The Neotropical land snails (Mollusca, Gastropoda) collected by the 'Comisión Científica del Pacífico'

Abraham S.H. Breure[1,2] and Rafael Araujo[3]

[1] Royal Belgian Institute of Natural Sciences, Brussels, Belgium
[2] Department of Zoology, Naturalis Biodiversity Center, Leiden, Netherlands
[3] Museo Nacional de Ciencias Naturales-CSIC, Madrid, Spain

ABSTRACT

The land snails collected by the 'Comisión Científica del Pacifíco' (CCP), a Spanish expedition to South and Central America from 1862–1866, are restudied and revised. The historical context of the expedition and the study of its collected material are described. Biographical data is given for the main persons involved. The land snails were previously studied by Joaquin Hidalgo between 1867 and 1893. A total of 3,470 specimens belonging to 211 species are treated in this paper. Of 34 species mentioned by Hidalgo is his catalogue, the corresponding material could not be located. *Bulimus visendus* Hidalgo, 1869 is now placed in the genus *Synapterpes* Pilsbry, 1896, a new combination.

Subjects Biogeography, Evolutionary Studies, Taxonomy, Zoology
Keywords Mollusca, Gastropoda, Biohistory, Biographical data, 19th century, Expedition, South America, Central America

INTRODUCTION

On the 10th August 1862, a group of Spanish scientists sailed away from Cadiz for an expedition that would last until the 18th January 1866. This group of men, known as the 'Comisión Científica del Pacifíco' (CCP), would visit many parts of South, and some parts of Central, America and collected many specimens of animals, artefacts and plants and made photographs and illustrations of the remarkable things they observed (*Barreiro, 1926*; *Miller, 1968*; *Puig-Samper, 1988*; *Calatayud, 1994*; *López-Ocón, 2003*). The group (Fig. 1) consisted of Patricio Paz y Membiela (zoologist and president of the CCP), Manuel Almagro y Vega (anthropologist and ethnographer), Fernando Amor y Mayor (geologist and entomologist; vice-president), Francisco de Paula Martínez y Sáez (zoologist), Marcos Jiménez de la Espada (zoologist), Rafael Castro y Ordóñez (photographer and draftsman), and Juan Isern (botanist). The taxidermist Bartolomé Puig y Galup was selected shortly before their departure, but left the CCP in autumn 1863 whilst in Chile. The land molluscs, which were mainly collected by Paz y Membiela and Martínez y Sáez (see below), were studied by Joaquin González Hidalgo who published an extensive catalogue with supplements (*Hidalgo, 1870*; *Hidalgo, 1875*; *Hidalgo, 1893a*; *Hidalgo, 1893b*).

This study of the molluscan part of the CCP material deserves to be placed in its historical context to understand several details that will be discussed below. In the section 'context of the collection' we will therefore briefly elaborate on the creation of the CCP,

Submitted 23 November 2016
Accepted 4 February 2017
Published 14 March 2017

Corresponding author
Abraham S.H. Breure,
ashbreure@gmail.com

Academic editor
Sean Rogers

Additional Information and Declarations can be found on page 129

DOI **10.7717/peerj.3065**

Figure 1 Members of the 'Comisión Científica del Pacífico'. Left to right, upper row: Isern, Jiménez de la Espada, Almagro; lower row: Castro, Amor, Paz, Martínez, Puig (MNCN archive).

its itinerary, the way the study of its collected material was undertaken and the results that were published. We will also present biographical data on relevant CCP members and the persons directly involved in the study of the land molluscs. Until now, the full extent of the CCP collection of land molluscs was not precisely known, as *Almagro (1866)* presumably only gave numbers of the material which was exhibited to the public in 1866, and Hidalgo listed only the species recognised without mentioning any numbers. A partial summary, listing only the new species described by Hidalgo, was given by *Calvo (1994)*. The recent discovery of an undescribed species which appeared to be mixed in with other material (*Breure & Araujo, 2015*) stimulated this current study, which aims to revise all of the known land mollusc material collected by the CCP.

MATERIAL AND METHODS

The core historical material of the Museo Nacional de Ciencias Naturales mollusc collection is from three Spanish malacologists: Paz y Membiela with 40,000 specimens representing 12,000 species and subspecies, Hidalgo with 8,000 species and Azpeitia with 80,000 specimens of 8,171 species (6,594 gastropods and 1,577 bivalves) (*Barreiro, 1992*). Other historical material comes from the founder of the Museum, P. Franco Dávila (1711–1786),

Figure 2 Portraits of persons mentioned in this study. (A) Mariano Graells, 1862 (MNCN-CSIC); (B) Patricio Paz y Membiela, unknown date (CCHS-CSIC).

and from M. Graells (1809–1898; Fig. 2), who was director of the museum between 1851 and 1867. The material which had been previously recognised as originating from the CCP, has been restudied and identified according to modern literature. Material from the collections of Paz y Membiela and Hidalgo is only included if this CCP origin could be ascertained (e.g., by the label type or by the collection locality). Material from the Azpeitia collection is included when a similar lot had been found with an undisputed CCP origin.

Besides references to the original publications of the species, only references are given to publications citing the CCP material. The section on systematics follows the classification given by *Bouchet & Rocroi (2005)*, with the exception of the Orthalicoidea. All nomenclatural innovations are explicitly identified in the individual species accounts and any literature citations based on misidentifications are identified as such to distinguish them from intended synonymies.

Type material lists only the primary types of taxa (if known), unless taxa were based on material collected by the CCP. Abbreviations for depositories: IFML, Instituto y Fundación Miguel Lillo, Tucumán, Argentina; MNCN, Museo Nacional de Ciencias Naturales, Madrid, Spain; MNHN, Muséum nationale d'Histoire naturelle, Paris, France; NHMUK, Natural History Museum, London, UK; NMW, National Museum Wales, Cardiff, UK; RBINS, Royal Belgian Institute of Natural Sciences, Brussels, Belgium; ZMB, Zoologisches Museum, Humboldt-Universität für Naturkunde, Berlin, Germany; ZSM, Zoologische

Staatssammlung, München, Germany. Other abbreviations used: Coll., collection; H, shell height; leg., legit; /, end of line in quotation of original text.

RESULTS

The context of the collection

History of the CCP

The expedition and the CCP were organised by the Spanish government in the last years of the reign of Isabel II, during a very boisterous political time. The CCP, composed of several naturalists, was included in a military expedition to visit some of the former Spanish colonial regions in South and Central America (Río de la Plata, Valdivia, Valparaíso, Copiapó, Cobija, El Callao, Guayaquil, Nueva Granada, Central America and Mexico) which had recently become independent. The Commission members were shipped in the frigate "*Triunfo*" under the commandant Croquer; other ships of the squad were the frigate "*Resolución*" and the schooners "*Covadonga*" and "*Vencedora*", all under general Pinzón as chief of the Expedition.

The CCP was considered a national priority connected to the protection programme promoted by the (French) Société Impériale Zoologique d'Acclimatation and the framework of a pan-hispanist political and cultural movement, whose objectives agreed with those of Mariano de la Paz Graells, who was adviser of Queen Isabel II, Director of the Museo Nacional de Ciencias Naturales and Jardín Botánico, member of the Commission organisation and editor of the scientific instructions for the expedition. Nevertheless, military goals were probably the main objective in the organisation of the expedition (*Puig-Samper, 1988*). Although the CCP started out together, they split up frequently in to smaller groups once they reached South America and the itinerary of the expedition is thus rather complicated (*Calatayud, 1994*: 249–282). A brief description was published immediately after the return to Spain by *Almagro (1866)*; further details may be found in *Puig-Samper (1988)*, *Calatayud (1994)*, and *López-Ocón (2003)*.

Before the CCP left, rather detailed instructions had been made about what especially had to be collected (*Puig-Samper, 1988*), and among the zoologists, tasks were divided which is reflected in their biographies. As may be seen, all CCP members mentioned below had links to Spanish universities or academic centres at the time of their selection.

Patricio Paz y Membiela (1808–1874; hereafter: Paz, Fig. 3) came from a marine and military background and travelled all over the world having visited South America three times in total (*Barreiro, 1992*: 438), but apart from the visit with the CCP no dates nor itineraries of his travels are known. He formed an excellent shell collection, which probably originated from his relationship with the Cuban naturalists Felipe Poey and Nicolás Gutiérrez in Matanzas and La Habana respectively. He was designated as President of the Commission in 1862, but his continuous confrontations with the commandant of the "*Triunfo*" lead to his resignation to Queen Isabel II in 1863; he left the CCP in Callao. Once the CCP had returned to Spain, he was entrusted along with Francisco de Paula Martínez in the preparation of the zoological material for a public exhibition in the Botanical Garden

Figure 3 Portraits of persons mentioned in this study. (A) Francisco de Paula Martínez y Sáez, unknown date (*Calatayud, 1994*); (B) Manuel Almagro, unknown date (Servicio de Reproducción de Documentos Biblioteca Tomás Navarro Tomás, CCHS-CSIC).

in Madrid in 1866 (*López-Ocón & Badía, 2003*). After his death, his mollusc collection comprising 12,000 species and 40,000 specimens was sold to the MNCN (*Barreiro, 1992*: 437).

Fernando Amor y Mayor (1822–1863; hereafter: Amor) finished his studies of pharmacy in 1845 in Madrid, and became full professor in the Institutes of Cuenca, Córdoba and Valladolid. He had good contacts with Mariano de la Paz Graells, who was MNCN director from 1851 and one of the scientific advisors of Queen Isabel II. Amor travelled in Morocco during 1859, probably associated to a military expedition to explore the future territory of the Spanish war in Morocco (*Barras de Aragón, 1949*; *Puig-Samper, 1988*). In 1862 he was designated as a member and vice-president of the CCP, and entrusted with geology and entomology. He died in San Francisco during the expedition possibly due to a disease contracted in the Atacama desert (*Perejón, 2012*). He wrote a diary, probably lost in the fire of the "*Triunfo*", the ship on which the CCP travelled during the expedition. Part of this diary was saved by *Barreiro (1926)*.

Francisco de Paula Martinez y Sáez (1835–1908; hereafter: Martinez, Fig. 4), finished his studies of natural sciences in 1857 in Madrid, and worked at the MNCN entrusted with the collections of vertebrates. He was professor of mineralogy and botany at the Central University in Madrid during 1861–1862, and full professor of natural history in the institute of Teruel. In 1862 Martinez was designated as member and secretary of the CCP (*Gogorza, 1908*). He was entrusted with aquatic mammals and reptiles, fishes, crustaceans,

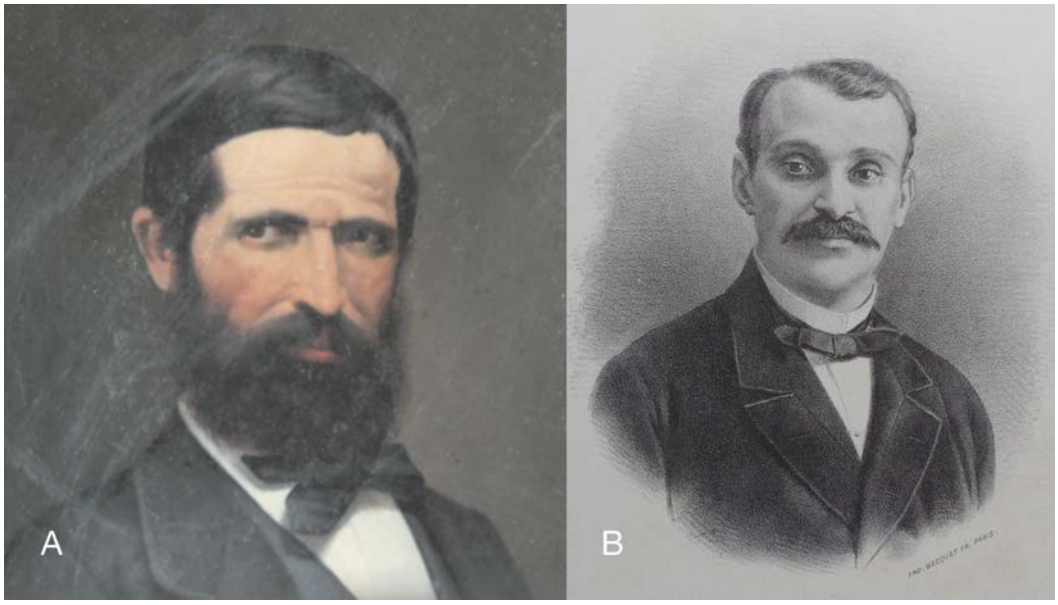

Figure 4 Portraits of persons mentioned in this study. (A) Juan Isern, unknown date (*Blanco, Rodríguez & Rodríguez, 2006*); (B) Joaquin Hidalgo, 1882 (Crosse archive).

annelids, molluscs and zoophytes. He replaced Paz as president after his decomission and the death of Fernando Amor y Mayor in 1863, and planned and executed the last part of the Commission's itinerary (''El gran viaje'') on the rivers Napo and Amazonas with Manuel Almagro, Marcos Jiménez de la Espada and Juan Isern. He wrote a diary of the expedition (*Calatayud, 1994*), and the books 'Moluscos del Viaje al Pacífico, 2. Bivalvos marinos' (*Martínez, 1879?*) and 'Distribución metódica de los vertebrados' (*Martínez, 1879*).

