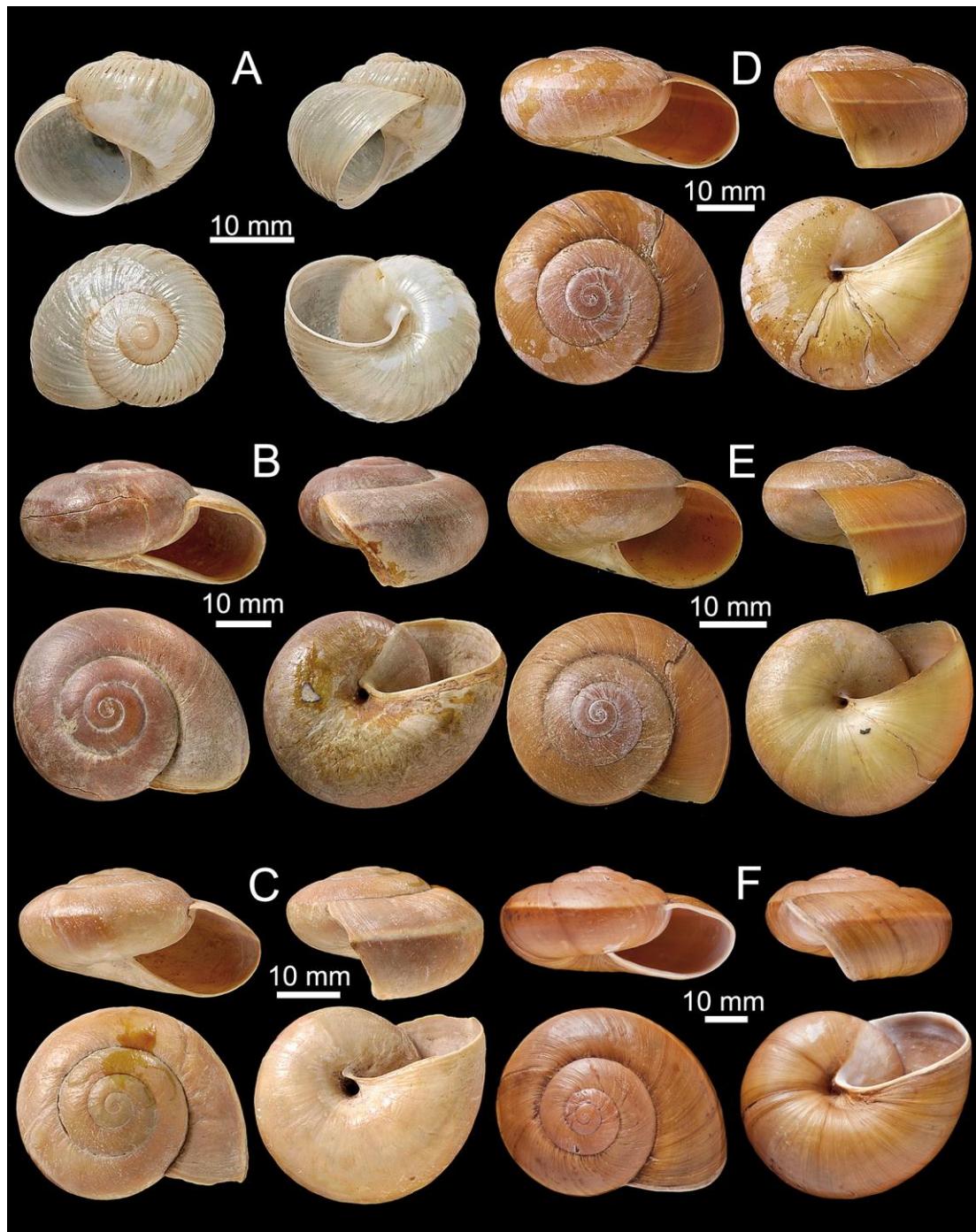


FIGURE 52. **A.** *Ariophanta bajadera* (Pfeiffer, 1850), paralectotype. **B-C.** *Ariophanta basilessa* (Benson, 1865), lectotype (**B**) and paralectotype (**C**). **D-E.** *Ariophanta basilessa* 'var. *enisa*' (Blanford, 1880), lectotype (**D**) and paralectotype (**E**). **F.** *Ariophanta basilessa* 'var. *tinostoma*' (Blanford, 1880), neotype.

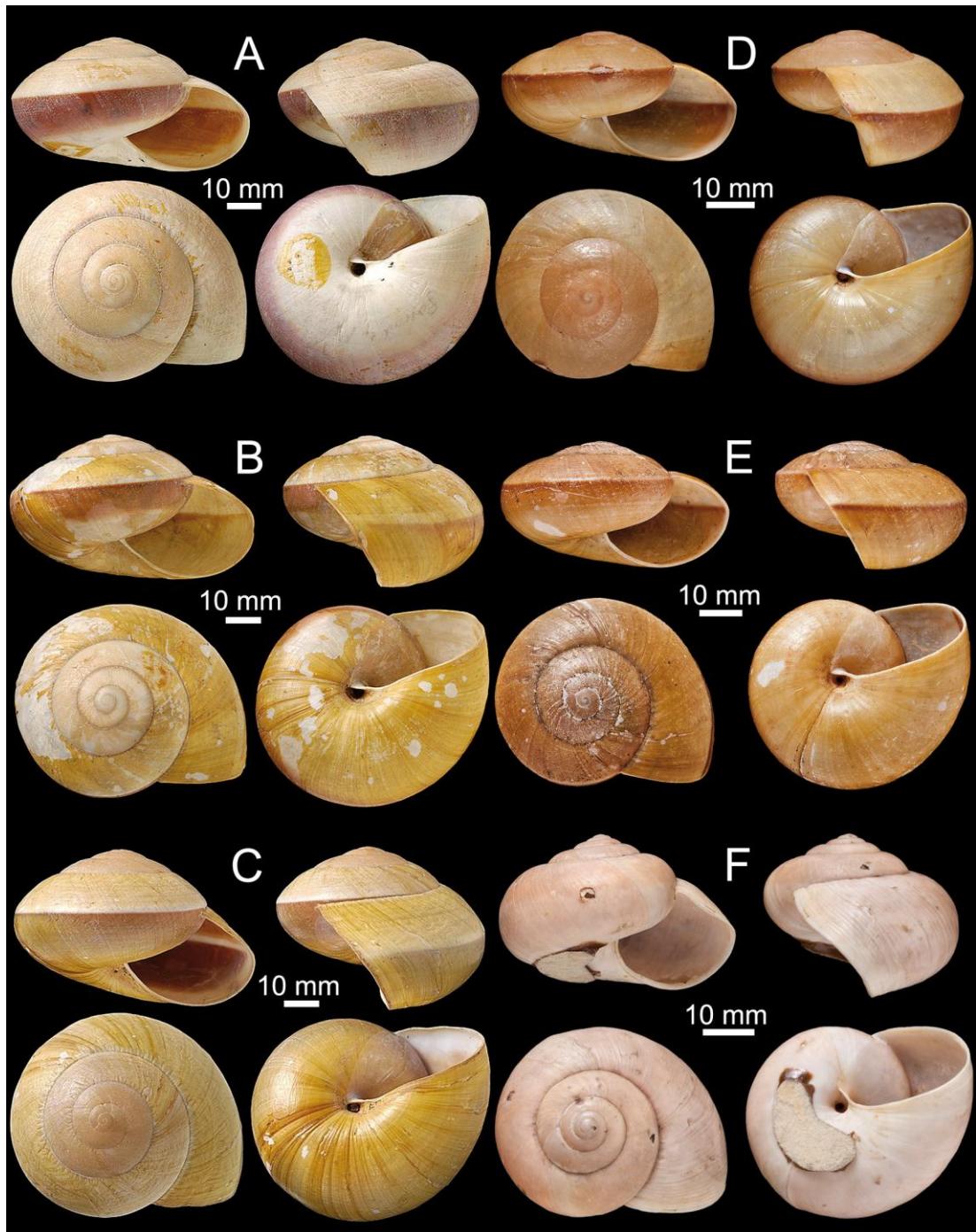


FIGURE 53. **A-C.** *Ariophanta basileus* (Benson, 1861), lectotype (**A**), paralectotype (**B**) and a shell from "Travancore", NHM (**C**). **D-E.** *Ariophanta beddomei* (Blanford, 1874), holotype (**D**) and a shell, from Beddome, NMW (**E**). **F.** *Ariophanta belangeri* (Deshayes, 1834), lectotype.

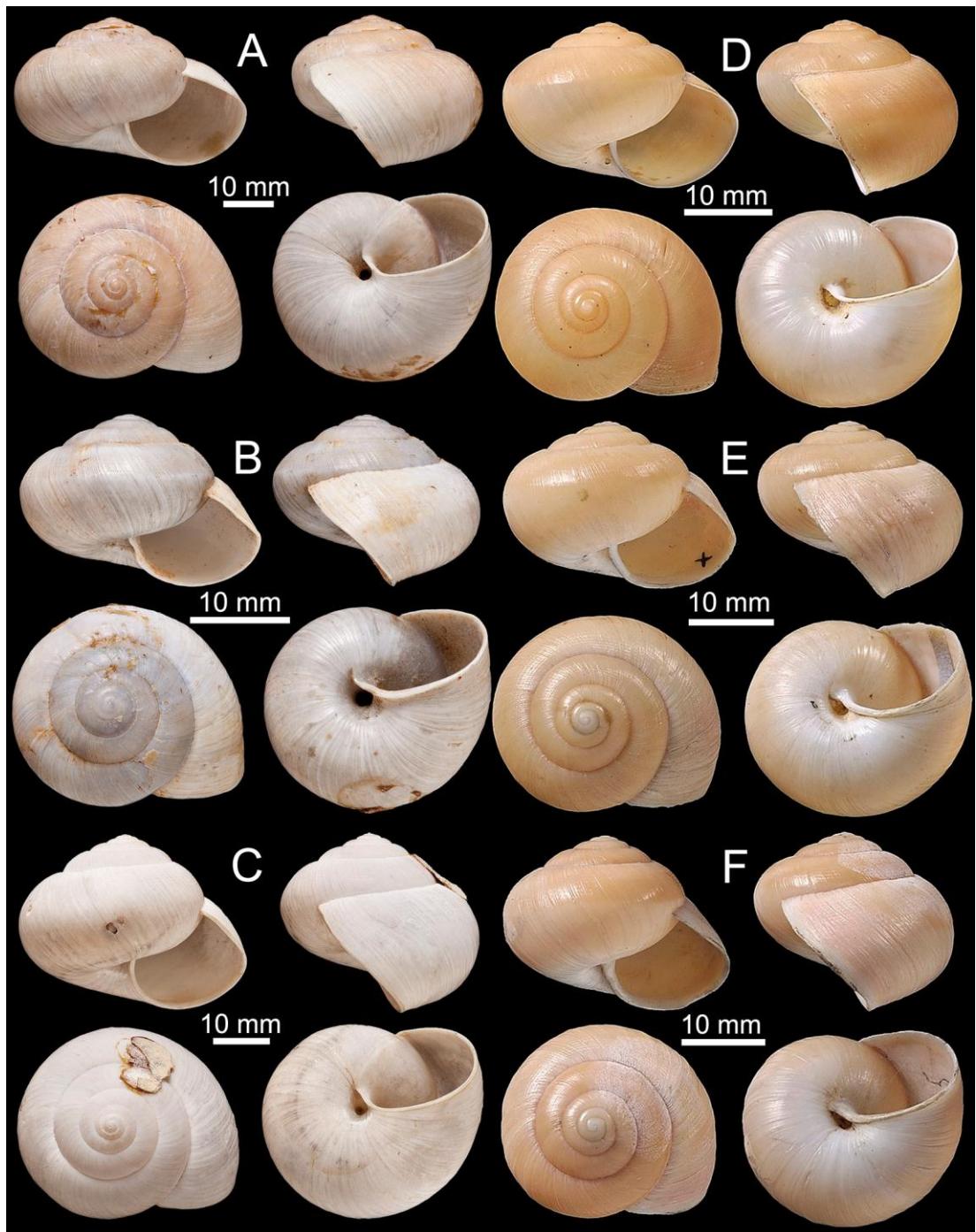


FIGURE 54. A-C. *Ariophanta belangeri* (Deshayes, 1834), paralectotypes. D. *Ariophanta belangeri* 'var. *bombayana*' (Grateloup, 1840), neotype. E-F. *Ariophanta belangeri* 'var. *vitellina*' (Pfeiffer, 1849), lectotype (E) and paralectotype (F).

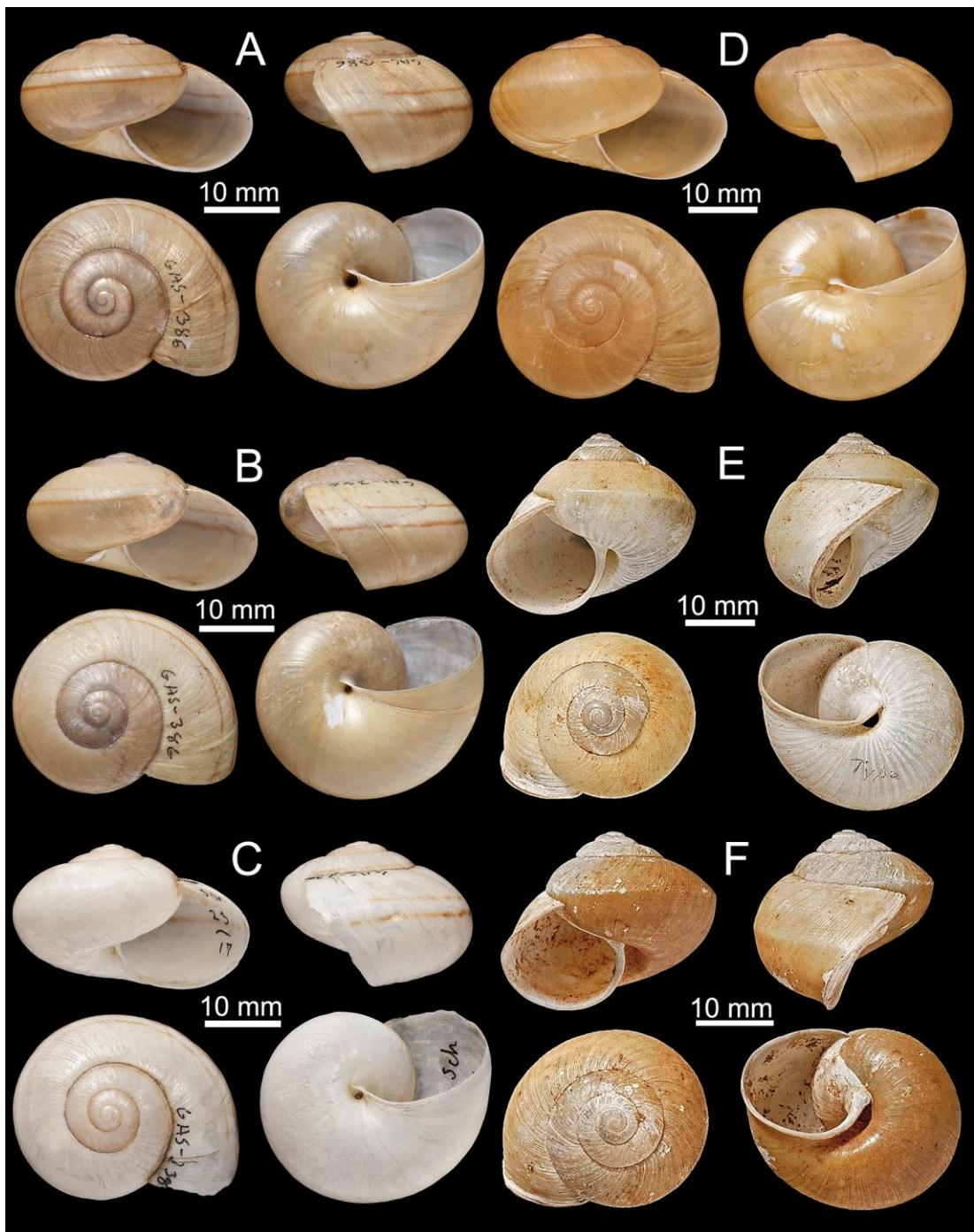


FIGURE 55. **A-C.** *Ariophanta bistriata* (Beck, 1837), lectotype (**A**), paralectotype (**B**) and possible paralectotype (**C**). **D.** *Ariophanta bistriata* 'var. *ceylanica*' (Pfeiffer, 1850), lectotype. **E-F.** *Ariophanta canarica* Blanford, 1901, lectotype (**E**) and paralectotype (**F**).

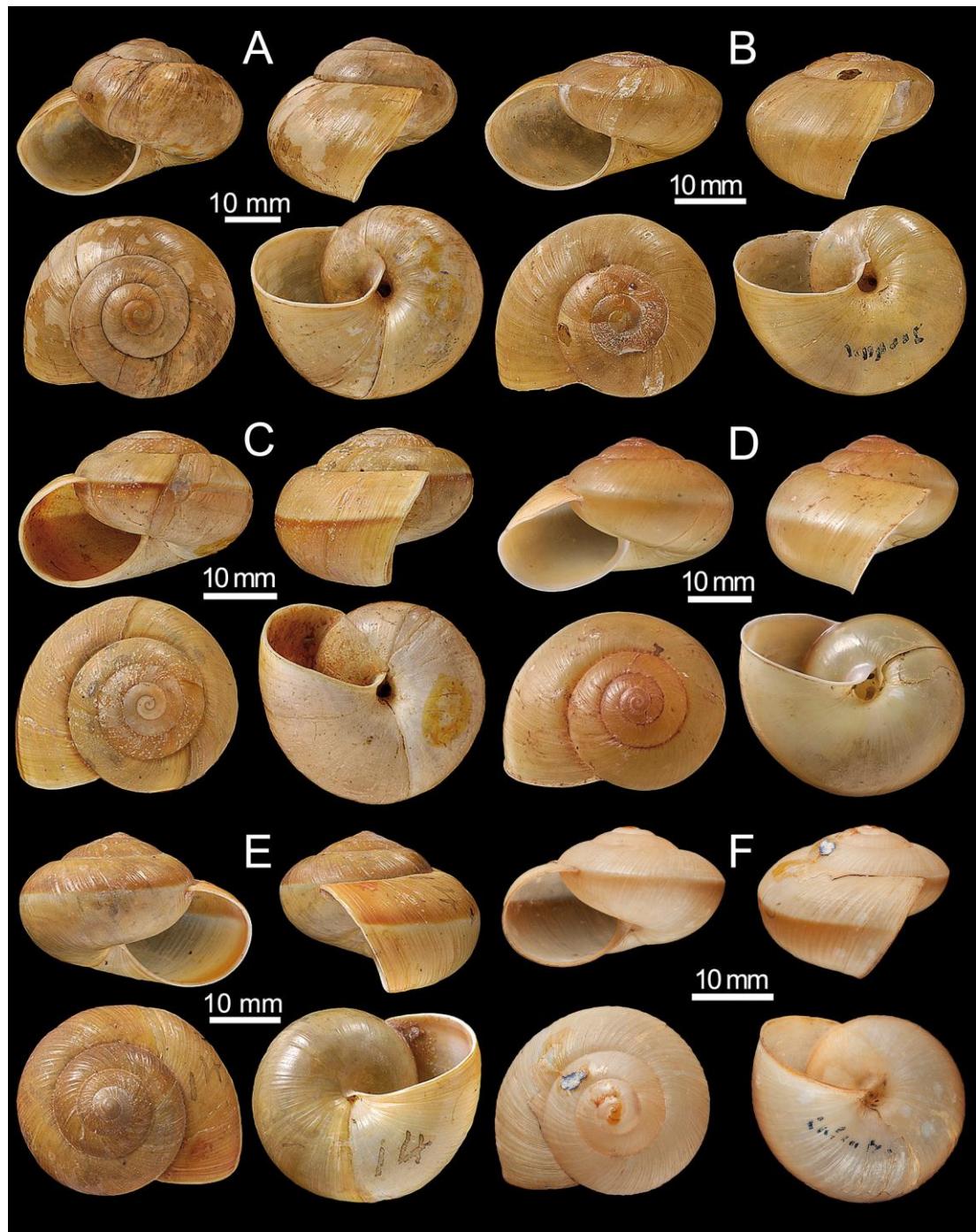


FIGURE 56. A-C. *Ariophanta cysis* (Benson, 1852), lectotype (A) and paralectotypes (B, C). D. *Ariophanta cysis* 'var. *dalyi*' Blanford, 1899, lectotype. E. *Ariophanta gassii* Blanford, 1901, lectotype. F. *Ariophanta interrupta* (Benson, 1834), lectotype.

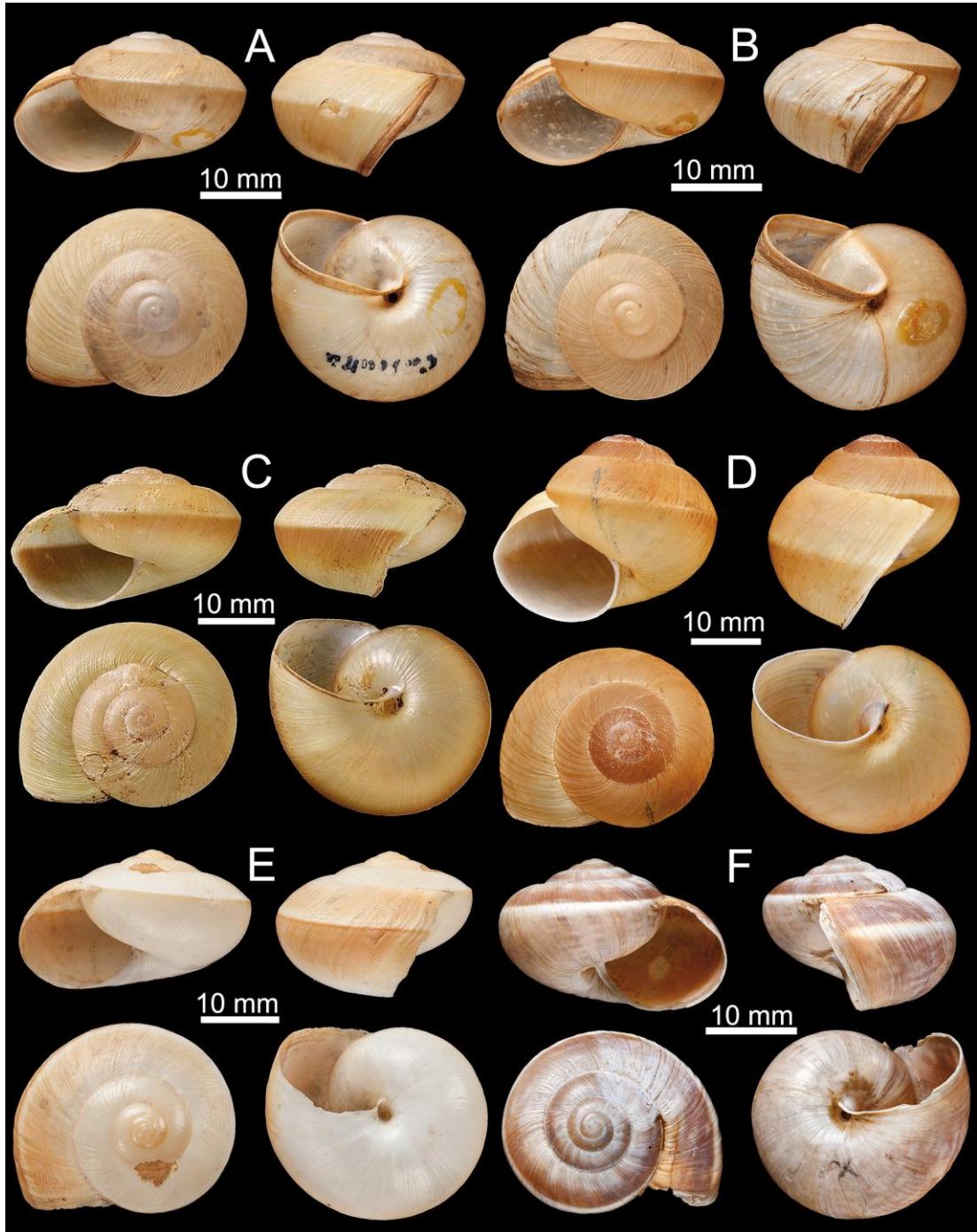


FIGURE 57. **A-C.** *Ariophanta interrupta* (Benson, 1834), paralectotypes (**A, B**) and a shell from the H.F./W.T. Blanford collection, NHM (**C**). **D.** *Ariophanta intumescens* (Blanford, 1866), lectotype. **E.** *Ariophanta laevipes* (Müller, 1774), possible syntype. **F.** *Ariophanta maderaspatana* (Gray, 1834), lectotype.

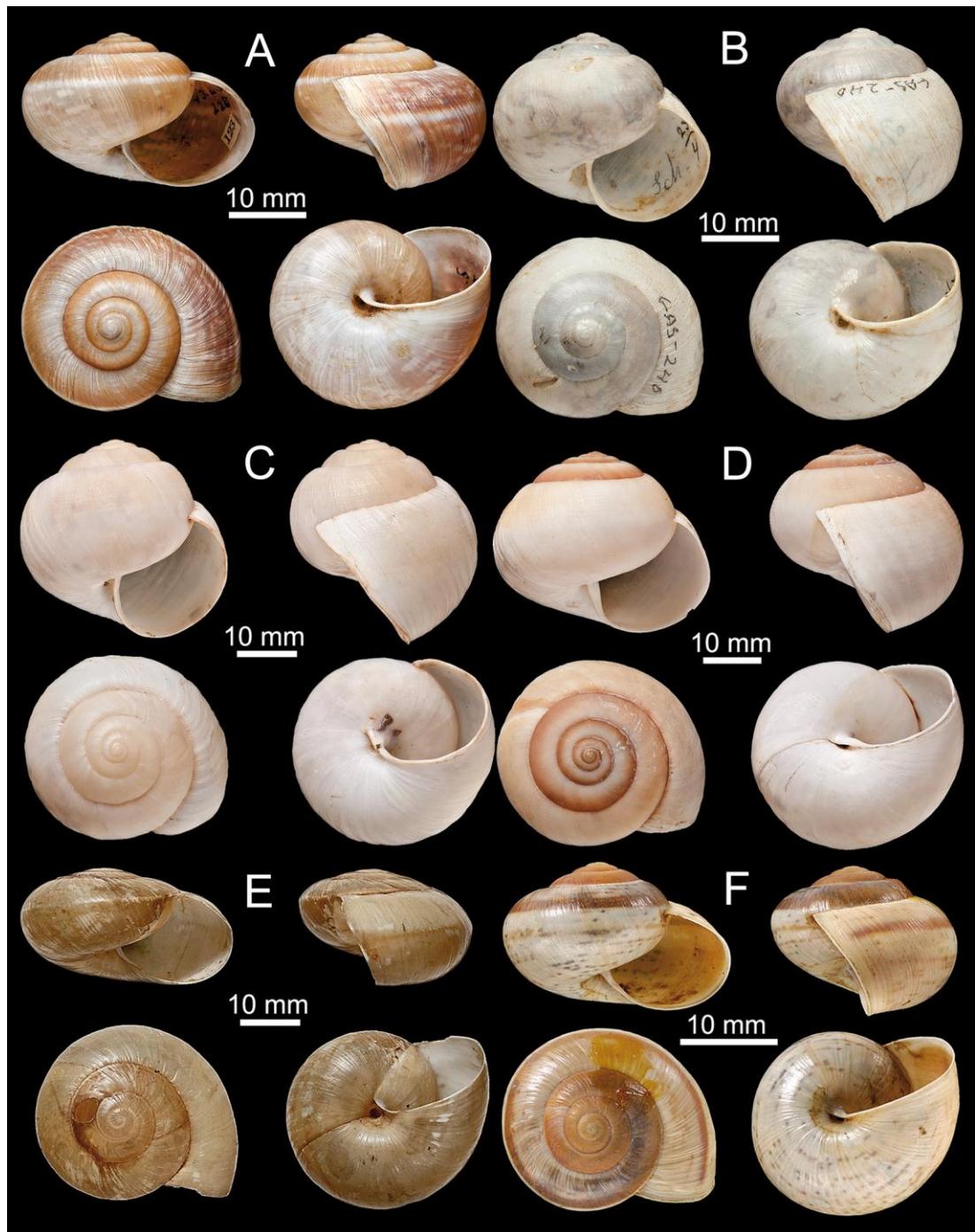


FIGURE 58. **A.** *Ariophanta maderaspatana* (Gray, 1834), possible paralectotype. **B.** *Ariophanta semirugata* (Beck, 1837), neotype. **C-D.** *Ariophanta semirugata* ‘var. *tranquebarica*’ (Pfeiffer, 1847), lectotype (**C**) and paralectotype (**D**). **E.** *Ariophanta sisparica* (Blanford, 1866), lectotype. **F.** *Ariophanta solata* (Benson, 1848), lectotype.

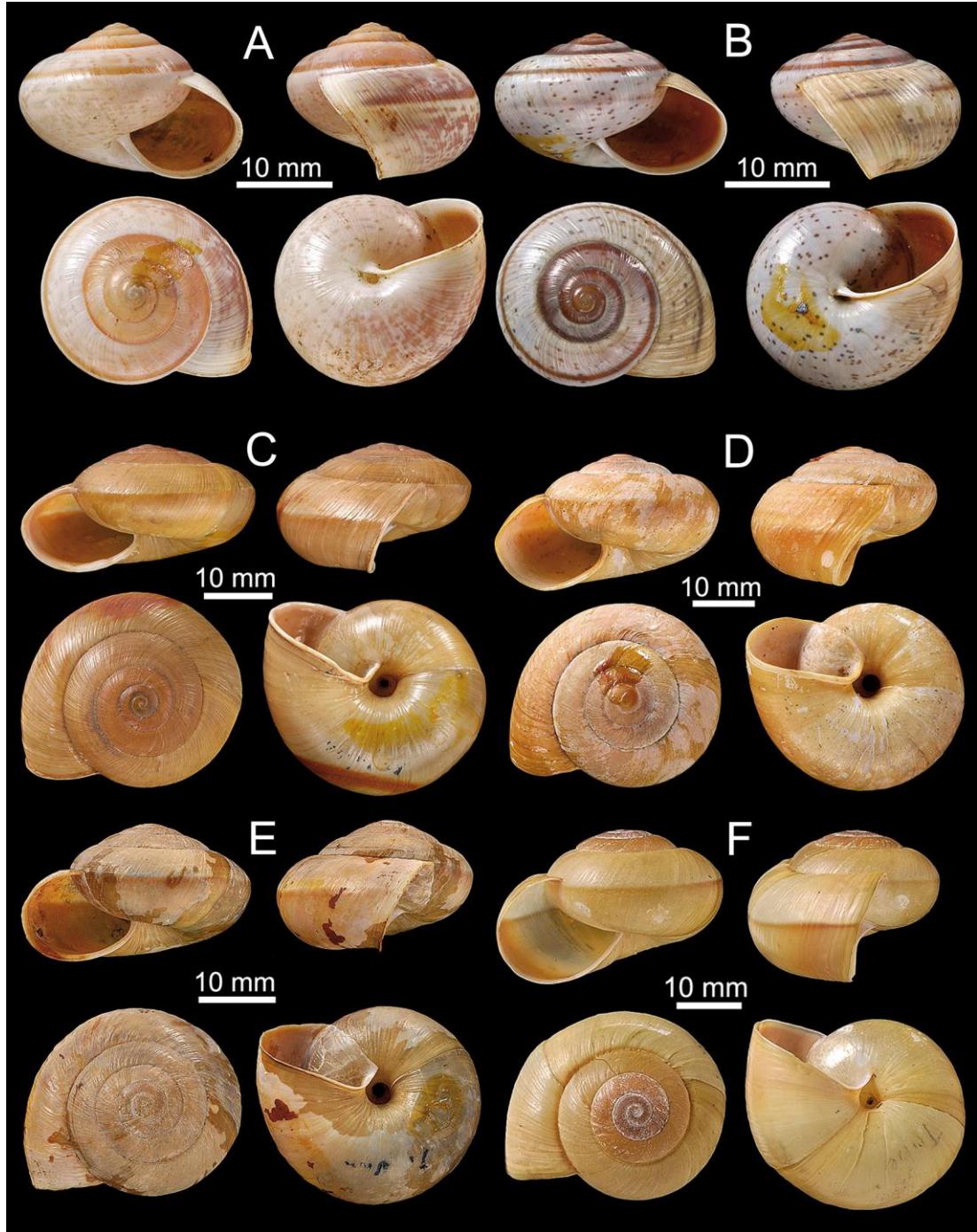


FIGURE 59. **A-B.** *Ariophanta solata* (Benson, 1848), paralectotypes. **C-E.** *Ariophanta thyreus* (Benson, 1852), lectotype (C) and paralectotypes (D, E). **F.** *Ariophanta thyreus* 'var. *heteraea*' Blanford, 1901, lectotype.

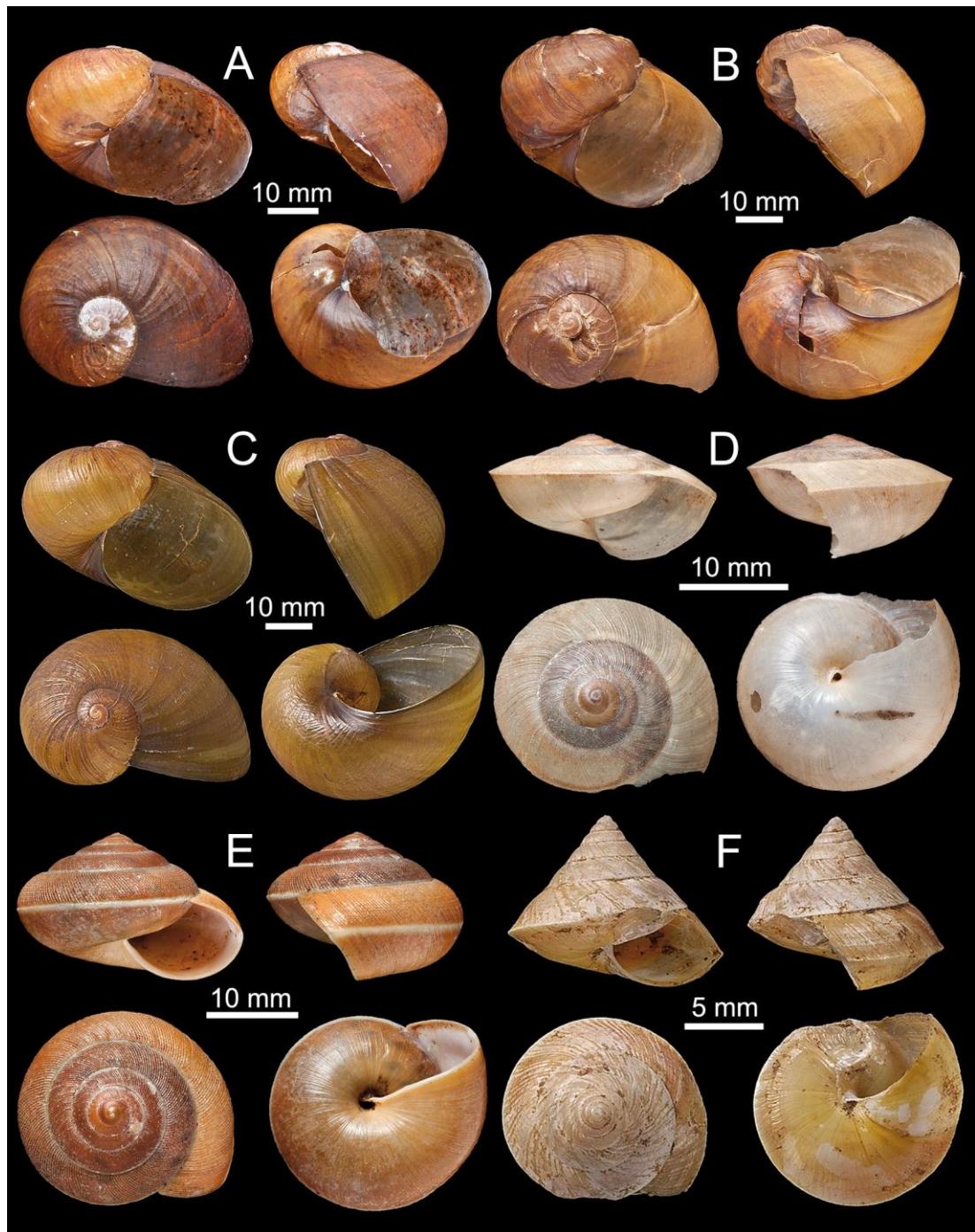


FIGURE 60. **A-C.** *Indrella ampulla* (Benson, 1850), lectotype (**A**), paralectotype (**B**) and a shell from the H.F/W.T. Blanford collection, NHM (**C**). **D.** *Euplecta acuducta* (Benson, 1850), lectotype. **E.** *Euplecta albizonata* (Dohrn, 1858), lectotype. **F.** *Euplecta apicata* (Blanford, 1870), lectotype.

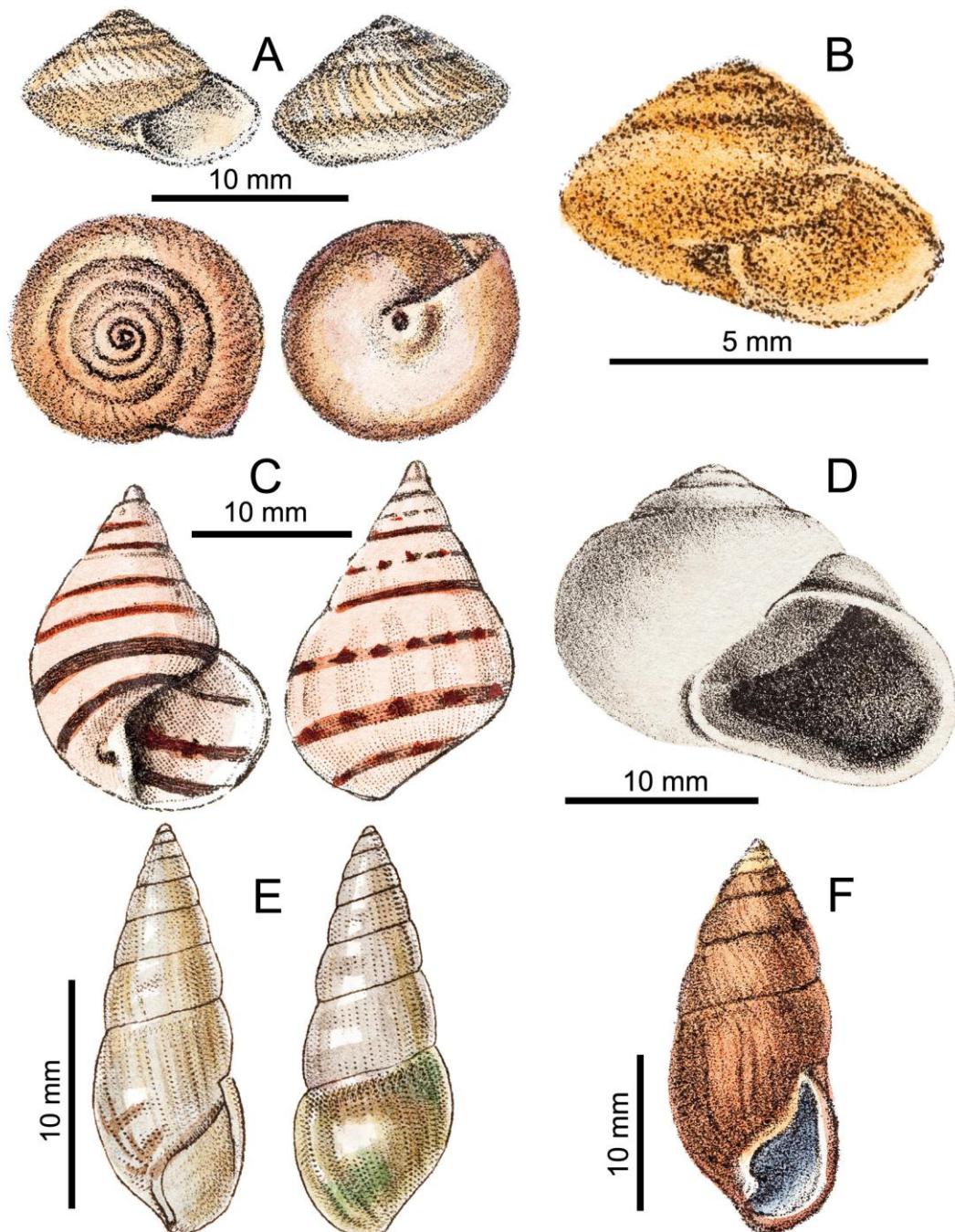


FIGURE 61. Historical figures. **A.** *Euplecta acalles* (Pfeiffer, 1857). **B.** *Macrochlamys? tenuicula* H. Adams, 1868. **C.** *Beddomea? bontia* (Gray, 1825). **D.** *Trachia vittata* 'var. *albina*' (Grateloup, 1840). **E.** *Glessula bensoniana* (Pfeiffer, 1851). **F.** *Glessula bottampotana* (Hanley & Theobald, 1876).