Manuel Almagro y Vega (1834–1895; hereafter: Almagro, Fig. 5) studied medicine in Cuba, Madrid and Paris, where he worked in the hospitals des Enfants, Dieu and la Pitié. In 1862 he was designated as member of the CCP for anthropologic and ethnographic studies. Almagro was one of the first professional anthropologists making field studies in the Americas (*Puig-Samper, 1988*). He wrote an analysis after the return of the Commission for the exhibition of the material at the Real Jardín Botánico in Madrid in 1866 (*Almagro, 1866*). This exhibition, an explicit wish of the CCP's political and scientific sponsors, brought the results of the CCP to the general public and was considered a success (*López-Ocón & Badía, 2003*).

Juan Isern Batlló y Carrera (1825–1866; hereafter: Isern, Fig. 6) studied botany and medicine in Barcelona, Girona and Madrid. He was in contact with foreign botanists like Willkomm and Webb, exchanging with them Catalonian and German plants. He worked at the MNCN and the Real Jardín Botánico in Madrid since 1851 where he was in direct contact with Graells and Miguel Colmeiro, directors of both scientific centres respectively. In 1862 Isern was designated as member of the CCP for botanical studies. He wrote an unpublished diary that is today in the archive of the Real Jardín Botánico (*Blanco, Rodríguez & Rodríguez, 2006*).

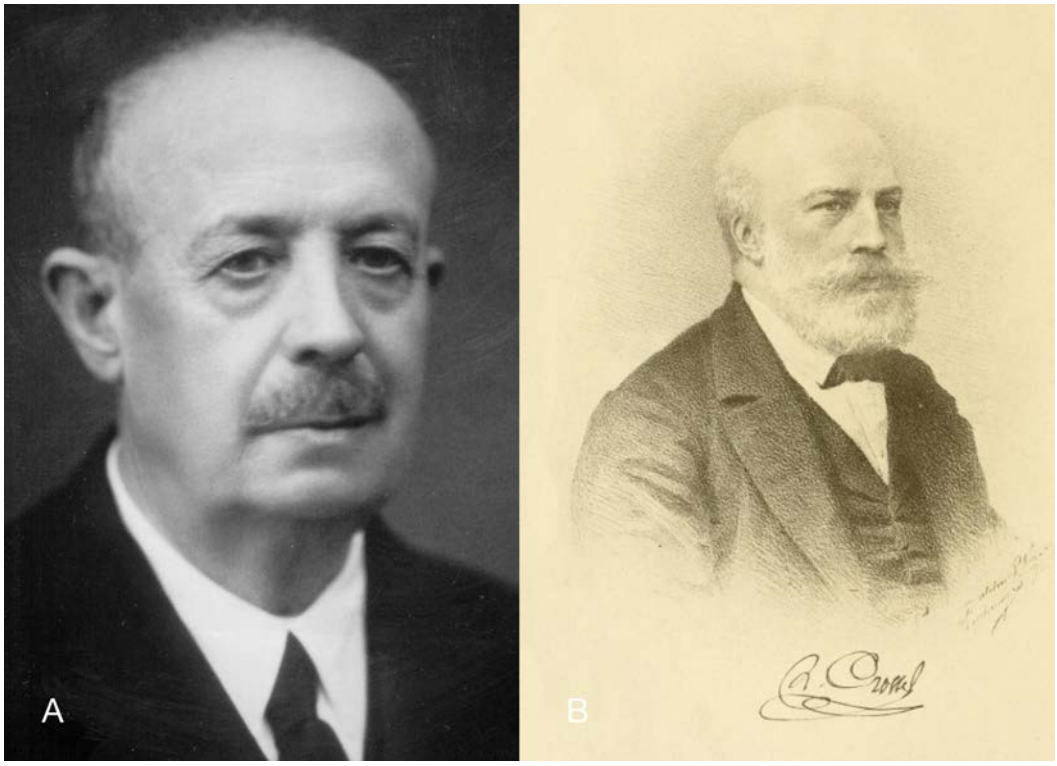

Figure 5 Portraits of persons mentioned in this study. (A) Florentino Azpeitia, unknown date (photo R. Araujo); (B) Hippolyte Crosse, unknown date (*Tual & Fischer, 1899*).

Marcos Jiménez de la Espada (1831–1898) studied natural sciences in Madrid and in 1853 worked at the Central University. From 1857 he worked in the collections of the MNCN until his designation as member of the CCP for geological, zoological, anthropological, ethnographical, botanical and geographical studies. Although he was a disciple of Graells, Espada was rather critical about the organisation of the Commission (*Puig-Samper, 1988*). He published 'Vertebrados del Viaje al Pacífico, Batracios' (*Jímenez de la Espada, 1875*).

We will end this section with biographical data on persons who, although not members of the CCP, are important in the rest of this study. In Madrid two persons were related to the material collected by the CCP, Joaquin Hidalgo and Florentino Azpeitia. Abroad, only a few malacologists were entrusted with descriptions of part of the new species among this material, Hippolyte Crosse, Louis Pfeiffer and Rudolph Philippi.

Joaquin G. Hidalgo (1839–1923; Fig. 7) studied medicine in Madrid at the San Carlos Hospital, and afterwards natural sciences at the Central University. He started with an interest in Mineralogy but decided to finalise his study in medicine on the advice of his professor Rafael Martinez y Molina; he graduated in 1861 and settled in Madrid as a medical doctor. Nevertheless, he began in these years with his collection of shells and his first naturalistic travels within Spain subsidised by Pedro González de Velasco (1815–1882), who worked at the San Carlos Hospital. In 1860 he came into contact with the military Patricio Paz y Membiela in Barcelona and together they worked on his extensive malacological collection. This was probably the reason why in 1862 Paz invited Hidalgo to become a

Figure 6 Portraits of persons mentioned in this study. (A) Louis Pfeiffer, 1856 (*Wheeler, 1949*); (B) Rudolph Philippi, unknown date (CCHS-CSIC).

member of the CCP as a naturalist; an offer which Hidalgo declined because of his medical practice. In his place Martínez became member of the Commission. During 1862 and 1875 Hidalgo gave classes at the Central University in zoology, mineralogy and botany. He travelled to Paris in 1865 and 1868, where he was in contact with Deshayes, Crosse and Fischer. Hidalgo had also relationships with Gassies, Souverbie, Guestier, Morelet, Morlet, Jousseaume, Fischer Jr., Dautzenberg, Dollfus, de Folin, Petit de la Saussaye, and Locard. We have found two documents compiled by Hidalgo that lead us to suggest he was sensitive to the opinions of others about his work. The first [Enumeración: MNCN Library F-II-5727] listed the comments of foreign colleagues as published in their own work (if not in French, translated into Spanish); the comments are mainly from Crosse, with additional ones from e.g., P. Fischer, Jeffreys, Dautzenberg, Kobelt, Pfeiffer, and Drouët. The second document (*Hidalgo, 1918?*) [Relación: MNCN Library F-II-5737] gives an overview of excerpts (translated in Spanish) of 47 correspondents who wrote favourable sentences about his work in letters addressed to Hidalgo. Although, unfortunately, the correspondence of Hidalgo has not been located, this document was used for a partial reconstruction of his network (*Breure & Backhuys, 2017*). Both documents had been printed and were apparently primarily aimed at Spanish readers. Hidalgo published his malacological manuscripts in the Journal de Conchyliologie, the Real Academia de Ciencias Exactas, Físicas y Naturales de Madrid, and the Sociedad Española de Historia Natural founded by Velasco, Martinez Molina and Zapater. Importantly, Crosse and Fischer helped Hidalgo in the drawing and publication of the plates of his manuscripts. In 1867 he published his first catalogue of Spanish marine molluscs. Afterwards, he published the

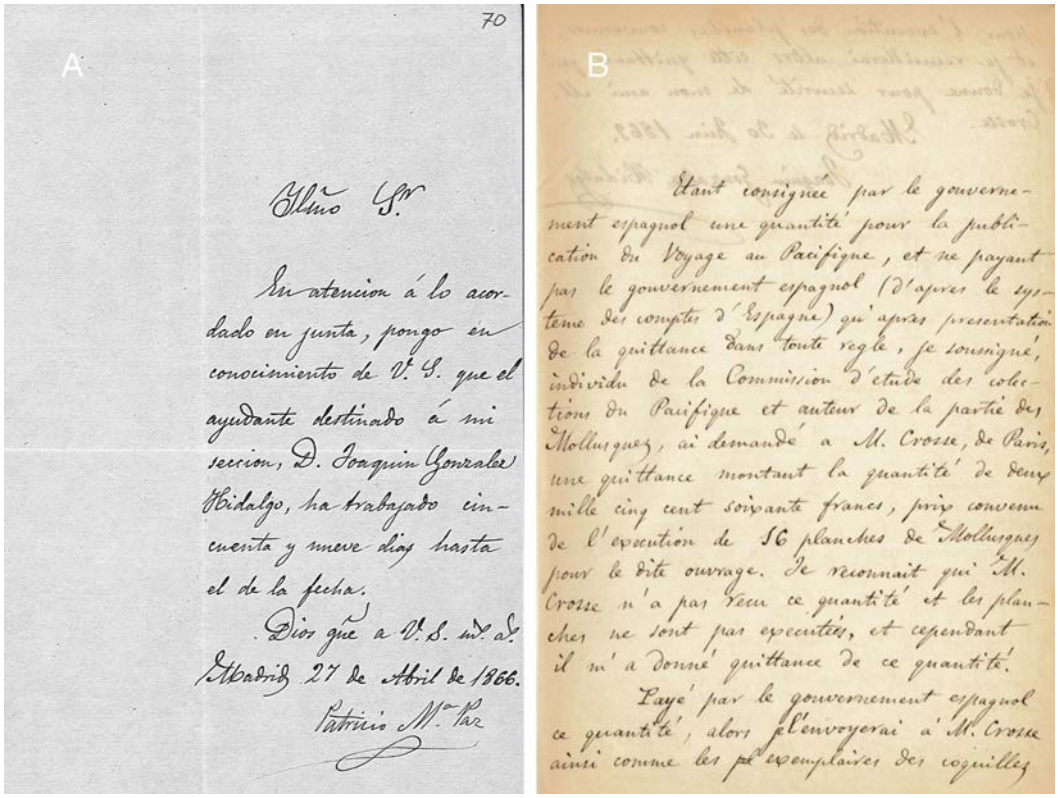

Figure 7 **Handwritings.** (A) P. Paz (MNCN-CSIC); (B) J. Hidalgo (Crosse archive).

books on the CCP molluscs with the plates made in Paris (see below). Thanks to Graells, in 1877, Hidalgo was admitted to the Real Academia de Ciencias Exactas, Físicas y Naturales and at the MNCN. He worked again at the University between 1888 and 1897 in botany, mineralogy and zoology, and in 1897 became full professor of mineralogy. He was also involved with the mineral collection at the MNCN. In 1900 he changed the professorship of mineralogy for one in molluscan zoogeography. Hidalgo was director of the MNCN from 3 July 1900 to 2 July 1901 (*Barreiro, 1992*: 301, 309). He donated his malacological library (c. 2,000 publications) and sold his shell collection to the MNCN in 1913 (*Barreiro, 1992*: 321, 455–457). In summary, he published 7,600 pages on malacology with 336 plates (made by Arnoul, Delahaye, Laporta and Arroyo) (*Hidalgo, 1913?*); a bibliography was published by *Azpeitia (1923)*.

Florentino Azpeitia Moros (1859–1934; Fig. 8) was professor of geology and paleontology in the Escuela Especial de Ingenieros de Minas in Madrid. He was friendly with Hidalgo since 1883, when Azpeitia was treated by Hidalgo as a medical doctor because of gastric fever. From this point, the two men worked together on malacology, Hidalgo being the master and Azpeitia the disciple. He became member of the Sociedad Española de Historia Natural in 1897 for his studies in molluscs and diatoms. Azpeitia was the author of numerous scientific works on geology, botany and zoology; some of the most importance were his 'Monografía de las Melanopsis vivientes de España' (1929) and 'Conchas bivalvas

Figure 8 **Labels.** (A–C) Supposedly original (field) labels written by Paz; (D, E) Labels from the Paz collection, written by Hidalgo; (F) Label from the Hidalgo collection; (G, H) Labels from the Azpeitia collection; (I) Old MNCN label; (J) Modern MNCN label.

de agua dulce de España y Portugal' (1933) (*Álvarez Halcón, 1997*; *Álvarez Halcón, 1998*). His molluscan collection, with 80,000 specimens of 8,171 species (6,594 gastropods and 1,577 bivalves) was donated to the MNCN in 1934 (*Barreiro, 1992*: 342).

Hippolyte Crosse (1826–1898; Fig. 9) studied law, but had an interest in natural history from a young age. After a trip to southern France, Corsica and Sicily in 1849, he devoted himself totally to malacology. The *Journal de Conchyliologie* had been established in 1850

Figure 9 Material collected by the CCP. (A–L) Helicinidae. *Bourciera heliciniforme* (*Pfeiffer, 1853*), MNCN 15.05/13857, (A) ventral view, (B) umbilical view, (C) apical view; *Helicina angulata Sowerby II, 1842*, MNCN 15.05/76223, (D) ventral view, (E) umbilical view, (F) apical view; *Helicina brasiliensis Gray, 1824*, MNCN 15.05/39940, (G) ventral view, (H) umbilical view, (I) apical view; *Helicina variabilis Wagner, 1827*, MNCN 15.05/39941, (J) ventral view, (K) umbilical view, (L) apical view. Scale 5 mm.

by Petit de la Saussaye, but ceased to appear after a few years. In 1856 it was resurrected by P. Fischer and A.C. Bernardi, and in 1861 Crosse joined them, soon becoming managing director. Together with Fischer he made the journal one of the outstanding malacological journals of the late 19th century (Poyard in *Poyard et al., 1898?*: 3–6). As managing director he was in contact with all the major malacologists of the era, and received many type specimens of species published in the journal (*Fischer-Piette, 1950*). From his extensive correspondence with Hidalgo, we know that he also regularly received specimens of CCP material for his own collection, which was auctioned after his death (*Breure & Backhuys, 2017*; *Tual & Fischer, 1899*).

Louis Pfeiffer (1804–1877; Fig. 10) studied medicine at the Universities of Göttingen and Marburg, after which he did postgraduate work in Paris and Berlin. In autumn 1826 he settled in his city of birth Kassel to practice medicine. After his first marriage in 1833 he gave up his medical practice and devoted himself to botany and malacology, making extensive excursions through Germany and the Low Countries. In 1838–1839 Pfeiffer made a trip to Cuba, together with Johannes Gundlach, which had a significant bearing on his future work. After his return to Germany he received further Cuban shells from Gundlach and Felipe Poey. Pfeiffer made frequent trips to Paris and London to consult literature not accessible in Kassel and to study the collections brought to Europe by the great French voyages, and especially those of Hugh Cuming in London. After the death of his youngest son during the Franco–Prussian war in 1870 his health was much impaired (*Wheeler, 1949*).

Rudolph Philippi (1808–1904; Fig. 11) was sent at a young age to Switzerland to have private education by the renowned Swiss philosopher Pestalozzi. He soon became interested in the flora and fauna, but graduated as a Doctor of Medicine in Berlin in 1830. During a visit to southern Italy in 1831–1833 he studied the molluscs and the geology of the region. In 1835 he got a position as professor at the Polytechnic Institute of Kassel. Soon afterwards he suffered from health problems and returned to Naples from 1837–1839. Due to the unstable political circumstances he decided to emigrate in 1850 and was appointed as professor of German in Valdivia, Chile. In 1853 he became director of the Museo Nacional de Historia natural in Santiago, as well as professor of botany and zoology at the University. In 1854 he was rejoined by his family, which also brought his library and scientific collections to Santiago. He made important contributions to the knowledge of the flora and fauna of Chile (*Emig, 2015*). On the 18th May 1863 the CCP members met with Philippi in the Santiago museum and they revised collections in the museum, made an excursion together with Philippi and their visit ended with a banquet on the1st June (*Blanco, Rodríguez & Rodríguez, 2006*: 112–114). Philippi named several species of plants and molluscs after CCP members (this study; *Blanco, Rodríguez & Rodríguez, 2006*: 264).

The 'Comisión del Estudio de collecciones del Pacifico'

When in 1868 in Spain a new, liberal government came to power that wanted to promote science (*López-Ocón, 1997*), attention for the CCP material was renewed after it had wained following the exhibition in 1866. A 'Comisión de Estudio de las collecciones del Pacifico' (CEcP) was established that aimed to study the materials collected by the CCP and publish the results. At its start on 14 January 1868, the CEcP consisted of Francisco Méndez Álvaro (president), Juan Villanova y Piera (vice-president), Francisco de Paula Martínez y Sáez (secretary), Manuel Almagro, Manuel de Galdo, Joaquin Hidalgo, Marcos Jiménez de la Espada, Sandalio Pereda, José Solano y Eulate, and Lucas de Tornos. In April 1868 the Ministry of Public Instruction asked for the completion of their task as soon as possible (*Blanco, Rodríguez & Rodríguez, 2006*: 260). The CEcP members complained about the short notice given and argued that they needed several years to produce good scientific results. They even recommended they should travel to several European countries for their studies. The minutes of the Committee, however, show that the study of the material did not

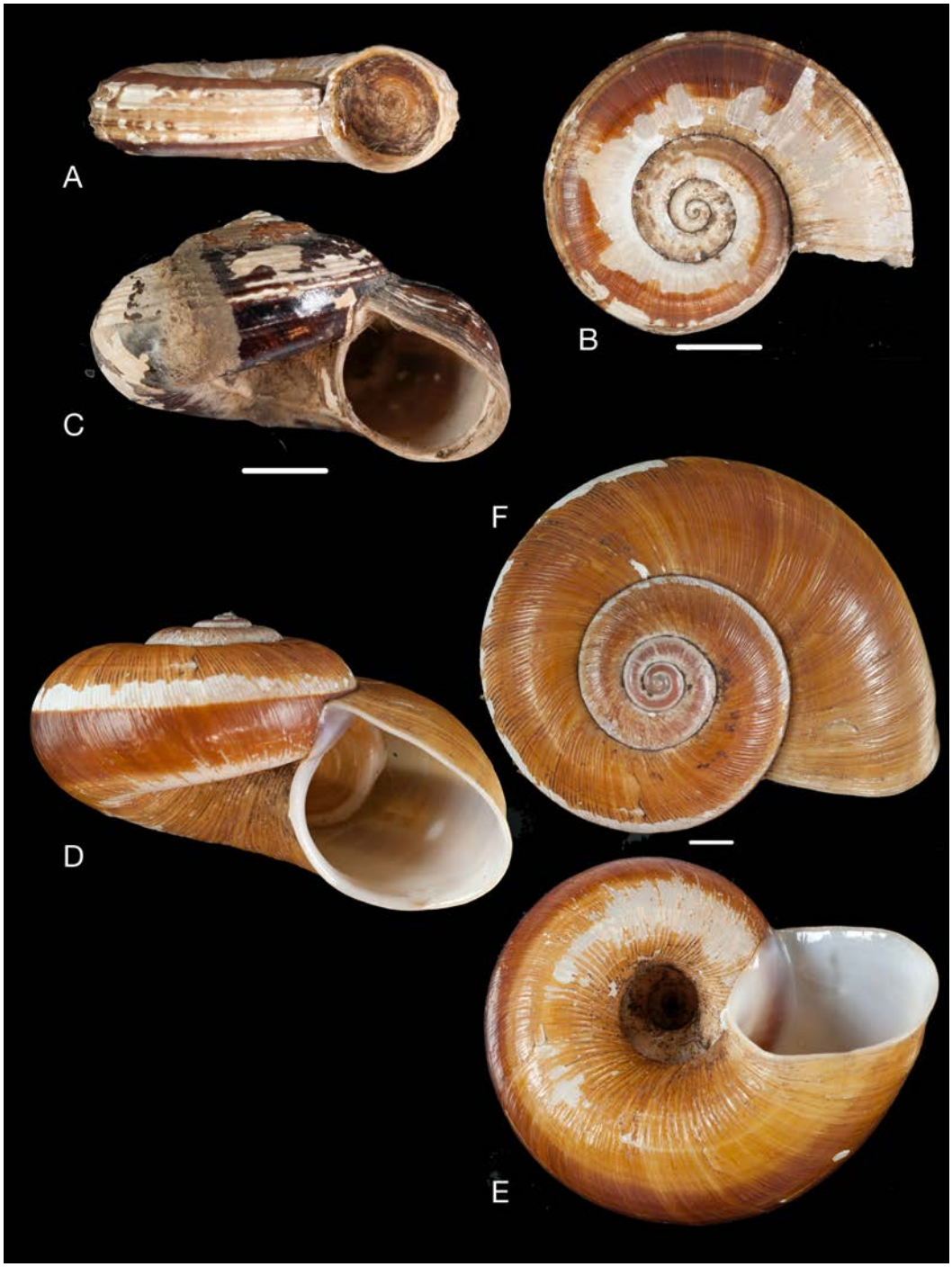

Figure 10 Material collected by the CCP. (A–F) Neocyclotidae. *Buckleyia martinezi* (Hidalgo, 1866), MNCN 15.05/3232, (A) ventral view, (B) apical view; *Neocyclotus crosseanus* (Hidalgo, 1866), MNCN 15.05/3217, (C) ventral view; *Neocyclotus giganteus* (Sowerby I in *Reeve, 1842*), MNCN 15.05/17560, (D) ventral view, (E) umbilical view, (F) apical view. Scale 5 mm.