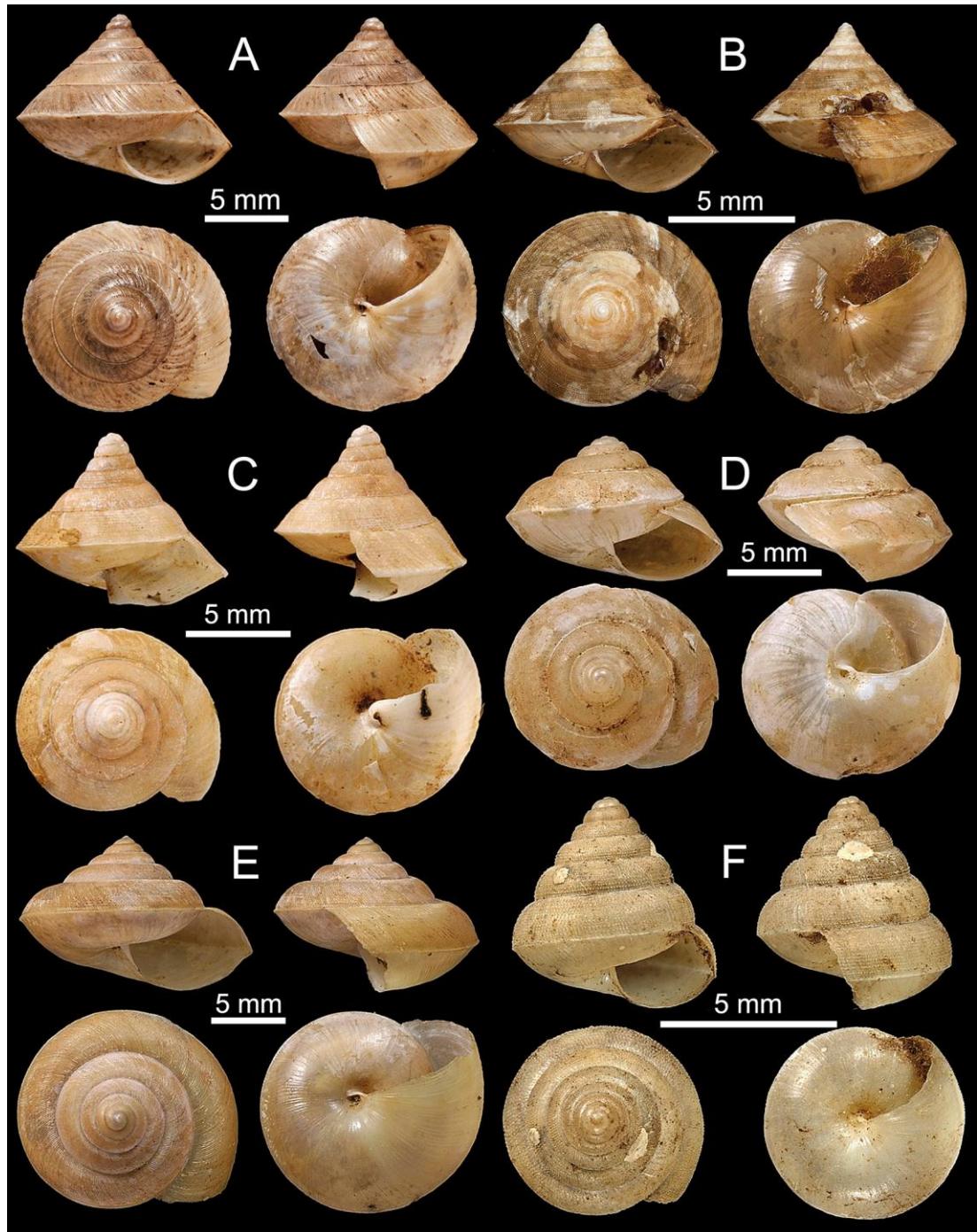


FIGURE 62. **A.** *Euplecta apicata* (Blanford, 1870), paralectotype. **B-C.** *Euplecta cacuminifera* (Benson, 1850), lectotype (**B**) and paralectotype (**C**). **D.** *Euplecta fluctuosa* Blanford, 1901, lectotype. **E.** *Euplecta foveolata* Preston, 1909, lectotype. **F.** *Euplecta granulifera* Blanford, 1901, lectotype.

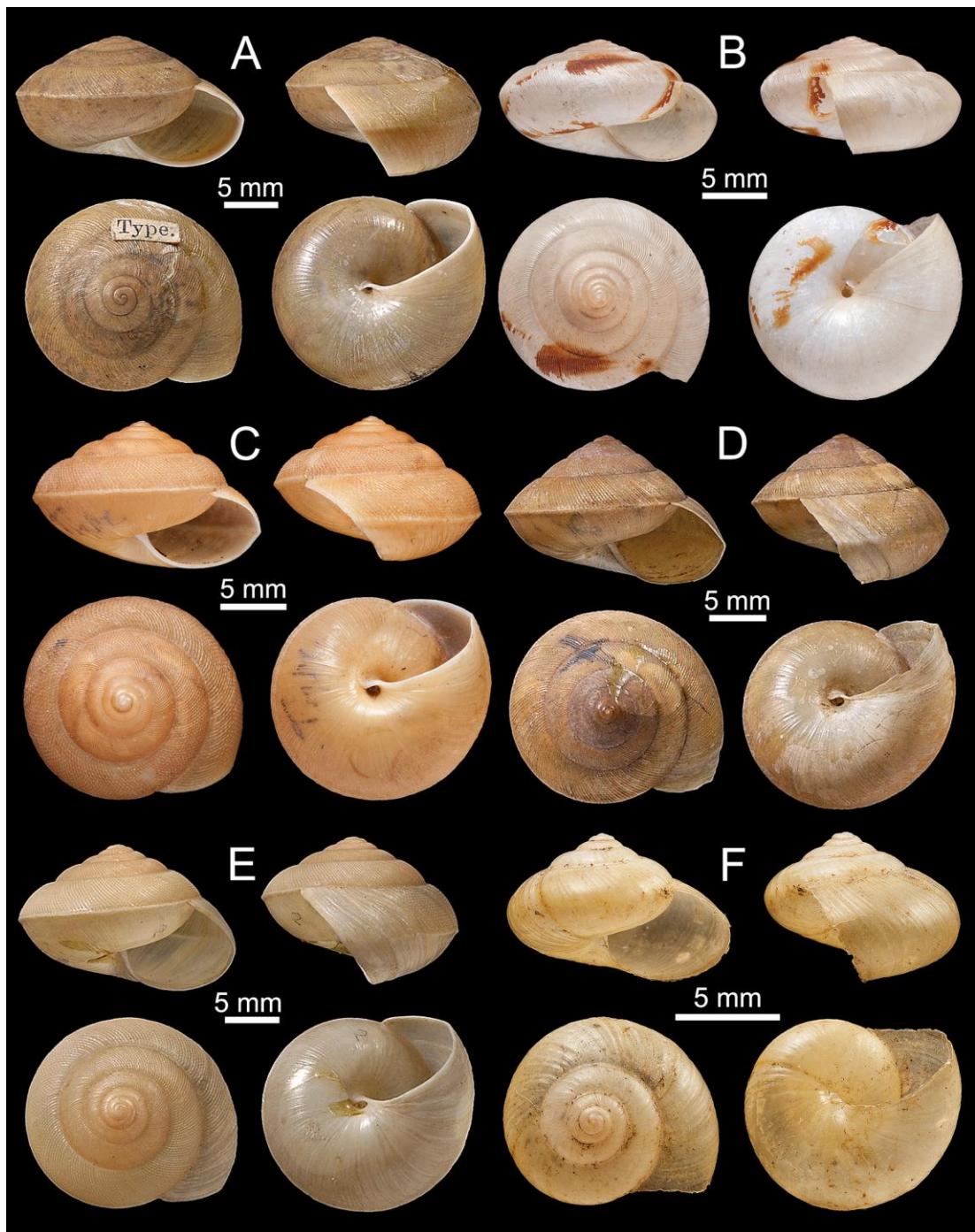


FIGURE 63. **A-B.** *Euplecta indica* (Pfeiffer, 1846), lectotype (A) and paralectotype (B). **C.** *Euplecta indica* 'var. *malabarica*' Blanford, 1901, lectotype. **D-E.** *Euplecta indica* 'var. *shiplayi*' (Pfeiffer, 1857), lectotype (D) and paralectotype (E). **F.** *Euplecta?* *mucosa* (W.T. & H.F. Blanford, 1861), lectotype.

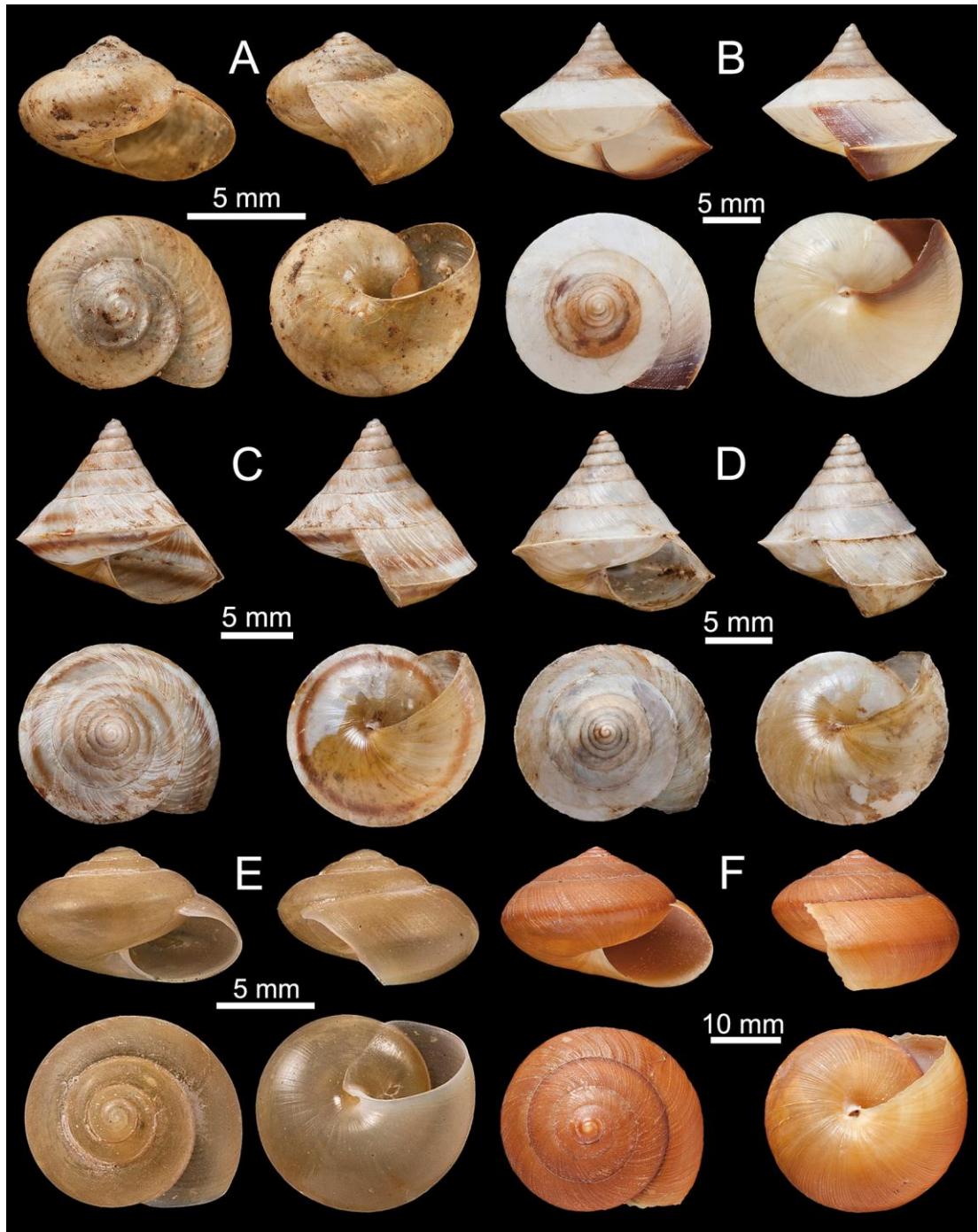


FIGURE 64. **A.** *Euplecta? mucosa* (W.T. & H.F. Blanford, 1861), paralectotype. **B.** *Euplecta mucronifera* Blanford, 1901, lectotype. **C-D.** *Euplecta oribates* Blanford, 1901, lectotype (C) and paralectotype (D). **E.** *Euplecta pulchella* Blanford, 1905, lectotype. **F.** *Euplecta semidecussata* 'var. *transfretata*' Blanford, 1901, lectotype.

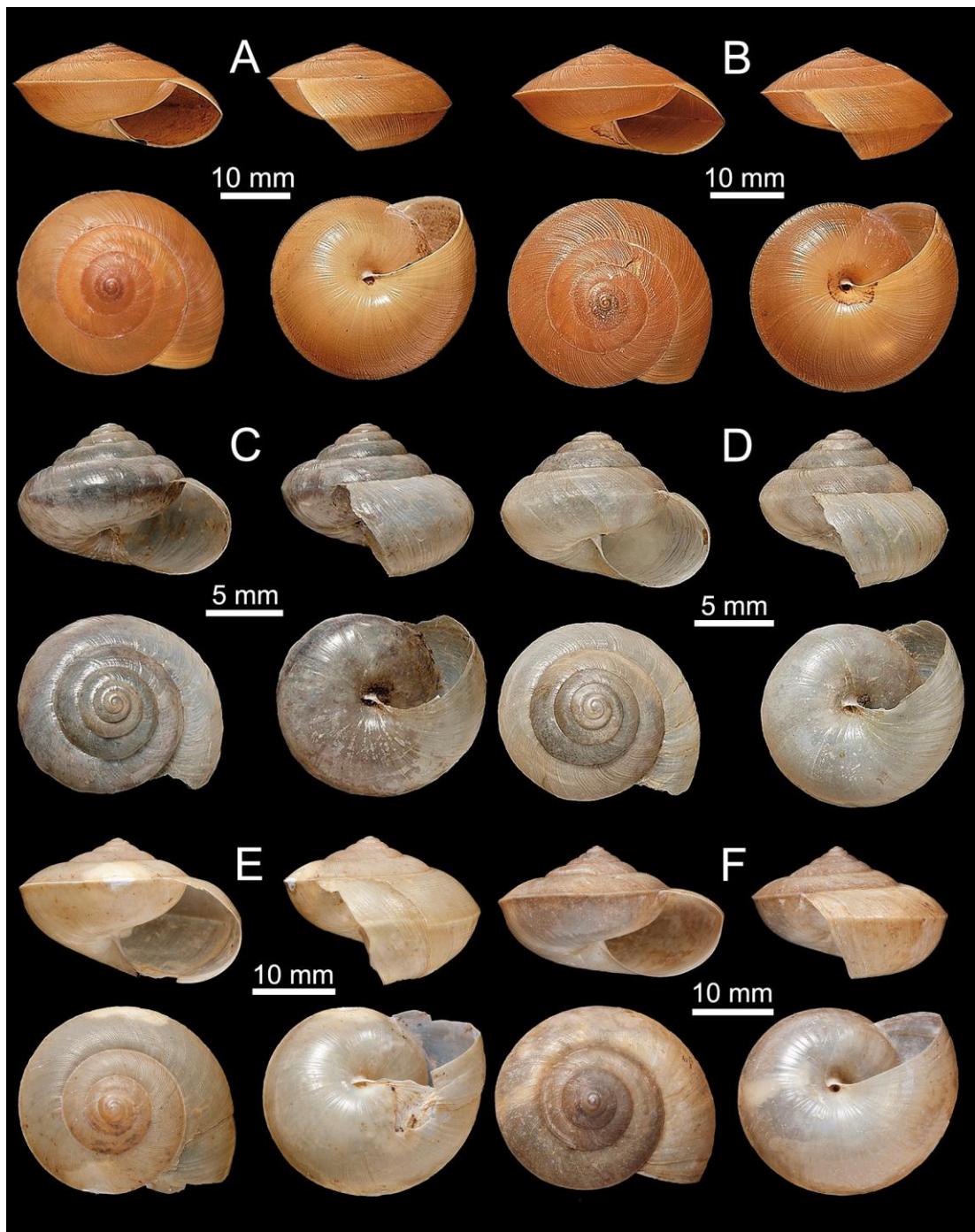


FIGURE 65. **A-B.** *Euplecta subcastor* (Beddome, 1891), lectotype (A) and paralectotype (B). **C-D.** *Euplecta subdecussata* (Pfeiffer, 1857), lectotype (C) and paralectotype (D). **E-F.** *Euplecta travancorica* (Benson, 1865), holotype (E) and another shell from the Benson collection, UMZC (F).



FIGURE 66. **A.** *Euplecta travancorica* 'var. *agastya*' Blanford, 1901, lectotype. **B.** *Macrochlamys?* *atoma* Blanford, 1905, 4 syntypes. **C-D.** *Macrochlamys indica* Benson in Godwin-Austen, 1883, lectotype (C) and paralectotype (D). **E-F.** *Macrochlamys?* *neherensis* (Benson, 1864), lectotype (E) and paralectotype (F).

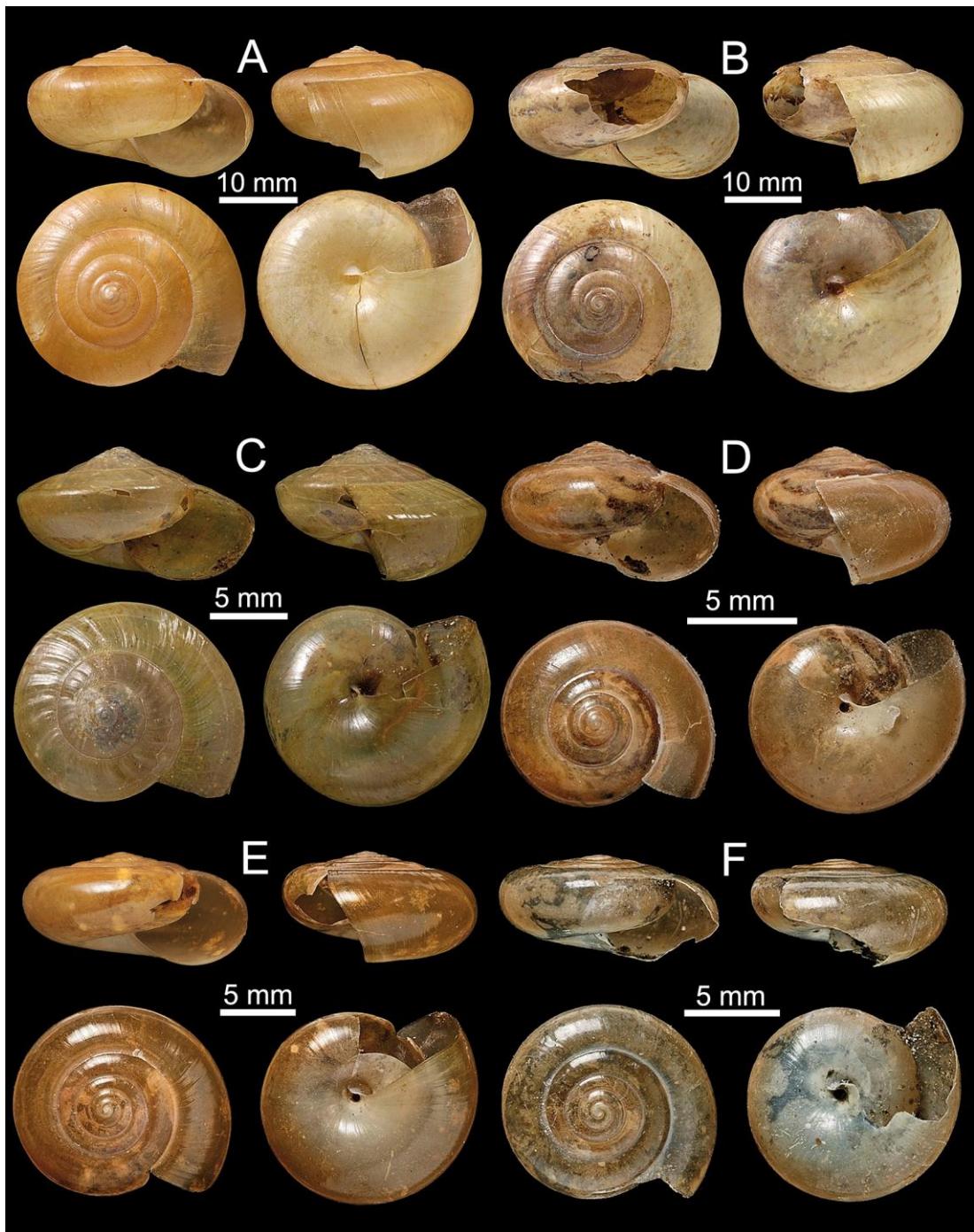


FIGURE 67. **A-B.** *Macrochlamys pedina* (Benson, 1865), lectotype (A) and paralectotype (B). **C.** *Macrochlamys?* *peringundensis* Beddome, 1891, holotype. **D.** *Macrochlamys?* *prava* Blanford, 1905, lectotype. **E.** *Macrochlamys?* *rutila* Blanford, 1905, lectotype. **F.** *Macrochlamys?* *vallicola* (Pfeiffer, 1855), lectotype.

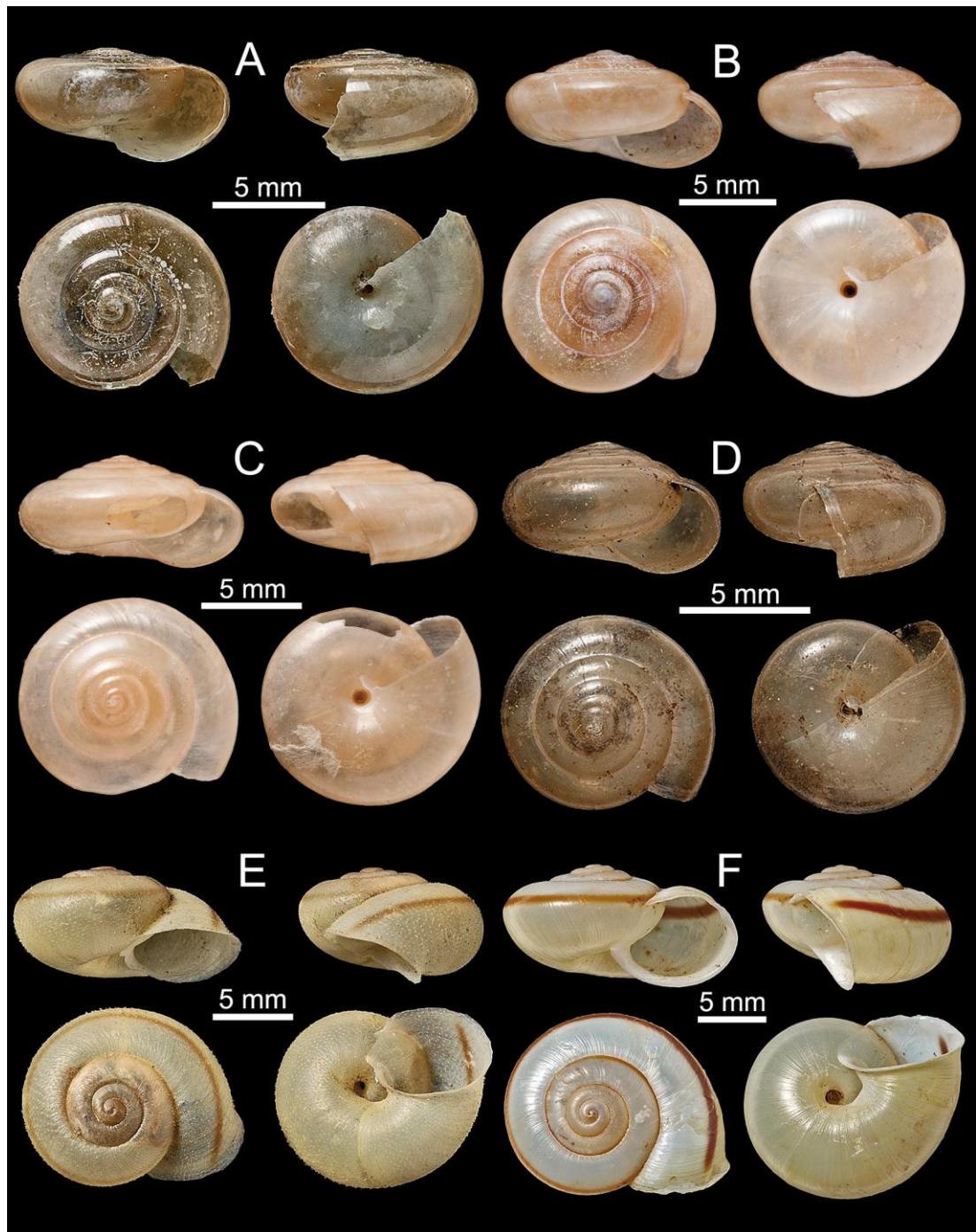


FIGURE 68. **A.** *Macrochlamys?* *vallicola* (Pfeiffer, 1855), paralectotype. **B-C.** *Macrochlamys?* *woodiana* (Pfeiffer, 1853), lectotype (**B**) and paralectotype (**C**). **D.** *Microcystina shevaroyana* Blanford, 1905, lectotype. **E.** *Chloritis leithi* Gude, 1914, holotype. **F.** *Chloritis propinqua* (Pfeiffer, 1857), lectotype.

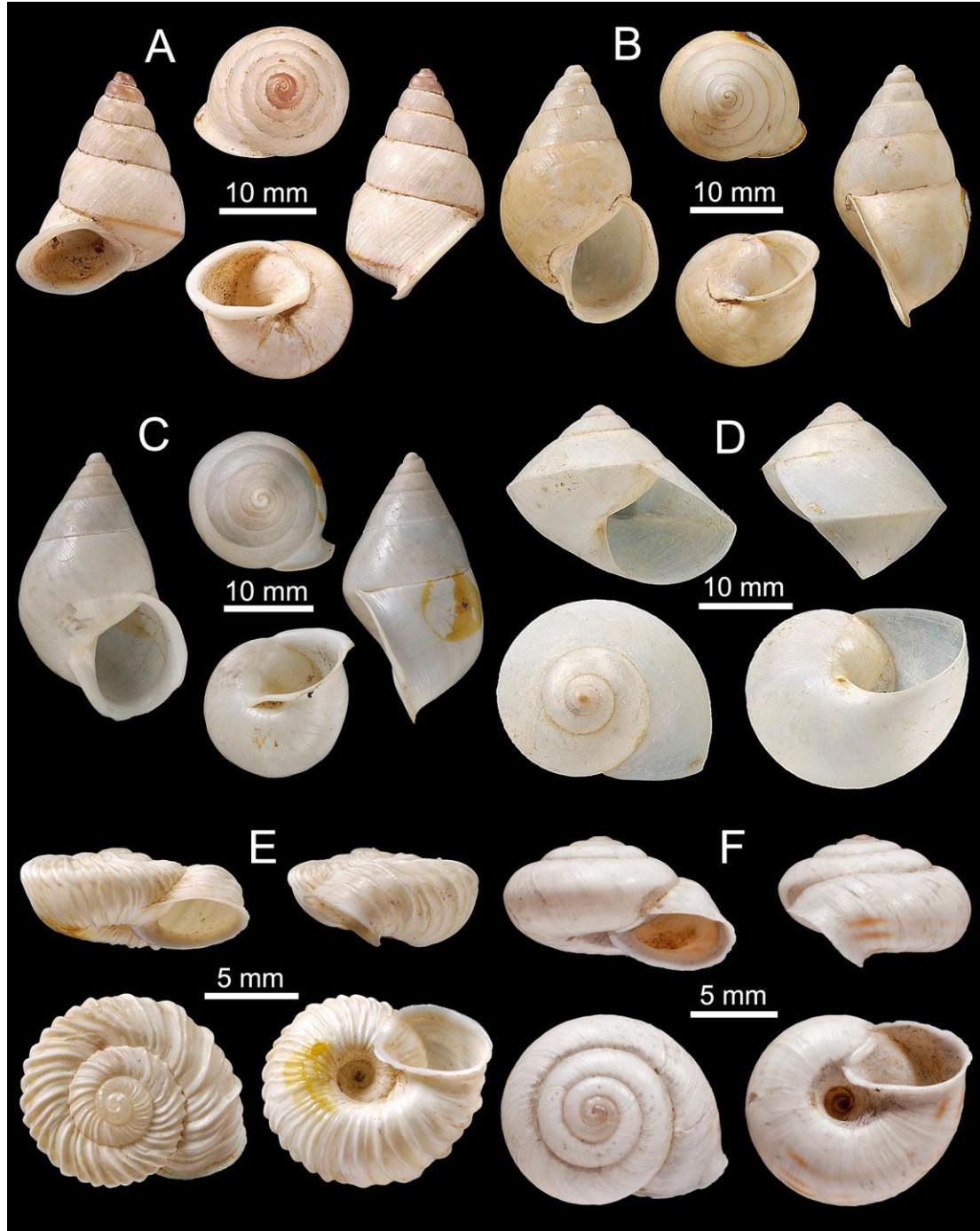


FIGURE 69. **A.** *Beddomea calcadensis* (Blanford, 1870), neotype. **B-C.** *Beddomea physalis* (Benson, 1857), lectotype (**B**) and paralectotype (**C**). **D.** *Apatetes bourdillonii* (Theobald, 1876), neotype. **E.** *Trachia crassicostata* (Benson, 1848), lectotype. **F.** *Trachia fallaciosa* (Férussac, 1832), syntype.

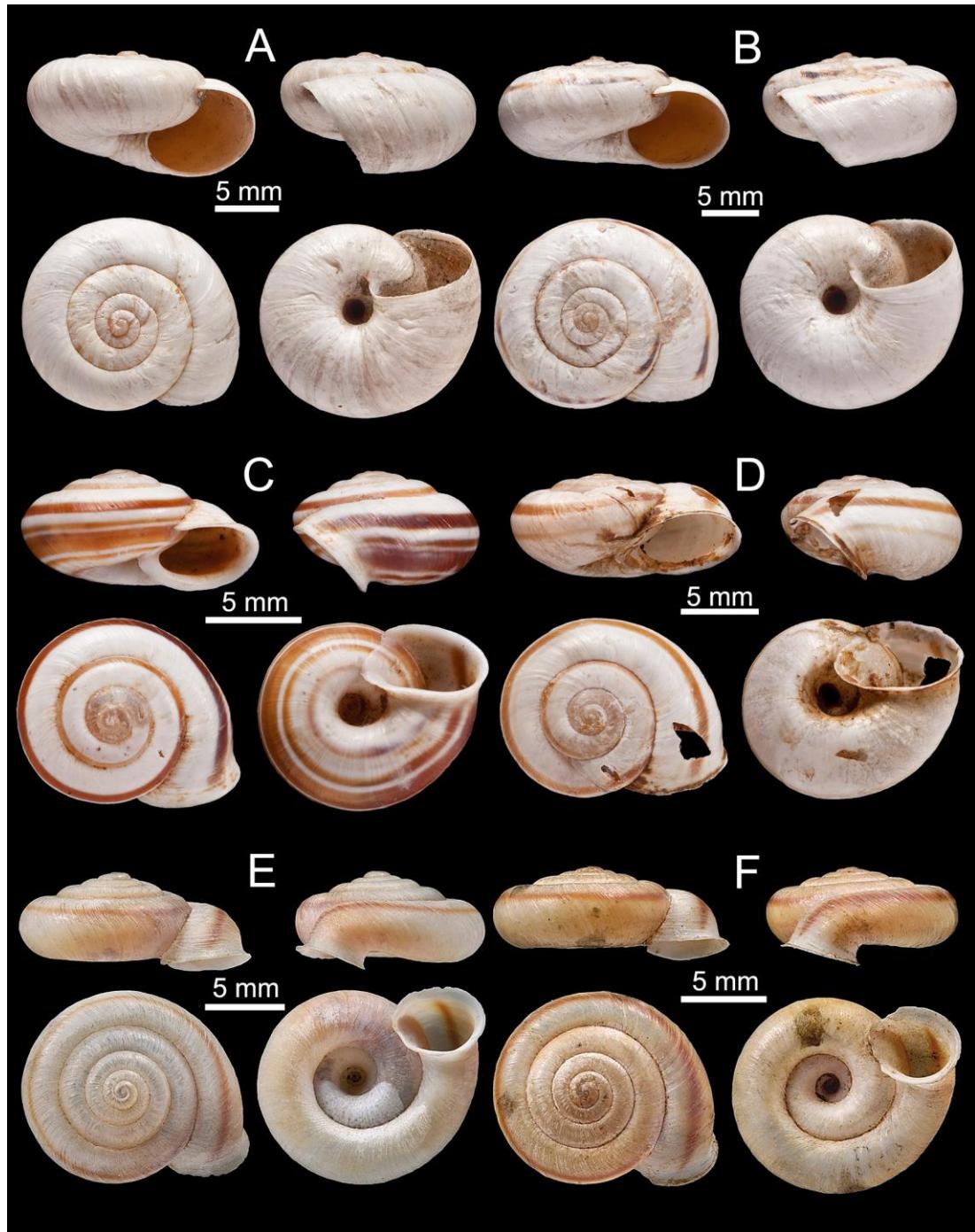


FIGURE 70. **A-D.** *Trachia fallaciosa* (Férussac, 1832), syntypes (**A, B**) and possible syntypes (**C, D**). **E-F.** *Trachia nilagirica* (Pfeiffer, 1846), lectotype (**E**) and paralectotype (**F**).

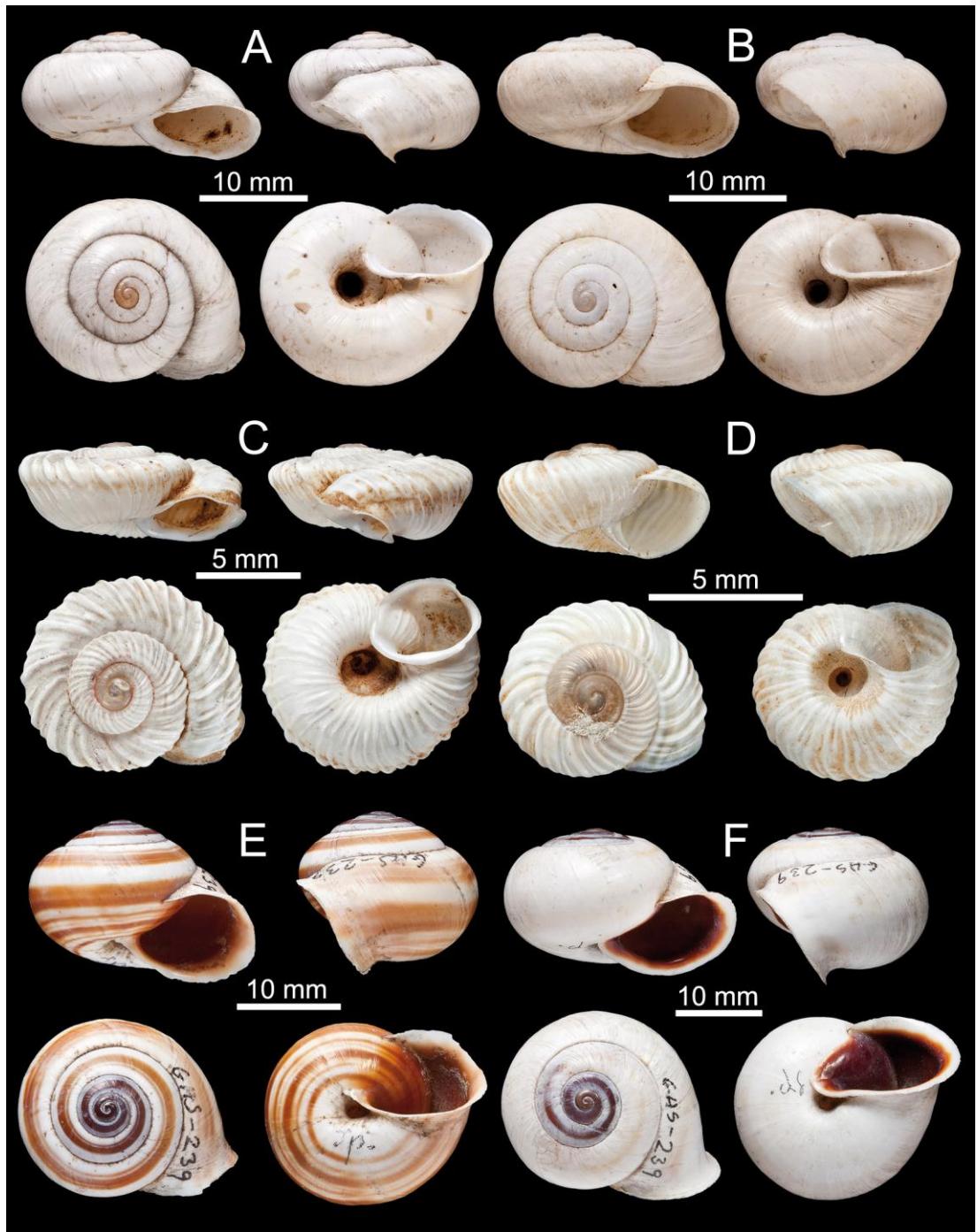


FIGURE 71. **A-B.** *Trachia proxima* (Férussac, 1832), possible syntypes. **C-D.** *Trachia ruginosa* (Férussac, 1832), lectotype (C) and paralectotype (D). **E-F.** *Trachia vittata* (Müller, 1774), lectotype (E) and paralectotype (F).

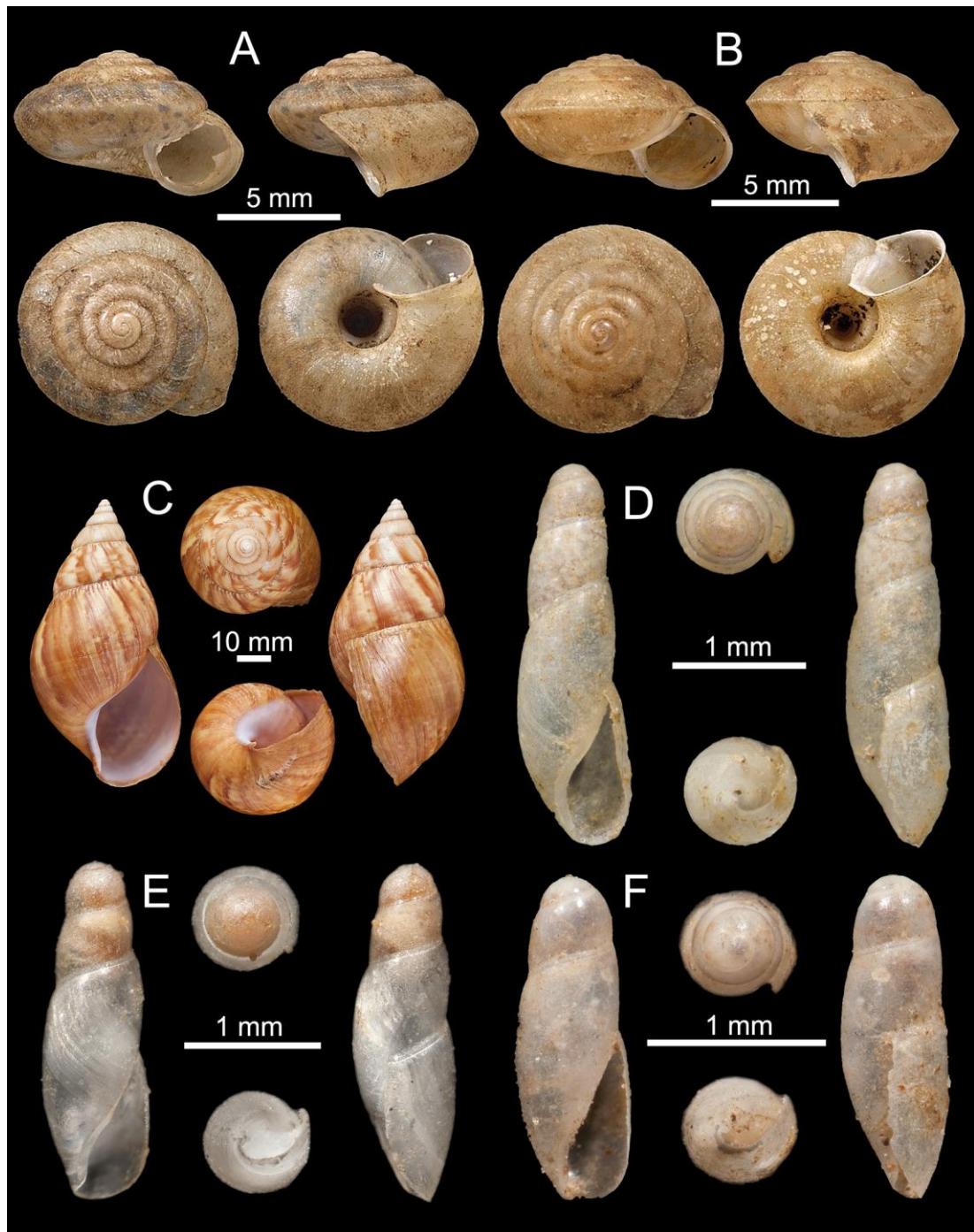


FIGURE 72. **A-B.** *Landouria huttonii* (Pfeiffer, 1842), lectotype (A) and paralectotype (B). **C.** *Lissachatina fulica* (Bowdich, 1822), a shell from the Winckworth collection, NHM. **D-F.** *Cecilioides balanus* (Reeve, 1850), lectotype (D) and paralectotypes (E, F).

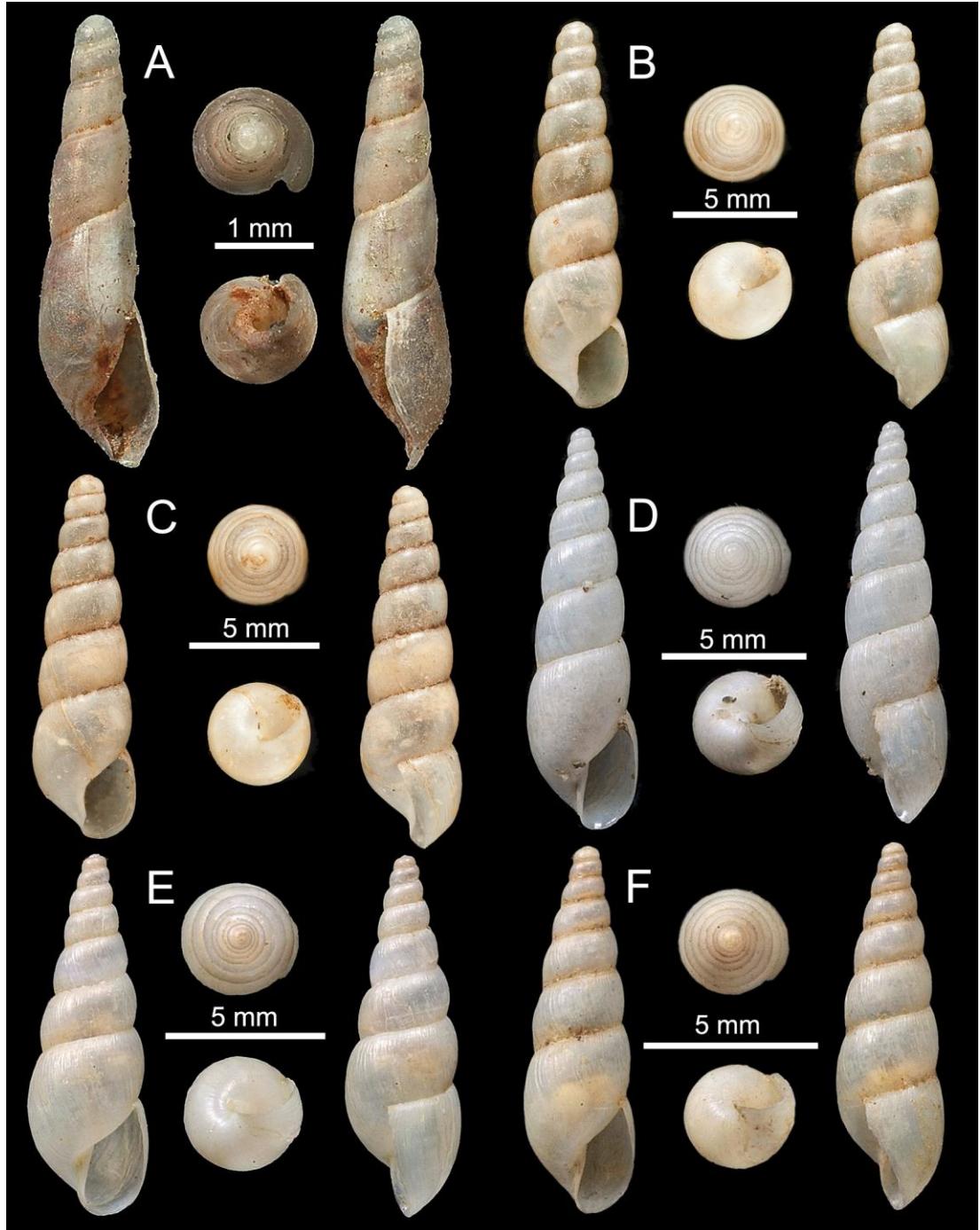


FIGURE 73. **A.** *Ceciliooides bensonii* Gude, 1914, holotype. **B-C.** *Subulina octona* (Bruguière, 1789), from the Mrs. J. Longstaff collection, NHM. **D-F.** *Allopeas gracile* (Hutton, 1834), lectotype (**D**) and paralectotypes (**E, F**).

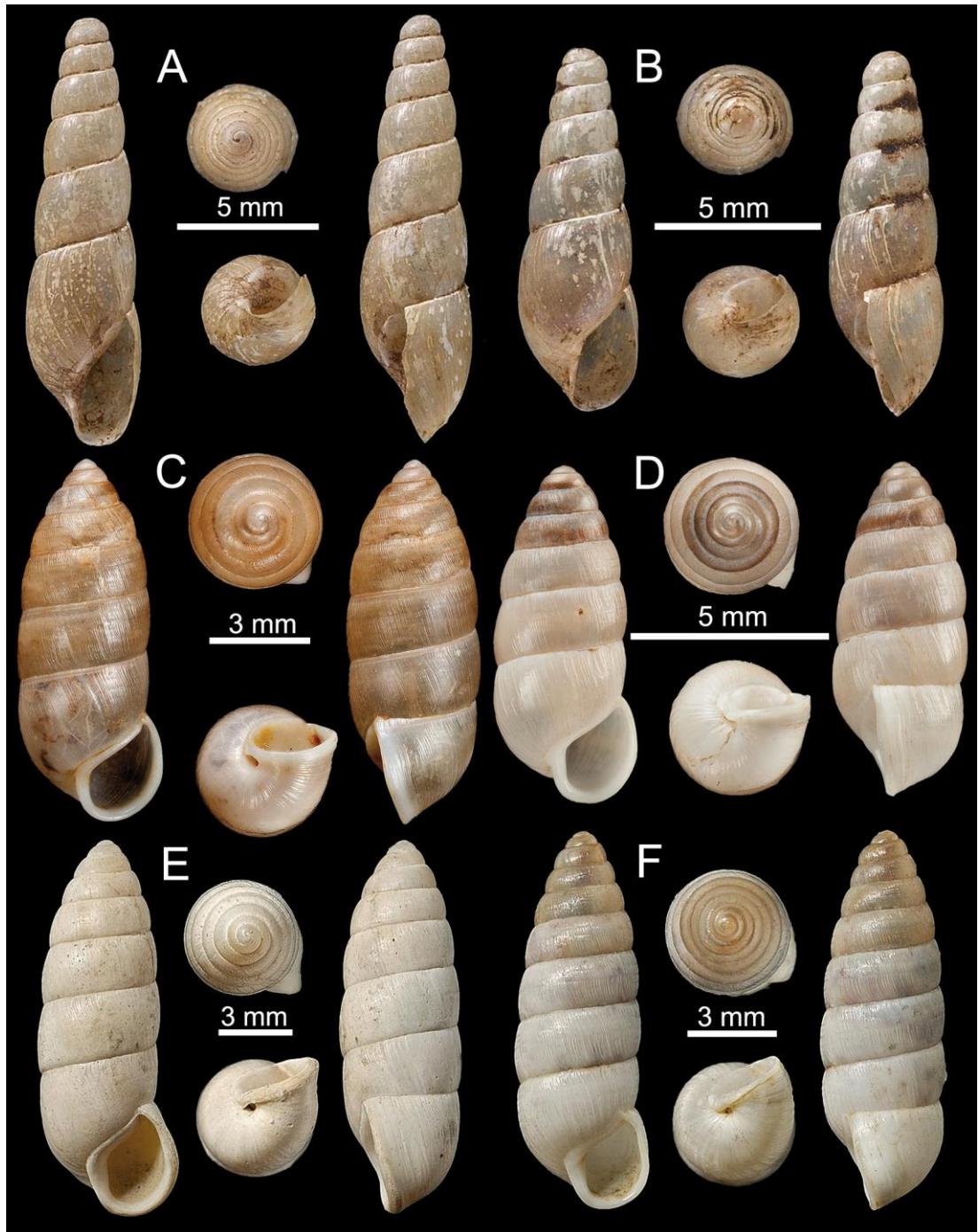


FIGURE 74. A-B. *Prosopeas hebes* (W.T. & H.F. Blanford, 1861), lectotype (A) and paralectotype (B). C-D. *Zootecus insularis* (Ehrenburg, 1831), lectotype (C) and a shell from the Godwin-Austen collection, NHM (D). E-F. *Zootecus pullus* (Gray, 1834), lectotype (E) and paralectotype (F).

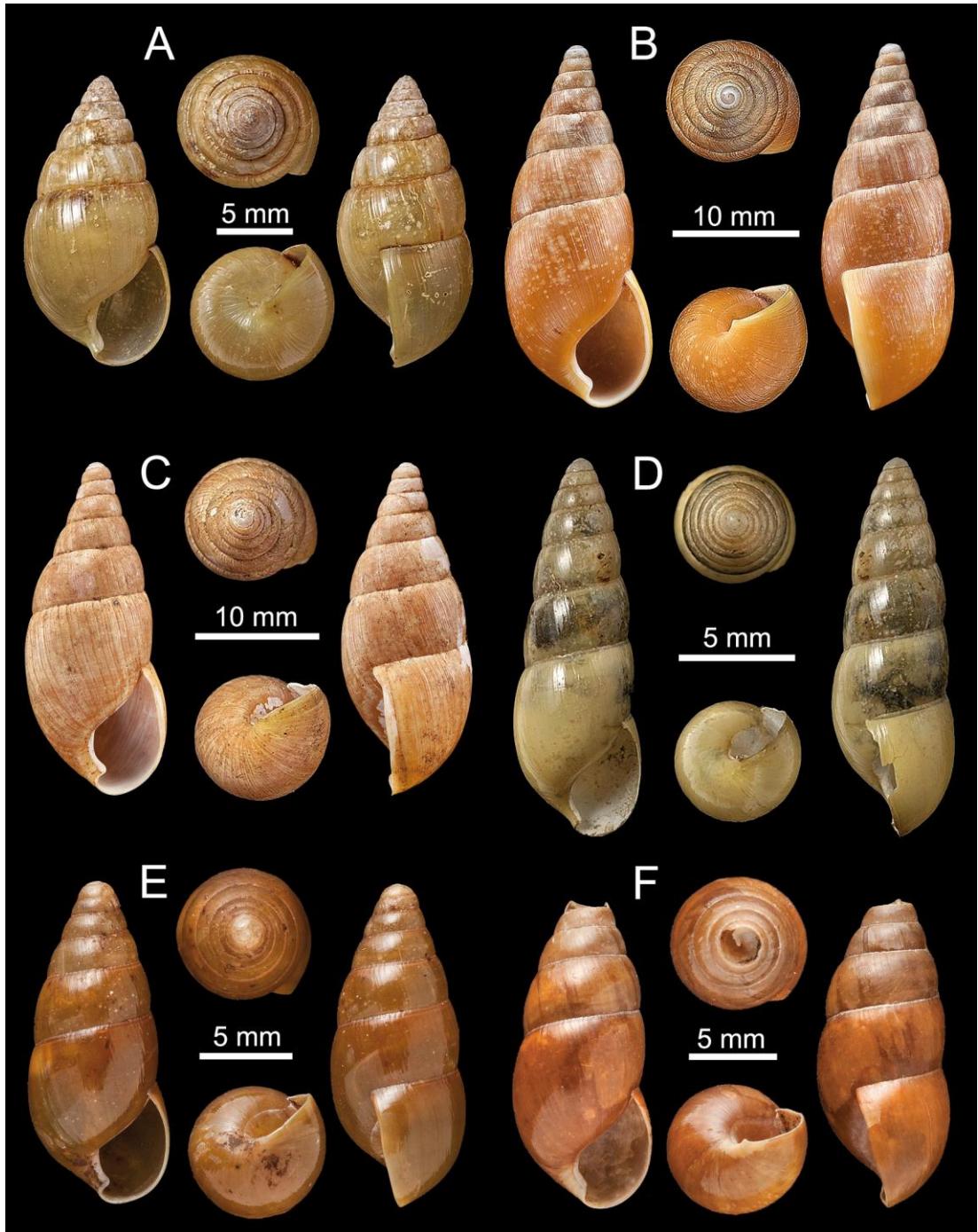


FIGURE 75. **A.** *Glessula arthuri* (Benson, 1864), lectotype. **B-C.** *Glessula beddomei* (Blanford, 1866), lectotype (**B**) and paralectotype (**C**). **D.** *Glessula blanda* Gude, 1914, holotype. **E-F.** *Glessula botellus* (Benson, 1860), neotype (**E**) and the other shell from the same lot as the neotype (**F**).

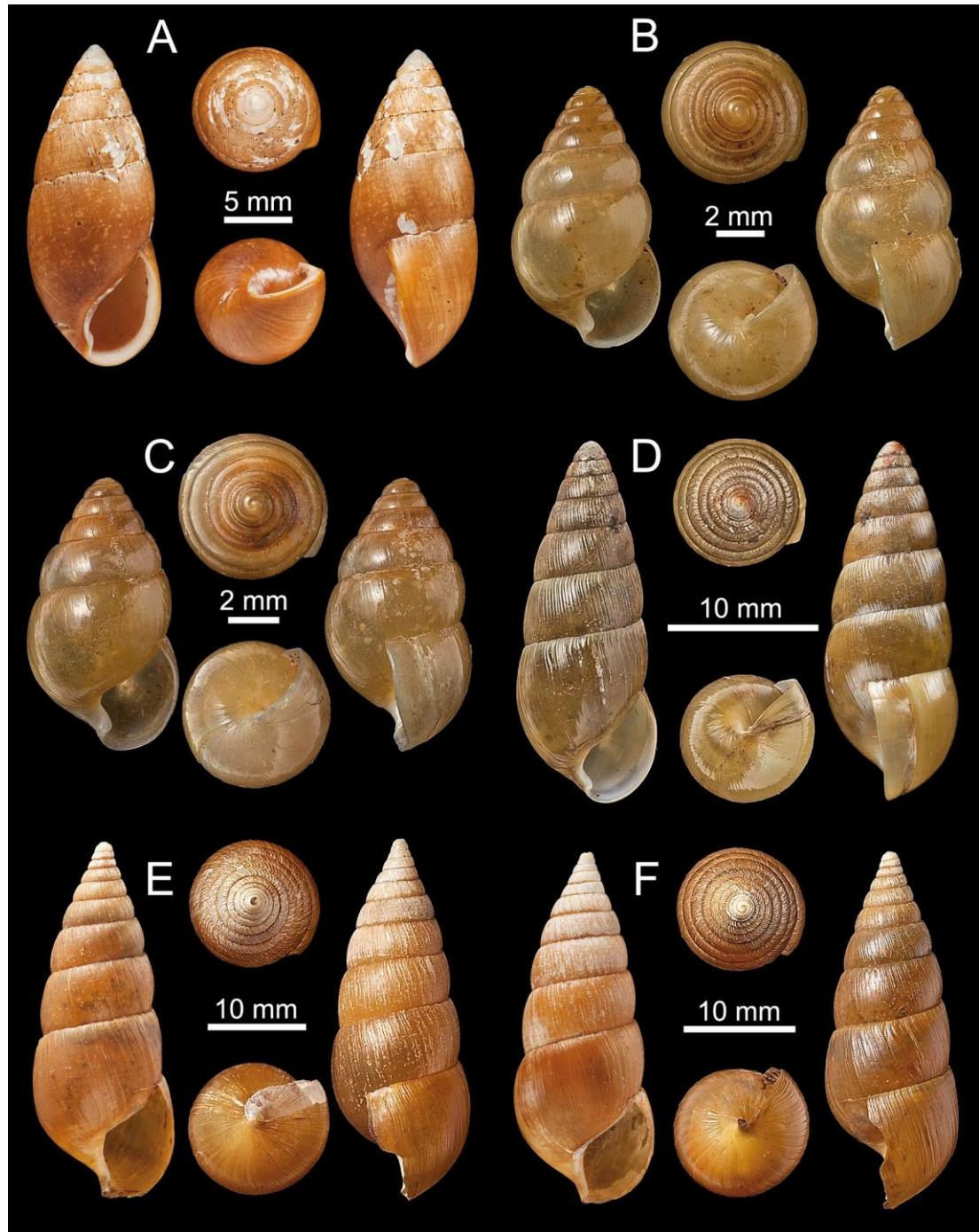


FIGURE 76. **A.** *Glessula bottampotana* (Hanley & Theobald, 1876), lectotype. **B-C.** *Glessula brevis* (Pfeiffer, 1862), lectotype (**B**) and paralectotype (**C**). **D.** *Glessula canarica* Beddome, 1906, lectotype. **E-F.** *Glessula chessoni* (Benson, 1860), lectotype (**E**) and paralectotype (**F**).

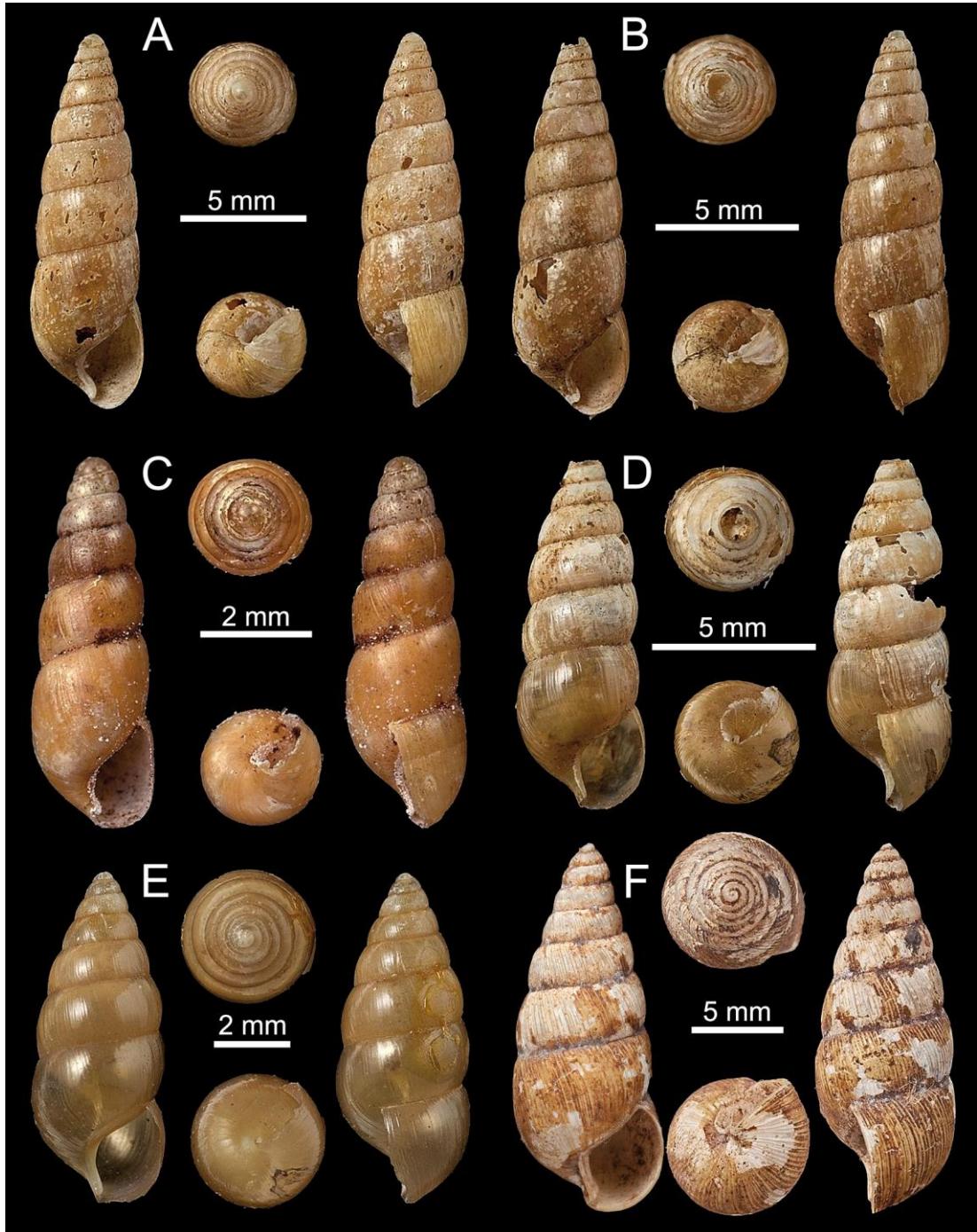


FIGURE 77. **A-B.** *Glessula corrosula* (Pfeiffer, 1856), lectotype (A) and paralectotype (B). **C.** *Glessula courtallica* Gude, 1914, holotype. **D-E.** *Glessula fairbanki* (Benson, 1865), lectotype (D) and paralectotype (E). **F.** *Glessula filosa* Blanford, 1870, lectotype.

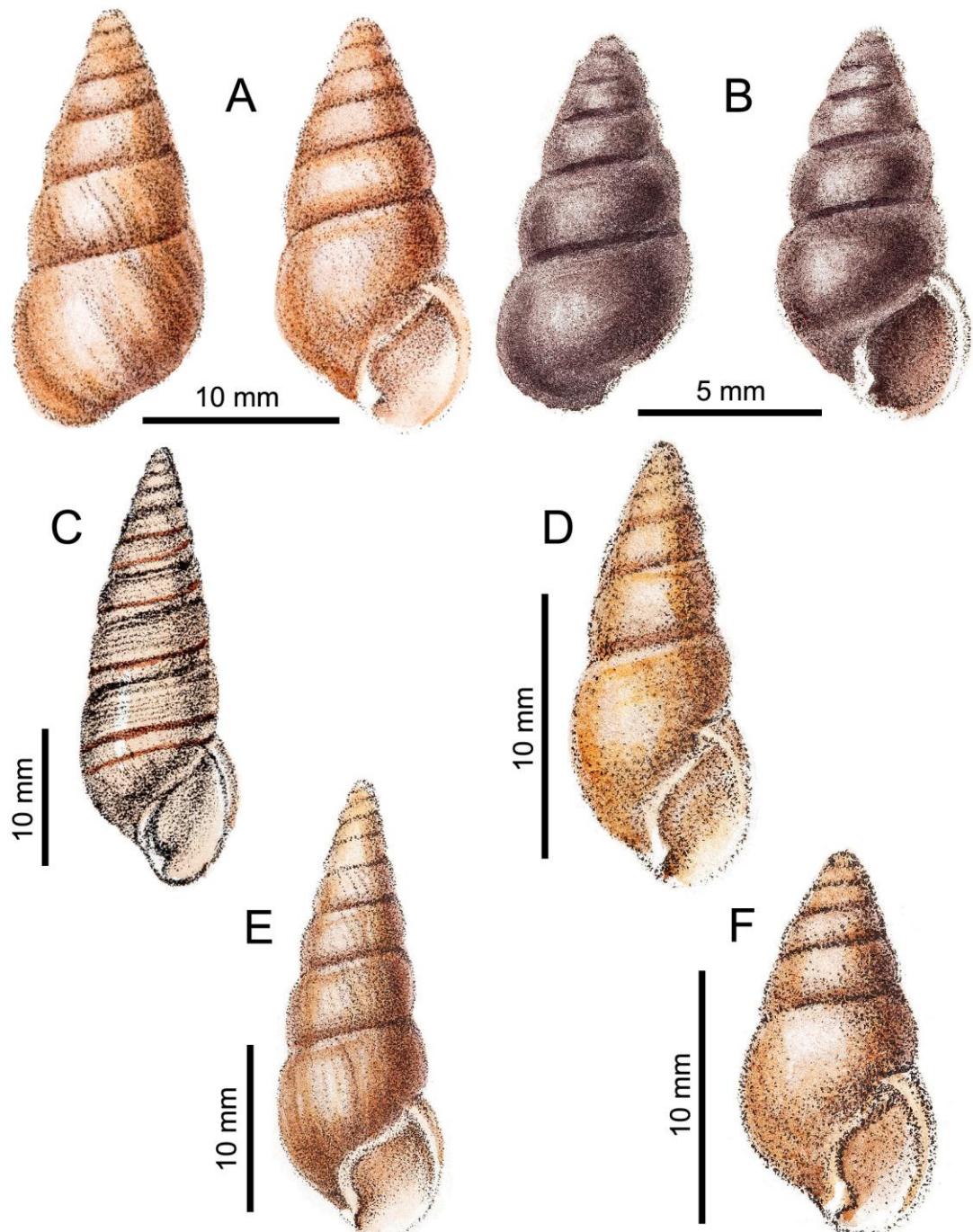


FIGURE 78. Historical figures. **A.** *Glessula facula* (Benson, 1860). **B.** *Glessula gemma* (Reeve, 1850). **C.** *Glessula isis* (Hanley, 1876). **D.** *Glessula jerdoni* (Reeve, 1850). **E.** *Glessula nilagirica* (Reeve, 1850). **F.** *Glessula oreas* (Reeve, 1850).

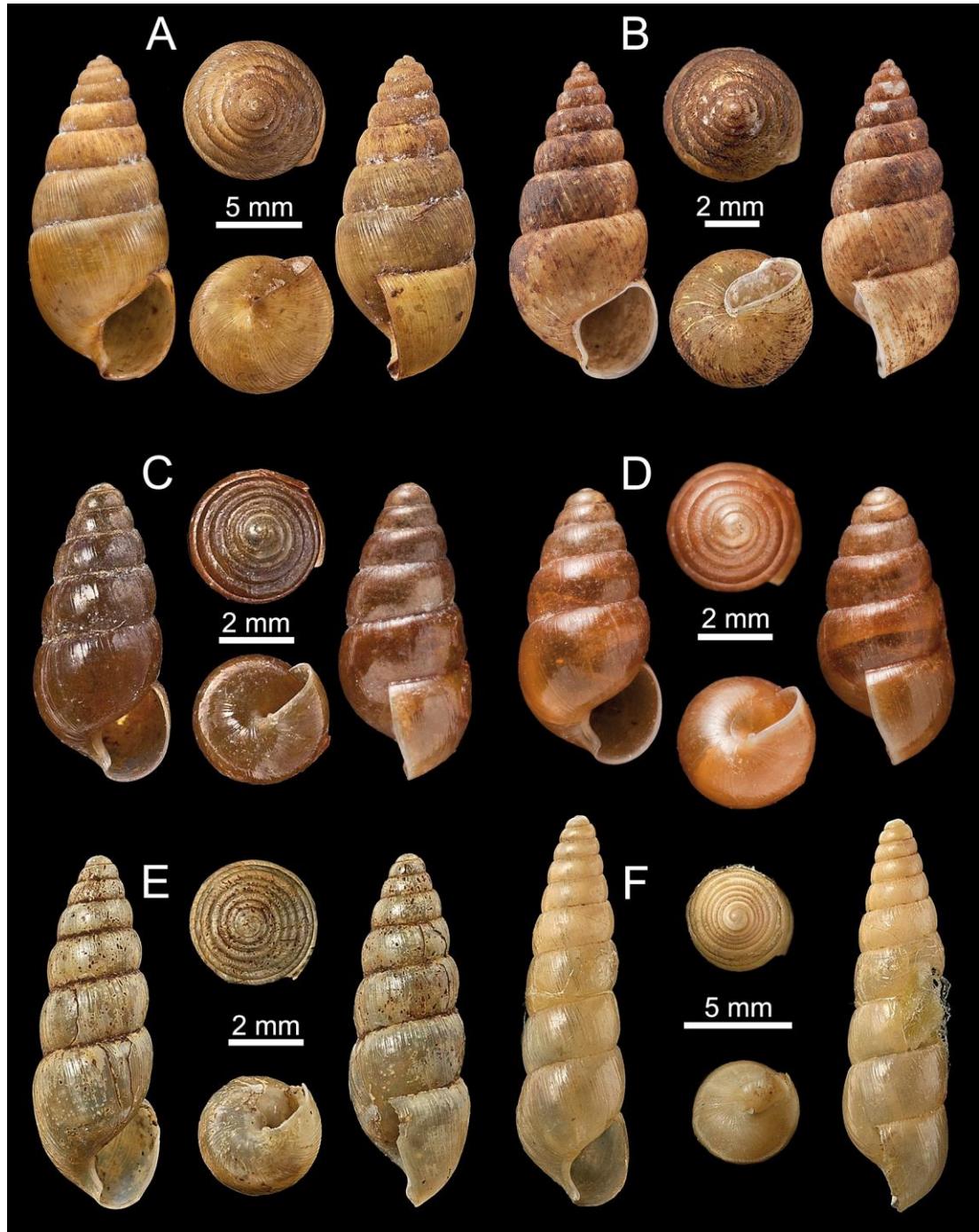


FIGURE 79. **A.** *Glessula filosa* Blanford, 1870, paralectotype. **B.** *Glessula filosa* 'var. *exigua*' Gude, 1914, lectotype. **C-D.** *Glessula gemma* (Reeve, 1850), from Benson, NHM. **E.** *Glessula gracilis* Beddome, 1906, lectotype. **F.** *Glessula hebes* (Pfeiffer, 1868), lectotype.

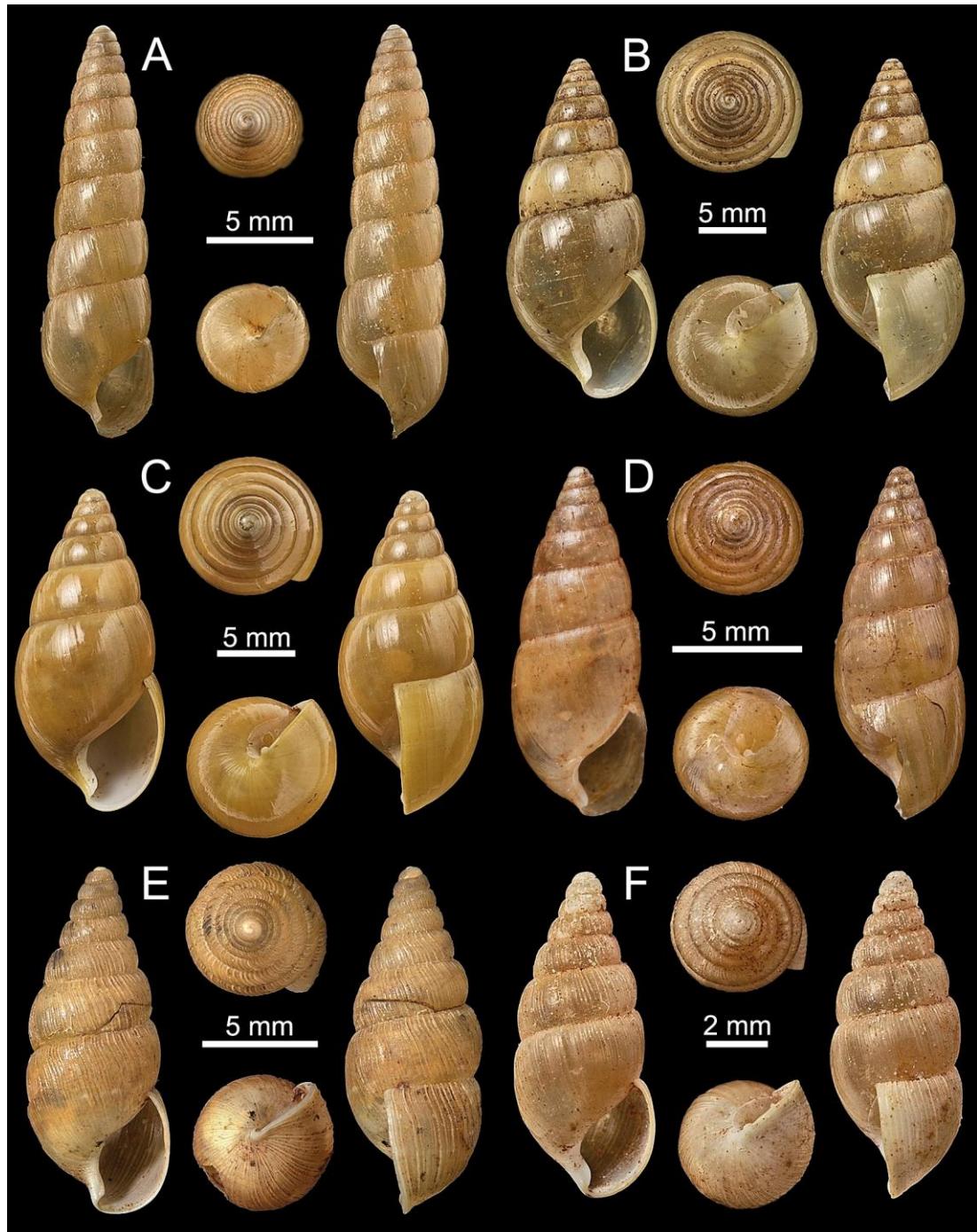


FIGURE 80. **A.** *Glessula hebes* (Blanford in Pfeiffer, 1868), paralectotype. **B-C.** *Glessula indica* Gude, 1914, holotype (**B**) and paratype (**C**). **D.** *Glessula jerdoni* (Reeve, 1850), from Benson, NHM. **E.** *Glessula lyrata* Blanford, 1870, lectotype. **F.** *Glessula lyrata* ‘var. *matheranica*’ Blanford, 1870, lectotype.

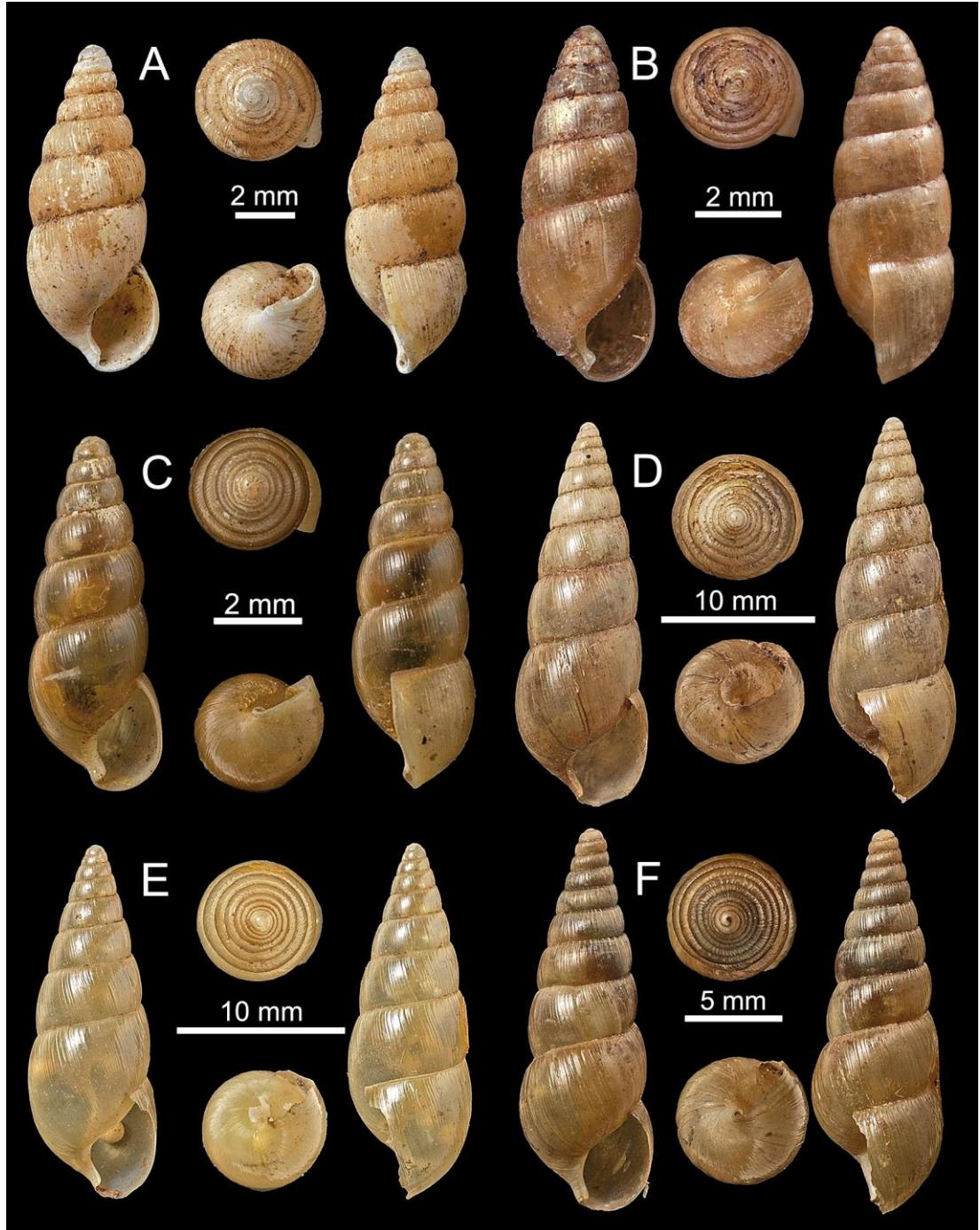


FIGURE 81. **A.** *Glessula lyrata* 'var. *matheranica*' Blanford, 1870, paralectotype. **B.** *Glessula malabarica* Gude, 1914, holotype. **C.** *Glessula neglecta* Gude, 1914, holotype. **D-E.** *Glessula nilagirica* (Reeve, 1850), lectotype (**D**) and paralectotype (**E**). **F.** *Glessula notigena* (Benson, 1860), lectotype.