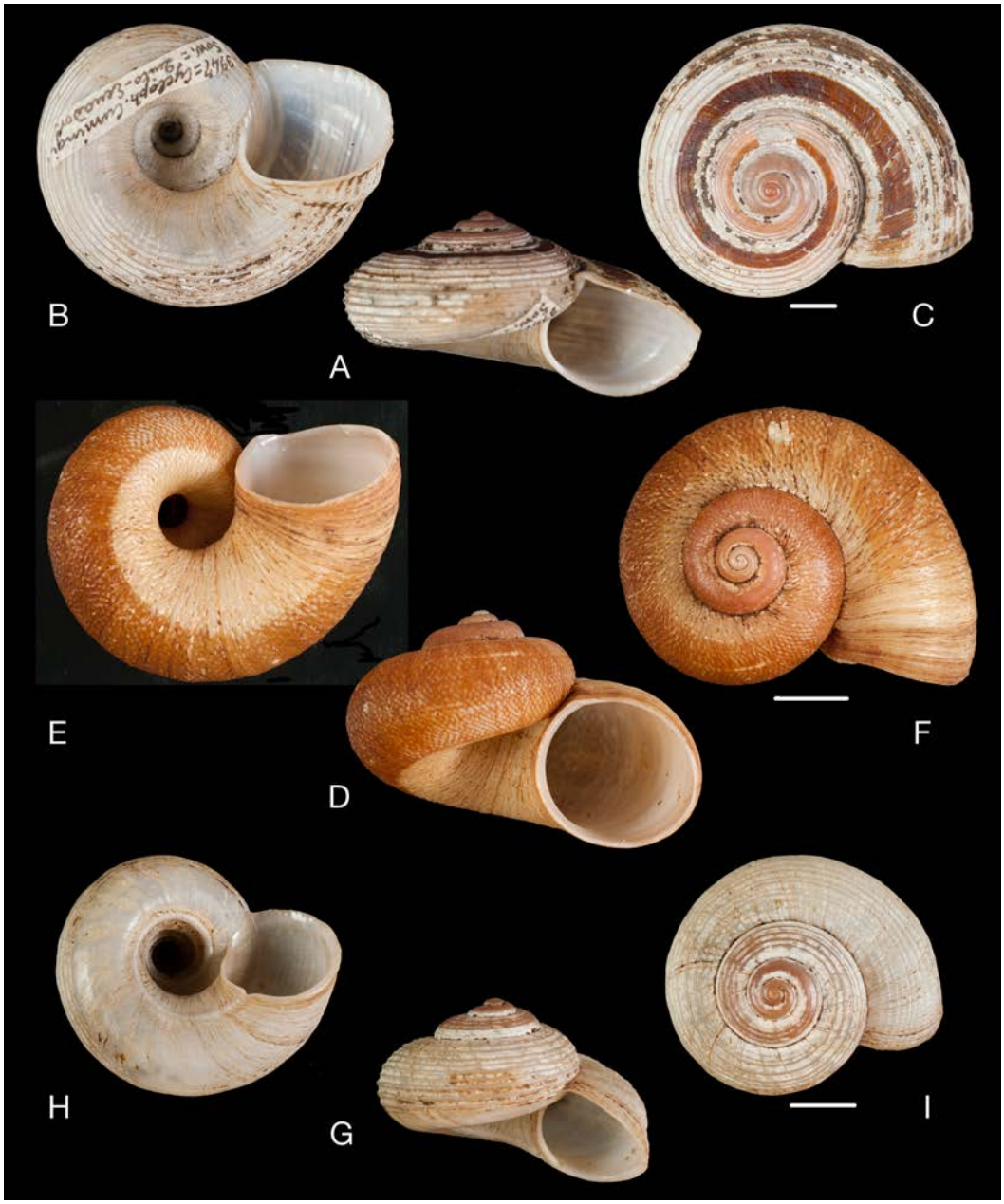

Figure 11 Material collected by the CCP. (A–I) Neocyclotidae. *Neocyclotus cumingii* (Sowerby I in Broderip & Sowerby I, 1832), MNCN 15.05/76223, (A) ventral view, (B) umbilical view, (C) apical view; *Neocyclotus granulatus* (*Pfeiffer, 1862*), MNCN 15.05/21506, (D) ventral view, (E) umbilical view, (F) apical view; *Neocyclotus haematomma* (*Pfeiffer, 1862*), MNCN 15.05/20093, (G) ventral view, (H) umbilical view, (I) apical view. Scale 5 mm.

progress very smoothly [Archive MNCN CN0042/755/001]. The members of the CEcP soon discovered that they lacked the literature to identify the material, and Hidalgo made a list of desired malacological publications. The list comprised 34 books and two journal series, covering all the important malacological works since the beginning of the 19th century [Archive MNCN CN0041/749/015]. Ten of these books, however, did not or only partially

reached the CEcP [Archive MNCN CN0041/749/016]. Besides the new scientific books, these minutes of the Committee showed that the CCP material had generally been split into two collections, of which one was retained for the MNCN, and one was to be sent to other schools, institutes and Museums; we have found no information about the latter. During the Spanish revolution and the abdication of Isabel II in the Autumn of 1868, Méndez Álvaro and José Solano were ousted and the former replaced by the new President M. M. J. de Galdo. In November 1868 the new Committee decided to entrust to Martínez, Jímenez de la Espada and Hidalgo the elaboration of scientific papers on the CCP material to be published in 1869. The outlines for these scientific 'Memorias' were accorded by the CEcP members in June 1869. In November 1869 the Commission apparently had received some money from the Ministry, which they decided to spend partly for these publications (see also *Breure & Backhuys, 2017*). The minutes of the CEcP end with this meeting, suggesting less organisational activities in 1870 [Archive MNCN CN0042/755/001]. During that year, again as a result of political changes, President Galdo was replaced by Lucas Tornos. By order of the Ministry (Ministerio de Instrucción Pública) the CEcP was dissolved on the 1st August 1872 providing that the director of the MNCN would be dealing with all the zoological material from the CCP. Galdo protested against this dissolution and, after another political change, the members of the Committee were re-installed by the new Government in May 1873. However, work on the scientific publications stopped and the CEcP was again dissolved on the 30th June 1875. The zoological CCP material arrived to the MNCN in 1880 (*Puig-Samper, 1988*: 351–352).

It is likely that Hidalgo already started working on CCP material before this time, resulting in his 1867 paper. This may explain the 'flux' of the material: from Paz to Hidalgo to Azpeitia's collections; we also found some specimens in the 'Coll. Graells' (i.e., historical collection of MNCN) which may have been used for exhibitions over time and which may have originated from the CCP material.

The Mollusca collected by the CCP

Following *Almagro (1866)*, who recorded the data for the exhibition of the CCP material in the Jardín Botánico, the collection of molluscs from the CCP comprised 816 different species, and 38,755 specimens, collected mainly by Paz and Martinez, and some by Jiménez de la Espada, Isern and Almagro. There were also 767 specimens belonging to 43 species of molluscs that had been be-gifted by Barreiros, Jameson, Philippi, Richardson, and Zameron. Grouped in another way, 741 specimens of marine bivalves, 300 of freshwater bivalves, 2,117 terrestrial gastropods, 1,277 freshwater gastropods and 2,557 marine gastropods were collected. There were also 975 specimens in 117 jars of alcohol preserved material, as was stipulated in the instructions for the expedition made by Graells (*Puig-Samper, 1988*). In 1868 and 1869 the collections of duplicate specimens were sent to several Spanish universities and institutes. In 1880 all the material collected by the CCP was moved to the MNCN (*Puig-Samper, 1988*). More detailed information on the localities and sources of the molluscs collected can be found in *Puig-Samper (1988)* and *Calatayud (1994)*, and will be given below for the land molluscs.

All the Mollusca specimens of the CCP were studied by Martinez, who was responsible for molluscs during the expedition, and by *Hidalgo* (*1893a*, *1893b*), with the exception of the freshwater bivalves that were studied by *Lea* (*1866a*, *1866b*, *1867*, *1869a*, *1869b*) and Haas; Haas, during his forced stay in Spain due to the unfavourable political climate in Germany (*Haas, 1915*), was invited to the MNCN where he studied the mussels collected by the CCP (*Haas, 1916*). Hidalgo and Martinez wrote the three volumes of the '*Moluscos del viaje al Pacífico*', which included terrestrial gastropods (*Hidalgo, 1872*), marine bivalves (*Martínez, 1879?*), and marine gastropods (*Hidalgo, 1879*). There has been some confusion in the literature about the dates of publication, especially about the first part. Both the first and second parts have the date '1869' printed on the title page, and this has generally been accepted by subsequent authors. The first part was published in Madrid by Cárlos Bailly-Baillière. The second and third parts bear the inscription on the title page 'Imprenta de Miguel Ginesta'; the final volume appeared in 1879, and this date has been undisputed. As we know (*Breure & Backhuys, 2017*), the plates for the first and second part were executed in Paris and delivered in Madrid in November 1871. The text for the first part, however, still had to be finished by Hidalgo and this volume did not appear before December 1872. Hidalgo himself was aware of the potential problem of the discrepancy between the date on the title page ('1869') and the actual publication date. He inserted at the end of the text a 'Note' to draw attention to this discrepancy (*Hidalgo, 1872*: 152):

> *Nota. No concluida de imprimir la presente parte hasta 1872, esta es la verdadera fecha de publicación de nuestro libro y no la de 1869 que figura en la portada. Si el Gobierno de S. M. facilita medios necesarios para la impresión, ejecución de láminas, etc., del resto de la obra y si se nos indemniza del tiempo invertido en este trabajo, que hemos hecho sin sueldo ni gratificación alguna, daremos á conocer á nuestros lectores las demás especies de Moluscos recogidas por los naturalistas de la Comisión científica española.*
>
> *[Note. Not having finished the print of the present part until 1872, this is the true date of publication of our book and not 1869 as contained in the cover.*
>
> *If the Government will provide the necessary means for printing, execution of plates, etc., [for] the rest of the work, and if we are indemnified [for] the time invested in this work, which we have done without any payment, we will disclose to our readers the rest of the species of molluscs collected by the members of the CCP]*

This note means that the book of Martinez was not yet published in 1872 and, as *Breure & Backhuys (2017)* have shown, the actual date of publication was much later; it was published in 1879 or even later.

Finally, it should be remarked that not only in the publications of Hidalgo, but also of others (notably Crosse), the suggestion was given that much of the CCP material was collected by Paz. This was only true in the cases where Paz actually visited the region; in other cases, after his premature return to Spain, Paz did not even visit some of the localities (e.g., Ecuador) but the material became nevertheless part of his collection or was misleadingly referred to as having been collected by him.

Labels and handwriting

The material was found with labels that allowed its provenance to be ascertained, in most cases, unambiguously. The labels from the former Collection of Paz are characterised by a red frame; their locality data is usually more general than the data which has been published for the lot. The handwriting of these labels is in Hidalgo's hand. One clear exception is a lot where the original label in the handwriting of Paz has very specific locality data, while only a very generalised locality has been published by Hidalgo. Compare Figs. 7A–7B for examples of handwriting of Paz and Hidalgo. In most cases, the labels bear the annotation "Cat. Am. mer. no. XYZ"; this refers to the catalogue published by *Hidalgo (1870)*, which totalled 201 species (*Hidalgo, 1870*), increasing to 242 species (*Hidalgo, 1893a*; *Hidalgo, 1893b*). Labels from lots collected by Martínez bear his name and generally have a more precise locality; they all formed part of the former collection of Hidalgo. However, the handwriting is written in a hand unknown to us. In the former collection of Azpeitia the labels are small and Azpeitia's handwriting (Figs. 8G–8H) was very fine and clear. Some labels had been glued to the shells, and generally this has been maintained with the addition of a modern label. In a few cases the original labels have been lost, and all the data is from modern labels. Generally, Azpeitia copied the localities from the data published by Hidalgo. Figure 8 gives an overview of all the styles of labels associated with the CCP material.

SYSTEMATICS

Remarks. The numbers between square brackets following the taxon names refer to Supplementary file 1, column 'nr.' available on Figshare: https://doi.org/10.6084/m9.figshare.4231904.v1. For the species described as new from the CCP material the etymology is added in the case of eponyms.

Family Helicinidae *Férussac, 1822*

Genus *Bourciera* *Pfeiffer, 1852*

Bourciera *Pfeiffer, 1852a*: 178.

Type species. *Bourciera heliciniforme* Pfeiffer, by monotypy.

***Bourciera heliciniforme* (*Pfeiffer, 1853*)** [1]
(Figs. 9A–9C)

Cyclostoma heliciniforme Pfeiffer, 1853 [*1852–1860*]: 243, pl. 32 figs. 8–10;
Pfeiffer, 1854b: 151.
Bourciera helicinaeformis; *Hidalgo, 1870*: 69; *Hidalgo, 1893a*: 117.

Type locality. "im Thale Yaraqui der Republik Equador".
Type material. NHMUK 20130062 (3), probable syntypes.
Material examined. "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/76226 (1); Coll. Paz, MNCN 15.05/13857 (3).

Remarks. Pfeiffer originally described this species from material collected by Bourcier, but his paper was not published until 1854 (*Pfeiffer, 1854b*: 151; cf. *Duncan, 1937*: 81). In his 1853 publication he erroneously referred to "Proceed. Zool. Soc. 1851" [sic, 1852]. The name was spelled in both papers as *Cyclostoma heliciniforme*, thus later authors have made an unjustified emendation with the spelling *helicinaeformis*.

Genus *Helicina Lamarck, 1799*

Helicina Lamarck, 1799: 76.

Type species. *Helicina neritella Lamarck, 1799*, by subsequent designation (*Children, 1823*: 239).

Helicina angulata Sowerby II, 1842 [2]
(Figs. 9D–9F)

Helicina angulata Sowerby II, 1842 [*1842–1847*]: 12, pl. 2 fig. 61, pl. 3 fig. 100; *Hidalgo, 1870*: 69; *Hidalgo, 1872*: 152; *Hidalgo, 1893a*: 118.

Type locality. "Brazil".
Type material. Not located.
Material examined. "Macahé, Brasil", Coll. Azpeitia ex "Martínez y Paz", MNCN 15.05/76224 (1).
Remarks. *Simone (2006)* has cited this species with the erroneous year of publication '1873', which has been copied by some subsequent authors.

Helicina brasiliensis Gray, 1824 [3]
(Figs. 9G–9I)

Helicina brasiliensis Gray, 1824: 66; *Hidalgo, 1870*: 69; *Hidalgo, 1872*: 150; *Hidalgo, 1893a*: 118; *Hidalgo, 1893b*: 317.

Type locality. "Brazil".
Type material. Not located.
Material examined. "Macahé, Brasil", Coll. Azpeitia ex "Martínez y Paz", MNCN 15.05/39940 (3).
Remarks. Gray described this species based on material from "Mr. G.B. Sowerby". Originally the lot contained four specimens; however, one specimen of *Helicina angulata Sowerby II, 1842* appeared to have mixed in.

Helicina variabilis Wagner, 1827 [4]
(Figs. 9J–9L)

Helicina variabilis Wagner, 1827: 25; *Hidalgo, 1870*: 69; *Hidalgo, 1893a*: 117.

Type locality. [Brazil] "in Provinciae Paraënsi".
Type material. Not located.

Material examined. "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/39941 (2); "Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/39942 (3).

Family Neocyclotidae Kobelt & Möllendorff, 1897

The most recent review of the Cyclophorid mainland species is the work of *Bartsch & Morrison (1942)*, who introduced many new genera and subgenera based on (often subtle) shell characteristics; provisionally we follow herein *Solem (1956)* who made only a distinction between *Aperostoma* (operculum corneous, without calcareous elements) and *Neocyclotus* (operculum at least partially calcareous). While this distinction may be gross and not apt for historical collections, where opercula may not have been preserved, it is here used by lack of better. It may be noted that only in a few lots of CCP material the opercula are present; in those cases they seem at least partially calcareous. The majority of the species is thus provisionally placed in *Neocyclotus*. Clearly, this group urgently needs a revision, preferably including molecular studies.

Genus *Buckleyia Higgins, 1872*

Aperostoma (*Buckleyia*) *Higgins, 1872*: 686.

Type species. "*Aperostoma montezumi* Hidalgo" [*Cyclophorus martinezi* Hidalgo, 1866; see remarks], by monotypy.
Remarks. *Azpeitia (1923)* listed all species described by Hidalgo, who never used the specific epithet *montezumi*; *Higgins* (*1872*: pl. 56 figs. 7–7a) illustrated *Cyclophorus martinezi* Hidalgo, 1866 when he designated the type species of his new subgenus.

Buckleyia martinezi (Hidalgo, 1866) [5]

(Figs. 10A–10B)

Cyclophorus martinezi Hidalgo, 1866a: 273, pl. 8 fig. 5; *Hidalgo, 1870*: 68; *Hidalgo, 1893a*: 34, 116; *Azpeitia, 1923*: 66; *Baratech et al., 1993*: 197, pl. 4 figs. 3a–3c.

Type locality. "Baeza Reipublicae Aequatoris".
Type material. "Cyclophorus/Martinezi Hidalgo/tipo figurado", Coll. Paz, MNCN 15.05/3232 (1), holotype.
Additional material examined. "Baeza (Ecuador)", Coll. Hidalgo, MNCN 15.05/3225 (1).
Remarks. Hidalgo (1866) stated he had seen only one specimen on which his description was based. *Baratech et al.* (*1993*: 197) correctly considered it to be the holotype, although in the legend of their plate it is considered a syntype. The additional specimen that was found, probably also originates from the material collected by Martinez in March 1865, but it is herein not considered as type material.
Etymology. Named after the collector, Francisco de Paula Martinez y Sáez.

Genus Neocyclotus Crosse & P. Fischer, 1888

Neocyclotus Crosse & P. Fischer in P. Fischer & Crosse, 1888 [*1880–1902*]: 148.

Remarks. Authorship is herein given as published; the work was published in parts, the date of publication is after *Crosnier & Clark, 1998*. It may be noted that the last 'livraison' of this work was published posthumously in 1902, and may have been edited by H. Fischer.
Type species. *Cyclostoma dysoni* Pfeiffer, 1851, by subsequent designation (Pilsbry, 1910: 533).

***Neocyclotus crosseanus* (Hidalgo, 1866)** [6]
(Fig. 10C)

Cyclophorus crosseanus Hidalgo, 1866b: 343, pl. 14 fig. 1; *Hidalgo, 1870*: 68; *Hidalgo, 1893a*: 36, 117; *Azpeitia, 1923*: 66; *Baratech et al., 1993*: 273.

Type locality. "Republica Aequatoria".
Type material. "Ecuador", Coll. Hidalgo, MNCN 15.05/3217 (1), MNHN (2), syntypes.
Remarks. The MNCN specimen, which was originally figured, has been affected by Byne's disease. *Baratech et al. (1993)* already mentioned that moreover the syntypes in MNHN were in a bad condition.
Etymology. Named after Hippolyte Crosse.

***Neocyclotus cumingii* (Sowerby I in Broderip & Sowerby I, 1832)** [7]
(Figs. 11A–11C)

Cyclostoma cumingii Sowerby I in *Broderip & Sowerby I, 1832a*: 32.
Cyclophorus cumingi; *Hidalgo, 1870*: 68; *Hidalgo, 1893a*: 116.

Type locality. "America Meridionali (Island of Tumaco)".
Type material. Not located.
Material examined. "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/76223 (1).

***Neocyclotus giganteus* (Sowerby I in *Reeve, 1842*)** [8]
(Figs. 10D–10F)

Cyclostoma giganteum 'Gray' Sowerby I in *Reeve, 1842*: 99, pl. 184 fig. 17.
Cyclotus fischeri Hidalgo, 1867: 305, pl. 8 fig. 3; *Hidalgo, 1870*: 67; *Hidalgo, 1872*: 144, pl. 8 figs. 9–11; *Hidalgo, 1875*: 129; *Hidalgo, 1893a*: 115; *Hidalgo, 1893b*: 310; *Azpeitia, 1923*: 82; *Fischer-Piette, 1950*: 69; *Baratech et al., 1993*: 273.

Type locality. Not given.
Type material. Not located.
Additional type material. "Cyclotus Fischeri/Hidalgo/type/J. Conchyl. 1867, Juillet", Coll. Paz, MNCN 15.05/17560 (1); "Quito", Coll. Hidalgo ex Paz, MNCN 15.05/3261 (3); MNHN (1), syntypes of *Cyclotus fischeri Hidalgo, 1867*.
Additional material examined. "Aguarico (Ecuador)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/3262 (4); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/3305 (1); "Quito y Aguarico", Coll. Azpeitia ex Isern leg., MNCN 15.05/76215 (1); "Pacifico 186", Coll. Hidalgo, MNCN 15.05/20009 (1).
Remarks. The species was figured on the basis of 'Gray MSS in Brit. Mus.'. The material of Martínez was collected between 17–25 July 1865 near the Aguarico river (*Calatayud, 1994*:

243–244) in Dept. Orellana on the border near Peru. *Hidalgo* (*1872*: 152), in his errata, attributed his *Cyclotus fischeri* to '*C. giganteus* Gray'; this author, however, never made this name available. According to *Baratech et al. (1993)* the specimen in the MNHN collection could be part of the original series, a statement with which we concur.
Etymology. Named after Paul Fischer (1835–1893), who Hidalgo has met during his first visit to Paris (*Breure & Backhuys, 2017*).

***Neocyclotus granulatus* (*Pfeiffer, 1862*)** [9]
(Figs. 11D–11F)

Cyclotis granulatus Pfeiffer, 1862: 275; *Hidalgo, 1870*: 67; *Hidalgo, 1893a*: 116.

Type locality. "Ecuador".
Type material. NHMUK 20160364 (3), syntypes.
Material examined. "Quito", Coll. Hidalgo ex Paz leg., MNCN 15.05/21506 (2); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/76222 (3).

***Neocyclotus haematomma* (*Pfeiffer, 1862*)** [10]
(Figs. 11G–11I)

Cyclophorus haematomma Pfeiffer, 1862: 276; *Hidalgo, 1870*: 68; *Hidalgo, 1893a*: 117.

Type locality. "Ecuador".
Type material. NHMUK 2016065 (3), syntypes.
Material examined. "196", Coll. Hidalgo, MNCN 15.05/20093 (1); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/76231 (1).
Remarks. *Hidalgo (1870)* listed this species as number 196 in his catalogue, stating it had been collected in "Quito (Paz)".

***Neocyclotus hidalgoi* (*Crosse, 1866*)** [11]

Cyclophorus hidalgoi Crosse, 1866: 354, pl. 14, fig. 4; *Hidalgo, 1870*: 66; *Hidalgo, 1893a*: 116.

Type locality. "Republica Aequatoris".
Type material. Not located.
Remarks. This species was described by Crosse based on material from "Coll. Hidalgo". However, no material could be traced, nor in the MNCN nor in the MNHN collections.
Etymology. Named after Joaquin Hidalgo.

***Neocyclotus pazi* (*Crosse, 1866*)** [12]
(Figs. 12A–12C)

Cyclotus pazi Crosse, 1866: 356, pl. 14, fig. 3; *Hidalgo, 1870*: 67; *Hidalgo, 1872*: 148, pl. 8 figs. 14–15; *Hidalgo, 1893a*: 116; *Hidalgo, 1893b*: 314.

Type locality. "Ambato, Reipublicae Aequatoris".
Type material. "Ambato, Ecuador", Coll. Hidalgo, MNCN 15.05/21591 (25), syntypes.
Remarks. *Crosse (1866)* stated "Coll. Paz, Hidalgo, et Crosse", therefore the material in the MNCN is considered as syntypes.