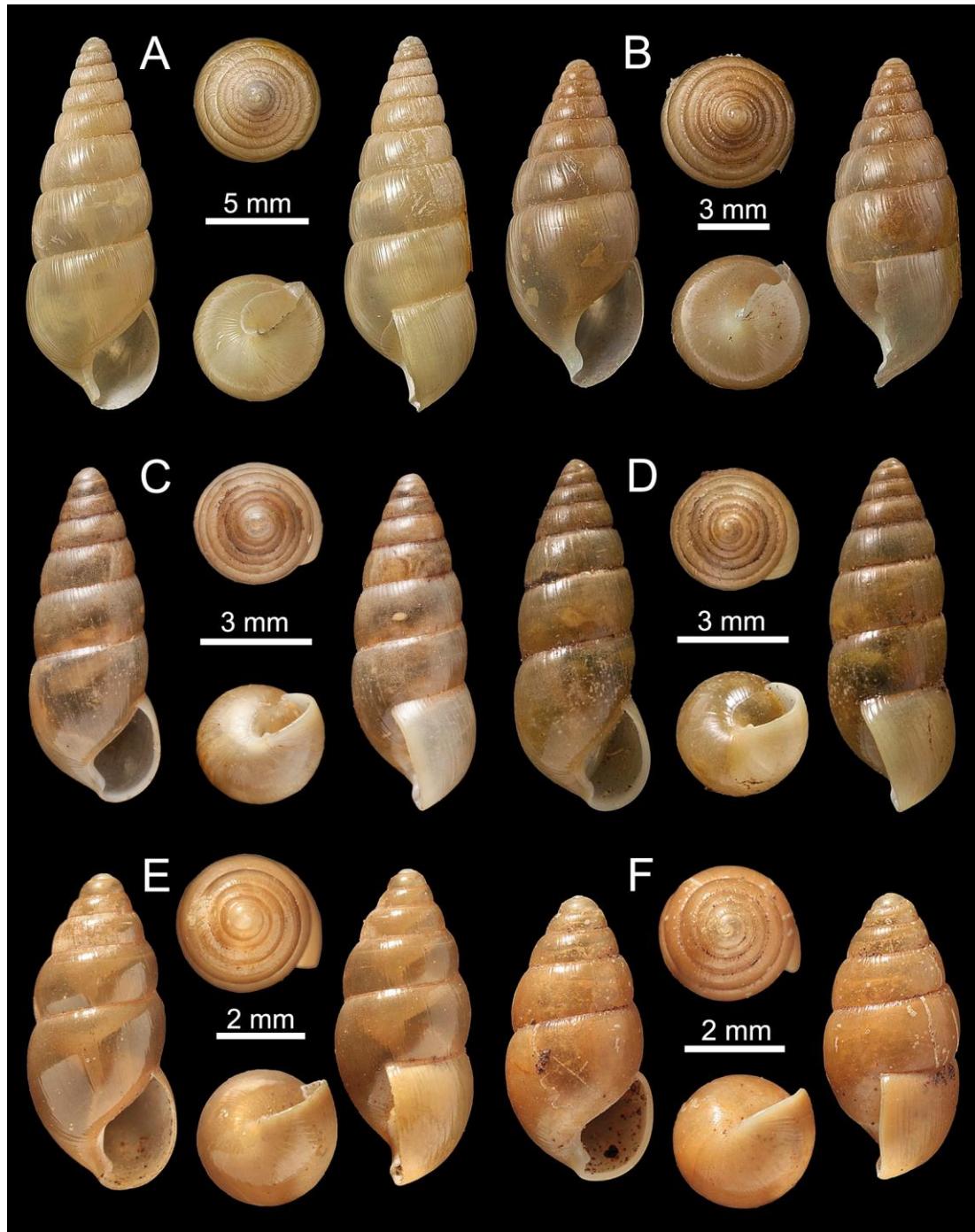


FIGURE 82. **A.** *Glessula notigena* (Benson, 1860), paralectotype. **B.** *Glessula oreas* (Reeve, 1850), from Benson, NHM. **C-D.** *Glessula paupercula* (W.T. & H.F. Blanford, 1861), neotype (**C**) and a shell from the same lot as the neotype (**D**). **E-F.** *Glessula paupercula* 'var. *nana*' Beddome, 1906, lectotype (**E**) and paralectotype (**F**).

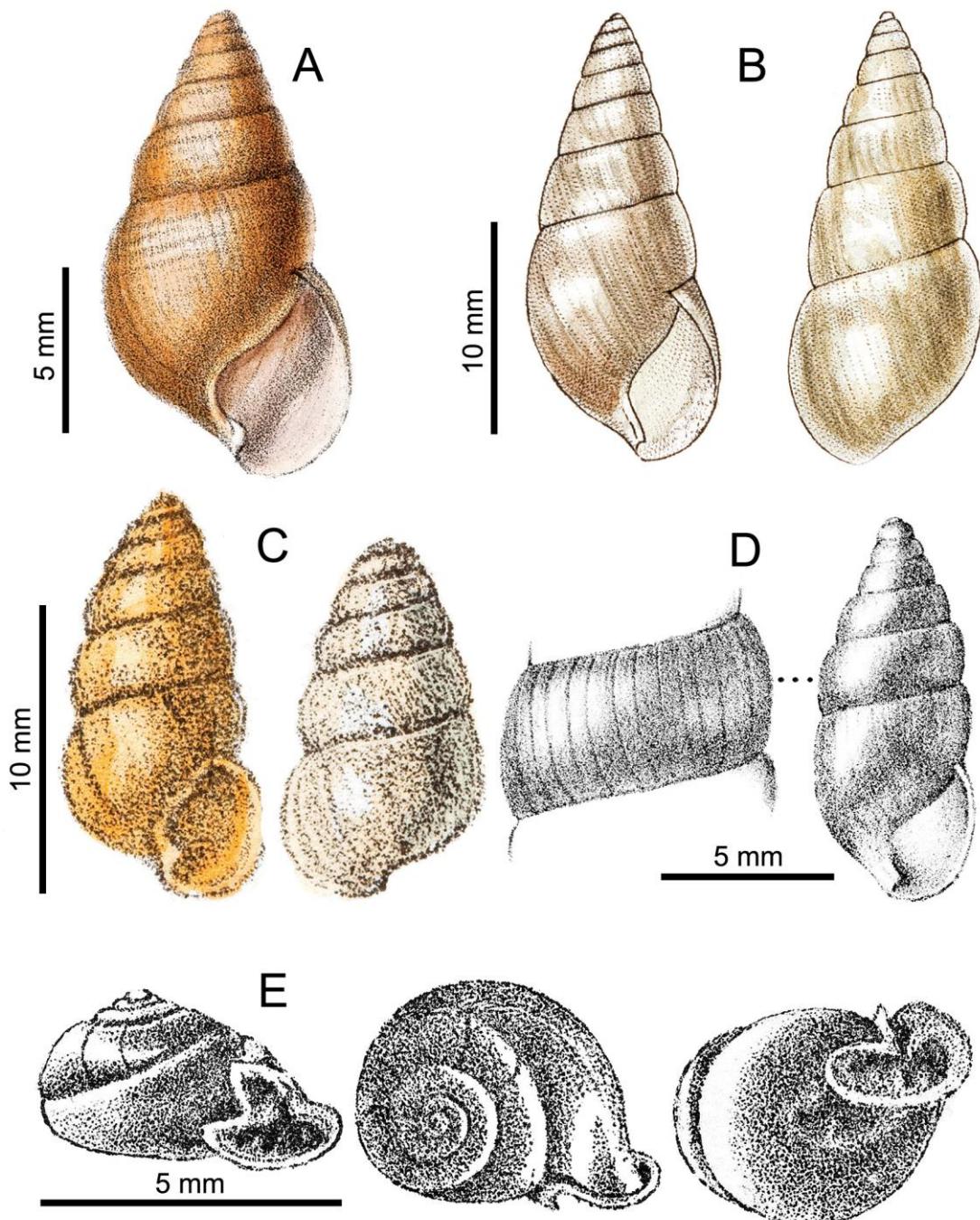


FIGURE 83. Historical figures. **A.** *Glessula orophila* (Reeve, 1849). **B.** *Glessula perroteti* (Pfeiffer, 1842). **C.** *Glessula sattaraensis* (Hanley & Theobald, 1873). **D.** *Glessula subjerdoni* Beddome, 1906. **E.** *Perrottetia personatus* (Blanford, 1880).

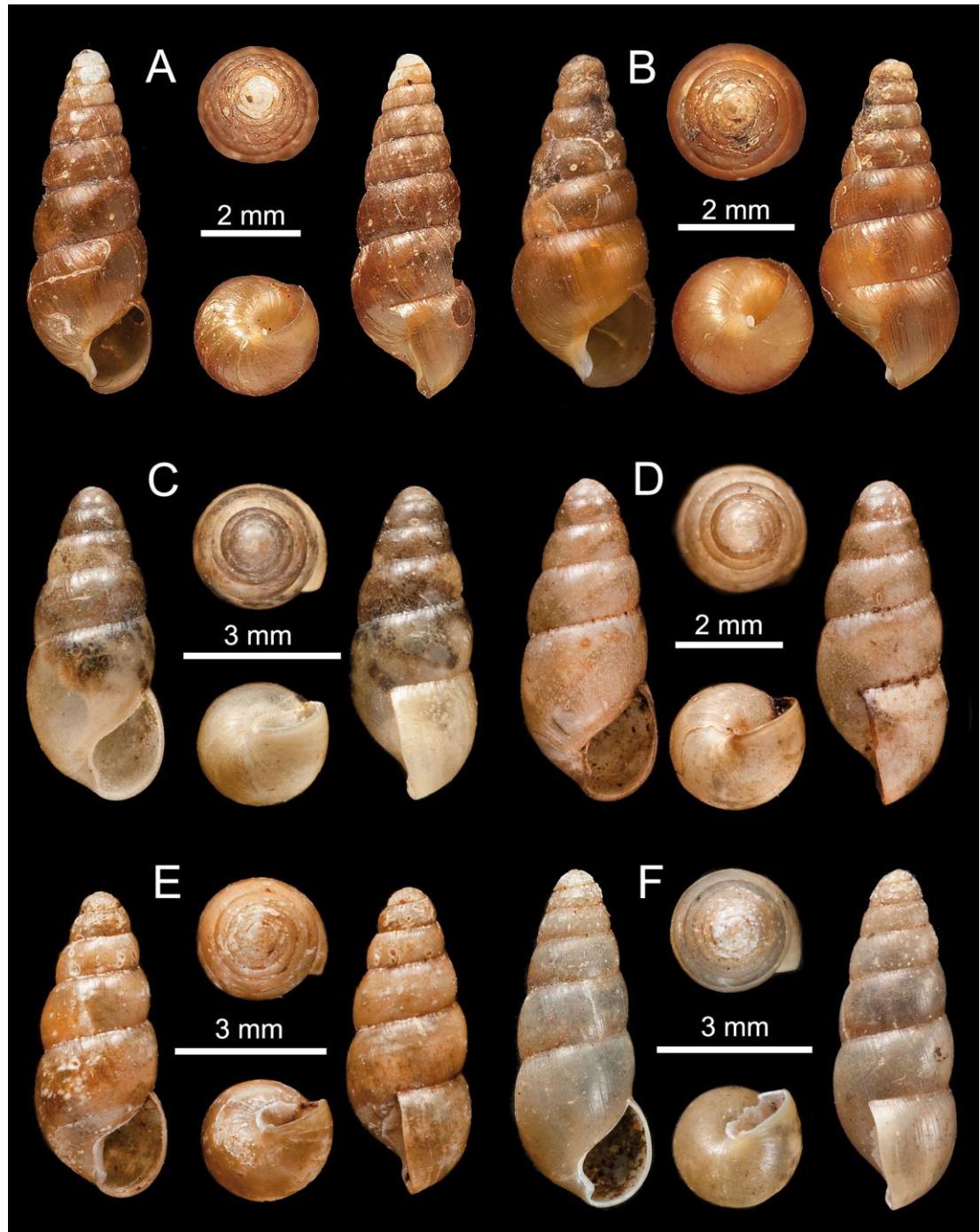


FIGURE 84. **A-B.** *Glessula pulla* Blanford, 1870, lectotype (**A**) and paralectotype (**B**). **C-F.** *Glessula pusilla* Beddome, 1906, lectotype (**C**) and paralectotypes (**D-F**).

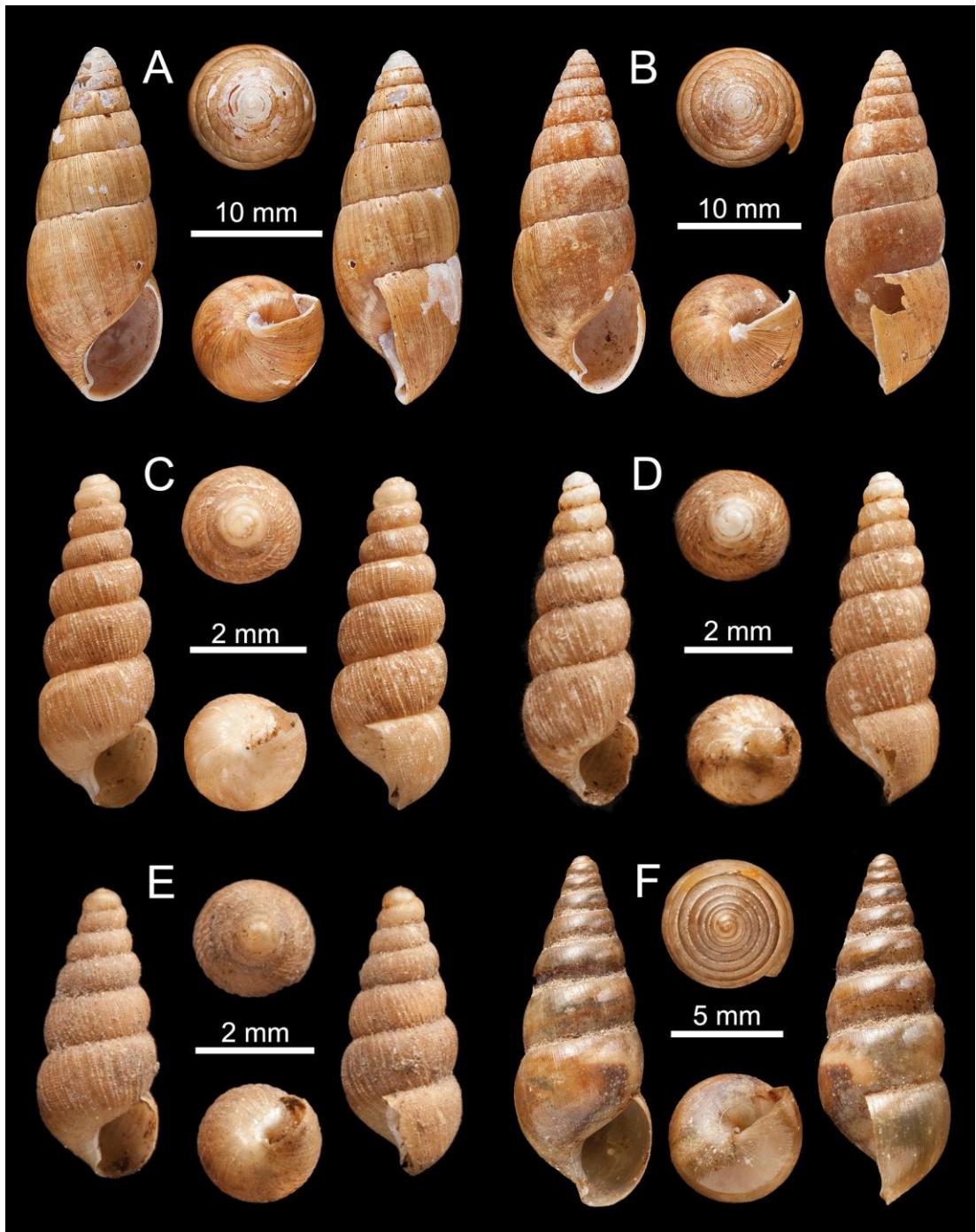


FIGURE 85. **A-B.** *Glessula reynelli* 'var. *immitis*' Gude, 1914, lectotype (A) and paralectotype (B). **C-E.** *Glessula rugata* Blanford, 1870, lectotype (C) and paralectotypes (D, E). **F.** *Glessula sarissa* (Benson, 1860), lectotype.

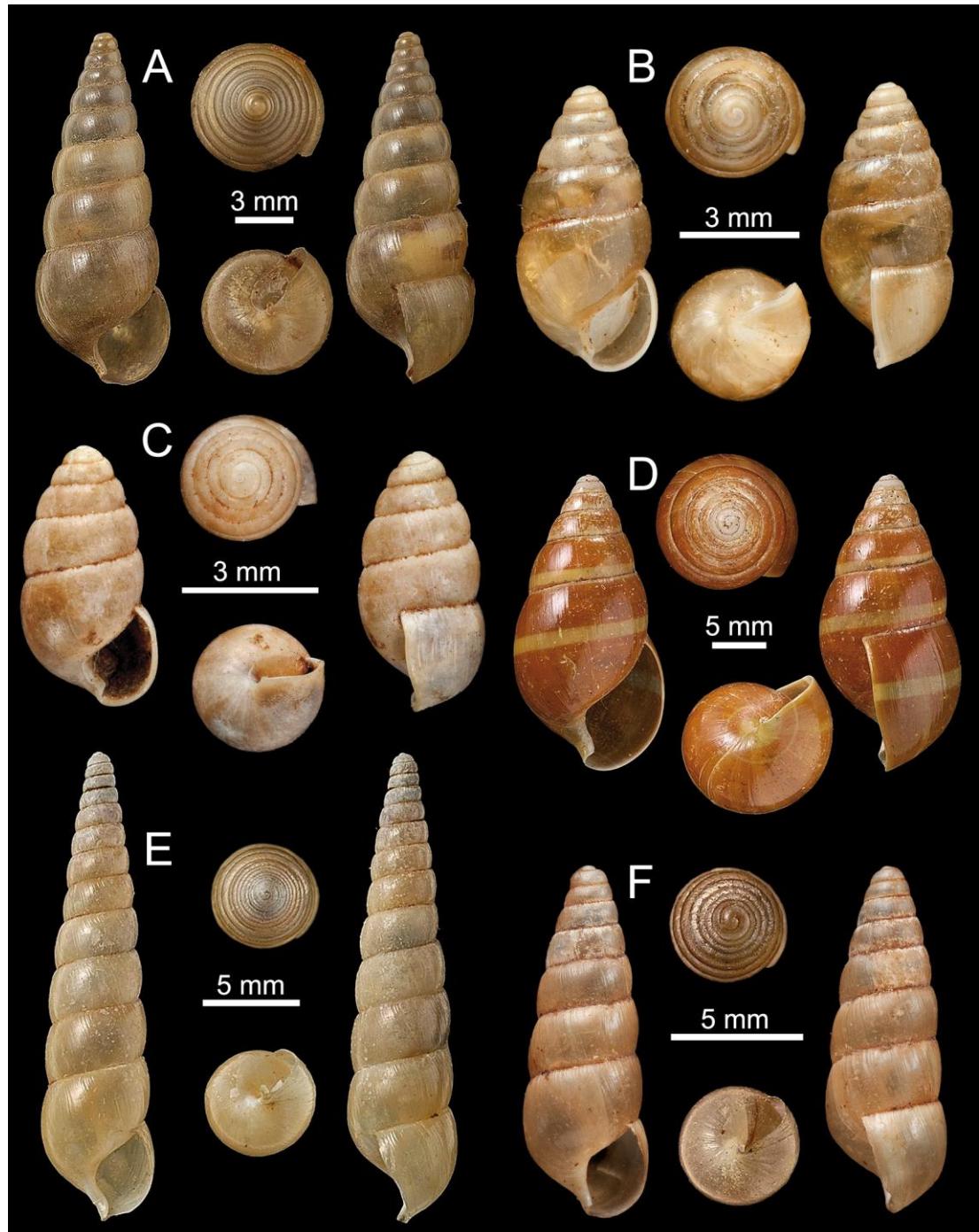


FIGURE 86. **A.** *Glessula sarissa* (Benson, 1860), paralectotype. **B.** *Glessula sattaraensis* (Hanley & Theobald, 1873), neotype. **C.** *Glessula scrutillus* (Benson, 1860), lectotype. **D.** *Glessula senator* (Hanley, 1876), neotype. **E.** *Glessula shiplayi* (Pfeiffer, 1856), lectotype. **F.** *Glessula singhurensis* Blanford, 1870, lectotype.

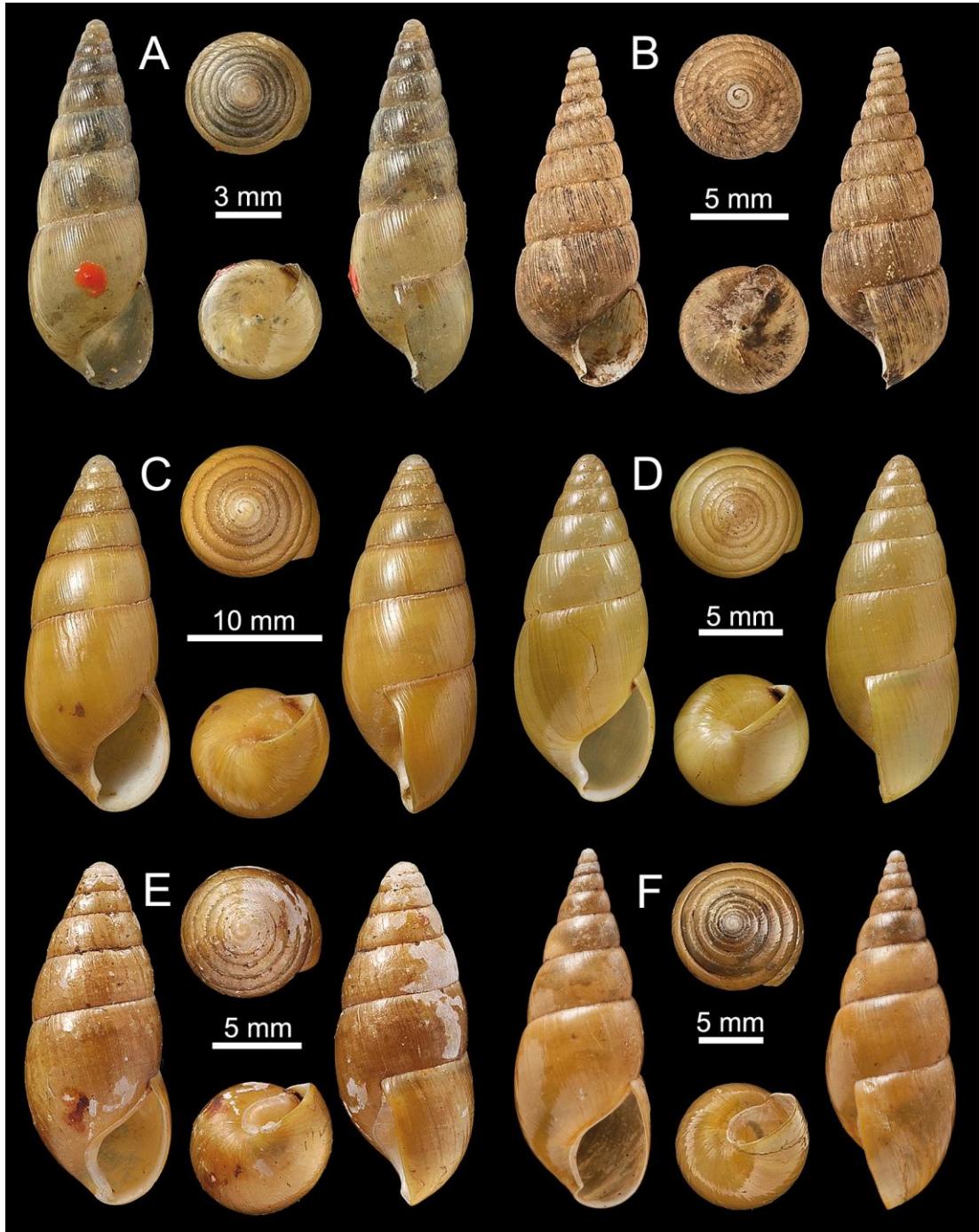


FIGURE 87. **A.** *Glessula sisparica* Gude, 1914, holotype. **B.** *Glessula subfilosa* Beddome, 1906, lectotype. **C.** *Glessula subinornata* Beddome, 1906, lectotype. **D-E.** *Glessula subinornata* 'var. *minor*' Beddome, 1906, lectotype (D) and paralectotype (E). **F.** *Glessula subperrotteti* Beddome, 1906, lectotype.

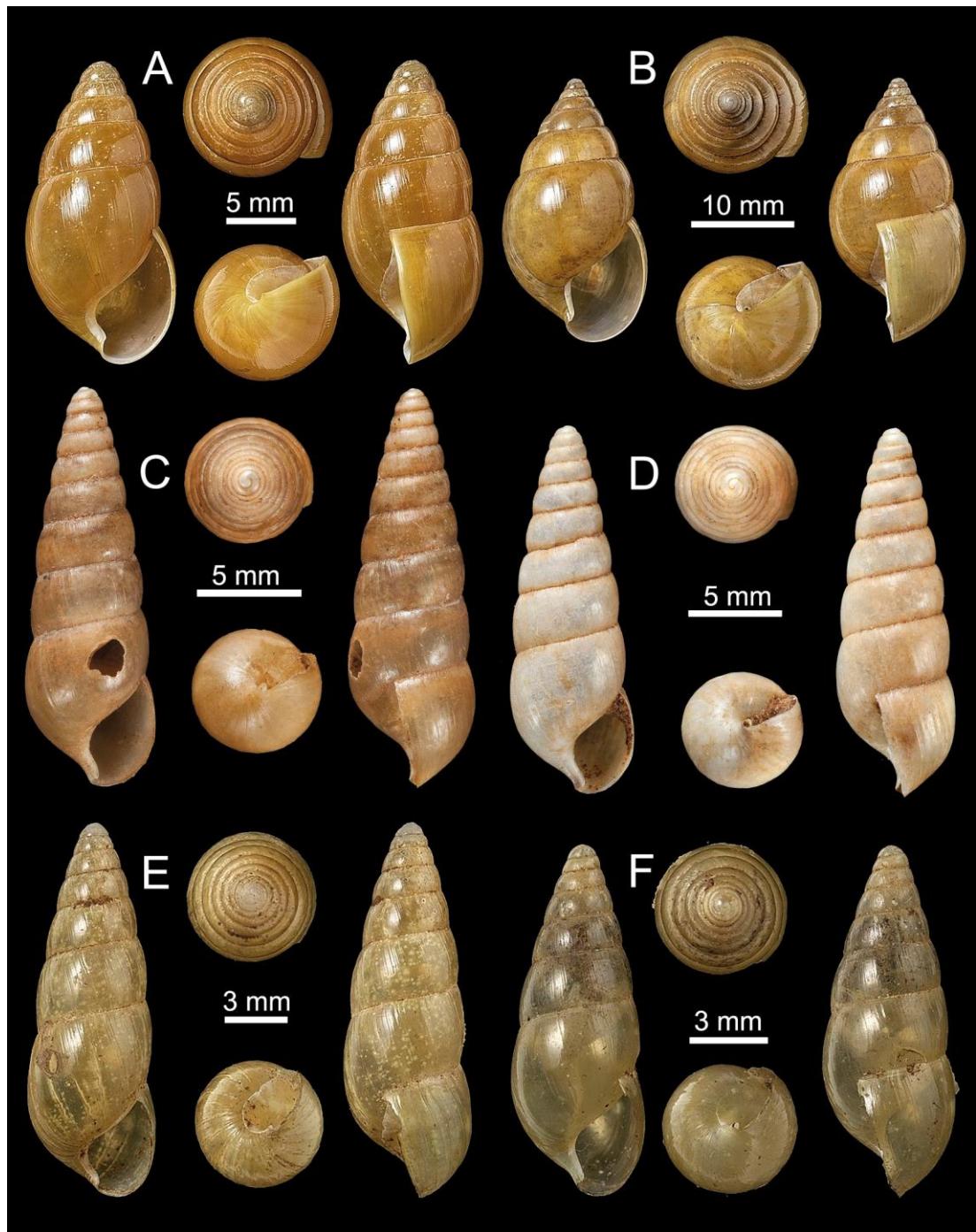


FIGURE 88. **A.** *Glessula subserena* Beddome, 1906, lectotype. **B.** *Glessula subtornensis* Gude, 1914, holotype. **C-D.** *Glessula tamulica* (W.T. & H.F. Blanford, 1861), lectotype (C) and paralectotype (D). **E-F.** *Glessula tenuitestata* Gude, 1914, holotype (E) and paratype (F).

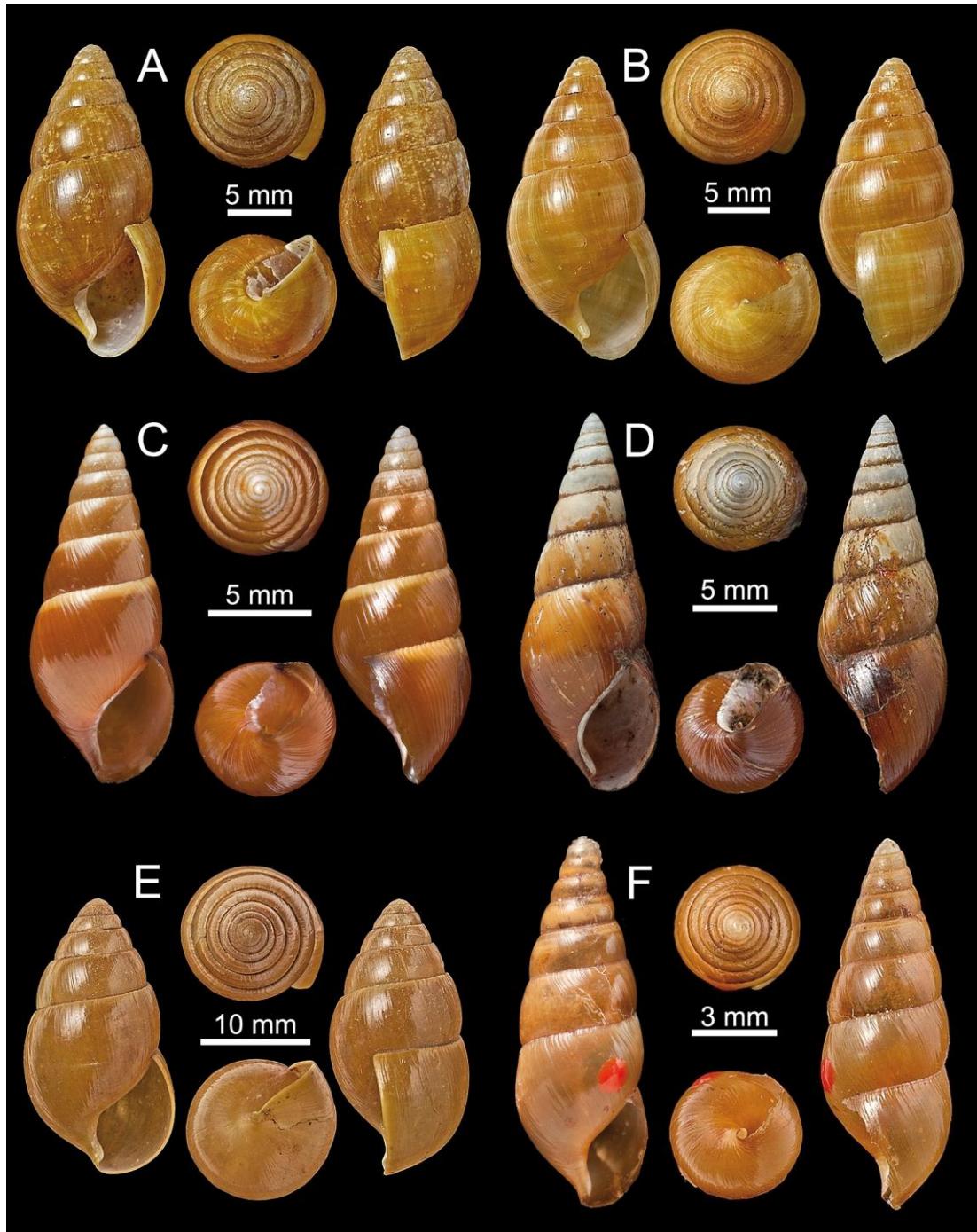


FIGURE 89. **A-B.** *Glessula textilis* (Blanford, 1866), lectotype (A) and paralectotype (B). **C-D.** *Glessula tinnevellica* Gude, 1914, lectotype (C) and paralectotype (D). **E.** *Glessula tornensis* Blanford, 1870, lectotype. **F.** *Glessula travancorica* Gude, 1914, holotype.

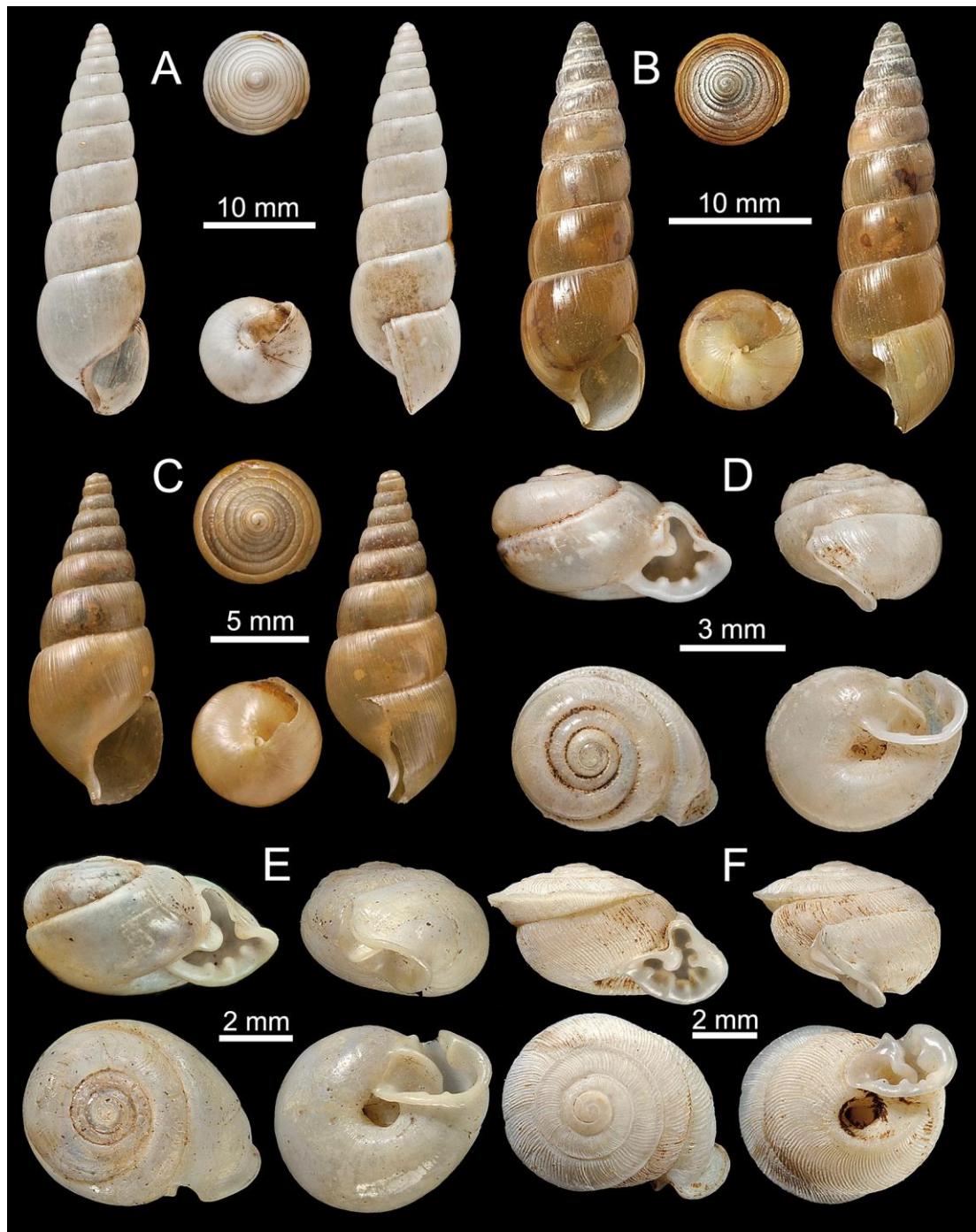


FIGURE 90. **A-B.** *Glessula vadalica* (Benson, 1865), lectotype (**A**) and paralectotype (**B**). **C.** *Rishetia tenuispira* (Benson, 1836), from Benson, UMZC. **D.** *Perrottetia beddomei* (Blanford, 1899), lectotype. **E.** *Perrottetia beddomei* 'var. *pleurostomoides*' (Gude, 1903), holotype. **F.** *Perrottetia canarica* (Blanford, 1869), holotype.

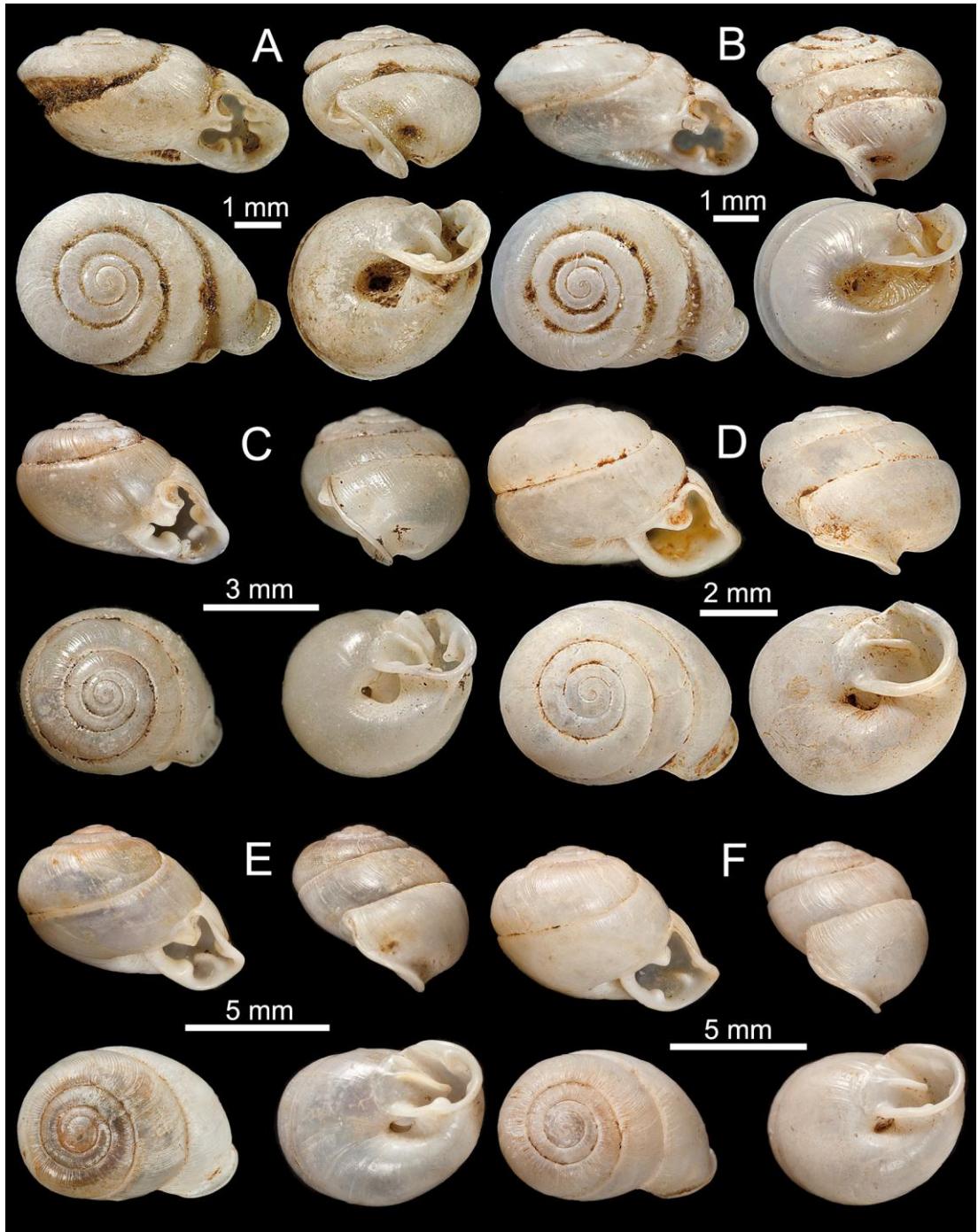


FIGURE 91. **A-B.** *Perrottetia compressa* (Blanford, 1880), lectotype (**A**) and paralectotype (**B**). **C.** *Perrottetia concinnus* (Blanford, 1880), lectotype. **D.** *Perrottetia footei* (W.T. & H.F. Blanford, 1861), lectotype. **E-F.** *Perrottetia peroteti* (Petit de la Saussaye, 1841), neotype (**E**) and a shell from the same lot as the neotype (**F**).