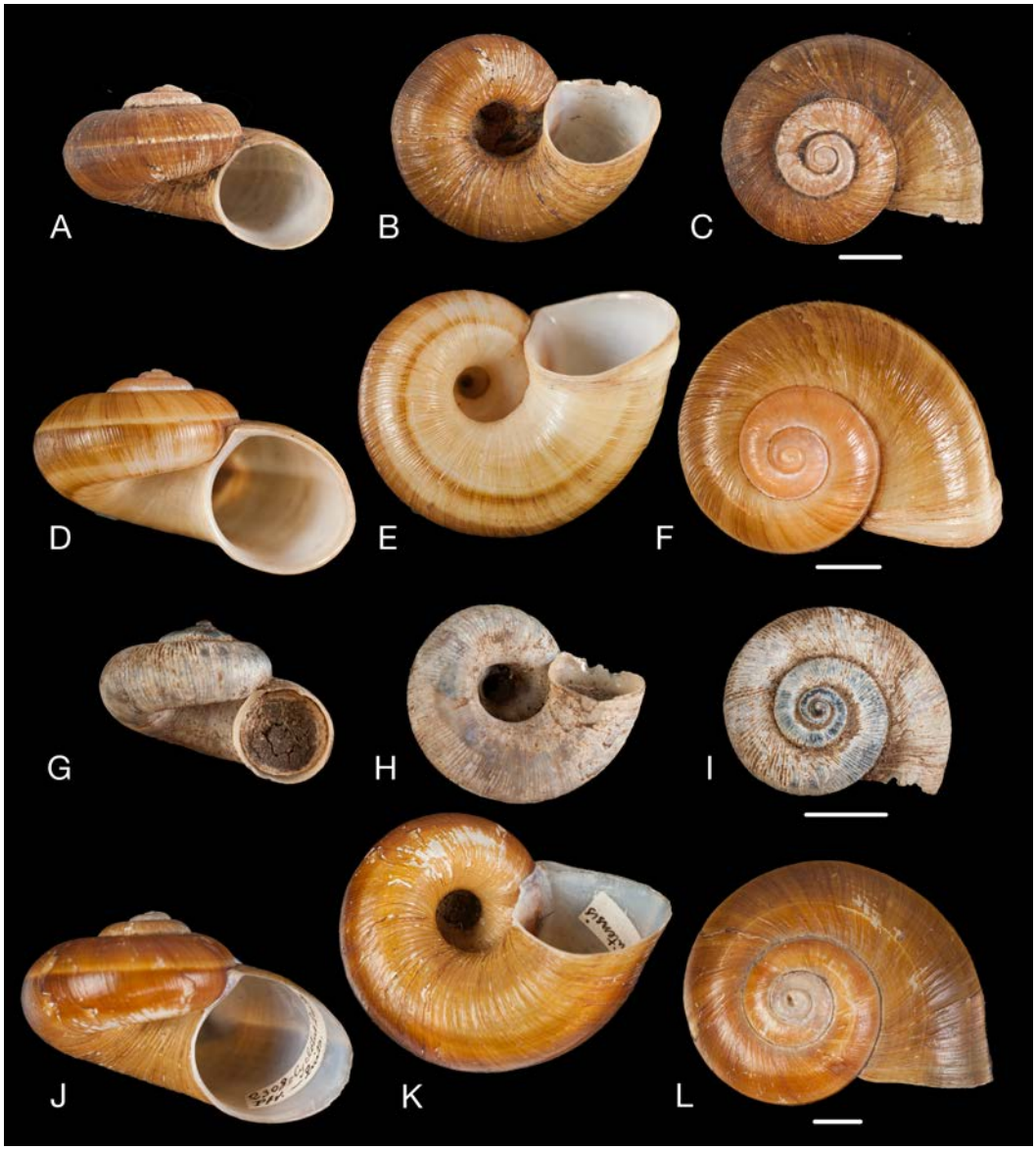

Figure 12 Material collected by the CCP. (A–I) Neocyclotidae. *Neocyclotus pazi* (*Crosse, 1866*), MNCN 15.05/21591, (A) ventral view, (B) umbilical view, (C) apical view; *Neocyclotus perezi* (Hidalgo, 1866), MNCN 15.05/3264, (D) ventral view, (E) umbilical view, (F) apical view; *Neocyclotus prominulus* (*d'Orbigny, 1837*), MNCN 15.05/39927, (G) ventral view, (H) umbilical view, (I) apical view; *Neocyclotus quitensis* (*Pfeiffer, 1854*), MNCN 15.05/76212, (J) ventral view, (K) umbilical view, (L) apical view. Scale 5 mm.

Etymology. Named after Patricio Paz y Membiela.

***Neocyclotus perezi* (Hidalgo, 1866)** [13]
(Figs. 12D–12F)

Cyclotus perezi *Hidalgo, 1866b*: 344, pl. 14, fig. 2; *Hidalgo, 1872*: 147, pl. 8, figs. 12–13; *Hidalgo, 1893a*: 38; *Azpeitia, 1923*: 82; *Calvo, 1994*: 283.

Type locality. "Baeza, Reipublicae Aequatoris".
Type material. "Baeza (Ecuador)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/3264 (15); "Baeza (Ecuador)", "Pacifico 188", Coll. Hidalgo, MNCN 15.05/3263 (15), syntypes.
Additional material examined. "Ecuador", Coll. Hidalgo, MNCN 15.05/3265 (2); "Baeza", Coll. Azpeitia, MNCN 15.05/76204 (25); "Ecuador", Coll. Hidalgo, MNCN 15.05/76204 (576).
Remarks. The material was collected by Martinez in March 1865 (*Calatayud, 1994*: 229).
Etymology. Named after Laureano Pérez Arcas (1824–1894), director of the MNCN from 1868 to 1870; he was befriended with Hidalgo (*Breure & Backhuys, 2017*).

***Neocyclotus prominulus* (*d'Orbigny, 1837*)** [14]
(Figs. 12G–12I)

Cyclostoma prominula 'Férussac' d'Orbigny, 1837 [*1834–1847*]: 362.
Cyclotus prominulus; *Hidalgo, 1870*: 68; *Hidalgo, 1893a*: 116; *Hidalgo, 1893b*: 315.

Type locality. "la province des Mines, au Brésil".
Type material. MNHN, probable syntypes (*Simone, 2006*: 42, fig. 39).
Material examined. "Río de Janeiro (Brasil)", Coll. Azpeitia, MNCN 15.05/39927 (3).
Remarks. This species was described by d'Orbigny on the basis of material presented to him in Rio de Janeiro, using a name from the Coll. Férussac. *Simone* (*2006*: 42) cited this species with the wrong year of publication.

***Neocyclotus quitensis* (*Pfeiffer, 1854*)** [15]
(Figs. 12J–12L)

Cyclostoma (*Cyclotus*) *quitense* *Pfeiffer, 1854a*: 61.
Cyclotus quitensis; *Hidalgo, 1870*: 67; *Hidalgo, 1872*: 146; *Hidalgo, 1893a*: 115; *Hidalgo, 1893b*: 312.

Type locality. "Quito".
Type material. NHMUK 20160366 (3), syntypes.
Material examined. "Quito", Coll. Azpeitia, MNCN 15.05/76212 (1).
Remarks. This species, originally described from the Cuming collection, was mentioned by *Hidalgo (1870)* from "Quito (Paz), Napo (Martinez)". The latter material has not been located.

Family Succineidae *Beck, 1837*

Genus *Omalonyx d'Orbigny, 1837*

Omalonyx d'Orbigny 1837 [*1834–1847*]: 229.

Type species. *Helix* (*Cochlodina*) *unguis* *d'Orbigny, 1835*, by monotypy.

***Omalonyx* cf. *unguis* (*d'Orbigny, 1835*)** [16]
(Fig. 13A)

Helix unguis *d'Orbigny, 1835*: 2 [nomen nudum].

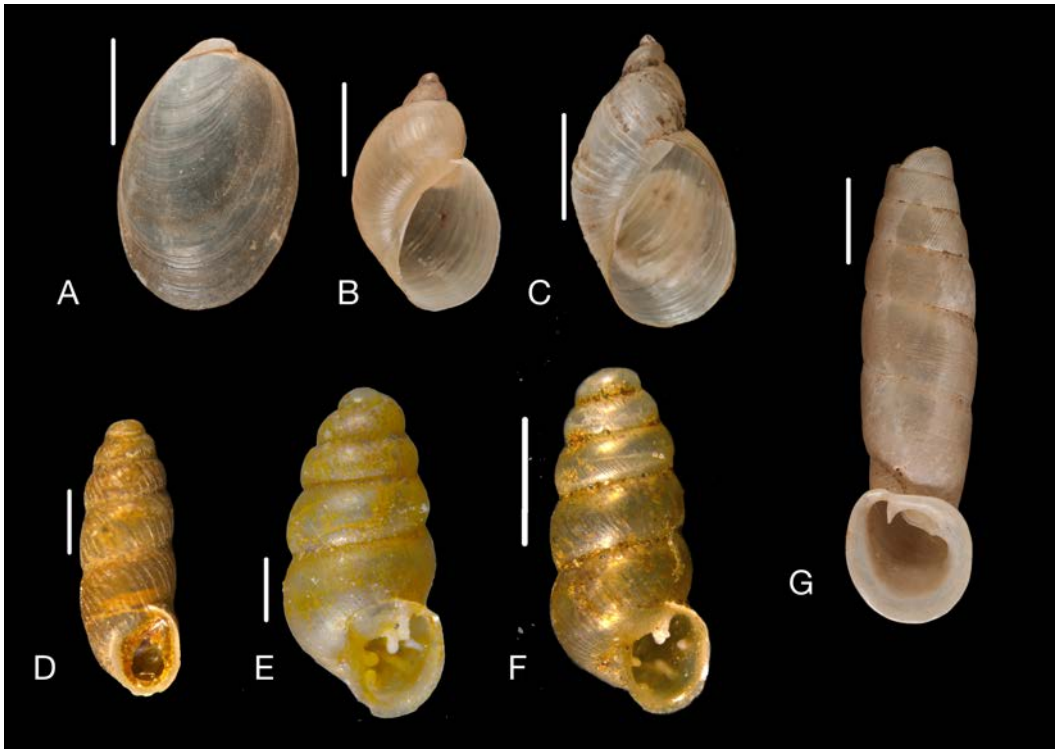

Figure 13 Material collected by the CCP. (A–C) Succineidae. *Omalonyx* cf. *unguis* (*d'Orbigny, 1835*), MNCN 15.05/12096, (A) ventral view; *Succinea donneti* *Pfeiffer, 1853*, MNCN 15.05/76203, (B) ventral view; *Succinea peruviana* (Philippi in *Pfeiffer, 1867*), MNCN 15.05/76208, (C) ventral view. (D) Pupillidae. *Pupoides paredesii* (*d'Orbigny, 1835*), MNCN 15.05/14914, ventral view. (E–F) Vertiginidae. *Gastrocopta oblonga* (*Pfeiffer, 1854*), MNCN 15.05/39925, (E) ventral view; *Gastrocopta pazi* (*Hidalgo, 1869*), MNCN 15.05/3285, (F) ventral view. (G) Clausiliidae. *Peruinia peruana* (*Troschel, 1847*), MNCN 15.05/37075, ventral view. Scale line 0.5 mm (E), 1 mm (D, F), 5 mm (all others).

Succinea (*Omalonyx*) *unguis* d'Orbigny 1835 [*1834–1847*]: pl. 22 figs. 1–7; d'Orbigny 1837 [*1834–1847*]: 229.
Omalonyx unguis; *Hidalgo, 1870*: 30; *Hidalgo, 1872*: 7; *Hidalgo, 1893a*: 78; *Hidalgo, 1893b*: 309.

Type locality. "les bords inondés du Parana, près de Corrientes (…) les marais de la province de Moxos, république de Bolivia".
Type material. Not located.
Material examined. "Bahia", Coll. Paz, MNCN 15.05/12096 (3); "Bahia", Coll. Hidalgo, MNCN 15.05/15770 (3).
Remarks. *Helix unguis* 'Fer.' was mentioned only by *d'Orbigny* (*1835*: 2), without description or reference; it is a nomen nudum. The figures in *d'Orbigny (1834–1847)* were published in the same year (1835), but the text only in 1837, allowing to make reference to *Moricand (1836)* who had recognized the species in material from Bahia; the CCP material originates from the same region and was probably collected during September 1862 (*Calatayud, 1994*: 249).

Genus *Succinea* *Draparnaud, 1801*

Succinea *Draparnaud, 1801*: 32.

Type species. *Helix putris* Linnaeus, 1758, by subsequent designation (*Gray, 1847*: 171).

Succinea donneti* *Pfeiffer, 1853 [17]
(Fig. 13B)

Succinea donneti *Pfeiffer, 1853*: 19; *Hidalgo, 1870*: 30; *Hidalgo, 1872*: 6, pl. 2 figs. 16–17; *Hidalgo, 1875*: 127; *Hidalgo, 1893a*: 78; *Hidalgo, 1893b*: 308.

Type locality. [Chile] "prope Coquimbo".
Type material. NHMUK 20160368 (3), syntypes.
Material examined. "P 4", [Coll. Hidalgo], MNCN 15.05/76203 (3).
Remarks. This lot was found without label except a species label; however, similar lots had been found which proved to originate from Hidalgo's collection. Moreover, the indication "P 4" provided a link to *Hidalgo (1870)*, who lists this species from "Coquimbo, Chili (Paz); Chunchuco, Chili (Martínez)".

***Succinea peruviana* (Philippi in *Pfeiffer, 1867*)** [18]
(Fig. 13C)

Succinea peruviana Philippi in *Pfeiffer, 1867*: 78; *Hidalgo, 1870*: 30; *Hidalgo, 1875*: 127, pl. 7 fig. 1; *Hidalgo, 1893a*: 78.

Type locality. "Peruvia".
Type material. Not located.
Material examined. "P 3", [Coll. Hidalgo], MNCN 15.05/76208 (9).
Remarks. This lot was found without label except a species label; however, similar lots had been found which proved to originate from Hidalgo's collection. Moreover, the indication "P 3" provided a link to *Hidalgo (1870)*, who stated the material to be collected by Paz at "Lomas de Pumará, Amancaez et Cerro de las Conchitas, environs de Lima"; the collecting date was mid-July 1863 (*Calatayud, 1994*: 258).