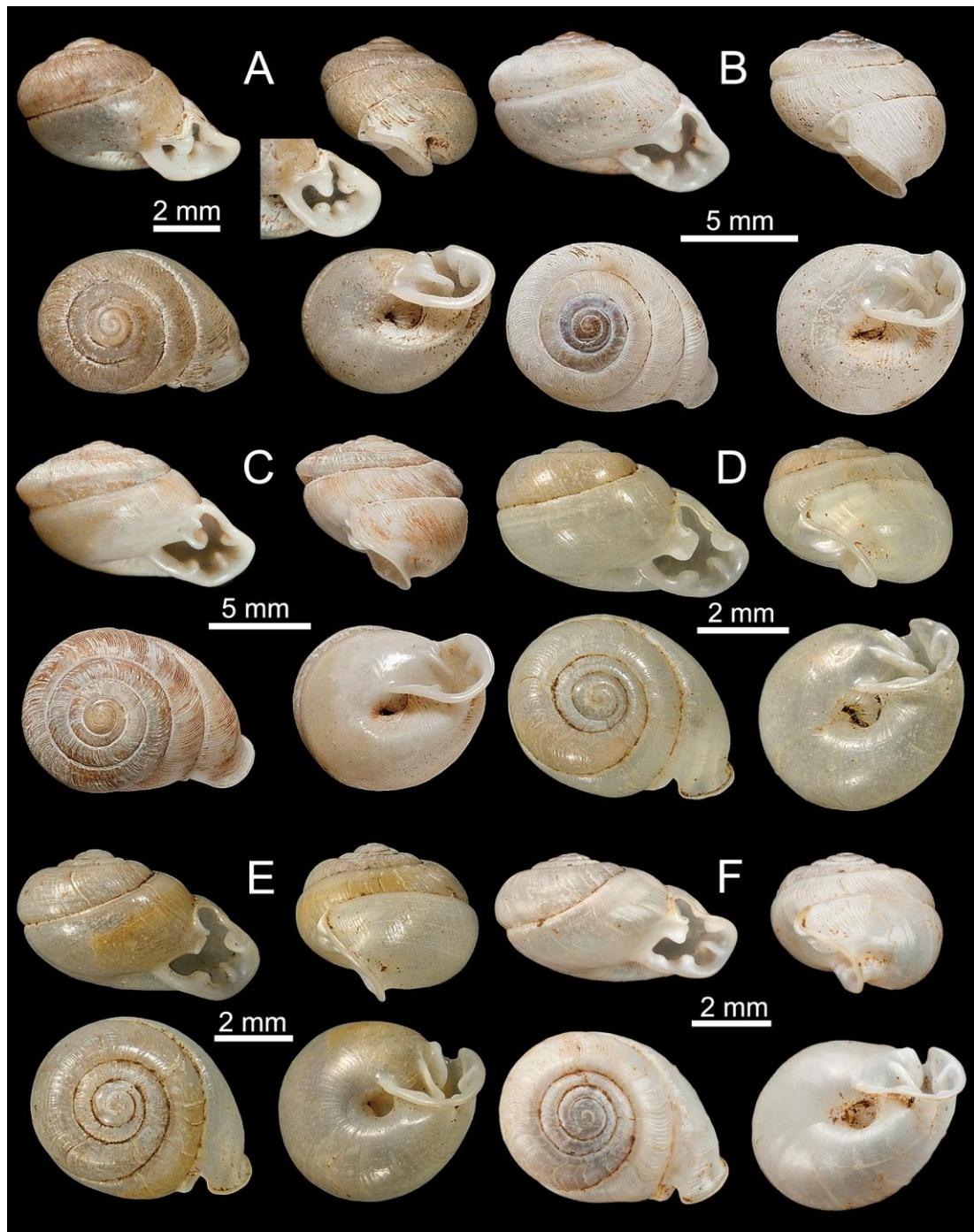


FIGURE 92. **A.** *Perrottetia pronus* (Blanford, 1880), lectotype. **B.** *Perrottetia sculptus* (Blanford, 1899), lectotype. **C.** *Perrottetia subacutus* (Blanford, 1899), lectotype. **D-F.** *Perrottetia watsoni* (W.T. & H.F. Blanford, 1860), lectotype (**D**), and paralectotypes (**E, F**).

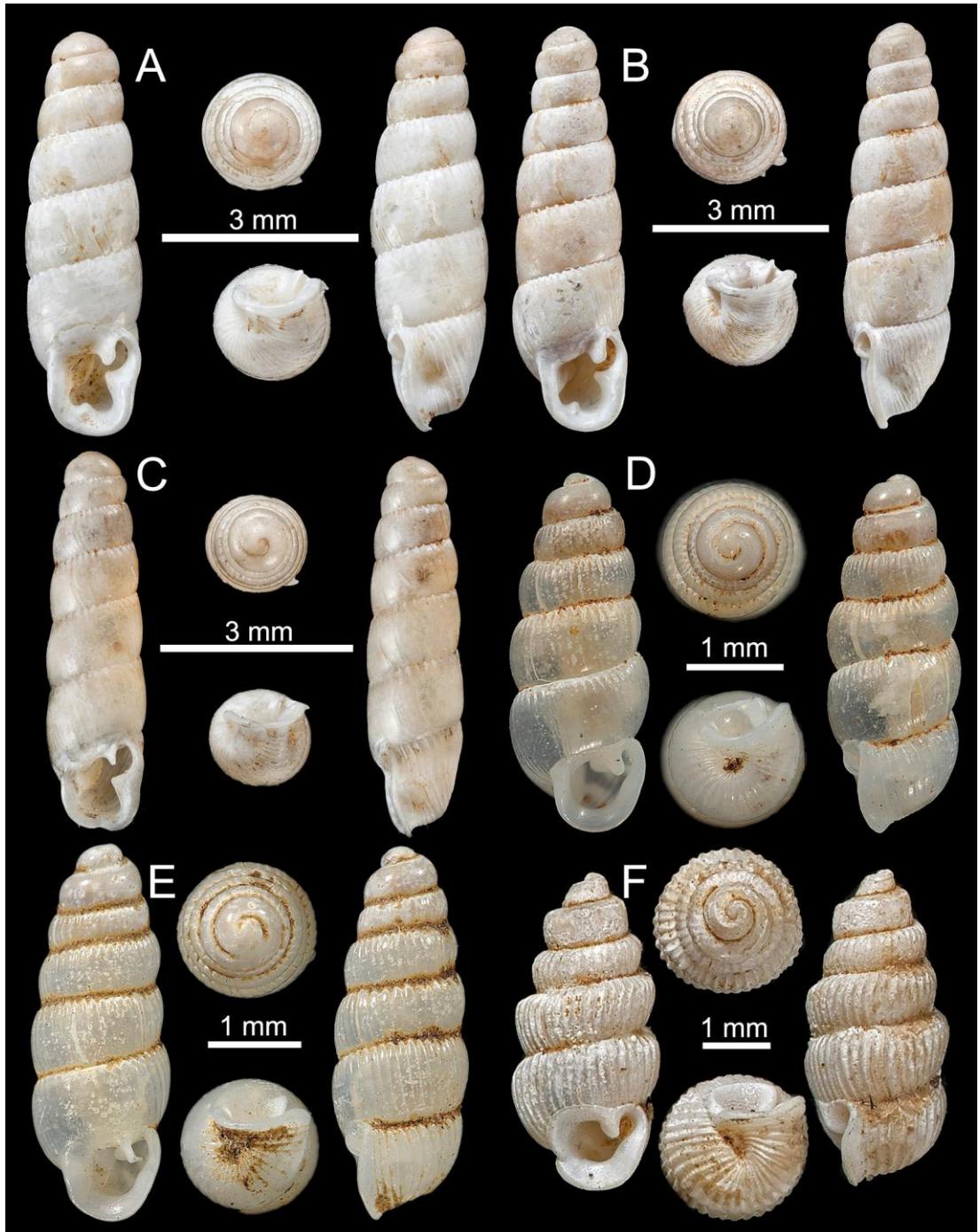


FIGURE 93. **A-C.** *Gulella bicolor* (Hutton, 1834), lectotype (**A**) and paralectotypes (**B, C**). **D-E.** *Sinoennea beddomei* (Blanford, 1880), lectotype (**D**) and paralectotype (**E**). **F.** *Sinoennea canarica* (Blanford, 1880), holotype.

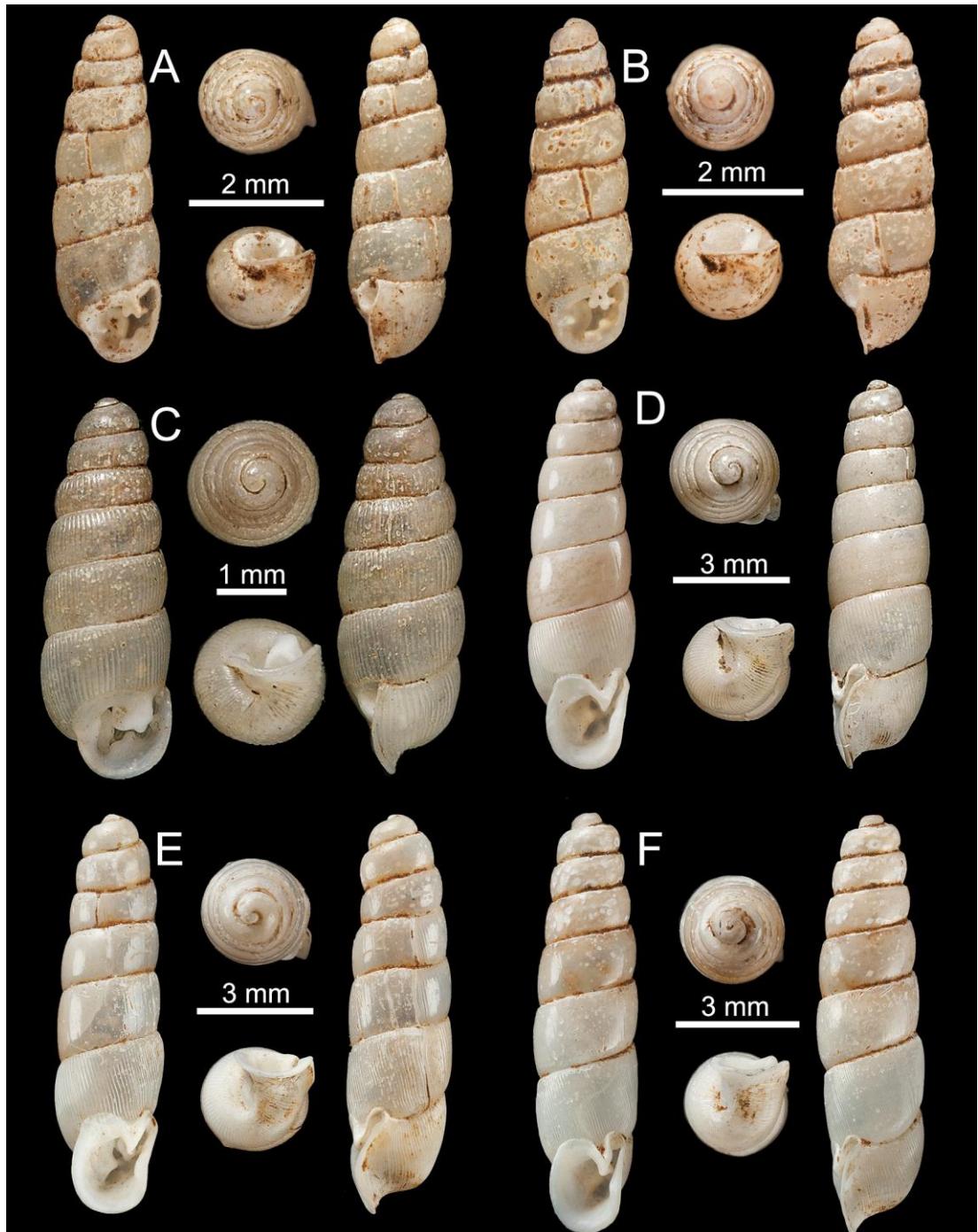


FIGURE 94. **A-B.** *Sinoennea exilis* (Blanford, 1880), lectotype (A) and paralectotype (B). **C.** *Sinoennea macrodon* (Blanford, 1880), lectotype. **D-F.** *Sinoennea pirriei* (Pfeiffer, 1855), lectotype (D) and paralectotypes (E, F).

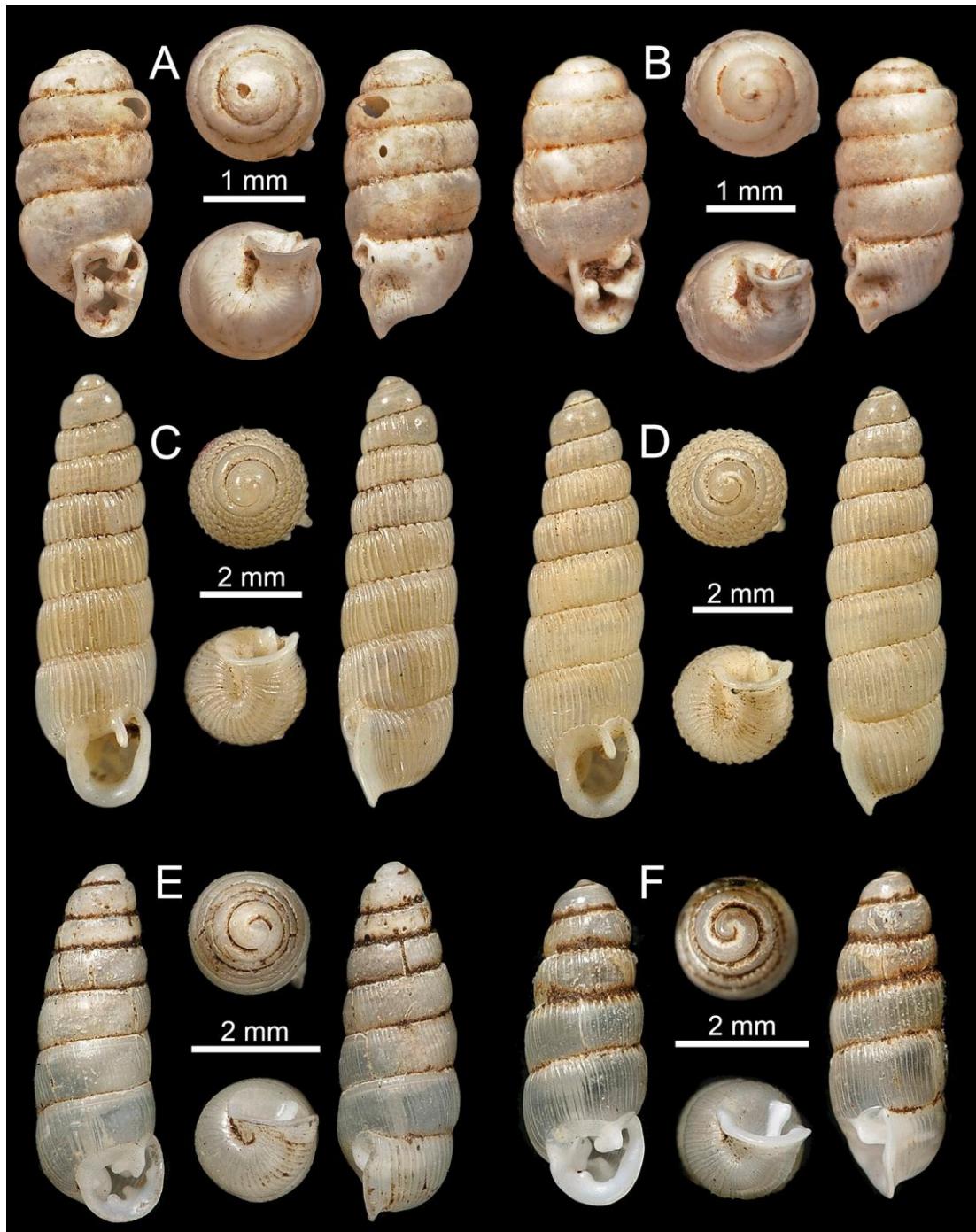


FIGURE 95. **A-B.** *Sinoennea planguncula* (Benson, 1863), lectotype (**A**) and paralectotype (**B**). **C-D.** *Sinoennea sculpta* (Blanford, 1869), lectotype (**C**) and paralectotype (**D**). **E.** *Sinoennea subcostulata* (Blanford, 1880), lectotype. **F.** *Sinoennea turricula* (Blanford, 1899), lectotype.

LITERATURE CITED

Adams, H. 1868. Descriptions of some new species of land and marine shells. Proceedings of the Zoological Society of London, proceedings for 1868: 14-17.

Albers, J.C. 1852. Diagnoses Heliceorum novorum scrispsit. Zeitschrift für Malakozoologie, 9: 186-189.

Albers, J.C. 1860. Die Heliceen nach Natürlicher Verwandtschaft Systematisch Geordnet, 2nd Edition (manuscript edited by E. von Martens). Wilhelm Englemann, Leipzig.

Anderson, R. 2005. An annotated list of the non-marine Mollusca of Britain and Ireland. Journal of Conchology, 38: 607-637.

Anton, H. E. 1838. Verzeichniss der Conchylien, welche sich in der Sammlung von Hermann Eduard Anton befinden. Halle.
[For date of publication see Cernohorsky, 1978].

Aravind, N.A. and Naggs, F. 2012. Snailing up the canopies of Western Ghats. In: Devy, M.S., Ganesh, T. and Tripathy, A. (Eds), Forest canopies of South Asia. ATREE, Bangalore.

Aravind, N.A., Patil, R.K. and Madhyastha, N.A. 2008. Micromolluscs of the Western Ghats, India: diversity, distribution and threats. Zoosymposia, 1: 281-294.

Aravind, N.A., Rajashekhar, K.P. and Madhyastha, N.A. 2005. Species diversity, endemism and distribution of land snails of the Western Ghats, India. Records of the Western Australian Museum Supplement, 68: 31-38.

Aravind, N.A., Tambat, B., Ravikanth, G., Ganeshaiah, K.N. and Uma Shaanker, R. 2007. Patterns of species discovery in the Western Ghats, a megadiversity hot spot in India. Journal of Biosciences, 32: 781-790.

Azuma, M. 1995. Colored illustrations of the land snails of Japan. Hoikusha Publishing, Osaka.

Bank, R.A. and Menkhorst, H.P.M.G. 2008. Notes on the nomenclature of some land- and freshwater molluscs of the Seychelles, with consequences for taxa from Africa, Madagascar, India, the Philippines, Jamaica, and Europe. Basteria, 72: 93-110.

Bawa, K.S., Das, A., Krishnaswamy, J., Karanth, K.U., Kumar, N.S. and Rao, M. 2007. Ecosystem Profile (Western Ghats & Sri Lanka Biodiversity Hotspot) – Western Ghats Region. A report prepared by the Critical Ecosystems Partnership Fund, final version, May 2007.
Available at: http://www.cepf.net/where_we_work/

regions/asia_pacific/western_ghats/Pages/default.aspx [accessed 21 February 2014].

Beck, H. 1837-1838. Index Molluscorum Praesentis Aevi Musei Principis Augustissimi Christiani Frederici. Fasciculus primus et Secundis. Mollusca: Gastraeopoda: Pulmonata. Hafniae (Copenhagen).
[Published in two parts, part 1 (pp. 1-100) in 1837 and part 2 (pp. 101-124) in 1838; dates after Bouchet and Rocroi, 2005, p. 290].

Beddome, R.H. 1875. Descriptions of some new operculated land-shells from Southern India and Ceylon. Proceedings of the Zoological Society of London, proceedings for 1875: 442-453.

Beddome, R.H. 1891. Descriptions of some new land-shells from the Indian region. Proceedings of the Zoological Society of London, proceedings for 1891: 313-315.

Beddome, R.H. 1892. Handbook to the ferns of British India, Ceylon and the Malay Peninsula. With Supplement. Thacker, Spink & Co., Calcutta.

Beddome, R.H. 1906. Notes on Indian and Ceylonese species of *Glossula*. Proceedings of the Malacological Society of London, 7: 160-172.

Benson, W.H. 1832. Account of a new genus of land snails, allied to the genus *Cyclostoma*, of Lamarck; with a description of a species found on the outlying rocks of the Rájmahal range of Hills. Journal of the Asiatic Society of Bengal, 1: 11-14.
[Also see passing reference to *Macrochlamys indicus* Benson on p. 76 of the same volume].

Benson, W.H. 1834. Observations on a collection of land and freshwater shells formed in the Gangetic Provinces of India. Proceedings of the Zoological Society of London, proceedings for 1834: 89-91.

Benson, W.H. 1835. Conchological notices; chiefly relating to the land and freshwater shells of the Gangetic Provinces of Hindooostan. The Zooloigical Journal, 5: 458-466.

Benson, W.H. 1836. Descriptive catalogue of terrestrial and fluviatile testacea, chiefly from the north-east frontier of Bengal. Journal of the Asiatic Society of Bengal, 5: 350-358.

Benson, W.H. 1848. Characters of seven new species of *Helix*, with amended descriptions of some species previously described, and Notes on others requiring remark. Annals and Magazine of Natural History, Series 2, 2: 158-164.

Benson, W.H. 1849. Descriptions of four new Asiatic species of the genus *Pupa*. Annals and Magazine of Natural History, Series 2, 4: 125-128.

Benson, W.H. 1850. Characters of several new East Indian and South African Helices, with remarks

on some other species of the genus occurring at the Cape of Good Hope. Annals and Magazine of Natural History, Series 2, 5: 213-217.

Benson, W.H. 1851a. Geographical notices, and characters of fourteen new species of *Cyclostoma*, from the East Indies. Annals and Magazine of Natural History, Series 2, 8: 184-195.

Benson, W.H. 1851b. Description of a new species of *Pterocyclos*, Benson, from Southern India. Annals and Magazine of Natural History, Series 2, 8: 450.

Benson, W.H. 1852a. Notes on the genus *Cyclostoma*; and Characters of some new species from India, Borneo, and Natal. Annals and Magazine of Natural History, Series 2, 10: 268-272.

Benson, W.H. 1852b. Characters of new species of *Helix* from Southern India and Bengal. Annals and Magazine of Natural History, Series 2, 9: 404-407.

Benson, W.H. 1853. Characters of new land shells, collected by Edgar L. Layard, Esq., in Ceylon. Annals and Magazine of Natural History, Series 2, 12: 90-97.

Benson, W.H. 1854. Characters of four Indian species of *Cyclophorus*, Montfort, followed by notes on the geographical distribution of the genera of the Cyclostomacea in Hindostan. Annals and Magazine of Natural History, Series 2, 14: 411-418.

Benson, W.H. 1857. New species of *Bulimus* from India, Burma, and the Mauritius. Annals and Magazine of Natural History, Series 2, 19: 327-330.

Benson, W.H. 1860. On new land-shells from Darjiling, with a series of new Indian species of *Achatina*. Annals and Magazine of Natural History, Series 3, 5: 460-466.

Benson, W.H. 1861. Characters of a gigantic *Helix* from Southern India, and of other species from Northern India, the Malayan Coast, and the Andaman Islands. Annals and Magazine of Natural History, Series 3, 7: 81-85.

Benson, W.H. 1863. Characters of new operculate land-shells from the Andamans, and of Indian and Burmese species of *Pupa*. Annals and Magazine of Natural History, Series 3, 12: 423-428.

Benson, W.H. 1864a. Characters of *Coilostele*, an undescribed genus of Auriculacea (?), and of Species of *Helix*, *Pupa*, and *Ancylus*, from India, West Africa, and Ceylon. Annals and Magazine of Natural History, Series 3, 13: 136-140.

Benson, W.H. 1864b. Characters of new land-shells from the Mahabaleshwar Hills in Western India, and from Agra in the North-west Provinces.

Annals and Magazine of Natural History, Series 3, 13: 208-211.

Benson, W.H. 1865. New land-shells from Travancore, Western and Northern India. Annals and Magazine of Natural History, Series 3, 15: 11-15.

Bentham Jutting, W.S.S. van. 1948. Critical revision of the Javanese operculate land-shells of the families Hydrocenidae, Helicinidae, Cyclophoridae, Pupinidae and Cochlostomatidae. *Treubia*, 19: 539-604.

Bentham Jutting, W.S.S. van. 1959. Catalogue of the non-marine Mollusca of Sumatra and of its satellite islands. *Beaufortia*, 7: 41-191.

Bentham Jutting, W.S.S. van. 1961. The Malaysian Streptaxidae genera *Huttonella* and *Sinoennea*. *Bulletin of the Raffles Museum*, 26: 5-33.

Bentham Jutting, W.S.S. van. 1963. Non-marine mollusca of West New Guinea. Part 2, Operculate land shells. *Nova Guinea, Zoology*, 23: 653-726.

Bequaert, J.C. 1950. Studies in the Achatininae, a group of African land snails. *Bulletin of the Museum of Comparative Zoology at Harvard College*, 105: 1-216.

Bhimachar, B.S. 1945. Zoogeographical divisions of the Western Ghats, as evidenced by the distribution of hill-stream fishes. *Current Science*, 14: 12-16.

Biju, S.D. and Bossuyt, F. 2009. Systematics and phylogeny of *Philautus* Gistel, 1848 (Anura, Rhacophoridae) in the Western Ghats of India, with descriptions of 12 new species. *Zoological Journal of the Linnean Society*, 155: 374-444.

Blanford, W.T. 1863. Descriptions of *Cremnobates syhadrensis* and *Lithotis rupicola*, two new generic forms of Mollusca inhabiting cliffs in the Western Ghats of India. Annals and Magazine of Natural History, Series 3, 12: 184-187.

Blanford, W.T. 1866a. On *Opisthostoma*, H. Blanford, with the description of a new species from the neighbourhood of Bombay, and of the animal and operculum. *Proceedings of the Zoological Society of London, proceedings for 1866*: 447-451.

Blanford, W.T. 1866b. Contributions to Indian Malacology, No. VI. Descriptions of new land shells from the Nilgiri and Anamullay Hills, and other places in the Peninsula of India. *Journal of the Asiatic Society of Bengal*, 35 (2): 31-42.

Blanford, W.T. 1868a. Monographie du genre *Cyathopoma*. *Journal de Conchyliologie*, 16: 256-263.

Blanford, W.T. 1868b. Note sur les *Nicida*, section subgénérique des *Diplommatina*, habitant la péninsule de l'Inde. *Journal de Conchyliologie*, 16: 330-336.

Blanford, W.T. 1869. Contributions to Indian Malacology, No. X. Descriptions of new species of Cyclophoridae, of *Ennea* and *Streptaxis* from the hills of Southern and South-western India. Journal of the Asiatic Society of Bengal, 38 (2): 125-143.

Blanford, W.T. 1870. Contributions to Indian Malacology, No. XI. Descriptions of new species of *Paludomus*, *Cremonoconchus*, *Cyclostoma* and of Helicidae from various parts of India. Journal of the Asiatic Society of Bengal, 39 (2): 9-25.

Blanford, W.T. 1874. Description of a new *Helix* from Southern India. Annals and Magazine of Natural History, Series 4, 14: 406-407.

Blanford, W.T. 1880. Contributions to Indian Malacology, No. XII. Descriptions of new land and freshwater shells from Southern and Western India, Burmah, the Andaman Islands, & c. Journal of the Asiatic Society of Bengal, 49 (2): 181-222.

Blanford, W.T. 1899a. On *Ariophanta dalyi*, n. subsp., from Mysore, with a note on *Mariaella dussumieri* (Val.). Proceedings of the Malacological Society of London, 3: 280-283.

Blanford, W.T. 1899b. On some species of shells of the genera *Streptaxis* and *Ennea* from India, Ceylon, and Burma. Proceedings of the Zoological Society of London, proceedings for 1899: 764-770.

Blanford, W.T. 1901. Notes on *Ariophanta*, *Xestina*, *Nilgiria*, and *Euplecta*, with lists of species. Proceedings of the Malacological Society of London, 4: 241-253.

Blanford, W.T. 1905. Descriptions of Indian and Burmese Land-Shells referred to the Genera *Macrochlamys*, *Bensonia*, *Taphrospira*, (gen. nov.), *Microcystina*, *Euplecta*, and *Polita*. Proceedings of the Zoological Society of London, proceedings for 1904: 441-447.

Blanford, W.T. and Blanford, H.F. 1860. Contributions to Indian Malacology, No. I. Journal of the Asiatic Society of Bengal, 29 (2): 117-127.

Blanford, W.T. and Blanford, H.F. 1861. Contributions to Indian Malacology, No. II. Journal of the Asiatic Society of Bengal, 30 (4): 347-366.

Blanford, W.T. and Godwin-Austen, H.H. 1908. The Fauna of British India including Ceylon and Burma. Mollusca. Testacellidae and Zonitidae. Taylor and Francis, London.

Bouchet, P. and Rocroi, J.-P. 2005. Classification and nomenclator of gastropod families. *Malacologia*, 47 (1-2): 1-397.

Bowdich, T.E. 1822. Elements of Conchology, including the Fossil Genera and The Animals. Part I. Univalves. Paris, printed by J. Smith, sold by Treuttel & Würtz, London.

Bruguière, M. 1789. *Encyclopédie Méthodique. Histoire Naturelle des Vers*. Tome premier. Paris. [Published in parts, dates after Evenhuis, 2003].

Bucher, J. 1899. A Kannada-English School-dictionary, chiefly based on the labours of the Rev. Dr. F. Kittel, Basel Mission Book & Tract Depository, Mangalore.

Budha, P.B. and Naggs F. 2008. The Giant African land snail *Lissachatina fulica* (Bowdich) in Nepal. *The Malacologist*, 50: 19-21.

Ceballos, G., García, A. and Ehrlich, P.R. 2010. The sixth extinction crisis: Loss of animal populations and species. *Journal of Cosmology*, 8: 1821-1831.

Cernohorsky, W.O. 1978. The Date of Publication of Anton's "Verzeichniss der Conchylien". *The Veliger*, 20: 299.

Chemnitz, J.C. 1786. *Neues systematisches Conchylien-Cabinet*. Band 9, Abtheilung 2. Gabriel Nicolaus Raspe, Nürnberg.

Chemnitz, J.C. 1795. *Neues systematisches Conchylien-Cabinet*. Band 11. Raspeschen Buchhandlung, Nürnberg.

Cincotta, R.P., Wisnewski, J. and Engelman, R. 2000. Human population in the biodiversity hotspots. *Nature*, 404: 990-992.

Clench, W.J. and Turner, R.D. 1962. New names introduced by H.A. Pilsbry in the Mollusca and Crustacea. Academy of Natural Sciences of Philadelphia, Special Publication 4.

Connolly, M. 1922. The non-marine Mollusca of Portuguese East Africa. *Transactions of the Royal Society of South Africa*, 12: 105-220.

Conservation International. 2009. Conservation outcomes – Western Ghats. Map (scale 1/1,300,000), 7 January 2009. Available at: http://www.cepf.net/where_we_work/regions/asia_pacific/western_ghats/Pages/default.aspx [accessed 21 February 2014].

Cowie, R.H., Dillon, R.T., Robinson, D.G. and Smith, J.W. 2009. Alien non-marine snails and slugs of priority quarantine importance in the United States: A preliminary risk assessment. *American Malacological Bulletin*, 27: 113-132.

Cox, L.R. 1960. General characteristics of Gastropoda. In: Moore, C. (Ed), *Treatise on Invertebrate Palaeontology Part I, Mollusca 1*, pp. I84-I169. Geological Society of America and University of Kansas Press, USA.

Dahanukar, N., Raut, R. and Bhat, A. 2004. Distribution, endemism and threat status of freshwater fishes in the Western Ghats of India. *Journal of Biogeography*, 31: 123-136.

Dance, S.P. 1986. *A History of Shell Collecting*. E.J.

Brill-Dr. W. Backhuys, Leiden.

Darwin, C.R. 1839. *The Voyage of the Beagle*. Everyman's Library Edition, 1959, London.

Das, I. 1996. Biogeography of the reptiles of South Asia. Krieger Publishing Company, Malabar, Florida.

Deshayes, G.P. 1831. *Helix vitrinoides*. Magasin de zoologie, 1 (Classe V, Mollusques): 26, pl. 26.

Deshayes, G.P. 1834. Mollusques. In: Bélanger, C. (Ed), *Voyage aux Indes-Orientales, Par le Nord de L'Europe, Les Provinces du Caucase, La Géorgie, L'Arménie et La Perse, Suivi de Détails Topographiques, Statistiques et Autres sur le Pégou, Les Iles de Java, de Maurice et de Bourbon, sur Le Cap-De-Bonne-Espérance et Sainte-Hélène, Pendant Les Années 1825, 1826, 1827, 1828 et 1829, Zoologie* (Par. MM. Bélanger, Isidore Geoffroy-Saint-Hilaire, Lesson, Valenciennes, Deshayes et Guérin), pp. 401-440. Arthus Bertrand, Paris.

Dohrn, H. 1858. Descriptions of new species of land and freshwater shells collected in Ceylon, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1858: 133-135.

Duncan, F.M. 1937. On the dates of publication of the Society's 'Proceedings' 1859-1926, with an appendix containing the dates of publication 1830-1858, compiled by F.H. Waterhouse; also of the 'Transactions' 1833-1869 by Henry Peavot, originally published in P.Z.S. 1893, 1913. Proceedings of the Zoological Society of London, Series A, 107: 71-84.

Ehrenberg, C.G. 1831. *Animalia Mollusca*. In: Hemprich, F.G. and Ehrenberg, C.G. (Eds), *Symbolae Physicae, Animalia Evertebrata exclusis insectis, Series prima cum tabularum decade prima*, pp. 69-114 (unnumbered). Berolini Ex Officina Academica.

Evenhuis, N.L. 2003. Dating and publication of the *Encyclopédie Méthodique* (1782-1832), with special reference to the parts of the *Histoire Naturelle* and details on the *Histoire Naturelle des Insectes*. Zootaxa, 166: 1-48.

Férussac, A.E.J. D'Audebard de. 1819-1832. *Histoire Naturelle Générale et Particulière des Mollusques Terrestres et Fluviatiles*. Arthus-Bertrand, Paris. [Published in 28 livraisons, dates follow Kennard, 1942].

Férussac, A.E.J. D'Audebard de. 1822. *Tableaux Systématiques des Animaux Histoire Mollusques Suivis d'un Prodrome Générale pour Tous les Mollusques Terrestres ou Fluviatiles Vivants ou Fossiles. Deuxième Partie, Tableaux Particuliers des Mollusques Terrestres et Fluviatiles, Classe des Gastéropodes. Tableau de la Famille des Limaces*. Arthus-Bertrand, Paris. [Published in parts, dates follow Kennard, 1942].

Férussac, A.E.J. D'Audebard de. and Deshayes, G.P. 1820-1851. *Histoire Naturelle Générale et Particulière des Mollusques Terrestres et Fluviatiles tant des espèces que l'on trouve aujourd'hui vivantes que des dépouilles fossiles de celles qui n'existent plus; classes d'après les caractères essentials que présentent ces animaux et leurs coquilles*. Volume 1. Chez J.-B. Baillière, Paris.

Fontanilla, I.K.C. 2010. *Achatina (Lissachatina) fulica* Bowdich: its molecular phylogeny, genetic variation in global populations, and its possible role in the spread of the rat lungworm *Angiostrongylus cantonensis* (Chen). PhD thesis, University of Nottingham.

Forcart, L. 1953. The Veronicellidae of Africa (Mollusca, Pulmonata). Annales du Musée Royal du Congo Belge, Sciences Zoologiques, Series 8, 23: 1-110.

Forcart, L. 1969. Veronicellid land slugs from the New Hebrides, with description of *Semperula solemi* new species. Fieldiana Zoology, 51: 147-156.

Friel, H. 2010. The Lomborg Deception. Setting the Record Straight About Global Warming. Yale University Press.

Fukuda, H. 2000. A new replacement name for *Ditropis* Blanford, 1869 (non Kirschbaum, 1868) (Gastropoda, Architaenioglossa, Cyclophoridae). Basteria, 64: 1-2.

Gerber, J. 1996. Revision der Gattung *Vallonia* Risso 1826 (Mollusca: Gastropoda: Valloniidae). Schriften zur Malakozoologie, 8: 1-227.

Gerber, J. and Bössneck, U. 2009. The genus *Vallonia* in Nepal (Gastropoda: Pulmonata: Valloniidae). Archiv für Molluskenkunde, 138: 43-52.

Gerlach, J. and van Bruggen, A. C. 1999. Streptaxidae (Mollusca: Gastropoda: Pulmonata) of the Seychelles Islands, Western Indian Ocean. Zooloogische Verhandelingen, 328: 1-60.

Gittenberger, E., Hamann, T.D. and Asami, T. 2012. Chiral speciation in terrestrial pulmonate snails. PLoS ONE, 7(4): e34005.

Godan, D. 1983. Pest slugs and snails. Biology and Control. Translated by Sheila Gruber. Springer-Verlag, Berlin, Heidelberg and New York.

Godwin-Austen, H.H. 1882-1888. Land and Freshwater Mollusca of India, including South Arabia, Baluchistan, Afghanistan, Kashmir, Nepal, Burmah, Pegu, Tenasserim, Malay Peninsula, Ceylon,

and other islands of the Indian Ocean. Supplementary to Messrs. Theobald and Hanley's *Conchologia Indica*. Volume 1. Taylor and Francis, Red Lion Court, Fleet Street, London. [Published in parts, dates follow Bouchet and Rocroi, 2005, p. 310].

Godwin-Austen, H.H. 1895. List and distribution of the land-molluscs of the Andaman and Nicobar Islands, with descriptions of some supposed new species. *Proceedings of the Zoological Society of London*, proceedings for 1895: 438-457.

Godwin-Austen, H.H. 1897-1914. Land and Freshwater Mollusca of India, including South Arabia, Baluchistan, Afghanistan, Kashmir, Nepal, Burmah, Pegu, Tenasserim, Malay Peninsula, Ceylon, and other islands of the Indian Ocean. Supplementary to Messrs. Theobald and Hanley's *Conchologia Indica*. Volume 2. Taylor and Francis, Red Lion Court, Fleet Street, London. [Published in parts, dates follow Bouchet and Rocroi, 2005, p. 310].

Godwin-Austen, H.H. 1898. On *Philalanka*, a new subgenus of *Endodonta*, with descriptions of two new species from the Indian region. *Proceedings of the Malacological Society of London*, 3: 11-13.

Godwin-Austen, H.H. 1918. Mollusca, IX. Records of the Indian Museum, 8: 601-621.

Godwin-Austen, H.H. 1920. Land and Freshwater Mollusca of India, including South Arabia, Baluchistan, Afghanistan, Kashmir, Nepal, Burmah, Pegu, Tenasserim, Malay Peninsula, Ceylon, and other islands of the Indian Ocean. Supplementary to Messrs. Theobald and Hanley's *Conchologia Indica*. Volume 3. Taylor and Francis, London.

Gomes, S. R. and Thomé, J.W. 2004. Diversity and distribution of the Veronicellidae (Gastropoda: Soleolifera) in the Oriental and Australian biogeographical regions. *Memoirs of the Queensland Museum*, 49: 589-601.

Grateloup, J.P.S. de. 1840a. Note sur un Mémoire relatif à des Mollusques exotiques nouveaux ou peu connus. *Actes de la Société Linnéenne de Bordeaux*, 11 (55): 161-170.

Grateloup, J.P.S. de. 1840b. Mémoire Descriptif sur plusieurs espèces de coquilles nouvelles ou peu connues de Mollusques exotiques vivants, terrestres, fluviatiles et marins. *Actes de la Société Linnéenne de Bordeaux*, 11 (36): 389-455.

Gray, J.E. 1825. A List and description of some species of shells not taken notice of by Lamarck. *Annals of Philosophy*, New Series, 9: 134-140, 407-415.

Gray, J.E. 1834. Characters of new Species of Shells. Proceedings of the Zoological Society of London, proceedings for 1834: 63-68.

Gray, J.E. 1847. A List of the genera of recent Mollusca, their synonyma and types. *Proceedings of the Zoological Society*, proceedings for 1847, 15: 129-182.

Gray, J.E. 1855. Catalogue of Pulmonata or Air-breathing Mollusca in the Collection of the British Museum. Part 1. London.

Green, E.E. 1911. The Rubber Slug (*Mariella Dussumiéri*, Gray.). *Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon*, 5: 337-343.

Greke, K. 2011. Species of *Ditropopsis* E.A. Smith, 1897 (Architaenioglossa: Cyclophoridae) from the Papuan region. In: Telnov, D. (Ed), *Biodiversity, Biogeography and Nature Conservation in Wallacea and New Guinea*, Volume 1, pp. 9-14. The Entomological Society of Latvia.

Gude, G.K. 1897. Armature of helicoid landshells. *Science-gossip*, New Series, 3: 332

Gude, G.K. 1903. Additions to the genus *Streptaxis*. *Proceedings of the Malacological Society of London*, 5: 322-327.

Gude, G.K. 1907. Description of a new species of *Vallonia* from South India. *Proceedings of the Malacological Society of London*, 7: 306-307.

Gude, G.K. 1914a. The Fauna of British India including Ceylon and Burma. Mollusca-II. *Trochomorphidae-Janellidae*. Taylor and Francis, London.

Gude, G.K. 1914b. Descriptions of new species of helicoids from the Indian region. *Proceedings of the Malacological Society of London*, 11: 52-57.

Gude, G.K. 1921. The Fauna of British India including Ceylon and Burma. Mollusca-III. Land Operculates. Taylor and Francis, London.

Gundert, H. 1872. A Malayalam and English dictionary. C. Stoltz; Trübner & Co., Mangalore and London.

Gwynn, J. P. L. 1991. A Telugu-English dictionary. Delhi; New York: Oxford University Press.

Hajra, P.K., Sharma, B.D., Sanjappa, M. and Sastry, A.R.K. (Eds). 1996. *Flora of India*. Introductory volume (Part I). Botanical Survey of India, Calcutta.

Hamilton, W. 1815. *The East India Gazetteer; containing Particular Descriptions of the Empires, Kingdoms, Principalities, Provinces, Cities, Towns, Districts, Fortresses, Harbours, Rivers, Lakes, &c. of Hindostan, and the Adjacent Countries, India beyond the Ganges, and the Eastern Archipelago; together with Sketches of the Manners, Customs, Institutions, Agriculture, Commerce, Manufactures, Revenues, Populations, Castes, Religion, History*,

& c. of the Various Inhabitants. John Murray, Albemarle Street, London.

Hanley, S. 1876. Descriptions of new Land and Freshwater Shells from India. Proceedings of the Zoological Society of London, proceedings for 1875: 605-607.

Hanley, S. and Theobald, W. 1870-1876. *Conchologia Indica: Illustrations of the Land and Freshwater Shells of British India*. L. Reeve & Co., 5 Henrietta Street, Covent Garden, London.
[Published in parts, dates after Prashad, 1927].

Hausdorf, B. 1998. Phylogeny of the Limacoidea *sensu lato* (Gastropoda: Stylommatophora). *Journal of Molluscan Studies*, 64: 35-66.

Hemmen, J. and Hemmen, C. 2001. Aktualisierte liste der terrestrischen Gastropoden Thailands. *Schriften zur Malakozoologie aus dem Haus de Natur - Cismar*, 18: 35-70.

Hooker, J.D. 1904. A Sketch of the Flora of British India. Eyre & Spottiswoode, London.

Hoong, H.W. 1995. A review of the land-snail fauna of Singapore. *The Raffles Bulletin of Zoology*, 43: 91-113.

Hutton, T. 1834. On the land shells of India. *Journal of the Asiatic Society of Bengal*, 3: 81-93.

ICZN. 1944. Opinion 184. On the status of names first published in volumes 1 to 11 of Martini (F. H. W.) and Chemnitz (J.H.), *Neues Systematisches Conchylien-Cabinet*, Nürnberg, 1769-1795. Opinions and Declarations Rendered by the International Commission on Zoological Nomenclature, 3 (3): 25-36.

ICZN. 1954. Direction 1. Addition to the Official Lists and Official Indexes of certain scientific names and of the titles of certain books dealt with in Opinions 182 to 194. Opinions and Declarations Rendered by the International Commission on Zoological Nomenclature, 3 (30): 401-416.

ICZN. 1999. International Code of Zoological Nomenclature, 4th edition. The International Trust for Zoological Nomenclature, London.
Available at: <http://iczn.org/node/40200> [accessed 21 February 2014].

Irfan-Ullah, M. and Davande, S. 2008. Western Ghats Ecogeographic boundary as developed from physiographic and biogeographic data. ATREE.
Available at: http://indiabiodiversity.org/map?layers=lyr_7_wg_boundary&title=WGBoundary [accessed 21 February 2014].

Kadur, S. and Bawa, K. 2005. Sahyadris. India's Western Ghats – A Vanishing Heritage. ATREE, Bangalore.

Kay, E.A. 1995. Mollusc diversity around the world. In: Kay, E.A. (Ed), *The conservation biology of molluscs*, Occasional paper of the IUCN Species Survival Commission, 9, pp. 56-62. IUCN, Gland, Switzerland.

Kennard A.S. 1942. The Histoire and Prodrome of Féruccac. Part 1. Proceedings of the Malacological Society of London, 25: 12-17. Part 2. Proceedings of the Malacological Society of London, 25: 105-110.

Kobelt, W. 1899-1902. Die Familie Buliminidae. *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Band 1, Abteilung 13, Theil 2. Bauer and Raspe, Nürnberg.
[Published in parts, dates follow Welter-Schultes, 1999].

Kobelt, W. 1902. *Mollusca: Cyclophoridae*. Das Tierreich. Volume 16. R. Friedländer und Sohn, Berlin.

Kobelt, W. 1904. Die systemtische Stellung der chinesischen *Ennea*. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, 36: 26-30.

Kobelt, W. 1905-1906. Die Raublungenschnecken (Agnatha). Zweite Abtheilung: *Streptaxidae* und *Daudebardiidae*. *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Band 1, Abteilung 12B, Theil 2. Bauer and Raspe, Nürnberg.
[Publication dates and parts follow Welter-Schultes, 1999].

Kobelt-Schwanheim, W. 1902-1908. Die Gedeckelten Lungenschnecken (Cyclostomacea). In Abbildungen nach der Natur mit Beschreibungen. Dritte Abteilung. *Cyclophoridae I*. *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Band 1, Abteilung 19, Heft 3 (second version). Bauer and Raspe, Nürnberg.
[Published in parts, dates follow Welter-Schultes, 1999].

Kobelt, W. and Möllendorff, O. von. 1897. Catalog der gegenwärtig lebend bekannten Pneumonopomen. Fortsetzung des Catalogs von No. 5 u. 6 des *Nachrichtsblattes*. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, 29: 105-120.

Küster, H.C. and Pfeiffer, L. 1840-1865. Die Gattungen *Bulimus*, *Partula*, *Achatinella*, *Achatina* und *Azeca*. In Abbildungen nach der Natur mit Beschreibungen. *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Band 1, Abteilung 13, Heft 1 (second version). Bauer and Raspe, Nürnberg.
[Publication dates and parts follow Welter-Schultes, 1999].

Lamarck, J.B. 1822. *Histoire Naturelle des Animaux sans Vertèbres*. Tome 6, Part 2. Verdier, Paris.

Laurance, W.F., Sayer, J., and Cassman, K.G. 2014.

Agricultural expansion and its impacts on tropical nature. *Trends in Ecology and Evolution*, 29: 107-116.

Legris, P. and Meher-Homji, V.M. 1984. The Eastern Ghats: phytogeographic aspects. *Indian Review of Life Sciences*, 4: 115 -136.

Lomberg, B. 2001. The sceptical environmentalist. *Measuring the real state of the world*. Cambridge University Press.

Lozupone, P., Beehler, B.M. and Ripley, S.D. 2004. *Ornithological Gazetteer of the Indian Subcontinent*. Center for Applied Biodiversity Science, Conservation International, Washington DC, USA.

Maassen, W.J.M. 1997. A preliminary checklist of the terrestrial molluscs of Sulawesi, Indonesia. A new start? *De Kreukel*, 33: 29-102.

Maassen, W.J.M. 2001. A preliminary checklist of the non-marine molluscs of West-Malaysia. A handlist. *De Kreukel*, Supplement 1: 1-155.

Mani, M.S. 1974. The vegetation and phytogeography of the Eastern Ghats. In: Mani, M.S. (Ed), *Ecology and Biogeography in India*, Monographiae Biologicae, 23, pp. 197-203.

Margules, C.R. and Pressey, R.L. 2000. Systematic conservation planning. *Nature*, 405: 243-253.

Mead, A.R. 1950. Comparative genital anatomy of some African Achatinidae (Pulmonata). *Bulletin of the Museum of Comparative Zoology*, 195: 219-291.

Mead, A.R. 1979. *Economic malacology with particular reference to *Achatina fulica**. In: Fretter V. and Peake, J. (Eds), *Pulmonates*, Volume 2B, 1-150. Academic Press, London.

Mead, A.R. 1994. A new subfamily and genus in Achatinidae (Pulmonata: Sigmurethra). *Bulletin of the Natural History Museum (Zoology)*, 60: 1-37.

Mead, A.R. 1995. Anatomical studies reveal new phylogenetic interpretations in *Lissachatina* (Pulmonata: Achatinidae). *Journal of Molluscan Studies*, 61: 257-273.

Meher-Homji, V.M. 1984. A new classification of the biogeographic zones of India. *Indian Journal of Botany*, 7: 224-233.

Meyer, W.S., Burn, R., Cotton, J.S. and Risley, H.H. 1908-1931. *The Imperial Gazetteer of India*. New edition, published under the authority of His Majesty's Secretary of State for India in Council. 26 volumes. Clarendon Press, Oxford. Available for reference online through the Digital South Asia Library: <http://dsal.uchicago.edu> [accessed 21 February 2014].

Mitra, S.C., Dey, A. and Ramakrishna. 2005a. Land and freshwater molluscs of Andhra Pradesh. Fauna of Andhra Pradesh, State Fauna Series (Zoological Survey of India), 5 (5): 175-253.

Mitra, S.C., Dey, A. and Ramakrishna. 2005b. *Pictorial Handbook – Indian Snails (selected species)*. Zoological Survey of India, Kolkata.

Moellendorff, O. von and Kobelt, W. 1903-1905. *Die Raublungenschnecken (Agnatha)*. Erste Abtheilung: Rhytididae and Enneidae. Systematisches Conchylien-Cabinet von Martini und Chemnitz. Band 1, Abteilung 12B, Theil 1. Bauer and Raspe, Nürnberg.

[Publication dates and parts follow Welter-Schultes, 1999].

Möllendorff, O. von 1897. Diagnosen neuer und kritischer Landdeckelschnecken. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, 29: 31-45.

Mordan, P.B. 1992. The morphology and phylogeny of the Cerastinae (Pulmonata: Pupilloidea). *Bulletin of the British Museum (Natural History) Zoology*, 58: 1-20.

Mordan, P., Naggs, F., Ranawana, K., Kumburegama, S. and Grimm, B. 2003. *A Guide to the Pest and Exotic Gastropods of Sri Lanka*. The Natural History Museum, London.

Moritz, C., Richardson, K.S., Ferrier, S., Monteith, G.B., Stanisic, J., Williams, S.E. and Whiffin, W. 2001. Biogeographic concordance and efficiency of taxon indicators for establishing conservation priority for a tropical rainforest biota. *Proceedings of the Royal Society B*, 268: 1875-1881.

Müller, O.F. 1774. *Vermium Terrestrium et Fluvialium, seu Animalium infusoriorum, Helminthorum, et Testaceorum, Non Marinorum, Succincta Historia*. Volume 2. Haviae et Lipsiae apud Heineck et Faber, ex officina Mölleriana.

Mumladze, L., Cameron, R.A.D. and Pokryszko, B.M. 2014. Endemic land molluscs in Georgia (Caucasus): how well are they protected by existing reserves and national parks? *Journal of Molluscan Studies*, 80: 67-73.

Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonseca, G.A.B. and Kent, J. 2000. Biodiversity hotspots for conservation priorities. *Nature*, 403: 853-858.

Naggs, F. 1989. *Gulella bicolor* (Hutton) and its implications for the taxonomy of streptaxids. *Journal of Conchology*, 33: 165-168.

Naggs, F. 1992. *Tortaxis* Pilsbry, 1906 and *Allopeas* Baker, 1935 (Mollusca, Gastropoda): proposed conservation by the designation of a neotype for *Achatina erecta* Benson, 1842. *Bulletin of Zoolo-*

gical Nomenclature, 49: 258-260.

Naggs, F. 1997. William Benson and the early study of land snails in British India and Ceylon. *Archives of Natural History*, 24: 37-88.

Naggs, F. and Raheem, D. 2000. Land snail diversity in Sri Lanka. The Natural History Museum, London.

Available online at: <http://www.nhm.ac.uk/jdsml/research-curation/research/projects/tropical-land-snails/taxa.dsml> [accessed 21 February 2014].

Naggs, F. and Raheem, D. 2002. Sri Lankan Snails. A popular colour guide. The Natural History Museum, London.

Naggs, F., Panha, S. and Raheem, D. 2006. Developing land snail expertise in South and Southeast Asia, a new Darwin Initiative Project. *The Natural History Journal of Chulalongkorn University*, 6 (1): 43-46.

Neubert, E. 1998. Annotated checklist of the terrestrial and freshwater molluscs of the Arabian Peninsula with descriptions of new species. *Fauna of Arabia*, 17: 333-461.

Neubert, E. 2003. The continental malacofauna of Arabia and adjacent areas, II. The genus *Zootecus* Westerlund 1887 (Gastropoda: Pulmonata: Subulinidae). *Archiv für Molluskenkunde*, 132: 153-160.

Neubert, E. 2009. The continental malacofauna of Arabia and adjacent areas, VI. Pomatiidae of Arabia, Socotra and Northeast Africa, with descriptions of new genera and species (Gastropoda: Caenogastropoda: Littorinoidea). *Fauna of Arabia*, 24: 47-127.

Nevill, G. 1878a. Hand List of Mollusca in the Indian Museum, Calcutta. Part 1. Gastropoda. Pulmonata and Prosobranchia-Neurobranchia. Calcutta.

Nevill, G. 1878b. Scientific Results of The Second Yarkand Mission; based upon the Collections and Notes of the Late Ferdinand Stoliczka PhD. Mollusca. Office of the Superintendent of Government Printing, Calcutta.

Nevill, G. 1881. New or little-known Mollusca of the Indo-Malayan Fauna. *Journal of the Asiatic Society of Bengal*, 50: 125-167.

Odhner, N.H. 1932. New or little known African land shells. *Proceedings of the Malacological Society of London*, 20: 19-40.

Pascal, J.-P. 1988. Wet evergreen forests of the Western Ghats of India. Ecology, structure, floristic composition and succession. Institute Français de Pondichery, Pondichery. *Travaux de la Section Scientifique et Technique*, Tome XX bis.

Patterson, C.M. 1970. Morphological and cytological studies of the Succineid genus *Quickia* from India. *Malacological Review*, 3: 25-36.

Patterson, C.M. 1971. Taxonomic studies of the land snail family Succineidae. *Malacological Review*, 4: 131-202.

Peile, A.J. 1935. Two new species of *Sinoennea*. *Proceedings of the Malacological Society of London*, 21: 382-383.

Petit de la Saussaye, S.A.A. 1841. Description de quelques Hélices nouvelles. *Revue Zoologique par la Société Cuvierienne*, année 1841: 98-101.

Petit de la Saussaye, S.A.A. 1851. Description de coquilles nouvelles. *Journal de Conchyliologie*, 2: 259-269.

Pfeiffer, L. 1842a. Description de deux mollusques nouveaux, découverts par M. Perrotet sur le plateau des Neelgherries. *Revue Zoologique par la Société Cuvierienne*, année 1842: 304-305.

Pfeiffer, L. 1842b. *Symbolae ad Historiam Heliceorum*. Volume 2. Cassellis.

Pfeiffer, L. 1843-1850. Die gedeckelten Lungenschnecken. (Helinaceae et Cyclostomaceae.). In Abbildungen nach der Natur mit Beschreibungen. Systematisches Conchylien-Cabinet von Martini und Chemnitz. Band 1, Abteilung 19, Heft 1 (second version). Bauer and Raspe, Nürnberg.

[Publication dates and parts follow Welter-Schultes, 1999].

Pfeiffer, L. 1845a. Diagnosen einiger neuere Heliceen. *Zeitschrift für Malakozoologie*, 2: 152-159.

Pfeiffer, L. 1845b. Descriptions of twenty-two new species of *Helix*, from the collections of Miss Saul, Walton, Esq., and H. Cuming, Esq. *Proceedings of the Zoological Society of London*, proceedings for 1845: 71-75.

Pfeiffer, L. 1846a. Kritische revision der in Sowerby's Thesaurus beschriebenen Arten von *Cyclostoma*. *Zeitschrift für Malakozoologie*, 3: 29-48.

Pfeiffer, L. 1846b. Descriptions of twenty new species of *Helicea*, in the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London*, proceedings for 1846: 37-41.

Pfeiffer, L. 1846c. *Symbolae ad Historiam Heliceorum*. Volume 3. Cassellis.

Pfeiffer, L. 1846d. Descriptions of thirty-six new species of *Helix*, belonging to the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London*, proceedings for 1845: 126-133.

Pfeiffer, L. 1847-1848. *Monographia Heliceorum Viventium. Sistens descriptiones systematicas et*

criticas omnium huius familiae generum et specierum hodie cognitarum. Volume 1. Lipsiae, F.A. Brockhaus.

Pfeiffer, L. 1849. Descriptions of fourteen new species of *Helicea*, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1848: 109-112.

Pfeiffer, L. 1850a. Descriptions of twelve new species of *Vitrina* and *Succinea*, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1849: 132-134.

Pfeiffer, L. 1850b. Beschreibungen neuer landschnecken. Zeitschrift für Malakozoologie, 7: 65-89.

Pfeiffer, L. 1851a. Uebersicht der gattung *Pterocyclus* Bens. Zeitschrift für Malakozoologie, 8: 1-10.

Pfeiffer, L. 1851b. Beschreibung neuer landschnecken. Zeitschrift für Malakozoologie, 8: 10-16, 25-29.

Pfeiffer, L. 1853a. Monographia *Heliceorum Viven- tium*. Sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum. Volume 3. Lipsiae, F.A. Brockhaus.

Pfeiffer, L. 1853b. Descriptions of fifty-four new species of *Helicea*, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1851: 252-263.

Pfeiffer, L. 1853-1854. *Cyclostomaceen*. Zweite Abtheilung. Systematisches Conchylien-Cabinet von Martini und Chemnitz. Band 1, Abteilung 19, Heft 2 (second version). Bauer and Raspe, Nürnberg.

Pfeiffer, L. 1854a. Descriptions of eighteen new species of land-shells, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1852: 156-160.

Pfeiffer, L. 1854b. Diagnosen neuer Heliceen. Malakozoologische Blätter, 1: 65-67.

Pfeiffer, L. 1854c. Descriptions of sixty-six new land shells, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society, proceedings for 1852: 56-70.

Pfeiffer, L. 1854d. Descriptions of eighteen new species of land shells, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society, proceedings for 1852: 83-87.

Pfeiffer, L. 1854-55. Die Gattungen *Daudebardia*, *Simulopsis*, *Vitrina* und *Succinea*. Systematisches Conchylien-Cabinet von Martini und Chemnitz. Band 1, Abteilung 11. Bauer and Raspe, Nürnberg. [Publication dates and parts follow Welter-Schultes, 1999].

Pfeiffer, L. 1854-1860. Novitates conchologicae. Series prima. Mollusca extramarina. Beschreiber und Abbildung, neuer oder kritischer Land-und Süsswasser-Mollusken. Band 1. Theodor Fischer, Cassel.

Pfeiffer, L. 1855a. Descriptions of eighteen new species of *Cyclostomacea*, from Mr. Cuming's, collection. Proceedings of the Zoological Society of London, proceedings for 1854: 299-303.

Pfeiffer, L. 1855b. Descriptions of fifty-seven new species of *Helicea*, from Mr. Cuming's collection. Proceedings of the Zoological Society of London, proceedings for 1854: 286-298.

Pfeiffer, L. 1855c. Beschreibung einiger neuer Heliceen. Malakozoologische Blätter, 2: 106-107.

Pfeiffer, L. 1855-1856. Versuch einer anordnung der Heliceen nach natürlichen gruppen. Malakozoologische Blätter, 2: 112-185.

Pfeiffer, L. 1856a. Descriptions of twenty-five new species of land-shells, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1856: 32-36.

Pfeiffer, L. 1857a. Descriptions of sixteen new species of *Pneumonopoma*, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1856: 336-339.

Pfeiffer, L. 1857b. Descriptions of thirty-one new species of land-shells, from Mr. Cuming's collection. Proceedings of the Zoological Society of London, proceedings for 1857: 107-113.

Pfeiffer, L. 1857c. Diagnosen neuer landschnecken. Malakozoologische Blätter, 4: 155-158.

Pfeiffer, L. 1857d. Descriptions of fifty-eight new species of *Helicea* from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1856: 324-336.

Pfeiffer, L. 1859. Monographia *Heliceorum Viven- tium*. Sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum. Volume 4. Lipsiae, F.A. Brockhaus.

Pfeiffer, L. 1860. Descriptions of thirty-six new species of land-Shells from Mr. H. Cuming's collection. Proceedings of the Zoological Society of London, proceedings for 1860: 133-141.

Pfeiffer, L. 1862a. Descriptions of eight new species of *Cyclostomacea*, from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1862: 115-117.

Pfeiffer, L. 1862b. Descriptions of sixteen new species of land-shells from the collection of H. Cuming, Esq. Proceedings of the Zoological Society of London, proceedings for 1861: 386-389.

Pfeiffer, L. 1868. Monographia *Heliceorum Viven- tium*. Sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum. Volume 6. Lipsiae, F.A. Brockhaus.

Pharoah and Co. 1855. A Gazetteer of Southern India, with the Tenasserim Provinces and Singapore. Compiled from Original and Authentic Sources, Accompanied by an Atlas including Plans of all the Principal Towns and Cantonments. Pharoah & Co., Athenaeum Press, Mount Road, Madras.

Pilsbry, H.A. 1906-1907. Achatinidae: Stenogyrinae and Coeliaxinae. Manual of Conchology, Second Series: Pulmonata, Volume 18. The Conchological Department, Academy of Natural Sciences of Philadelphia. [Published in parts, for dates see Clench and Turner, 1962].

Pilsbry, H.A. 1916-1918. Pupillidae (Gastrocoptinae). Manual of Conchology, Second Series: Pulmonata, Volume 24. The Conchological Department, Academy of Natural Sciences of Philadelphia. [Published in parts, for dates see Clench and Turner, 1962].

Pilsbry, H.A. 1920-1921. Pupillidae (Vertiginidae, Pupillinae). Manual of Conchology, Second Series: Pulmonata, Volume 26. The Conchological Department, Academy of Natural Sciences of Philadelphia. [Published in parts, for dates see Clench and Turner, 1962].

Pilsbry, H.A. 1946. Land Mollusca of North America (North of Mexico). Monograph 3, volume 2, part 1. The Academy of Natural Sciences of Philadelphia.

Pokryszko, B.M., Auffenberg, K., Hlaváč, J.Č. and Naggs, F. 2009. Pupilloidea of Pakistan (Gastropoda: Pulmonata): Truncatellinae, Vertigininae, Gastrocoptinae, Pupillinae (in part). *Annales Zoologici*, 59: 423-458.

Prashad, B. 1927. On the Dates of Publication of Hanley and Theobald's "Conchologia Indica". *Journal and Proceedings of the Asiatic Society of Bengal*, New Series, 22 (3): 129-130.

Preece, R.C. and Naggs, F. In press. *Kaliella barrakporensis* (Pfeiffer), a new hot-house alien from Britain. *Journal of Conchology*.

Preston, H.B. 1903. Descriptions of two supposed new species of *Cyathopoma*. *Proceedings of the Malacological Society of London*, 5: 340.

Preston, H.B. 1909. Description of New Land and Marine Shells from Ceylon and S. India. *Records of the Indian Museum*, 3: 133-140.

Pullaiah, T. and Muralidhara Rao, D. 2002. Flora of the Eastern Ghats: Hill Ranges of South East India. Volume 1 (Ranunculaceae-Moringaceae). Regency Publications, New Delhi.

Raheem, D. and Naggs, F. 2006a. An illustrated guide to the land snails of Sri Lankan natural forest and cultivated habitats. The Natural History Museum, London, UK.

Raheem, D. and Naggs, F. 2006b. The Sri Lankan endemic semi-slug *Ratnadvipia* (Limacoidea: Ariophantidae) and a new species from south-western Sri Lanka. *Systematics and Biodiversity*, 4: 99-126.

Raheem, D.C., Budha, P.B., Naggs, F. and Preece, R.C. 2010. An Illustrated Guide to the Land Snails of Nepal. The Natural History Museum, London.

Raheem, D.C., Naggs, F., Aravind, N.A. and Preece, R.C. 2009. An illustrated guide to the land snails of the Western Ghats of India. The Natural History Museum, London, UK.

Rajagopal, A.S. and Subba Rao, N.V. 1972. Some land molluscs of Kashmir, India. *Records of the Zoological Survey of India*, 66: 197-212.

Ramakrishna, Mitra, S.C. and Dey, A. 2010. Annotated checklist of Indian land molluscs. *Records of the Zoological Survey of India, Occasional Paper*, 306: 1-359.

Rao, H.S. 1924. Asiatic Succineidae in the Indian Museum. *Records of the Indian Museum*, 26 (5): 367-408.

Rao, H.S. 1925. On certain Succineid Molluscs from the Western Ghats. *Bombay Presidency. Records of the Indian Museum*, 27: 385-400.

Rao, N.V.S. and Mitra, S.C. 1976. *Succinea raoi* new name for *Succinea arboricola* Rao, 1925 (Stylommatophora: Succineidae). *The Nautilus*, 90: 125.

Raut, S.K. 1999. The Giant African land snail, *Achatina fulica* Bowdich in Nepal and Bhutan. *Journal of the Bombay Natural History Society*, 96: 73.

Raut, S.K. and Barker, G.M. 2002. *Achatina fulica* Bowdich and Other Achatinidae as Pests in Tropical Agriculture. In: Barker, G.M. (Ed), *Molluscs as Crop Pests*, pp. 55-114. CABI Publishing, CAB International, Wallingford, Oxford, UK.

Raut, S.K. and Ghose K.C. 1984. Pestiferous land Snails of India. *Zoological Survey of India*. No. 11. Bani Press, Calcutta.

Reeve, L. A. 1848-1850. *Conchologia Iconica: Or, Illustrations of the Shells of Molluscous Animals*. Volume 5. Containing Monographs of the Genera *Bulimus*, *Achatina*, *Dolium*, *Cassis*, *Turritella*, *Mesalia*, *Eglisia*, *Cassidaria*, *Oniscia*, *Eburna*. Reeve, Benham, and Reeve, King William Street, Strand, London.

Reeve, L.A. 1851-1854. *Conchologia Iconica: Or, Illustrations of the Shells of Molluscous Animals*. Volume 7. Containing a Monograph of the Genus *Helix*. Lovell Reeve, Henrietta Street, Covent Garden, London.

Reeve, L.A. 1859-1862. *Conchologia Iconica: Or, Illustrations of the Shells of Molluscous Animals*. Volume 13. Containing Monographs of the Genera *Terebratula*, *Rynchonella*, *Crania*, *Orbicula*, *Lingula*, *Cybum*, *Cyclostoma*, *Cyclophorus*, *Leptopoma*, *Vitrina*, *Simpulopsis*, *Phasianella*, *Trochus*. Lovell Reeve & Co., Henrietta Street, Covent Garden, London.

Régnier, C., Fontaine, B. and Bouchet, P. 2009. Not knowing, not recording, not listing: numerous unnoticed mollusc extinctions. *Conservation Biology*, 23 (5): 1214-1221.

Robin, V.V., Sinha, A. and Ramakrishnan, U. 2010. Ancient Geographical Gaps and Paleo-Climate Shape the Phylogeography of an Endemic Bird in the Sky Islands of Southern India. *PLoS ONE*, 5 (10): e13321.

Robinson D.G., Hovestadt, A., Fields, A. and Breure, A.S.H. 2009. The land Mollusca of Dominica (Lesser Antilles), with notes on some enigmatic or rare species. *Zoologische Mededelingen*, 83: 615-650.

Rowson, B., Tattersfield, P. and Symondson, W.O.C. 2011. Phylogeny and biogeography of tropical carnivorous land-snails (Pulmonata: Streptaxoidea) with particular reference to East Africa and the Indian Ocean. *Zoological Scripta*, 40: 85-98.

Ruhoff, F.A. 1980. Index to the species of Mollusca introduced from 1850 to 1870. *Smithsonian Contributions to Zoology*, 294: 1-640.

Santos S. B. dos, Viana T.A. and Fonseca F.C. 2008. First record of the micro-predator *Huttonella bicolor* (Hutton, 1834) (Gastropoda, Streptaxidae) on Rio de Janeiro city, Brazil. *Biociências*, Porto Alegre, 16: 145-148.

Schwartzberg, J.E. 1992. A Historical Atlas of South Asia. Second impression, with additional material. Oxford University Press, New York & Oxford. Available for reference online through the Digital South Asia Library: <http://dsal.uchicago.edu> [accessed 21 February 2014].

Seddon, M.B. 1992. The distribution of *Pupoides coenopictus* (Hutton, 1834) in N.W. Africa (Gastropoda, Pupillidae). *Journal of Conchology*, 34: 149-158.

Sen, S., Ravikanth, G. and Aravind, N.A. 2012. Land snails (Mollusca: Gastropoda) of India: status, threats and conservation strategies. *Journal of Threatened Taxa*, 4: 3029-3037.

Shea, M. 2007. Exotic snails and slugs found in Australia. *Australian Shell News*, 131: 3-11.

Sherborn, C.D. 1902. *Index Animalium 1758-1800*. Cambridge University Press, Cambridge.

Sherborn, C.D. 1922-1932. *Index Animalium 1801-1850*. British Museum (Natural History), London.

Sherley, G. 2000. Invasive species in the Pacific: a technical review and draft regional strategy. South Pacific Regional Environment Programme, Samoa.

Simone, L.R.L. 2013. Anatomy of predator snail *Huttonella bicolor*, an invasive species in Amazon rainforest, Brazil (Pulmonata, Streptaxidae). *Papéis Avulsos de Zoologia*, 53: 47-58.

Smith, B.J. and Stanisic, J. 1998. *Pulmonata Introduction*. In: Beesly, P.L., Ross, G.J.B. and Wells, A. (Eds), *Mollusca, The Southern Synthesis, Fauna of Australia*, Volume 5, Part B, pp. 1037-1061. CSIRO Publishing, Melbourne.

Sowerby, G.B. 1842-1850. *Thesaurus Conchyliorum, or Monographs of Genera of Shells*. Volume 1. Sowerby, 70, Great Russell Street, Bloomsbury, London.

Sowerby, G.B. 1843a. Descriptions of New Species of *Cyclostoma*. *Proceedings of the Zoological Society of London*, proceedings for 1843: 59-66.

Sowerby, G.B. 1843b. On new species of *Cyclostoma* in the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London*, proceedings for 1843: 29-31.

Srinivasulu, C. and Das, I. 2008. The herpetofauna of Nallamala Hills, Eastern Ghats, India: an annotated checklist, with remarks on nomenclature, taxonomy, habitat use, adaptive types and biogeography. *Asiatic Herpetological Research*, 11: 110-131.

Srivastava, P.D. 1992. *Problem of Land Snail Pests in Agriculture: A Study of the Giant African Snail*. Concept Publishing Company, New Delhi.

Stoliczka, F. 1871. Notes on terrestrial Mollusca from the neighbourhood of Moulmein, (Tenasserim Provinces), with descriptions of new species. *Journal of the Asiatic Society of Bengal*, 40 (2): 217-259.

Stoliczka, F. 1873. Descriptions of two new species of Indian Landshells. *Journal of the Asiatic Society of Bengal*, 42 (2): 169-171.

Subba Rao, N.V. and Mitra, S.C. 1979. On land and freshwater molluscs of Pune district Maharashtra. *Records of the Zoological Survey of India*, 75: 1-37.

Subba Rao, N.V. and Mitra, S.C. 1991. Land molluscs of Andaman and Nicobar Islands. *Zoological Survey of India*, Calcutta.

Subba Rao, N.V., Mitra, S.C., Dey, A. and Maitra, S. 1995. Molluscs of Meghalaya. *Fauna of Meghalaya, State Fauna Series (Zoological Survey of India)*, 4 (8): 1-88.

Subramanyam, K. and Nayar, M.P. 1974. Vegetation

and phytogeography of the Western Ghats. In: Mani, M.S. (Ed), *Ecology and Biogeography in India*, Monographiae Biologicae, 23, pp. 178-196.

Sutcharit, C., Naggs, F., Wade, C.M., Fontanilla, I., and Panha, S. 2010. The new family Diapheridae, a new species of *Diaphera* Albers from Thailand, and the position of the Diapheridae within a molecular phylogeny of the Streptaxoidea (Pulmonata: Stylommatophora). *Zoological Journal of the Linnean Society*, 160: 1-16.

Swaminathan, M.S. and Ellis, J.L. 1996. Eastern Ghats. In: Hajra, P.K., Sharma, B.D., Sanjappa, M., and Sastry, A.R.K. (Eds), *Flora of India, Introductory volume (Part I)*, pp. 477-505. Botanical Survey of India, Calcutta.

Theobald, W. 1876. Descriptions of some new land and freshwater shells from India and Burmah. *Journal of the Asiatic Society of Bengal*, 45 (2): 184-189.

Thomas, S.M. and Palmer, M.W. 2007. The montane grasslands of the Western Ghats, India: Community ecology and conservation. *Community Ecology*, 8: 67-73.

Tomlin, J.R. le B. 1948. New Malay land-shells. *Proceedings of the Malacological Society of London*, 27: 224-226.

University of Madras. 1924-1936. Tamil lexicon. University of Madras.

U.S. Army Map Service. 1955-. 1:250,000 Topographic Map Series U502 "India and Pakistan". Corps of Engineers, U.S. Army, Washington D.C. Available online at the Perry-Castañeda Library Map Collection, University of Texas Austin: <http://www.lib.utexas.edu/maps> [accessed 21 February 2014].

Vajravelu, E. and Vivekananthan, K. 1996. Southern Western Ghats. In: Hajra, P.K., Sharma, B.D., Sanjappa, M., and Sastry, A.R.K. (Eds), *Flora of India, Introductory volume (Part I)*, pp. 391-445. Botanical Survey of India, Calcutta.

Vaught, K.C. 1989. A Classification of the Living Mollusca. Edited by R.T. Abbott and K. J. Boss. American Malacologists Inc., Florida, USA.

Wade, C.M., Mordan, P.B. and Clarke, B. 2001. A Phylogeny of the Land Snails (Gastropoda: Pulmonata). *Proceedings of the Royal Society B*, 268: 413-422.

Wade, C.M., Mordan, P.B. and Naggs, F. 2006. Evolutionary relationships among the pulmonate land snails and slugs (Pulmonata, Stylommatophora). *Biological Journal of the Linnean Society*, 87: 593-610.

Welter-Schultes, F.W. 1999. Systematisches Conchylien-Cabinet von Martini und Chemnitz (1837-1920), bibliography of the volumes in Göttingen. *Archives of Natural History*, 26 (2): 157-203.

Wenz, W. 1938. Gastropoda. Teil 1: Allgemeiner Teil und Prosobranchia. In: Schindewolf O.H. (Ed), *Handbuch der Paläozoologie*. Band 6. Gebrüder Borntraeger, Berlin.

Wikramanayake, E., Dinerstein, E., Loucks, C.J., Olson, D.M., Morrison, J., Lamoreux, J., McKnight, M. and Hedao, P. (Eds). 2002. *Terrestrial Ecoregions of the Indo-Pacific: A Conservation Assessment*. Island Press, Washington, D.C.

Yen, T.-C. 1939. Die chinesischen Land- und Süßwasser-Gastropoden des Natur-Museums Senckenberg. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, 444: 1-233.

Yen, T.-C. 1941. Notes on the genus *Lagochilus* Blanford, with special reference to its Chinese species. *The Nautilus*, 55: 40-43.

Yen, T.-C. 1942. A review of Chinese gastropods in the British Museum. *Proceedings of the Malacological Society of London*, 24: 170-289.

Zafar-ul Islam, M.Z. and Rahmani, A.R. (Eds). 2005. *Important Bird Areas in India: Priority sites for conservation*. Oxford University Press, India.

Zilch, A. 1955. Die Typen und Typoide des Natur-Museums Senckenberg, 15: Mollusca, Cyclophoridae, Cyclophorinae-Cyclophoreae (2). *Archiv für Molluskenkunde*, 85 (4/6): 183-210.

Zilch, A. 1956. Die Typen und Typoide des Natur-Museums Senckenberg, 18*): Mollusca, Cyclophoridae, Cyclophorinae (4). *Archiv für Molluskenkunde*, 85 (4/6): 171-196.

Zilch, A. 1959-1960. Gastropoda von Wilhelm Wenz (Teil 2: Euthyneura). In: Schindewolf, O.H. (Ed), *Handbuch der Paläozoologie*, Band 6, pp. 1-833. Gebrüder Borntraeger, Berlin. [Published in four parts, parts 1 (pp. 1-200) and 2 (pp. 201-400) in 1959 and parts 3 (pp. 401-600) and 4 (pp. 601-833) in 1960].

APPENDIX

INDEX OF LOCALITIES FOR THE LAND-SNAIL FAUNA OF THE WESTERN GHATS

This index is primarily a compendium of the published localities cited in our revision of the snail fauna of the Western Ghats. It includes place names published in original descriptions (i.e. original localities), and localities listed for Western Ghats snails in the *FBI* and a small number of other historical sources. The index also includes localities that are not cited in the taxonomic list, but appear in **Figs. 1-6** – these are indicated by an asterisk.

Unless otherwise specified, all localities listed are point localities, usually settlements (cities, towns or villages).

For a small number of point localities, only the historical name is known and this is given at the beginning of the entry, followed by the words ‘Historical name’ in square brackets. Similarly, a number of the localities listed are historical regional or country names that were in use during the late British Period (c. 1909-1931) – such localities are shown in upper case font or in a combination of upper and lower case fonts and are followed by the words ‘Historical name’ in square brackets. Regional names shown entirely in upper case font (e.g. TINNEVELLY DISTRICT) follow the complete form given in *The Imperial Gazetteer of India* (Meyer et al., 1909-1931). For two-part regional names given in a combination of upper and lower case fonts (e.g. TINNEVELLY province), the first word in upper case font (the actual name) follows *The Imperial Gazetteer of India* (Meyer et al., 1909-1931), and the second word in lower case font follows the publication (either an original taxon description or the *FBI*) that the locality was cited in (e.g.

TINNEVELLY province as cited by Blanford (1880) in his description of *Cryptozona albata*).

The index is divided into two sections: the first covers ‘Indian Localities’, the second ‘Other Localities’ (i.e. mainly places in Bangladesh, Myanmar, and Sri Lanka). Each entry is headed by a locality name (modern name or a historical name) and includes the geo-coordinates in degrees and minutes (north latitude, east longitude), and the relevant reference/s for the geo-coordinate data and spellings of locality names. Reference sources are cited as follows: maps by the map series title followed by the name of the relevant sheet in parentheses; gazetteers by the title, followed by the relevant page and locality name in parentheses; and other sources by the author, followed by the year and page number in parentheses. Where relevant, both the modern and historical locality names are given, and in some cases the name heading the entry is followed by a brief description. A few of the entries end with a comment under the title ‘Note’.

For point localities listed in the ‘Indian Localities’ section of the index, entries also include the relevant modern Indian political/administrative region (i.e. State or Union Territory). In the ‘Other Localities’ section of the index, all entries include the present-day country.

A handful of the entries in the index deal with poorly-defined historical regional names, and are purely descriptive accounts.

Abbreviations for reference sources are as follows:

EIG, *The East India Gazetteer* (Hamilton, 1815)

FRGG, *Falling Rain Global Gazetteer* Version 2.2 (<http://www.fallingrain.com/world/index.html>)

IGI, *The Imperial Gazetteer of India* (Meyer et al., 1908-1931)

IPF, *India Place Finder* (<http://india.csis.u-tokyo.ac.jp>)

OGIS, *Ornithological Gazetteer of the Indian Subcontinent* (Lozupone et al., 2004)

USAMS U502, *U.S. Army's 1:250,000 Topographic Map Series U502 for India and Pakistan* (U.S. Army Map Service, 1955-)

USDMA (ONC F-6 China, USSR), *Operational Navigational Chart, 1:1,000,000, ONC F-6, China, USSR* (U.S. Defense Mapping Agency Aerospace Center, 1985)

USDMA (ONC L-8 Ceylon, India, Maldives Islands), *USAF Operational Navigational Chart, Scale 1:1,000,000, ONC L-8, Ceylon, India, Maldives Islands* (U.S. Defense Mapping Agency Aerospace Center, 1965)

For current names of present-day Indian regions (states and union territories), sub-regional entities such as districts, and major towns and cities we follow two Indian Government sources: the National Portal of India, <http://india.gov.in> (accessed 21 February 2014), and Know India, <http://knowindia.gov.in/default.php> (accessed 21 February 2014).

In order to facilitate comparison and synthesis of the distributional data summarised in the Western Ghats revision, spellings of localities have been standardised as far as possible. Where names follow published sources such as *The Imperial Gazetteer of India* (Meyer et al., 1908-1931), or the *U.S. Army's 1:250,000 Topographic Map Series U502 for India and Pakistan* (U.S. Army Map Service, 1955-), we have omitted all diacritical marks (e.g. we use Patharghata instead of Patharghāta);

names complete with diacritical marks are, however, shown when the source references are cited in this index.