Family Pupillidae Turton, 1831

Genus *Pupoides* *Pfeiffer, 1854*

Bulimus (*Pupoides*) *Pfeiffer, 1854c*: 192.

Type species. *Bulimus nitidulus* Pfeiffer, 1839, by subsequent designation (Kobelt, 1902 [*1899–1902*]: 917).

***Pupoides paredesii* (*d'Orbigny, 1835*)** [19]
(Fig. 13D)

Helix paredesii *d'Orbigny, 1835*: 21.
Pupa paredesii; *Hidalgo, 1870*: 65; *Hidalgo, 1893a*: 114.

Type locality. "provincia Pazensi (republica Boliviana); provincia Limacensi (republica Peruviana)".
Type material. NHMUK 1854.12.4.236–237 (11), syntypes.
Material examined. "Lima", Coll. Paz, MNCN 15.05/14845 (47), MNCN 15.05/14914 (46).
Remarks. *Hidalgo (1870)* quoted this species from "Lima, Pérou; Guayaquil, Equateur; Cobija, Bolivia (Paz)". Material of the last two localities has not been found.

Family Vertiginidae Fitzinger, 1833

Genus *Gastrocopta* *Wollaston, 1878*

Gastrocopta *Wollaston, 1878*: 515.

Type species. *Pupa acarus* Benson, 1856, by subsequent designation (Pilsbry, 1916 [*1916–1918*]: 7).

Gastrocopta oblonga (*Pfeiffer, 1854*) [20]
(Fig. 13E)

Pupa oblonga *Pfeiffer, 1854a*: 69; *Hidalgo, 1870*: 65; *Hidalgo, 1872*: 141; *Hidalgo, 1893a*: 114.

Type locality. "—?".
Type material. NHMUK 20160367 (2), syntypes.
Material examined. "Bahia", Coll. Hidalgo ex Paz leg., MNCN 15.05/39925 (5); "St^{a}. Lucia Montev^{o}.", Coll. Hidalgo, MNCN 15.05/76233 (42).

Gastrocopta pazi (*Hidalgo, 1869*) [21]
(Fig. 13F)

Pupa pazi *Hidalgo, 1869c*: 412; *Hidalgo, 1870*: 66; *Hidalgo, 1875*: 129, pl. 7 fig. 7; *Hidalgo, 1893a*: 58, 114.

Type locality. "Amancaez, republica Peruvian; Guayaquil, republica Aequatoris; Panama (Paz)".
Type material. "Amancaez", Coll. Hidalgo, MNCN 15.05/3284 (13); "Amancaez, cerca de Lima", Coll. Azpeitia, MNCN 15.05/3285 (7); "Amancaez", Coll. Azpeitia, MNCN 15.05/3286 (1); "Guayaquil", Coll. Hidalgo, MNCN 15.05/3281 (46), syntypes.
Remarks. All material has no original labels from Paz. The specimens from Panama could not be located.
Etymology. Named after Patricio Paz y Membiela.

Family Clausiliidae Gray, 1855

Genus *Incania* *Poliński, 1922*

Nenia (*Incania*) *Poliński, 1922*: 125.

Type species. *Clausilia chacaensis* Lubomirski, 1880, by subsequent designation (*Pilsbry, 1926*: 10).

***Incania crossei* (*Hidalgo, 1869*)** [22]

Clausilia crossei *Hidalgo, 1869c*: 413; *Hidalgo, 1870*: 66, pl. 6 fig. 9.

Type locality. "Baeza, Equateur".
Remarks. This species was based on material collected by Martinez. *Baratech et al.* (*1993*: 285) listed this species already as one of which the type material could not be located in the MNCN collection.
Etymology. Named after Hippolyte Crosse.

Genus *Peruinia* *Poliński, 1922*

Nenia (*Peruinia*) *Poliński, 1922*: 125.

Type species. *Clausilia peruana* *Troschel, 1847*, by subsequent designation (*Pilsbry, 1926*: 10).

***Peruinia peruana* (*Troschel, 1847*)** [23]
(Fig. 13G)

Clausilia peruana *Troschel, 1847*: 51; *Hidalgo, 1870*: 66; *Hidalgo, 1893a*: 115.

Type locality. "Peru".
Type material. Not located.
Material examined. "Chanchamayo", Coll. Hidalgo ex Isern leg., MNCN 15.05/37075 (4), MNCN 15.05/37083 (4); MNCN 15.05/18308 (185, in ethanol).

Family Amphibulimidae P. Fischer, 1874

Genus *Plekocheilus* *Guilding, 1828*

Plekocheilus *Guilding, 1828*: 532.

Type species. *Caprella undulata* Guilding, 1824, by monotypy.

Subgenus *Plekocheilus* (*Eurytus*) *Albers, 1850*

Eurytus *Albers, 1850*: 169.

Type species. *Helix pentadina* *d'Orbigny, 1835*, by subsequent designation (*Albers, 1860*: 195).

***Plekocheilus* (*Eurytus*) *aristaceus* (*Crosse, 1869*)** [24]
(Fig. 14A)

Bulimus aristaceus *Crosse, 1869*: 185; *Crosse, 1870*: 105, pl. 6 fig. 5; *Hidalgo, 1870*: 54, pl. 6 fig. 5; *Hidalgo, 1893a*: 102.

Plekocheilus (*Eurytus*) *aristaceus*; *Breure & Araujo, 2015*: 87, fig. 1; *Breure & Mogollón, 2016*: 14, figs. 8A–8C, 14.

Type locality. "Quito, reipublicae Aequatoris".

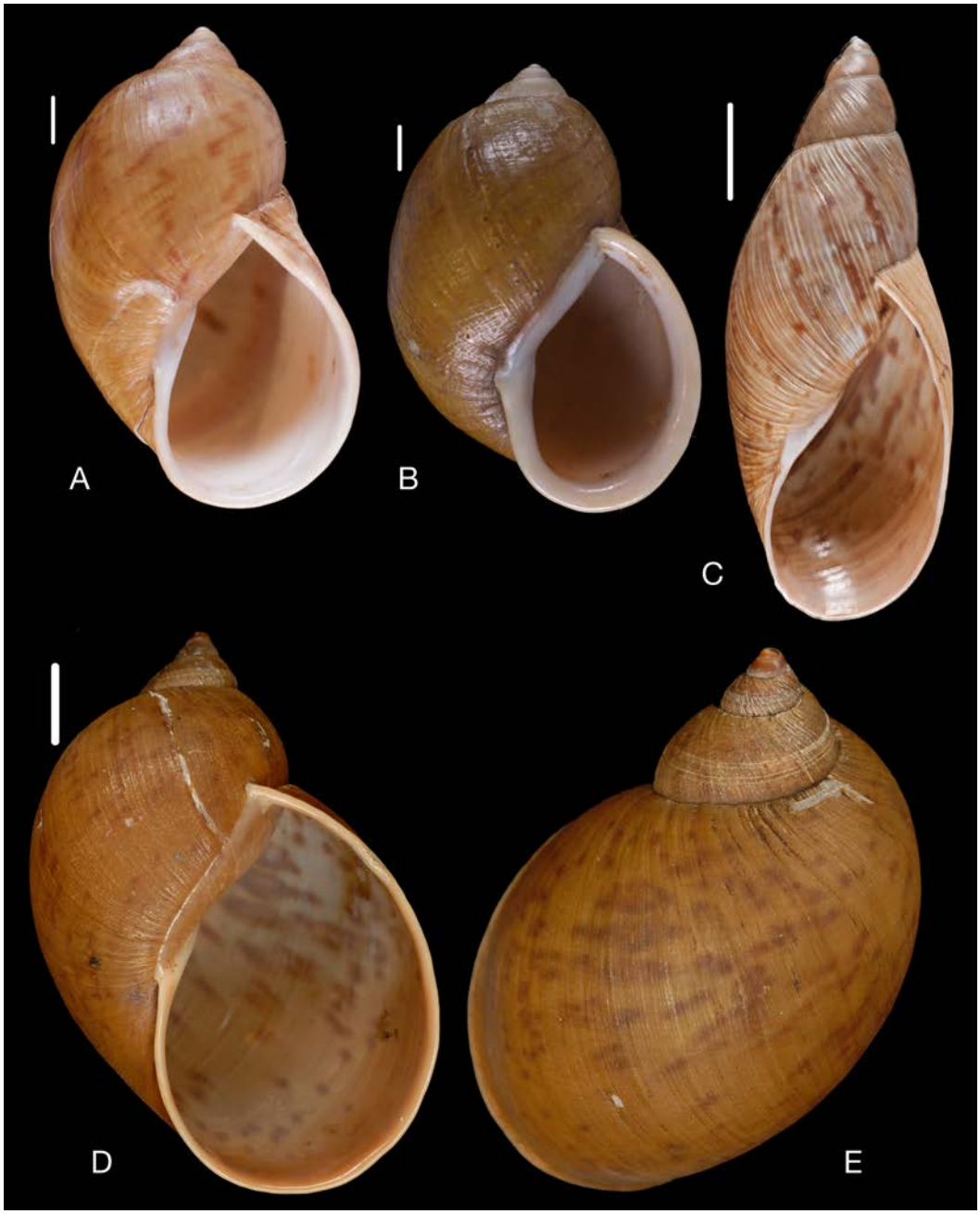

Figure 14 Material collected by the CCP. (A–E) Amphibulimidae. *Plekocheilus* (*Eurytus*) *aristaceus* (*Crosse, 1869*), MNCN 15.05/13475, (A) ventral view; *Plekocheilus* (*Eurytus*) *cardinalis* (*Pfeiffer, 1853*), MNCN 15.05/13705, (B) ventral view; *Plekocheilus* (*Eurytus*) *floccosus* (Spix in *Wagner, 1827*), MNCN 15.05/76205, (C) ventral view; *Plekocheilus* (*Eurytus*) *jimenezi* (*Hidalgo, 1872*), MNCN 15.05/3158, (D) ventral view, (E) dorsal view. Scale line 5 mm (A, B), 1 cm (C–E).

Type material. "Quito, Ecuador", MNCN 15.05/7180, lectotype (*Breure & Araujo, 2015*: 87); "Ecuador", "(Cat. Am. mer. nº. 125)", Coll. Paz, MNCN 15.05/13475 (1), paralectotype.
Remarks. *Crosse (1869)* stated "(Paz)", making the impression this material was collected by Paz. However, since Paz did not visit Ecuador with the CCP, this material must have been collected by one of the other members. Since the publication of *Breure & Araujo (2015)* designating the lectotype, we have found now an additional specimen among the CCP material. This specimen has a damaged last whorl, which has slightly influenced the shape of the aperture; its is lighter in colour but otherwise matches the lectotype.

***Plekocheilus* (*Eurytus*) *cardinalis* (*Pfeiffer, 1853*)** [25]
(Fig. 14B)

Bulimus cardinalis *Pfeiffer, 1853*: 316; *Hidalgo, 1870*: 55; *Hidalgo, 1872*: 92; *Hidalgo, 1893a*: 102; *Hidalgo, 1893b*: 219.

Type locality. "Quito".
Type material. ZMB 112721 (1), syntype.
Material examined. "Quito", "(Cat. Am. mer. no. 126)", Coll. Paz, MNCN 15.05/13705 (2); "Napo (Ecuador)", "Pacifico 126", Coll. Hidalgo ex Martínez y Saez leg., MNCN 15.05/36846 (2).
Remarks. *Hidalgo (1870)* mentioned two localities "Environs de Quito (Paz); Napo, Equateur (Martínez)"; in his 1872 publication only the latter locality was mentioned. Compared to the syntype of this species (*Borrero & Breure, 2011*: figs. 15E–15F), the specimens from the CCP have a more thickened peristome and parietal callus.

***Plekocheilus* (*Eurytus*) *floccosus* (Spix in *Wagner, 1827*)** [26]
(Fig. 14C)

Achatina floccosa Spix in *Wagner, 1827*: 10, pl. 9 figs. 3–4.
Bulimus floccosus; *Hidalgo, 1870*: 61; *Hidalgo, 1872*: 127, pl. 7 figs. 1–4; *Hidalgo, 1893a*: 110; *Hidalgo, 1893b*: 215.