INDIAN LOCALITIES

Agastyamalai (peak, hill range)

Historical name/s: Ahgastyamullay, Agastya Mountain
State: Kerala
Coordinates: 08° 37' N, 77° 15' E
Reference/s: USAMS U502 (NC 43-16 Trivandrum), Vajravelu and Vivekananthan (1996).

Agra

State: Uttar Pradesh
Coordinates: 27° 09' N, 78° 00' E
Reference/s: OGIS (p. 10, Agra city).

Ahmadnagar

Historical name/s: Ahmednuggar, Ahmednugger, Ahmednuggur
State: Maharashtra
Coordinates: 19° 06' N, 74° 45' E
Reference/s: USAMS U502 (NE 43-2 Ahmadnagar), IPF (Ahmadnagar).

Alagar Hills*

State: Tamil Nadu
Coordinates: 10° 07' N, 78° 15' E
Reference/s: USAMS U502 (NC 43-8 Dindigul), Pullaiah and Muralidhara Rao (2002).

Anaimalai Hills

States: Kerala and Tamil Nadu
Coordinates: centred at 10° 20' N, 76° 55' E
Reference/s: OGIS (p. 13, Anaimalai Hills).

Andaman Islands

Union Territory: Andaman and Nicobar Islands
Coordinates: centred at 10° 30' N, 92° 35' E

Reference/s: OGIS (p. 13, Andaman and Nicobar Islands).

Andipatti* (hill range)

State: Tamil Nadu

Coordinates: 9° 55' N, 77° 40' E

Reference/s: USAMS U502 (NC 43-12
Rajapālaiyam), Vajravelu and Vivekan-
anthan (1996).

Arcot

State: Tamil Nadu

Coordinates: 12° 59.4' N, 79° 18.8' E

Reference/s: USAMS U502 (ND 44-14
Conjeeveram), IPF (Arcot).

Avalanche

Historical name/s: Avalanche

State: Tamil Nadu

Coordinates: 11° 15' N, 76° 30' E

Reference/s: OGIS (p. 16, Avalanche town).

BAHAR province [Historical name]

See: Bihar

Bangalore (also known as Bengaluru)

State: Karnataka

Coordinates: 12° 59' N, 77° 35' E

Reference/s: OGIS (p. 21, Bangalore city),
FRGG (Bangalore).

Barrackpore (or Barrackpur)

State: West Bengal

Coordinates: 22° 46' N, 88° 22' E

Reference/s: USAMS U502 (NF 45-7
Calcutta), IPF (Barrackpur).

Barwani

Historical name/s: Burwani

State: Madhya Pradesh

Coordinates: 22° 02' N, 74° 54' E

Reference/s: USAMS U502 (NF 43-6
Godhra, shown as Barwāni), IPF
(Barwani).

Barwani Hills

Probably the hills lying south and west of the town of Barwani (about 5 km south of the Narmada river). These hills form the western end of the Satpura Range. Nevill (1878, p. 195) cites this Blanford locality for *Zootecus insularis*: "Burwani Hills, near the Nerbudda".

Historical name/s: Burwani Hills

State: Madhya Pradesh

Coordinates: 22° 02' N, 74° 54' E (Barwani town)

Reference/s: USAMS U502 (NF 43-6
Godhra, shown as Barwāni).

Bayana

Historical name/s: Beana

State: Rajasthan

Coordinates: 26° 54' N, 77° 17' E

Reference/s: USAMS U502 (NG 43-8
Dholpur), IPF (Bayana).

BEHAR [Historical name]

See: Bihar

Belgaum

Historical name/s: Belgaom, Belgoan

State: Karnataka

Coordinates: 15° 54' N, 74° 36' E

Reference/s: OGIS (p. 25, Belgaum city).

Belur

Historical name/s: Balur

State: Karnataka

Coordinates: 13° 10' N, 75° 52' E

Reference/s: USAMS U502 (ND 43-11
Shimoga, shown as Belūr), IPF (Belur).

Benares (also known as Varanasi and Kashi)

State: Uttar Pradesh

Coordinates: 25° 20' N, 83° 00' E

Reference/s: IGI (vol. 7, p. 189, Benares City), OGIS (p. 25, Benares City),

FRGG (Varanasi).

BENGAL [Historical name]

Bengal Province was a political division of British India and was composed of the modern country of Bangladesh, and the present-day Indian states of West Bengal, Bihar, Odisha (formerly Orissa), Jharkhand, Assam and Tripura.

Coordinates: between 19° 18' - 28° 15' N and 82° 00' - 97° 00' E

Reference/s: IGI (vol. 7, p. 194, Bengal Province).

Beypore

Historical name/s: Beypur

State: Kerala

Coordinates: 11° 11' N, 75° 49' E

Reference/s: USAMS U502 (NC 43-3 Calicut), IPF (Beypore).

Bhagalpur

State: Bihar

Coordinates: 25° 14' N, 86° 57' E

Reference/s: OGIS (p. 26, Bhagalpur city).

Bharatpur

State: Rajasthan

Coordinates: 27° 14' N, 77° 29' E

Reference/s: OGIS (p. 26, Bharatpur town).

Bhima River

States: Maharashtra, Andhra Pradesh, and Karnataka

Coordinates: source at Bhimashankar, 19° 04' N, 73° 32' E, confluence with Krishna River, 16° 25' N, 77° 17' E

Reference/s: IGI (vol. 8, p. 107), USAMS U502 (NE 43-16 Raichūr, shown as the Bhīma River).

BIHAR [Historical name]

One of the four sub-provinces that constituted the British Indian political division

of Bengal Province. Modern Bihar State is a considerably larger area.

Coordinates: between 23° 48' - 23° 71' N and 83° 20' - 88° 32' E

Reference/s: IGI (vol. 8, p. 171, Bihar Sub-province).

BIHAR Province [Historical name]

See: Bihar

Biligirirangan Hills (BR Hills)

Historical name/s: Balarangam Hills

State: Karnataka

Coordinates: 12° 27' N, 76° 11' E

Reference/s: IGI (vol. 8, p. 236, Biligiri-Rangan Hills), Swaminathan and Ellis (1996).

Bolampatti (or Bolampatty) Hill/Hills

[Historical name?]

State: Tamil Nadu

Coordinates: centred at 10° 56' N, 76° 40' E

Not marked on USAMS U502 (NC 43-7 Coimbatore), but coordinates located following Beddome (1892, p. 220), who indicated that these hills are located "between Coimbatore and Palghat", and IGI (vol. 10, p. 364), which states that the forests of these hills protect "the head-waters of the Noyil river".

Bombay (modern-day city of Mumbai)

State: Maharashtra

Coordinates: 18° 56' N, 72° 51' E

Reference/s: OGIS (p. 30, Bombay city), IPF (Mumbai).

Bombay Ghats [Historical name]

Probably refers to the part of the Western Ghats lying to the east of the city of Bombay.

Bombay Island

State: Maharashtra

Coordinates: 18° 55' N, 72° 54' E
 Reference/s: IGI (vol. 8, p. 398, Bombay City), USAMS U502 (NE 43-1 Kalyān, NE 43-5 Bombay).

BOMBAY PRESIDENCY [Historical name]

A political division of British India. It extended across what is now western Maharashtra and northwestern Karnataka, the state of Gujarat, the Union Territory of Daman and Diu, and Pakistan's Sindh Province. It also included the outlying British colonial territory of Aden in Yemen.

Coordinates: between 13° 53' - 28° 29' N and 66° 40' - 76° 32' E
 Reference/s: IGI (vol. 8, p. 266, Bombay Presidency).

Borghat or Borghat Pass

Historical name/s: Bhore Ghat, Bhore-Ghat
 State: Maharashtra
 Coordinates: 18° 46' N, 73° 22' E
 Reference/s: USAMS U502 (NE 43-5 Bombay, shown as Borghāt Pass).

Brahmagiri (peak, hill range)

Historical name/s: Bramagiri or Brumagerry hills
 State: Karnataka
 Coordinates: 12° 23' N, 75° 28' E (Brahmagiri peak)
 Reference/s: OGIS (p. 30, Brahmagiris, section of s Western Ghats).

Broach (also known as Bharuch)

Historical name/s: Baroach
 State: Gujarat
 Coordinates: 21° 42' N, 72° 58' E
 Reference/s: USAMS U502 (NF 43-9 Surat), IPF (Bharuch).

Calcutta (also known as Kolkata)

State: West Bengal
 Coordinates: 22° 30' N, 88° 20' E
 Reference/s: OGIS (p. 32, Calcutta city), IPF (Kolkata).

Calicut (modern-day city of Kozhikode)

State: Kerala
 Coordinates: 11° 15' N, 75° 45' E
 Reference/s: OGIS (p. 32, Calicut city), IPF (Kozhikode).

CANARA [Historical name]

See: Kannara

Cape Comorin (modern-day Kanyakumari or Kanniyakumari)

State: Tamil Nadu
 Coordinates: 8° 04' N, 77° 35' E
 Reference/s: OGIS (p. 42, Comorin Cape), FRGG (Kanniyakumari).

Cardamom Hills (Elamalais)

State: Kerala
 Coordinates: between 9° 26' - 10° 8' N and 76° 40' - 77° 7' E
 Reference/s: IGI (vol. 9, p. 300, Cardamom Hills), Vajravelu and Vivekananthan (1996).

Chandannagar

Historical name/s: Chandernagore
 State: West Bengal
 Coordinates: 22° 52' N, 88° 21' E
 Reference/s: OGIS (p. 36, Chandannagar town).

Chandbali (or Chandabali)

Historical name/s: Chandbally
 State: Odisha (formerly Orissa)
 Coordinates: 20° 47' N, 86° 46' E
 Reference/s: USAMS U502 (NF 45-14

Cuttack, shown as Chāndbāli), IPF (Chandabali).

Cherrapunji (or Sohra)

Historical name/s: Cherra Poonjee

State: Meghalaya

Coordinates: 25° 20' N, 91° 45' E

Reference/s: OGIS (p. 38, Cherrapunji Plateau).

Chettikulam

Historical name/s: Chittycolum

State: Tamil Nadu

Coordinate: 11° 08' N, 78° 47' E

Reference/s: USAMS U502 (NC 43-7 Coimbatore), IPF (Chettikulam).

Coimbatore

State: Tamil Nadu

Coordinates: 11° 00' N, 76° 58' E

Reference/s: USAMS U502 (NC 43-7 Coimbatore), IPF (Coimbatore).

COIMBATORE Province [Historical name]

This most likely refers to Coimbatore District, a district in the British Indian political division of Madras Presidency. This colonial district lies in Tamil Nadu, as does the modern Coimbatore District, which covers a much smaller area.

Coordinates: between 10° 15' - 11° 18' N and 76° 39' - 78° 14' E

Reference/s: IGI (vol. 10, p. 356, Coimbatore District).

Coonoor

State: Tamil Nadu

Coordinates: 11° 12' N, 76° 46' E

Reference/s: OGIS (p. 42, Coonoor Ghat or Pass).

Coonoor Ghat/Pass

State: Tamil Nadu

Coordinates: 11° 12' N, 76° 46' E

Reference/s: OGIS (p. 42, Coonoor Ghat or Pass).

COORG Province [Historical name]

A small province of British India (often simply referred to as Coorg), which was located west of the state of Mysore. Now forms Kodagu District (also called Coorg) of the state of Karnataka.

Coordinates: between 11° 56' - 12° 50' N and 75° 22' - 76° 12' E

Reference/s: IGI (vol. 11, p. 3, Coorg), OGIS (p. 42, Coorg District).

Courtalam

Historical name/s: Courtallum

State: Tamil Nadu

Coordinates: 8° 54' N, 77° 15' E

Reference/s: USAMS U502 (NC 43-16 Trivandrum, shown as Kuttalam), IPF (Courtalam).

Courtalam Hills

The hills immediately to the south of Courtalam town.

Historical name/s: Courtallum Hills

Coordinates: 8° 53' N, 77° 15' E (Courtalam town)

USAMS U502 (NC 43-16 Trivandrum, shown as Kuttalam).

Cuddalore

State: Tamil Nadu

Coordinates: 11° 43' N, 79° 46' E

Reference/s: OGIS (p. 42, Cuddalore city).

Cuddapah (modern-day Kadapa)

Historical name/s: Kudapah

State: Andhra Pradesh

Coordinates: 14° 30' N, 78° 50' E

Reference/s: OGIS (p. 42, Cuddapah city), FRGG (Cuddapah).

Cumbum (also known as Kambam)

State: Tamil Nadu

Coordinates: 9° 44' N, 77° 18' E

Reference/s: USAMS U502 (NC 43-12

Rajapālaiyam), IPF (Kambam).

Cuttack

State: Odisha (formerly Orissa)

Coordinates: 20° 26' N, 85° 56' E

Reference/s: OGIS (p. 43, Cuttack city).

Dafla Hills (or Daphla Hills)

States: Arunachal Pradesh and Assam

Coordinates: centred at 27° 10' N, 93° 20' E

Reference/s: OGIS (p. 43, Dafla Hills), IGI

(vol. 11, p. 121, Daflā Hills, p. 150, Daphlā Hills).

Darjeeling

State: West Bengal

Coordinates: 27° 02' N, 88° 20' E

Reference/s: OGIS (p. 45, Darjeeling city).

DARJEELING DISTRICT [Historical name]

This district formed the most northerly sector of Bhagalpur Division in the British Indian Province of Bengal, and now lies in the state of West Bengal.

Coordinates: between 26° 31' - 27° 13' N and 87° 59' - 88° 53' E

Reference/s: IGI (vol. 11, p. 165, Darjeeling District), OGIS (p. 44, Darjeeling District).

Delhi

Union Territory: National Capital Territory of Delhi

Coordinates: 28° 40' N, 77° 15' E

Reference/s: OGIS (p. 46, Delhi city).

Dinapore (modern-day Danapur)

State: Bihar

Coordinates: 25° 38' N, 85° 03' E

Reference/s: OGIS (p. 50, Dinapore town), FRGG (Danapur).

Dindigul

State: Tamil Nadu

Coordinates: 10° 21' N, 77° 57' E

Reference/s: USAMS U502 (NC 43-8 Dindigul).

Dummagudem (or Dummugudem)

Historical name/s: Dumagudlon

State: Andhra Pradesh

Coordinates: 17° 51' N, 80° 51' E

Reference/s: USAMS U502 (NE 44-10

Yellandlapād, shown as Dummagūdem), FRGG (Dummagudem), IPF (Dummugudem).

Dun Valley (or Doon Valley)

Valley between the Himalayas and Siwalik Hills in which the city of Dehradun is located. About 70 km long and 30 km wide, it is bounded on the west by the Yamuna River and on the east by the Ganges.

State: Uttarakhand

Coordinates: 30° 19' N, 78° 03' E (Dehradun)

Reference/s: IGI (vol. 11, p. 210, Dehra Dūn District), OGIS (p. 45, Dehra Dun city).

See also: <http://dehradun.nic.in/pages/view/17-history> (accessed 21 February 2014).

Elephanta Island (also known as Gharapuri)

State: Maharashtra

Coordinates: 18° 57.3' N, 72° 56.1' E

Reference/s: USAMS U502 (NE 43-5 Bombay, shown as Elephanta Island, Ghārāpuri), IPF (Gharapuri).

Elliot's Beach, Adyar, Madras

State: Tamil Nadu

Coordinates: 3° 01' N, 80° 14' E
 Reference/s: OGIS (p. 9, Adyar suburb sw
 Madras).

Erode

State: Tamil Nadu
 Coordinates: 11° 21' N, 77° 43' E
 Reference/s: OGIS (p. 53, Erode city).

Fatehpur Sikri

Historical name/s: Futtehpoor Sikra
 State: Uttar Pradesh
 Coordinates: 27° 06' N, 77° 40' E
 Reference/s: OGIS (p. 54, Fatehpur Sikri
 town).

Ganjam

State: Odisha (formerly Orissa)
 Coordinates: 19° 22.8' N, 85° 04' E
 Reference/s: USAMS U502 (NE 45-1
 Berhampur, shown as Ganjām).

GANJAM DISTRICT [Historical name]

This district formed part of the British Indian political division of Madras Presidency, and was located in the coastal areas of what is now northern Andhra Pradesh and southern Odisha (formerly Orissa). The modern Ganjam District, a much smaller area, lies entirely in the state of Odisha.

Coordinates: between 18° 12' - 20° 26' N
 and 83° 30' - 85° 12' E
 Reference/s: IGI (vol. 12, p. 142, Ganjām
 District), OGIS (p. 57, Ganjam District).

Ganges River (also Ganga River)

States: Uttarakhand, Uttar Pradesh, Bihar,
 Jharkhand and West Bengal
 Coordinates: centred at 24° 45' N, 88° 00' E
 Reference/s: OGIS (p. 57, Ganga River).

Gangetic Plain

The low alluvial region in northern India

and Bangladesh, which is formed by the Ganges and its tributaries. In India it extends across most of Uttar Pradesh and the western part of West Bengal, as well as much of Bihar.

Coordinates: 28° 00' N, 79° 00' E - 23° 00'
 N, 91° 00' E
 Reference/s: OGIS (p. 57, Gangetic Plain).

Garo Hills

State: Meghalaya
 Coordinates: centred at 25° 30' N, 90° 30' E
 Reference/s: OGIS (p. 56, Garo Hills).

Gersoppa Waterfalls (also known as the Jog Falls)

Historical name/s: Gairsapa Falls
 State: Karnataka
 Coordinates: 14° 13' N, 74° 45' E
 Reference/s: OGIS (p. 58, Gersoppa Water-
 falls).

GOA SETTLEMENT [Historical name]

The Portuguese settlement, which was located on the west coast of India and within the limits of the British Indian Bombay Presidency. This region now forms the modern state of Goa.

Coordinates: between 14° 53' - 15° 48' N
 and 73° 45' - 74° 24' E
 Reference/s: IGI (vol. 12, p. 249, Goa
 Settlement).

Godavari River

States: Maharashtra and Andhra Pradesh
 Coordinates: centred at 18° 47' N, 79° 30' E;
 19° 58' N, 73° 32' E - 17° 00' N, 81° 45' E
 Reference/s: OGIS (p. 60, Godavari Valley).

Godavari Valley

States: Maharashtra and Andhra Pradesh
 Coordinates: centred at 18° 47' N, 79° 30' E;
 19° 58' N, 73° 32' E - 17° 00' N, 81° 45' E
 Reference/s: OGIS (p. 60, Godavari Valley).

Golconda hills (or Golkonda hills)

Historical name/s: Golcondah hills
 State: Andhra Pradesh
 Coordinates: 17° 11.8' N, 78° 23.8' E
 (Golconda Buzurg)
 Reference/s: USAMS U502 (NE 44-9
 Hyderābād, shown as "Golkonda
 Buzurg"), IGI (vol. 13, p. 308,
 Hyderābād City).

Gudalur

Historical name/s: Goodalur, Goodaloor
 State: Tamil Nadu
 Coordinates: 11° 30' N, 76° 30' E
 Reference/s: OGIS (p. 62, Gudalur town),
 IPF (Gudalur).

Hamirpur

Historical name/s: Hameerpore
 State: Uttar Pradesh
 Coordinates: 25° 57' N, 80° 09' E
 Reference/s: USAMS U502 (NG 44-10
 Bānda), IPF (Hamirpur).

Hoshangabad

Historical name/s: Hashungabad,
 Hoshungabad
 State: Madhya Pradesh
 Coordinates: 22° 45' N, 77° 43' E
 Reference/s: USAMS U502 (NF 43-8
 Hardā, shown as Hoshangābād), IPF
 (Hoshangabad).

Hyderabad*

State: Andhra Pradesh
 Coordinates: 17° 23' N, 78° 29' E
 Reference/s: OGIS (p. 71, Hyderabad City).

Igatpuri

State: Maharashtra
 Coordinates: 19° 41' N, 73° 38' E
 Reference/s: OGIS (p. 71, Igatpuri town).

Jalangi River

Historical name/s: Jellinghy River
 State: West Bengal
 Coordinates: 23° 57' N, 88° 30' E - 23° 25'
 N, 88° 24' E
 Reference/s: USAMS U502 (NF 45-3
 Burdwān).

Javadi Hills

State: Tamil Nadu
 Coordinates: 12° 30' N, 78° 45' E
 Reference/s: USAMS U502 (ND 44-13
 Bangalore), Swaminathan and Ellis
 (1996).

Jeypore

State: Odisha (formerly Orissa)
 Coordinate: 18° 51' N, 82° 41' E
 Reference/s: OGIS (p. 76, Jeypore town).

Jeypore hills

The hills surrounding Jeypore town.
 State: Odisha (formerly Orissa)
 Coordinates: 18° 51' N, 82° 41' E (Jeypore
 town)
 Reference/s: OGIS (p. 76, Jeypore Town).

Yamuna River (also Jamuna River)

Historical name: Jumna River
 States: Uttarakhand, Uttar Pradesh and
 Haryana
 Coordinates: centred at 27° 09' N, 78° 00' E;
 N at Uttarkashi, 31° 00' N, 78° 30' E and
 S at Allahabad, 25° 25' N, 81° 50' E
 Reference/s: OGIS (p. 78, Jumna River),
 IGI (vol. 14, p. 232, Jumna River).

Kadur*

State: Karnataka
 Coordinates: 13° 33' N, 76° 01' E
 Reference/s: USAMS U502 (ND 43-12
 Tumkūr, shown as Kadūr), IPF (Kadur).

KADUR DISTRICT [Historical name]

A district of the British Indian Native State of Mysore. Nearly all of the area formerly occupied by it is part of present-day Chikmagalur District in southwestern Karnataka.

Coordinates: between 12° 55' - 13° 54' N and 75° 05' - 76° 22' E

Reference/s: IGI (vol. 14, p. 261, Kadūr District).

KADUR province [Historical name]

See: Kadur District

Kalakkad Hills

Historical name/s: Calcad Hills

State: Tamil Nadu

Coordinates: centred at 8° 32' N, 77° 22' E

Reference/s: USAMS U502 (NC 43-16
Trivandrum, shown as Kalakkādu),
Bawa et al. (2007).

Kallakudi

Historical name/s: Cullygoody

State: Tamil Nadu

Coordinates: 10° 59' N, 78° 57' E

Reference/s: USAMS U502 (NC 44-5
Tiruchirāppalli, indicated as Kallakkudi).

Kalpetta Hill

Historical name/s: Kulputty Hill, Kalpatta

State: Kerala

Coordinates: centred at 11° 36' N, 76° 05' E

Reference/s: USAMS U502 (NC 43-3
Calicut), FRGG (Kalpetta).

Kalrayan Hills

Historical name/s: Kalryen Hills,
Kalryenmullies

State: Tamil Nadu

Coordinates: between 11° 38' - 12° 04' N
and 78° 28' - 78° 49' E

Reference/s: USAMS U502 (NC 44-1

Salem), IGI (vol. 14, p. 320, Kalrāyan Hills), Swaminathan and Ellis (1996).

KANARA [Historical name]

Historical name for the territory encompassing the British Indian districts of North Kanara and South Kanara. The former was part of Bombay Presidency, and the latter was a district of Madras Presidency. The territory covered by British colonial Kanara is now almost entirely in the state of Karnataka (a small area is now part of northern Kerala).

Coordinates: between 13° 53' - 15° 32' N and 74° 04' - 75° 05' E (North Kanara); between 12° 07' - 13° 59' N and 74° 34' - 75° 45' E (South Kanara)

Reference/s: IGI (vol. 14, p. 340, Kanara, North, p. 353, Kanara, South).

KANARA Province [Historical name]

See: Kanara

Kapurwahal

This may be the locality "Kapurwala, Bombay Presidency" cited by Rao (1925, p. 387).

Historical name/s: Kapurwala?

State: Maharashtra

Coordinates: 18° 13' N, 73° 55' E

Reference/s: USAMS U502 (NE 43-6
Poona, shown as Kapūrwāhā), FRGG
(Kapurwahal).

Karwar*

State: Karnataka

Coordinates: 14° 50' N, 74° 09' E

Reference/s: OGIS (p. 85, Karwar Town).

KASHMIR [Historical name]

May refer to the Kashmir valley, which lies in the western part of Indian-administered Jammu and Kashmir, or possibly to

the kingdom of the Maharajah of Kashmir and Jammu (Meyer et al., 1908-1931, vol. 15, p. 12, see "Kashmīr and Jammu"), which covered nearly 90,000 square miles (about 233,000 km²) and was ceded to the British in 1846. Of what was formerly the kingdom, the southern part (including the Kashmir valley, Ladakh and Jammu) constitutes the Indian state of Jammu and Kashmir.

Kashmir Valley

State: Jammu and Kashmir

Coordinates: centred at 34° 10' N, 74° 45' E

Reference/s: OGIS (p. 183, Vale of Kashmir).

Khasi Hills

State: Meghalaya

Coordinates: centred at 25° 15' N, 91° 16' E

Reference/s: OGIS (p. 86, Kassia Mountains), IGI (vol. 15, p. 254, Khāsi and Jaintiā Hills).

See also: <http://meghalaya.gov.in:8080/megportal/stateprofile> (accessed 21 February 2014).

Khandala

Historical name/s: Khandalla

State: Maharashtra

Coordinates: 18° 45' N, 73° 22' E

Reference/s: USAMS U502 (NE 43-5 Bombay, indicated as Khandāle), FRGG (Khandala).

Khoonda Ghat, Khoonda Ghát [Historical names]

See: Kundah Hills

Krishna River

Historical name: Kistna River

States: Maharashtra, Karnataka and Andhra Pradesh

Coordinates: centred at 16° 25' N, 77° 19' E; W, 16° 42' N, 75° 00' E and S, 15° 40' N, 80° 50' E

Reference/s: OGIS (p. 91, Kistna or Krishna River), IGI (vol. 15, p. 334, Kistna River).

Kochi (also known as Cochin)*

State: Kerala

Coordinates: 9° 56' N, 76° 15' E

Reference/s: OGIS (p. 41, Cochin City), FRGG (Kochi).

Kodaikanal

State: Tamil Nadu

Coordinates: 10° 15' N, 77° 31' E

Reference/s: OGIS (p. 92, Kodaikanal town).

Kollimalai Hills (Kolli Hills)

Historical name/s: Kolamalai Hills, Kola-mullie Hills, Kolamullies

State: Tamil Nadu

Coordinates: 11° 20' N, 78° 20' E

Reference/s: Legris and Meher-Homji (1984), Pullaiah and Muralidhara Rao (2002), USAMS U502 (NC 44-1 Salem, shown as the Kollaimalai Hills).

Koorda Ghat [Historical name]

See: Kundah Hills

Kotagiri

Historical name/s: Kotagherry

State: Tamil Nadu

Coordinates: 11° 26' N, 76° 53' E

Reference/s: OGIS (p. 94, Kotagiri town).

Kottayam

Historical name/s: Cottiyam

State: Kerala

Coordinates: 9° 35' N, 76° 55' E

Reference/s: USAMS U502 (NC 43-12 Rajapālaiyam), IPF (Kottayam).

Kottayam hills

Historical name/s: Cottayam hills
 State: Kerala
 Coordinates: 9° 35' N, 76° 55' E
 Reference/s: USAMS U502 (NC 43-12
 Rajapālaiyam).

Kudremukh

Historical name/s: Kudra Mukh
 State: Karnataka
 Coordinates: 13° 08' N, 75° 16' E
 Reference/s: USAMS U502 (NC 43-12
 Rajapālaiyam), IPF (Kudremukh).

Kukkal

Historical name/s: Kukal Shola
 State: Tamil Nadu
 Coordinates: 10° 17' N, 77° 22' E
 Reference/s: USAMS U502 (NC 43-8
 Dindigul, shown as Kūkkāl).

Kundah Hills

Historical name/s: Khoonda Ghat,
 Khoondah Hills, Koondah Hills
 State: Tamil Nadu
 Coordinates: 11° 11' - 11° 15' N and 76° 25'
 - 77° 37' E
 Reference/s: USAMS U502 (NC 43-3
 Calicut, NC 43-4 Erode), IGI (vol. 16, p.
 25, Kundahs), Bawa et al. (2007).

Kurnool

Historical name/s: Kurnal
 State: Andhra Pradesh
 Coordinates: 15° 50' N, 78° 03' E
 Reference/s: USAMS U502 (ND 44-1
 Kurnool), FRGG (Kurnool).

KURNOOL DISTRICT [Historical name]

A district of the British Indian political
 division of Madras Presidency, located in
 what is now Andhra Pradesh. The

modern district of Kurnool is broadly
 comparable, but less extensive.

Coordinates: between 14° 54' - 16° 18' N
 and 77° 21' - 79° 34' E

Reference/s: IGI (vol. 16, p. 30, Kurnool
 District), OGIS (p. 97, Kurnool District).

Kurnool Hills

Most likely the hills immediately to the
 south and east of Kurnool town.
 State: Andhra Pradesh
 Coordinates: 15° 50' N, 78° 3' E (Kurnool
 town)
 Reference/s: USAMS U502 (ND 44-1
 Kurnool).

Kutch (also Kachchh)

Historical name/s: Cutch
 State: Gujarat
 Coordinates: between 22° 47' - 24° 00' N
 and 68° 25' - 71° 11' E
 Reference/s: IGI (vol. 11, p. 74, Cutch), IPF
 (Kachchh).

Laccadive Islands (now known as Lakshadweep)

Union Territory: Lakshadweep
 Coordinates: centred at 10° 51' N, 73° 41' E;
 8° 15' N, 72° 00' E - 12° 00' N, 74° 00' E
 Reference/s: OGIS (p. 98, Laccadive
 Islands).

Ladakh

State: Jammu and Kashmir
 Coordinates: centred at 34° 45' N, 77° 30' E
 Reference/s: OGIS (p. 98, Ladakh District),
 IGI (vol. 16, p. 88, Ladākh).

Landour

State: Uttarakhand
 Coordinates: 30° 27' N, 78° 06' E
 Reference/s: OGIS (p. 100, Landour town).

Leh

State: Jammu and Kashmir
 Coordinates: 24° 15' N, 77° 27' E
 Reference/s: OGIS (p. 101, Leh city).

Lonavala (also known as Lonavla)

Historical name/s: Lonavla
 State: Maharashtra
 Coordinates: 18° 45' N, 73° 27' E
 Reference/s: USAMS U502 (NE 43-5
 Bombay, shown as Lonauli, Lonāvla),
 FRGG (Lonavale), IPF (Lonavala).

Madikeri*

State: Karnataka
 Coordinates: 12° 25' N, 75° 44' E
 Reference/s: USAMS U502 (ND 43-15
 Mangalore), FRGG (Madikeri).

Madras (modern-day city of Chennai)

Historical name/s: Maderaspatanâ
 State: Tamil Nadu
 Coordinates: 13° 05' N, 80° 15' E
 Reference/s: USAMS U502 (ND 44-10
 Madras), FRGG (Madras).

MADRAS PRESIDENCY [Historical name]

A political division of British India, which encompassed what is now the state of Tamil Nadu, northern Kerala, southern and coastal Andhra Pradesh, and parts of Karnataka and Odisha (formerly Orissa).
 Coordinates: centred at Salem Junction,
 11° 42' N, 78° 06' E
 Reference/s: OGIS (p. 105, Madras
 Presidency), IGI (vol. 16, p. 234, Madras
 Presidency).

Madurai

Historical name/s: Madura
 State: Tamil Nadu
 Coordinates: 9° 55' N, 78° 7' E

Reference/s: USAMS U502 (NC 44-09
 Madura, indicated as Madura), FRGG
 (Madurai).

Madurai Hills

Probably the hills immediately to the north and west of Madurai town.
 Historical name/s: Madura Hills
 Coordinates: 9° 55' N, 78° 7' E (Madurai town)
 Reference/s: USAMS U502 (NC 44-09
 Madura, indicated as Madura).

Mahabaleshwar

State: Maharashtra
 Coordinates: 17° 56' N, 73° 42' E
 Reference/s: OGIS (p. 105, Mahabaleshwar town).

Mahabaleshwar hills

The hills in and around Mahabaleshwar town.
 Historical name/s: Mahableswar hills
 State: Maharashtra
 Coordinates: 17° 56' N, 73° 42' E
 (Mahabaleshwar town)
 Reference/s: OGIS (p. 105, Mahabaleshwar town).

Mahanadi River

States: Chhattisgarh and Odisha (formerly Orissa)
 Coordinates: centred at 24° 06' N, 81° 00' E;
 20° 10' N, 81° 35' E - 20° 20' N, 86° 50' E
 Reference/s: OGIS (p. 105, Mahanadi River).

Mahasu

Historical name/s: Mahássú
 State: Himachal Pradesh
 Coordinates: 31° 04' N, 77° 34' N
 Reference/s: USAMS U502 (NH 43-4
 Simla, shown as Mahāsu), IPF (Mahasu).

Mahe (also known as Mayyazhi)

State: Kerala

Coordinates: 11° 42' N, 75° 32' E

Reference/s: USAMS U502 (NC 43-3

Calicut), FRGG (Mahe).

Mahendragiri (peak, hill range)

Historical name/s: Mahendra, Myhendra

State: Tamil Nadu

Coordinates: 8° 23' N, 77° 30' E

Reference/s: OGIS (p. 106, Mahendra Hill),
Vajravelu and Vivekananthan (1996).**MALABAR** [Historical name]

The historical region of Malabar extended along the west coast of India from Cape Comorin (Tamil Nadu) to the Chandragiri River (northern Kerala). Historically, the name Malabar was sometimes incorrectly used to refer to the entire coastal region from Bombay to the southern tip of India. Malabar District, one of the districts of the British Indian political division of Madras Presidency, was a much smaller area, which occupied most of the northern part of present-day Kerala.

Coordinates: historical region of Malabar, N, 12° 30' N, 75° 00' E - S, 8° 04' N, 77° 35' E; Malabar District between 10° 15' - 12° 18' N and 75° 11' - 76° 51' E

Reference/s: IGI (vol. 17, p. 53, Malabar),
EIG (p. 534, Malabar).

MALABAR COAST [Historical name]

Historical name for the western coastal region of India extending c. 720 km northwest from Cape Comorin (Tamil Nadu) to Mangalore (southwest Karnataka) and extending inland from the Indian Ocean to the Western Ghats. Mangalore is approximately 50 km north of the mouth of the Chandragiri River

(see Malabar).

Coordinates: centred at 10° 00' N, 76° 16' E;

8° 03' N, 77° 30' E - 12° 50' N, 75° 45' E

Reference/s: OGIS (p. 108, Malabar Coast).

MALABAR, plains [Historical name]

This may refer to the Malabar Coast or the coastal plains of Malabar District (see above).

Malcom Peth

Historical name/s: Malcolmpeth, Neher

State: Maharashtra

Coordinates: 17° 55' N, 73° 40' E

Reference/s: USAMS U502 (NE 43-10
Sātāra), Benson, 1864, p. 209, "Neher
(Malcolmpeth)", FRGG
(Mahabaleshwar).

Malwa

See: Malwa Agency

Malwa Agency [Historical name]

A collection of Native States, which were associated with the British Indian political division of Central India. This region lies largely in what is now Madhya Pradesh and is still called Malwa.

Coordinates: between 22° 20' - 25° 09' N
and 74° 32' - 76° 28' E

Reference/s: IGI (vol. 17, p. 97, Mālwa
Agency).

Mangalore*

State: Karnataka

Coordinates: 12° 52' E, 74° 53' E

Reference/s: OGIS (p. 111, Mangalore
City), FRGG (Mangalore).

Matayan

Historical name/s: Matain

State: Jammu and Kashmir

Coordinates: 34° 22' N, 75° 35' E

Reference/s: USAMS U502 (NI 43-7
Kargil, shown as Matāyan), IPF
(Matayan).

Matheran

State: Maharashtra
Coordinates: 18° 59' N, 73° 16' E
Reference/s: USAMS U502 (NE 43-5
Bombay, shown as Mātherān), FRGG
(Matheran). See also OGIS (p. 114, Matheran town, latitude wrongly given as
73° 28' E).

Mavelikkara

Historical name/s: Mavillicurray,
Mavillikurray
State: Kerala
Coordinates: 9° 16' N, 76° 33' E
Reference/s: USAMS U502 (NC 43-12
Rajapālaiyam, indicated as Māvelikara),
IPF (Mavelikkara).

Melagiri Hills

State: Karnataka
Coordinates: 12° 20' N, 77° 45' E
Reference/s: IGI (vol. 26, pl. 41, Melagiris
Ra.), Pullaiah and Muralidhara Rao
(2002).

Midnapore (also known as Medinipur)

State: West Bengal
Coordinates: 22° 25' N, 87° 20' E
Reference/s: USAMS U502 (NF 45-7
Calcutta), FRGG (Medinipur).

Mirzapur

Historical name/s: Mirzapoor, Mirzapore
State: Uttar Pradesh
Coordinates: 25° 09' N, 82° 35' E
Reference/s: USAMS U502 (NG 44-12
Banāras, shown as Mirzāpur), FRGG
(Mirzapur).

Moradabad

State: Uttar Pradesh
Coordinates: 28° 50' N, 78° 45' E
Reference/s: OGIS (p. 117, Moradabad
city).

Mula River

The Mula River, which passes through
Pune, is a tributary of the Bhima River
(see above). It may be the river referred
to by Benson (1863, p. 426) as "Mul
River, Western India" in his description
of *Gastrocopta bathyodon*.

Historical name/s: Mul River?

State: Maharashtra
Coordinates: 18° 32' N, 73° 30' E - 18° 34'
N, 74° 20' E
Reference/s: USAMS U502 (NE 43-6
Poona, shown as the Mulā River).

Murshidabad

Historical name/s: Murshedabad
State: West Bengal
Coordinates: 24° 11' N, 88° 16' E
Reference/s: USAMS U502 (NE 45-1
Berhampur, shown as Murshidābād), IPF
(Murshidabad).

Mussoorie (formerly known as Mussooree)

State: Uttarakhand
Coordinates: 30° 27' N, 78° 05' E
Reference/s: OGIS (p. 121, Mussooree
town), USAMS U502 (NH 44-5 Dehra
Dūn), FRGG (Mussoorie).

MYSORE [Historical name]

May refer to one of two British Indian
territorial divisions: the Native State of
Mysore, or Mysore District (lay in the
southern part of Mysore State). Mysore
State now constitutes the southern part of

Karnataka. There is also a *Tāluk* and city by the same name.

Coordinates: Mysore State, between $11^{\circ} 36' - 15^{\circ} 02'$ N and $74^{\circ} 38' - 78^{\circ} 36'$ E, and Mysore District, between $11^{\circ} 36' - 13^{\circ} 03'$ N and $75^{\circ} 55' - 77^{\circ} 20'$ E

Reference/s: IGI (vol. 18, p. 161, Mysore State, p. 250, Mysore District, p. 259, Mysore *Tāluk*, p. 260, Mysore City).

mysore, Province/state [Historical name]

Most likely refers to the Native State of Mysore, a political division of British India, which now constitutes the southern part of Karnataka.

Coordinates: between $11^{\circ} 36' - 15^{\circ} 02'$ N and $74^{\circ} 38' - 78^{\circ} 36'$ E

Reference/s: IGI (vol. 18, p. 161, Mysore State).

mysore, region [Historical name]

May refer to one of two British Indian territorial divisions: the Native State of Mysore, or Mysore District (located in the southern part of Mysore State). What was Mysore State now constitutes the southern part of Karnataka.

Coordinates: Mysore State, between $11^{\circ} 36' - 15^{\circ} 02'$ N and $74^{\circ} 38' - 78^{\circ} 36'$ E, and Mysore District, between $11^{\circ} 36' - 13^{\circ} 03'$ N and $75^{\circ} 55' - 77^{\circ} 20'$ E

Reference/s: IGI (vol. 18, p. 161, Mysore State, p. 250, Mysore District).

Naduvattam

Historical name/s: Neddiwuttom, Neduvattam, Neduwattana

State: Tamil Nadu

Coordinates: $11^{\circ} 30'$ N, $76^{\circ} 35'$ E

Reference/s: USAMS U502 (NC 43-4 Erode), FRGG (Naduvattam).

Naduvattam pass

Historical name/s: Neddiwuttom pass

State: Tamil Nadu

Coordinates: $11^{\circ} 30'$ N, $76^{\circ} 35'$ E (Naduvattam)

Reference/s: USAMS U502 (NC 43-4 Erode), FRGG (Naduvattam).

Naga Hills

States: Assam, Arunachal Pradesh and Nagaland

Coordinates: centred at $26^{\circ} 45'$ N, $95^{\circ} 00'$ E

Reference/s: OGIS (p. 123, Naga Hill region), IGI (vol. 18, p. 284, Nāgā Hills).

Note: this range extends into Northern Myanmar.

Nagari Hills

State: Andhra Pradesh

Coordinates: $13^{\circ} 30'$ N, $79^{\circ} 38'$ E

Reference/s: USAMS U502 (ND 44-10 Madras), Pullaiah and Muralidhara Rao (2002).

Nagpur (formerly known as Nagpore)

State: Maharashtra

Coordinates: $21^{\circ} 10'$ N, $79^{\circ} 12'$ E

Reference/s: OGIS (p. 123, Nagpur city), FRGG (Nagpur).

Nainital

Historical name/s: Naini Tal

State: Uttarakhand

Coordinates: $29^{\circ} 22'$ N, $79^{\circ} 26'$ E

Reference/s: OGIS (p. 123, Naini Tal town).

Nallamalai Hills (Nallamala Hills)

Historical name/s: Nullamullays

State: Andhra Pradesh

Coordinates: centred at $15^{\circ} 40'$ N, $78^{\circ} 45'$ E; $15^{\circ} 00'$ N, $78^{\circ} 42'$ E - $16^{\circ} 15'$ N, $79^{\circ} 15'$ E

Reference/s: OGIS (p. 124, Nallamalai, range of mountains).

Nandi

State: Karnataka

Coordinates: 13° 23' N, 77° 42' E

Reference/s: USAMS U502 (ND 44-9

Kolār), FRGG (Nandi).

Nandi Hills

Historical name/s: Nundydroog

State: Karnataka

Coordinates: 13° 22' N, 77° 41' E

Reference/s: USAMS U502 (ND 44-9 Ko-

lār), IGI (vol. 18, p. 359, Nandidroog), FRGG (Nandigunda).

Narmada River (also known as the Narbada River)

Historical name/s: Nerbudda River

States: Madhya Pradesh, Maharashtra and Gujarat

Coordinates: centred at 22° 37' N, 77° 32' E; 21° 35' N, 72° 30' E - 22° 45' N, 81° 30' E

Reference/s: OGIS (p. 124, Narbada or Narmada River), IGI (vol. 18, p. 375, Narabadā, vol. 18, p. 379, Narmada).

Narmada Valley (also known as the Narbada Valley)

Historical name/s: Nerbudda Valley

See: Narmada River

Nashik* (formerly Nasik)

State: Maharashtra

Coordinates: 20° 00' N, 73° 47' E

Reference/s: USAMS U502 (NF 43-14

Dhūlia, shown as Nāsik), IPF (Nashik).

See also OGIS (p. 126, Nasik City, geo-coordinates wrongly given as 20° 20' N, 73° 52' E).

Neddiwatam Ghat [Historical name]

See: Naduvattam

Neddoowuttom ghat [Historical name]

See: Naduvattam

Neemuch (also known as Nimach)

State: Madhya Pradesh

Coordinates: 24° 27' N, 74° 56' E

Reference/s: OGIS (p. 127, Neemuch town).

Neher

See: Malcom Peth

Nelliampathi or Nelliampathy* (plateau, hill range)

State: Kerala

Coordinates: centred at 10° 30' N, 76° 47' E

Reference/s: OGIS (p. 127, Nelliampathy Hills), USAMS U502 (NC 43-7 Coimbatore), Bawa et al. (2007).

Nellore*

State: Andhra Pradesh

Coordinates: 14° 29' N, 80° 00' E

Reference/s: OGIS (p. 128, Nellore City).

Nicobar Islands

Union Territory: Andaman and Nicobar Islands

Coordinates: centred at Katchall Island, 7° 57' N, 93° 22' E

Reference/s: OGIS (p. 128, Nicobar Islands).

Nilambur

Historical name/s: Nellambur

State: Kerala

Coordinates: 11° 17' N, 76° 15' E

Reference/s: OGIS (p. 129, Nilambur town).

Nilgiri Hills

Historical name/s: Nilgherries

Coordinates: centred at 11° 10' N, 76° 37' E

Reference/s: OGIS (p. 129, Nilgiri Hills).

NORTH KANARA [Historical name]

A district of the British Indian political division of Bombay Presidency. The territory formerly occupied by it constitutes

the present-day district of Uttara Kannada (or Karwar) in the state of Karnataka.

Historical name/s: North Canara, N. Canara

Coordinates: between $13^{\circ} 53'$ - $15^{\circ} 32'$ N and $74^{\circ} 04'$ - $75^{\circ} 05'$ E

Reference/s: IGI (vol. 14, p. 340, North Kanara).

See also: <http://www.karnataka.gov.in/pages/district-list.aspx> (accessed 21 February 2014).

Ootacamund (also known as Ooty, and Udhagamandalam, abbreviated to Udhagai)

State: Tamil Nadu

Coordinates: $11^{\circ} 28'$ N, $76^{\circ} 42'$ E

Reference/s: OGIS (p. 133, Ootacamund town), FRGG (Udagamandalam).

ORISSA region [Historical name]

The historical region of Orissa was the "country in which the speakers of Oriya form the dominant people" (IGI, vol. 19, p. 249). During the late British Period, however, the name Orissa was applied to a smaller area (i.e. the greater part of the Orissa Division of Bengal Province and the associated Orissa Tributary States). The modern state of Odisha (formerly Orissa), while including these areas, is far more extensive.

Coordinates: Orissa Division, between $19^{\circ} 28'$ - $22^{\circ} 04'$ N and $82^{\circ} 38'$ - $87^{\circ} 31'$ E; Orissa Tributary States, between $19^{\circ} 53'$ - $22^{\circ} 34'$ N and $83^{\circ} 35'$ - $87^{\circ} 10'$ E

Reference/s: IGI (vol. 19, p. 248, Orissa Division, p. 252, Orissa Tributary States).

Pachamalai Hills

Historical name/s: Patchamullies, Patchamullay

State: Tamil Nadu

Coordinates: $11^{\circ} 19'$ N, $78^{\circ} 38'$ E

Reference/s: Pullaiah and Muralidhara Rao (2002), Swaminathan and Ellis (1996), USAMS U502 (NC 44-1 Salem, shown as the Pachchaimalai Hills).

Paithan

Historical name/s: Paitan

State: Maharashtra

Coordinates: $19^{\circ} 28'$ N, $75^{\circ} 24'$ E

Reference/s: USAMS U502 (NE 43-3 Aurangābād), FRGG (Paithan).

Palar River

States: Karnataka, Andhra Pradesh and Tamil Nadu

Coordinates: $13^{\circ} 22'$ N, $77^{\circ} 41'$ E - $12^{\circ} 30'$ N, $80^{\circ} 07.5'$ E

Reference/s: USAMS U502 (ND 44-9 Kolār, ND 44-13 Bangalore, ND 44-14 Conjeeveram, shown as the Pālār River). See also IGI (vol. 19, p. 355, Pālār River).

Palghat (modern-day Palakkad)

State: Kerala

Coordinates: $10^{\circ} 46'$ N, $76^{\circ} 42'$ E

Reference/s: OGIS (p. 135, Palghat Town), FRGG (Palakkad).

Palghat Gap (sometimes referred to as the Palakkad Gap)

States: Kerala and Tamil Nadu

Coordinates: centred at $10^{\circ} 40'$ N, $76^{\circ} 35'$ E

Reference/s: OGIS (p. 135, Palghat, mountain gap), Swaminathan and Ellis (1996).

Palghat Hills

State: Kerala

Coordinates: $10^{\circ} 46'$ N, $76^{\circ} 42'$ E (Palghat Town)

Reference/s: OGIS (p. 135, Palghat Hills).

Palkonda Hills (Palakonda Hills)

State: Andhra Pradesh

Coordinates: 13° 48' N, 79° 03' E

Reference/s: OGIS (p. 135, Palkonda Hills).

Palni Hills

State: Tamil Nadu

Coordinates: centred at 10° 15' N, 77° 25' E

Reference/s: OGIS (p. 135, Palni Hills).

Panaji (also known as Panjim)*

State: Goa

Coordinates: 15° 30' N, 73° 50' E

Reference/s: USAMS U502 (ND 43-2
Belgaum), FRGG (Panaji).**Pankhabari**

State: West Bengal

Coordinates: 26° 50' N, 88° 16' E

Reference/s: USAMS U502 (NG 45-7
Kishanganj, shown as Pankhābāri),
FRGG (Pankhabari).**Papanasam**

Historical name/s: Papanassam

State: Tamil Nadu

Coordinates: 8° 44' N, 77° 15' E

Reference/s: USAMS U502 (NC 43-16
Trivandrum).**Parasnath or Parasnath Hill**

Historical name/s: Pareshnath hill

State: Jharkhand

Coordinates: 23° 58' N, 86° 08' E

Reference/s: USAMS U502 (NF 45-2
Purūlia, shown as Parasnāth).**Patharghata Hill**

Historical name/s: Patharghata Hill

State: Jharkhand

Coordinates: 25° 17' - 25° 22' N, 87° 12' -
87° 16' EReference/s: IGI (vol. 20, p. 28,
Patharghāta).**Patna**

State: Bihar

Coordinates: 25° 37' N, 85° 10' E

Reference/s: USAMS U502 (NG 45-9
Patna), IPF (Patna).**Peermade**

Historical name/s: Peermede, Pirmed

State: Kerala

Coordinates: 9° 31' N, 77° 02' E

Reference/s: OGIS (p. 138, Peermade
town), IGI (vol. 20, p. 152, Pirmed).**Peermade Hills**Historical name/s: Peermede hills, Pirmed
hillsCoordinates: 9° 31' N, 77° 02' E (Peermade
town)Reference/s: OGIS (p. 138, Peermade
town), IGI (vol. 20, p. 152, Pirmed).**Penganga River**

State: Maharashtra and Andhra Pradesh

Coordinates: centred at 19° 45' N, 77° 20' E;
source at Buldana, 20° 15' N, 76° 30' E;
confluence with Wardha River, 19° 52'
N, 79° 16' E

References: OGIS (p. 139, Penganga river).

Pir Panjal RangeStates: Jammu and Kashmir, Himachal
Pradesh and PunjabCoordinates: centred at 33° 55' N, 74° 25' E;
NW, 34° 15' N, 73° 35' E - SE, 33° 25' N,
75° 20' EReference/s: OGIS (p. 141, Pir Panjal
Range, p. 23, Beas River, p. 150,
Rhotang range).Note: this range extends into northern
Pakistan.**Pondicherry (also known as Puducherry)**Historical name/s: Pondicherri, Pondichéry,
Pondichery

Union Territory: Puducherry
 Coordinates: 11° 56' N, 79° 49' E
 Reference/s: IGI (vol. 20, p. 161,
 Pondicherry), FRGG (Puducherry).

Ponmudi

State: Kerala
 Coordinates: 8° 44' N, 77° 10' E
 Reference/s: IGI (vol. 20, p. 163, Ponmudi),
 OGIS (p. 144, Ponmudi Hills).

Ponnaiyar River

States: Karnataka and Tamil Nadu
 Coordinates: 12° 40' N, 77° 54' E - 11° 46'
 N, 79° 47.5' E
 Reference/s: USAMS U502 (NC 44-2
 Cuddalore, ND 44-13 Bangalore, shown
 as the Ponnaiyār River).

Port Canning (also known as Canning)

State: West Bengal
 Coordinates: 22° 19' N, 88° 40' E
 Reference/s: OGIS (p. 143, Port Canning
 town), FRGG (Canning).

Pune (also known as Poona)

Historical name/s: Poonah
 State: Maharashtra
 Coordinates: 18° 34' N, 73° 58' E
 Reference/s: OGIS (p. 144, Pune city),
 FRGG (Pune).

Purandar (or Purandhar)

Historical name/s: Poorundhur
 State: Maharashtra
 Coordinates: 18° 17' N, 73° 59' E
 Reference/s: IGI (vol. 20, p. 396, Purandhar
 Hill), IPF (Purandhar).
 See also: http://pune.nic.in/puneCollecto_rate/default.aspx (accessed 21 February 2014).

Puri

Historical name/s: Pooree
 State: Odisha (formerly Orissa)
 Coordinates: 19° 49' N, 85° 50' E
 Reference/s: USAMS U502 (NE 45-2 Purī),
 IPF (Puri).

Pykara

State: Tamil Nadu
 Coordinates: 11° 27' N, 76° 37' E
 Reference/s: USAMS U502 (NC 43-4
 Erode), FRGG (Pykara).

Rajmahal

Historical name/s: Rajmehal
 State: Jharkhand
 Coordinates: 25° 03' N, 87° 50' E
 Reference/s: USAMS U502 (NG 45-11
 Katihār, shown as Rajmahāl), IPF
 (Rajmahal).

Rajmahal Hills

State: Jharkhand
 Coordinates: between 24° 30' - 25° 15' N
 and 87° 21' - 87° 49' E
 Reference/s: IGI (vol. 21, p. 77, Rajmahal
 Hills), OGIS (p. 146, Rajmahal Hills),
 USAMS U502 (NG 45-11 Katihār).

Rajpipla*

State: Gujarat
 Coordinates: 21° 49' N, 73° 36' E
 Reference/s: OGIS (p. 147, Rajpipla Town).

Rajpipla Hills

These hills form the western extremity of the
 Satpura Range and accounted for two-
 thirds of the British Indian Rajpipla State.
 State: Gujarat
 Coordinates: Rajpipla State, between 21° 23'
 - 21° 59' N and 73° 05' - 74° 00' E

Reference/s: IGI (vol. 21, pp. 79, Rājpīpla State).

Rangnu valley (valley of the Rangnu River)

State: West Bengal

Coordinates: 27° 02' N, 88° 22' E

Reference/s: USAMS U502 (NG 45-3 Kānchenjunga).

Raniganj

Historical name/s: Raneegunge

State: West Bengal

Coordinates: 23° 35' N, 87° 07' E

Reference/s: OGIS (p. 148, Raniganj town).

Ratnagiri*

State: Maharashtra

Coordinates: 17° 00' N, 73° 20' E

Reference/s: OGIS (p. 149, Ratnagiri town).

Roorkee

State: Uttarakhand

Coordinates: 29° 51' N, 77° 54' E

Reference/s: OGIS (p. 151, Roorkee town).

Russellkonda (modern-day Bhanjanagar)

Historical name/s: Rusellcoonda

State: Odisha (formerly Orissa)

Coordinates: 19° 58' N, 84° 40' E

Reference/s: OGIS (p. 152, Russellkonda town), FRGG (Bhanjanagar).

Saharanpur

Historical name/s: Saharumpore, Saharunpore

State: Uttar Pradesh

Coordinates: 29° 58' N, 77° 33' E

Reference/s: OGIS (p. 153, Saharanpur city).

Sakrigali

Historical name/s: Sicrigali

State: Jharkhand

Coordinates: 25° 15' N, 87° 44' E

Reference/s: USAMS U502 (NG 45-11 Katihār, shown as Sakrigāli).

Salem

State: Tamil Nadu

Coordinates: 11° 38' N, 78° 08' E

Reference/s: OGIS (p. 154, Salem city).

SALEM DISTRICT [Historical name]

A district of the British Indian political division of Madras Presidency, now lying in Tamil Nadu. Modern Salem District is a much smaller area.

Coordinates: between 11° 01' - 12° 54' N and 77° 29' - 79° 02' E

Reference/s: IGI (vol. 21, p. 395, Salem District).

Sambhar Lake

Historical name/s: Sambhur Lake

State: Rajasthan

Coordinates: centred at 26° 54' N, 75° 16' E

Reference/s: OGIS (p. 155, Sambhar, salt lake).

Satara

Historical name/s: Sattara

State: Maharashtra

Coordinates: 17° 42' N, 74° 00' E

Reference/s: USAMS U502 (NE 43-10 Sātāra), IPF (Satara).

Satpura Range

States: Gujarat, Maharashtra, Madhya Pradesh and Chhattisgarh

Coordinates: centred at 21° 30' N, 75° 50' E; 21° 45' N, 74° 05' E - 22° 35' N, 82° 00' E

Reference/s: OGIS (p. 157, Satpura Range).

Seeghoor Ghat [Historical name]

State: Tamil Nadu

Coordinates: 11° 31' N, 76° 42' E

Reference/s: USAMS U502 (NC 43-4

Erode), OGIS (p. 158, Seegore Ghat, p. 158, Segour Pass).

Seegoor Ghat [Historical name]

See: Seeghoor Ghat

Seshachalam Hills

State: Andhra Pradesh

Coordinates: centred at 14° 12' N, 78° 20' E

Reference/s: OGIS (p. 159, Seshachalam Hills).

Shencottah Gap

State: Kerala

Coordinates: centred at 8° 57' N, 77° 05' E

Reference/s: Robin et al. (2010), USAMS U502 (NC 43-16 Trivandrum).

Shevaroy Hills (Shervarayar Malai)

Historical name/s: Shevroy Hills

State: Tamil Nadu

Coordinates: 11° 48' N, 78° 20' E

Reference/s: OGIS (p. 160, Shevaroy Hills), IGI (vol. 22, p. 273, Shevaroy Hills).

Sholayar River

State: Kerala

Coordinates: 10° 18' N, 76° 47' E

Reference/s: Basak (1995, p. 37, Map 31C), Kumar (2006, p. 13), USAMS U502 (NC 43-7 Coimbatore, shown as the Sholai Ār river).

Sholapur District [Historical name]

A district of the British Indian political division of Bombay Presidency, which is located in what is now the state of Maharashtra. The modern Solapur District covers a larger area.

Coordinates: between 17° 08' - 18° 33' N and 74° 37' - 76° 26' E

Reference/s: IGI (vol. 22, p. 295, Sholāpur District).

Sigur Ghat [Historical name]

See: Seeghoor Ghat

Sikkim

Sikkim was an independent kingdom, which became a state of India in 1975.

State: Sikkim

Coordinates: centred at 27° 30' N, 88° 30' E

Reference/s: OGIS (p. 162, Sikkim independent kingdom).

Simla (modern-day Shimla)

State: Himachal Pradesh

Coordinates: 31° 07' N, 77° 09' E

Reference/s: OGIS (p. 162, Simla resort), FRGG (Shimla).

Sinhgarh (or Sinhagad)

Historical name/s: Singhur, Singurh

State: Maharashtra

Coordinates: 18° 22' N, 73° 46' E

Reference/s: USAMS U502 (NE 43-6 Poona), IPF (Sinhagad).

Sinhgarh Hill

Historical name/s: Singhur hill

See: Sinhgarh

Sirsi

Historical name/s: Sircee

State: Karnataka

Coordinates: 14° 37' N, 74° 50' E

Reference/s: USAMS U502 (ND 43-6 Kārwār), IPF (Sirsi).

Sirumalai (hill range)

Historical name/s: Sirumallay, Sirumullay Hills

State: Tamil Nadu

Coordinates: 10° 13' N, 78° 00' E

Reference/s: USAMS U502 (NC 43-8 Dindigul), Pullaiah and Muralidhara Rao (2002).

Sispara

See: Sispara Ghat

Sispara Ghat [Historical name]

State: Kerala

Coordinates: 11° 12' N, 76° 27' E

Reference/s: USAMS U502 (NC 43-3
Calicut); IGI (vol. 19, p. 99, Sispāra
ghāt).

Sivagiri (hill range)

Historical name/s: Sivagherry hills,
Sivagherry mountains

State: Tamil Nadu

Coordinates: 9° 20' N, 77° 20' E

Reference/s: USAMS U502 (NC 43-12
Rajapālaiyam), Bawa et al. (2007).

Solapur

Historical name: Sholapur

State: Maharashtra

Coordinates: 17° 40' N, 75° 54' E

Reference/s: USAMS U502 (NE 43-11
Sholāpur), IPF (Solapur).

Son River

States: Madhya Pradesh, Uttar Pradesh,
Jharkhand and Bihar

Coordinates: source, Amarkantak highlands,
22° 42' N and 82° 04' E, confluence with
the Ganges, near Dinapore, 25° 40' N and
84° 50' E

Reference/s: IGI (vol. 23, p. 76, Son River).

South Canara Ghats, S. Canara Ghats

[Historical name]

Refers to the Western Ghats of South
Kanara (see above).

Coordinates: South Kanara, between 12° 07'
- 13° 59' N and 74° 34' - 75° 45' E

Reference/s: IGI (vol. 14, p. 353, Kanara,
South).

SOUTH KANARA [Historical name]

A district of the British Indian political
division of Madras Presidency. It now
lies partly in the state of Karnataka and
partly in Kerala. The modern district
Dakshina Kannada of Karnataka is a
much smaller area.

Other names: South Canara, S. Canara

Coordinates: between 12° 07' - 13° 59' N
and 74° 34' - 75° 45' E

Reference/s: IGI (vol. 14, p. 353, Kanara,
South).

SOUTH KANARA province [Historical
name]

See: South Kanara

SPITI [Historical name]

Spiti was a canton of the Kulu Subdivision
of Kangra District in the British Indian
political division of Punjab Province. It
now forms part of the larger Lahul and
Spiti District of Himachal Pradesh.

Coordinates: between 31° 42' - 32° 59' N
and 77° 26' - 78° 42' E

Reference/s: IGI (vol. 23, p. 92), OGIS (p.
166, Spiti).

Surat

State: Gujarat

Coordinates: 21° 10' N, 72° 54' E

Reference/s: OGIS (p. 168, Surat city).

SURAT DISTRICT [Historical name]

A district of the British Indian political
division of Bombay Presidency. It lies in
the present-day state of Gujarat. The
modern Surat District is a much larger
area.

Coordinates: between 20° 17' - 21° 28' N
and 72° 35' - 73° 29' E

Reference/s: IGI (vol. 23, p. 150).

Sahyadris

Sanskrit name for the Western Ghats.

Coordinates: centred at 15° 00' N, 75° 00' E

Reference/s: IGI (vol. 12, p. 217, Ghāts, Western, given as Sahyādri).

Talcher

Historical name/s: Talchir

State: Odisha (formerly Orissa)

Coordinates: 20° 57' N, 85° 13' E

Reference/s: USAMS U502 (NF 45-13 Angul), IPF (Talcher).

Tharangambadi

Historical name/s: Tranquebar

State: Tamil Nadu

Coordinates: 11° 02' N, 79° 50' N

Coordinates: USAMS U502 (NC 44-2 Cuddalore), OGIS (p. 178, Tranquebaria town).

Thrissur

See: Trichur

TINNEVELLY [Historical name]

Most likely refers to Tinnevelly District, but may on occasion refer to the *Tāluk* or town of the same name (IGI, vol. 23, p. 379).

Other names: Tinnevelley, Tinevelly

See: Tinnevelly District

TINNEVELLY DISTRICT [Historical name]

Refers to the district in the British Indian political division of Madras Presidency. This territory was absorbed into the modern state of Tamil Nadu, and is comparable with, but not identical to modern Tirunelveli District (see OGIS, p. 177).

Other names: Tinnevelley District,

Tinevelly District

Coordinates: between 8° 09' - 9° 43' N and

77° 12' - 78° 23' E

Reference/s: IGI (vol. 23, p. 361, Tinnevelly District).

TINNEVELLY ghats [Historical name]

Probably refers to the Western Ghats of Tinnevelly District.

Coordinates: Tinnevelley District, between

8° 09' - 9° 43' N and 77° 12' - 78° 23' E

Reference/s: IGI (vol. 23, p. 361, Tinnevelly District).

TINNEVELLY Hills [Historical name]

See: Tinnevelly ghats

TINNEVELLY province/region

[Historical name]

Other names: Tinnevelley province/region

See: Tinnevelly District

Tiruchirappalli

Historical name/s: Trichinopoly, Trichinopoli

State: Tamil Nadu

Coordinates: 10° 50' N, 78° 43' E

Reference/s: OGIS (p. 178, Trichinopoly city).

Tirunelveli

Historical name/s: Tinnevelley

State: Tamil Nadu

Coordinates: 8° 44' N, 77° 41' E

Reference/s: OGIS (p. 177, Tirunelveli city).

Torna

State: Maharashtra

Coordinates: 18° 16' N, 73° 37' E

Reference/s: USAMS U502 (NE 43-6 Poona), FRGG (Torna).

Torna Hill/Hills

State: Maharashtra

Coordinates: 18° 16' N, 73° 37' E (Torna)
 Reference/s: USAMS U502 (NE 43-6
 Poona).

Tranquebar [Historical name]
 See: Tharangambadi

TRAVANACORE [Historical name]
 The Native State of Travancore was a political division of British India. The territory it encompassed was absorbed into the modern state of Kerala.

Coordinates: between 8° 04' - 10° 21' N and 76° 14' - 76° 37' E
 Reference/s: IGI (vol. 24, p. 1, Travancore State).

TRAVANACORE Ghats/Hills/Mountains
 [Historical name]

The Western Ghats of the British Indian state of Travancore.

Other names: Travencore Hills
 Coordinates: Travancore State, between 8° 04' - 10° 21' N and 76° 14' - 76° 37' E
 Reference/s: IGI (vol. 24, p. 1, Travancore State).

TRAVANACORE province [Historical name]

See: Travancore

Trichur (modern-day Thrissur)

Historical name/s: Trichoor
 State: Kerala
 Coordinates: 10° 32' N, 76° 14' E
 Reference/s: OGIS (p. 179, Trichoor/Trichur City).

Trivandrum (modern-day town of Thiruvananthapuram)

State: Kerala
 Coordinates: 8° 30' N, 76° 57' E
 Reference/s: OGIS (p. 179, Trivandrum city), IPF (Thiruvananthapuram).

Udaipur

State: Rajasthan
 Coordinates: 24° 36' N, 73° 47' E
 Reference/s: OGIS (p. 181, Udaipur city).

Uluberia

Historical name/s: Oolooberiah
 State: West Bengal
 Coordinates: 22° 28' N, 88° 07' E
 Reference/s: USAMS U502 (NF 45-7
 Calcutta), IPF (Uluberia).

Valparai

State: Tamil Nadu
 Coordinates: 10° 21' N, 76° 57' E
 References: IPF (Valparai).

Velikonda Hills

State: Andhra Pradesh
 Coordinates: 14° 45' N, 79° 10' E
 Reference/s: USAMS U502 (ND 45-5
 Cuddapah), Swaminathan and Ellis (1996).

Vindhya Hills

States: Gujarat and Madhya Pradesh
 Coordinates: centred at 23° 30' N, 76° 10' E;
 22° 30' N, 74° 45' E - 23° 30' N, 78° 00' E
 Reference/s: OGIS (p. 187, Vindhya Hills).

Visakhapatnam

Historical name/s: Vizagapatam
 State: Andhra Pradesh
 Coordinates: 17° 41' N, 83° 17' E
 Reference/s: USAMS U502 (NE 44-12
 Visākhāpatnam), FRGG
 (Visakhapatnam).

Walakkad

Historical name/s: Walaghat
 State: Kerala
 Coordinates: 11° 11' N, 76° 25' E
 Reference/s: USAMS U502 (NC 43-3
 Calicut).

Wardha River

States: Madhya Pradesh, Maharashtra and Andhra Pradesh

Coordinates: centred at 19° 35' N, 79° 45' E
References: OGIS (p. 187, Wardha Valley).

WYNAAD [Historical name]

Wynaad was an administrative subdivision and *Tāluk* in the Malabar District of the British Indian Madras Presidency. This district, now known as Wayanad, lies in the present-day state of Kerala.

Coordinates: between 11° 27' - 11° 58' N and 75° 47' - 76° 27' E

Reference/s: IGI (vol. 24, p. 399, Wynaad).

WYNAAD Province [Historical name]

See: Wynaad

Yelagiri Hills

Historical name/s: Yellagherry Hills, Yellagherry Hills

State: Tamil Nadu

Coordinates: 12° 34' N, 78° 37' E

Reference/s: USAMS U502 (ND 44-13

Bangalore), Swaminathan and Ellis (1996).

Yellapur

Historical name/s: Yellapore

State: Karnataka

Coordinates: 14° 58' N, 74° 43' E

Reference/s: USAMS U502 (ND 43-6

Kārwār), IPF (Yellapur).

Yercaud

Historical name/s: Yercand

State: Tamil Nadu

Coordinates: 11° 46' N, 78° 11' E

Reference/s: OGIS (p. 189, Yercaud town).

OTHER LOCALITIES**ARAKAN [Historical name]**

Arakan was a political division of British colonial Burma.

Country: Myanmar

Coordinates: between 17° 15' - 22° 30' N and 92° 11' - 94° 52' E

Reference/s: IGI (vol. 5, p. 389, Arakan Division).

Ava (or Inwa)

Country: Myanmar

Coordinates: 21° 51' N, 96° 00' E

Reference/s: IGI (vol. 6, p. 151, Ava).

Bassein

Most likely Bassein District of British colonial Burma or Bassein town (modern-day Pathein).

Country: Myanmar

Coordinates: Bassein District, between 15° 50' - 17° 30' N and 94° 11' - 95° 28' E, Bassein town, 16° 46' N, 94° 46' E

Reference/s: IGI (vol. 7, p. 106, Bassein District, p. 117, Bassein Town).

Batticaloa

Historical name/s: Baticalva

Country: Sri Lanka

Coordinates: 7° 43' N, 81° 42' E

Reference/s: OGIS (p. 23, Batticaloa city).

CEYLON [Historical name]

Ceylon is the former name for Sri Lanka.

Coordinates: centred at 7° 47' N, 80° 45' E

Reference/s: OGIS (p. 34, Ceylon, former name of Sri Lanka).

Chittagong

Country: Bangladesh

Coordinates: 22° 20' N, 91° 48' E

Reference/s: OGIS (p. 40, Chittagong city).

Colombo

Country: Sri Lanka

Coordinates: 6° 55' N, 79° 52' E

Reference/s: OGIS (p. 42, Colombo city).

Dimbula

Country: Sri Lanka

Coordinates: 7° 15' N, 80° 37' E

Reference/s: OGIS (p. 50, Dimbula town).

Jaffna

Country: Sri Lanka

Coordinates: 9° 40' N, 80° 01' E

Reference/s: OGIS (p. 71, Jaffna city).

Jessore

Country: Bangladesh

Coordinates: 23° 10' N, 89° 13' E

Reference/s: USAMS U502 (NF 45-4
Farīdpur).

JESSORE DISTRICT [Historical name]

A district of the British Indian Province of Bengal.

Country: Bangladesh

Coordinates: between 22° 47' - 23° 47' N
and 88° 40' - 89° 50' E

Reference/s: IGI (vol. 14, p. 90, Jessore District).

Kamaran Island, off Yemen in the Red Sea

Historical name/s: Cameran Island

Country: Yemen

Coordinates: 15° 21' N, 42° 36' E

Reference/s: FRGG (Kamaran Island).

Khark Island, off the coast of Iran in the Persian Gulf

Historical name/s: "Ísle of Karah, Gulf of Persia", "Karak I., Persian Gulf"

Country: Iran

Coordinates: 29° 16' N, 50° 20' E

Reference/s: FRGG (Khark Island).

Kumarkhali

Historical name/s: Comercolly

Country: Bangladesh

Coordinates: 23° 52' N, 89° 11' E

Reference/s: USAMS U502 (NF 45-4
Farīdpur, shown as Kumarkhāli), EIG (p. 305, "Comercolly").

Kushtia

Country: Bangladesh

Coordinates: 23° 54' N, 89° 07' E

Reference/s: OGIS (p. 97, Kushtia town).

Maldive Islands

Country: Maldives

Coordinates: 3° 00' N, 72° 33' E

Reference/s: OGIS (p. 108, Maldive Islands).

Mihintale

Historical name/s: Mehintali Rock

Country: Sri Lanka

Coordinates: 8° 21' N, 80° 30' E

Reference/s: FRGG (Mihintale).

Moulmein [Historical name]

Moulmein Subdivision of British colonial Burma, or the town of the same name (modern-day Mawlamyine or Mawlam-yaing).

Country: Myanmar

Coordinates: 16° 29' N, 97° 38' E (Moulmein town)

Reference/s: IGI (vol. 18, p. 5, Moulmein Subdivision, p. 6, Moulmein Town).

N. Mahlos Atoll [Historical name]

May refer to North Mahlosmadulu Atoll.

Country: Maldives

Coordinates: 5° 30' N, 73° 00' E

Reference/s: USDMA (ONC L-8 Ceylon,

India, Maldives Islands).

Nuwara Eliya

Country: Sri Lanka

Coordinates: 6° 58' N, 80° 46' E

Reference/s: OGIS (p. 132, Nuwara Eliya city).

Pegu

Most likely refers to Pegu District of British colonial Burma, or to the town of Pegu (modern-day Bago).

Country: Myanmar

Coordinates: Pegu District, between 16° 54' - 18° 25' N and 95° 57' - 96° 54' E, Pegu town, 17° 20' N, 96° 29' E

Reference/s: IGI (vol. 20, p. 84, Pegu District, p. 96, Pegu town).

Point Pedro

Country: Sri Lanka

Coordinates: 9° 49' N, 80° 14' E

Reference/s: OGIS (p. 142, Point Pedro town).

Ramboda hills

The hills in and around the town of Ramboda.

Historical name/s: Rambaddy Ghat/s

Country: Sri Lanka

Coordinates: 7° 03' N, 80° 42' E (Ramboda town)

Reference/s: FRGG (Ramboda).

SHAN STATES [Historical name]

This refers to the Northern and Southern Shan States, which were political divisions of British colonial Burma.

Country: Myanmar

Coordinates: between 21° 31' - 24° 09' N and 96° 13' - 99° 45' E (Northern Shan States), and between 19° 20' - 22° 16' N and 96° 13' - 101° 09' E (Southern Shan States)

Reference/s: IGI (vol. 22, p. 229, Northern Shan States, p. 248, Southern Shan States).

SIND [Historical name]

During the British Period, Sind was a province of India's Bombay Presidency.

Country: Pakistan,

Coordinates: between 23° 35' - 28° 29' N and 66° 40' - 71° 10' E

Reference/s: IGI (vol. 22, p. 389, Sind).

Sylhet

Country: Bangladesh

Coordinates: 24° 53' N, 91° 52' E

Reference/s: USAMS U502 (NG 46-14 Sylhet).

SYLHET DISTRICT [Historical name]

During the late British Period this district was located on the south-west frontier of the Indian political division of Eastern Bengal and Assam.

Country: Bangladesh

Coordinates: between 23° 59' - 25° 13' N and 90° 56' - 92° 36' E

Reference/s: IGI (vol. 23, p. 189).

Tien Shan Mountains

Historical name/s: Tian Shan Mountains

Countries: India, Pakistan, China, Kazakhstan, Kyrgyzstan and Uzbekistan

Coordinates: centred at 42° 02' N, 80° 08' E

Reference/s: USDMA (ONC F-6 China, USSR, indicated as the Tien Shan range).

LITERATURE CITED

Basak, P. (Ed). 1995. Water Atlas of Kerala. Centre for Water Resources Development and Management (CWRDM), Kozhikode, Kerala.

Bawa, K.S., Das, A., Krishnaswamy, J., Karanth, K.U., Kumar, N.S. and Rao, M. 2007.

Ecosystem Profile (Western Ghats & Sri Lanka Biodiversity Hotspot) – Western Ghats Region. A report prepared by the Critical Ecosystems Partnership Fund, final version, May 2007.

Available at: http://www.cepf.net/where_we_work/regions/asia_pacific/western_ghats/Pages/default.aspx [accessed 21 February 2014].

Beddome, R.H. 1892. Handbook to the ferns of British India, Ceylon and the Malay Peninsula. With Supplement. Thacker, Spink & Co., Calcutta.

Benson, W.H. 1863. Characters of new Operculate Land-Shells from the Andamans, and of Indian and Burmese Species of *Pupa*. Annals and Magazine of Natural History, Series 3, 12: 423-428.

Benson, W.H. 1864. Characters of new Land-Shells from the Mahabaleshwar Hills in Western India, and from Agra in the Northwest Provinces. Annals and Magazine of Natural History, Series 3, 13: 208-211.

Blanford, W.T. 1880. Contributions to Indian Malacology, No. XII. Descriptions of new Land and Freshwater Shells from Southern and Western India, Burmah, the Andaman Islands, &c. Journal of the Asiatic Society of Bengal, 49 (2): 181-222.

Falling Rain Genomics, Inc. 1996-2010. Falling Rain Global Gazetteer, Version 2.2. Available online at: <http://www.fallingrain.com/world/index.html> [accessed 21 February 2014].

Hamilton, W. 1815. The East India Gazetteer; containing Particular Descriptions of the Empires, Kingdoms, Principalities, Provinces, Cities, Towns, Districts, Fortresses, Harbours, Rivers, Lakes, &c. of Hindostan, and the Adjacent Countries, India beyond the Ganges, and the Eastern Archipelago; together with Sketches of the Manners, Customs, Institutions, Agriculture, Commerce, Manufactures, Revenues, Populations, Castes, Religion, History, &c. of the Various Inhabitants. John Murray, Albemarle Street, London.

Kumar, M.A. 2006. Effect of habitat fragmentation on Asian elephant (*Elephas maximus*) ecology and behaviour patterns in a conflict-prone plantation landscape of the Anamalai hills, Western Ghats, India. Final report submitted to Rufford Maurice Laing Foundation, UK.

Legris, P. and Meher-Homji, V.M. 1984. The Eastern Ghats: phytogeographic aspects. Indian Review of Life Sciences, 4: 115 -136.

Lozupone, P., Beehler, B.M. and Ripley, S.D. 2004. Ornithological Gazetteer of the Indian Subcontinent. Center for Applied Biodiversity Science, Conservation International, Washington DC, USA.

Meyer, W.S., Burn, R., Cotton, J.S. and Risley, H.H. 1908-1931. The Imperial Gazetteer of India. New edition, published under the authority of His Majesty's Secretary of State for India in Council. 26 volumes. Clarendon Press, Oxford.

Available for reference online through the Digital South Asia Library: <http://dsal.uchicago.edu> [accessed 21 February 2014].

Mizushima Laboratory. 2013. India Place Finder: <http://india.csis.u-tokyo.ac.jp>. Department of Oriental History, Graduate School of Humanities and Sociology, The University of Tokyo [accessed 21 February 2014].

Nevill, G. 1878. Hand List of Mollusca in the Indian Museum, Calcutta. Part 1. Gastropoda. Pulmonata and Prosobranchia-Neurobranchia. Calcutta.

Pullaiah, T. and Muralidhara Rao, D. 2002. Flora of the Eastern Ghats: Hill Ranges of South East India. Volume 1 (Ranunculaceae-Moringaceae). Regency Publications, New Delhi.

Rao, H.S. 1925. On certain Succineid Molluscs from the Western Ghats, Bombay Presidency. Records of the Indian Museum, 27: 385-400.

Robin, V.V., Sinha, A. and Ramakrishnan, U. 2010. Ancient Geographical Gaps and Paleo-Climate Shape the Phylogeography of an Endemic Bird in the Sky Islands of Southern India. PLoS ONE, 5 (10): e13321.

Swaminathan, M.S. and Ellis, J.L. 1996. Eastern Ghats. In: Hajra, P.K., Sharma, B.D., Sanjappa, M. and Sastry, A.R.K. (Eds), Flora of

India, Introductory volume (Part I), pp. 477-505. Botanical Survey of India, Calcutta.

U.S. Army Map Service. 1955-. 1:250,000 Topographic Map Series U502 "India and Pakistan". Corps of Engineers, U.S. Army, Washington D.C.
Available online at the Perry-Castañeda Library Map Collection, University of Texas Austin: <http://www.lib.utexas.edu/maps> [accessed 21 February 2014].

U.S. Defense Mapping Agency Aerospace Center. 1965. USAF Operational Navigational Chart, Scale 1:1,000,000, ONC L-8, Ceylon, India, Maldives Islands, 1st edition (compiled 1965). Aeronautical Chart and Information Center, United States Air Force, St. Louis, MO. 63118, U.S.A.
Available online at the Perry-Castañeda Library Map Collection, University of Texas Austin: <http://www.lib.utexas.edu/maps> [accessed 21 February 2014].

U.S. Defense Mapping Agency Aerospace Center. 1985. Operational Navigational Chart, 1:1,000,000, ONC F-6, China, USSR, edition 6 (compiled 1974). Defense Mapping Agency Aerospace Center, St. Louis, Missouri, 63118, U.S.A.
Available online at the Perry-Castañeda Library Map Collection, University of Texas Austin: <http://www.lib.utexas.edu/maps> [accessed 21 February 2014].

Vajravelu, E. and Vivekananthan, K. 1996. Southern Western Ghats. In: Hajra, P.K., Sharma, B.D., Sanjappa, M. and Sastry, A.R.K. (Eds), Flora of India, Introductory volume (Part I), pp. 391-445. Botanical Survey of India, Calcutta.

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