Type locality. "sylvis Provinciarum septemtrionalium Brasiliae".
Type material. ZSM 20020116 (1), syntype (*Breure & Mogollón, 2016*: figs. 3C–3D).
Material examined. "Ecuador", "(Cat. Am. mer. no. 165)", Coll. Paz, MNCN 15.05/13285 (2); "165 Pacifico", Coll. Hidalgo, MNCN 15.05/76205 (1).
Remarks. The locality was given as "Napo, Équateur (Martínez)" (*Hidalgo, 1870*). Hidalgo said he had seen only three specimens, two not full-grown from his own collection and from the collection of Paz, and an adult specimen from the MNCN. However, we found two shells originating from the Coll. Paz. The shell from Hidalgo's own collection is MNCN 15.05/76205, which corresponds to *Hidalgo, 1872*: pl. 7 figs. 3–4.

***Plekocheilus* (*Eurytus*) *jimenezi* (*Hidalgo, 1872*)** [27]
(Figs. 14D–14E)

Bulimus gibbonius *Hidalgo, 1870*: 54; *Hidalgo, 1875*: 128. Not *Bulimus gibbonius* *Lea, 1838*.

Bulimus jimenezi *Hidalgo, 1872*: 93, 152, pl. 5 figs. 2–3; *Hidalgo, 1893a*: 68, 102; *Hidalgo, 1893b*: 217; *Azpeitia, 1923*: 58; *Baratech et al., 1993*: 215.
Plekocheilus (*Eurytus*) *jimenezi*; *Borrero & Breure, 2011*: 43, figs. 13B–13D; *Breure & Mogollón, 2016*: 17, figs. 10C–10F, 14.

Type locality. [Ecuador] "San José".
Type material. "San José (Ecuador)", Isern & Jimenez de Espada leg., MNCN 15.05/1066 (2); "Napo, Ecuador", "(Cat. Am. mer. no. 122)", Coll. Paz, MNCN 15.05/3158 (2), syntypes.
Additional material examined. "Ecuador", Coll. Graells, MNCN 15.05/3307 (1).
Remarks. Hidalgo has written on the label of MNCN 15.05/1066 "uno de los exemplars figurado". *Breure & Mogollón* (*2016*: 18) have suggested that "San José" would be San José de Suno. The itinerary of Isern and Jimenez de Espada (*Calatayud, 1994*: 278) only mentions San José de Monti; this locality cannot be traced with modern gazetteers, but it is likely in the same general region.
Etymology. Named after Marcos Jiménez de la Espada.

***Plekocheilus* (*Eurytus*) *lynciculus* (*Deville & Hupé, 1850*)** [28]
(Fig. 15A)

Bulimus lynciculus *Deville & Hupé, 1850*: 640, pl. 15 fig. 1; *Hidalgo, 1870*: 54; *Hidalgo, 1872*: 94; *Hidalgo, 1893a*: 102.

Type locality. "Mission de Sarayacu, sur les bords de la rivière de l'Ucuyali, Pérou".
Type material. Not located.
Material examined. "Napo, Ecuador", "(Cat. Am. mer. nº. 124)", Coll. Paz, MNCN 15.05/13389 (2); "Pacifico 124", Coll. Hidalgo, MNCN 15.05/21312 (1).
Remarks. Of the three specimens the one figured herein seems to have been collected rather fresh and, although the peristome is unexpanded, seems to exhibit the features of this species the best. One specimen was found with locality data "Napo (Ecuador)", Coll. Hidalgo ex Martínez, MNCN 15.05/7214, identified as this species, which appeared to be a specimen of *Plekocheilus* (*Eudolichotis*) *distorta* (*Bruguière, 1792*). This was likely not material collected by the CCP, as this species occurs in northern Venezuela; this region was not visited by the CCP.

***Plekocheilus* (*Eurytus*) *taylorianus* (*Reeve, 1849*)** [29]
(Fig. 15B)

Bulimus taylorianus Reeve, 1849 [*1848–1850*]: pl. 81 fig. 602; *Hidalgo, 1870*: 54; *Hidalgo, 1893a*: 102.

Type locality. [Ecuador] "Environs of Quito".
Type material. NHMUK 1874.12.11.271, lectotype (*Breure, 1978*: 16).
Material examined. "Quito", "(Cat. Am. mer. no. 123)", Coll. Paz, MNCN 15.05/13706 (2); "Pacifico 123", Coll. Paz, MNCN 15.05/36941 (3); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/7351 (2).

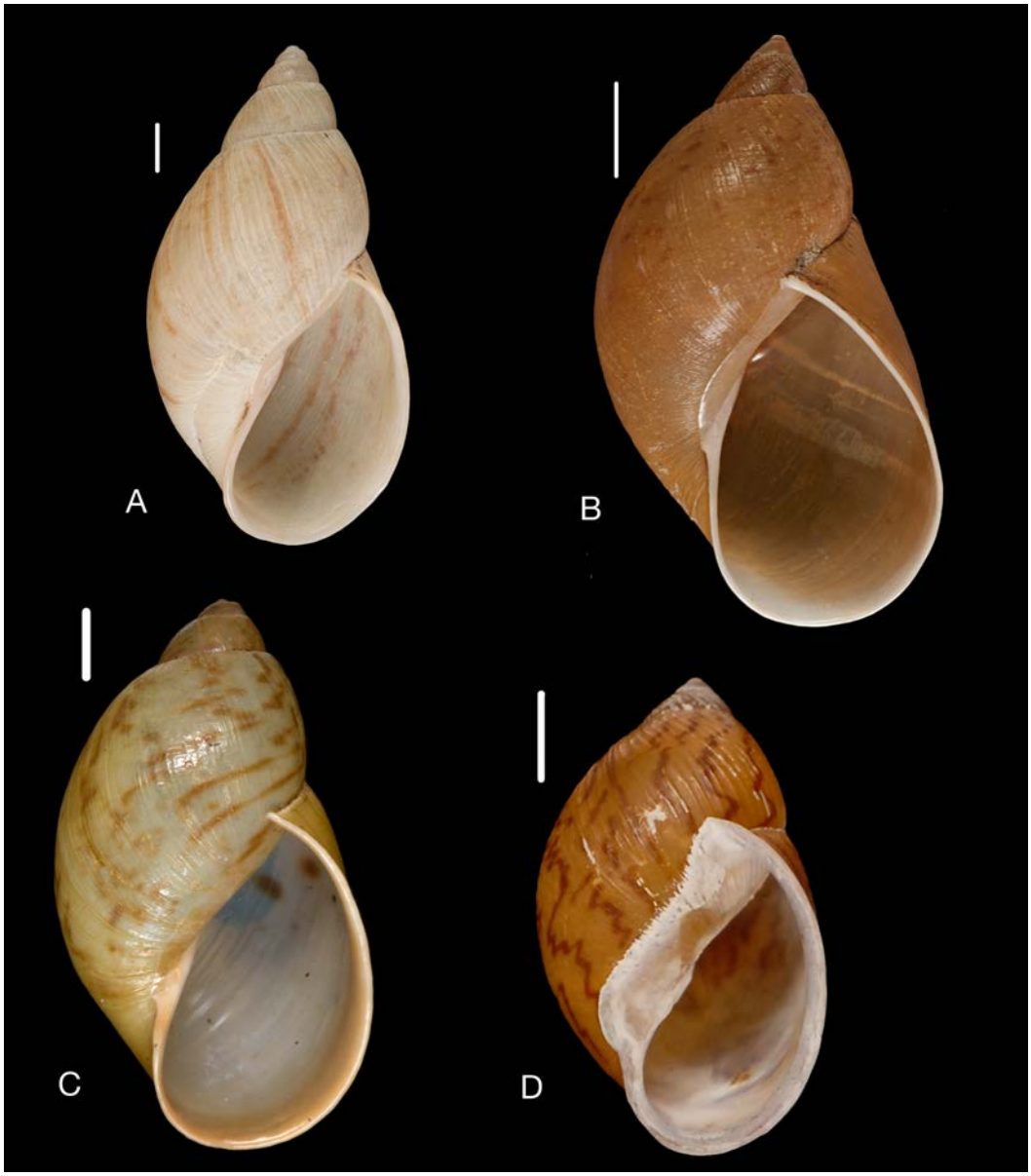

Figure 15 Material collected by the CCP. (A–D) Amphibulimidae. *Plekocheilus* (*Eurytus*) *lynciculus* (*Deville & Hupé, 1850*), MNCN 15.05/13389, (A) ventral view; *Plekocheilus* (*Eurytus*) *taylorianus* (*Reeve, 1849*), MNCN 15.05/13706, (B) ventral view; *Plekocheilus* (*Eurytus*) *tricolor* (*Pfeiffer, 1853*), MNCN 15.05/6943, (C) ventral view; *Plekocheilus* (*Plekocheilus*) *cecepeus* *Breure & Araujo, 2015*, MNCN 15.05/60013H, (D) ventral view. Scale line 0.5 mm.

Remarks. *Hidalgo (1870)* wrote "Quito (Paz et Martínez)"; it is possible that the Azpeitia shells were originally collected by Martínez.

***Plekocheilus* (*Eurytus*) *tricolor* (*Pfeiffer, 1853*)** [30]
(Fig. 15C)

Bulimus tricolor *Pfeiffer, 1853*: 325.

Bulimus semipictus Hidalgo, 1869a: 188; Hidalgo, 1870: 56, pl. 6 fig. 7; Hidalgo, 1872: 95, pl. 6 figs. 8–9; Hidalgo, 1893a: 49, 104; Hidalgo, 1893b: 217; Azpeitia, 1923: 58; Fischer-Piette, 1950: 72; Baratech et al., 1993: 216.
Plekocheilus (*Eurytus*) *tricolor*; Breure & Mogollón, 2016: 24, figs. 2K–2M, 13C–13D, 16.

Type locality. "Gualea, Neu Granada".
Type material. Not located.
Additional type material examined. MHNH-IM-2000-28113, lectotype of *Bulimus semipictus* Hidalgo (Fischer-Piette, 1950: 72); "Baeza, Ecuador", "(Cat. Am. mer. no. 138)", Coll. Paz, MNCN 15.05/76217 (2); "Baeza (Ecuador)", Coll. Hidalgo ex Martínez y Saez leg., MNCN 15.05/6943 (6), MNCN 15.05/3209 (1); "Baeza, Ecuador", Coll. Azpeitia, MNCN 15.05/76229 (2), paralectotypes of *Bulimus semipictus* Hidalgo.

Subgenus *Plekocheilus* s.str.

***Plekocheilus* (*Plekocheilus*) *cecepeus* Breure & Araujo, 2015** [31]
(Fig. 15D)

Plekocheilus (*Plekocheilus*) *cecepeus* Breure & Araujo, 2015: 89, fig. 2; Breure & Mogollón, 2016: 25, figs. 8D–8F.

Type locality. "Ecuador, Quito".
Type material. "Quito", MNCN 15.05/60013H, holotype; MNCN 15.05/60013P (5), MNCN 15.05/7477P (3), paratypes.
Etymology. Named after the CCP members collectively.

Family Megaspiridae Pilsbry, 1904

Genus *Megaspira* Jay, 1836

Megaspira Jay, 1836: 39.

Type species. *Megaspira ruschenbergiana* Jay, 1836, by monotypy.

***Megaspira elatior* (Spix in Wagner, 1827)** [32]
(Fig. 16A)

Pupa elatior Spix in Wagner, 1827: 20.
Megaspira elatior; Hidalgo, 1870: 66; Hidalgo, 1893a: 114.

Type locality. [Brazil] "cum praecedentibus [in Provinciis mediis orientalibus]".
Type material. Not located.
Material examined. "Rio Janeiro", "comprado", Coll. Hidalgo ex [Paz or Martínez y Saez], MNCN 15.05/19283 (1), MNCN 15.05/19285 (2); "Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/39943 (2).

Genus *Thaumastus* Martens in Albers, 1860

Bulimulus (*Thaumastus*) Martens in Albers, 1860: 215.

Type species. *Bulimus hartwegi* Pfeiffer in Philippi, 1846, by original designation.

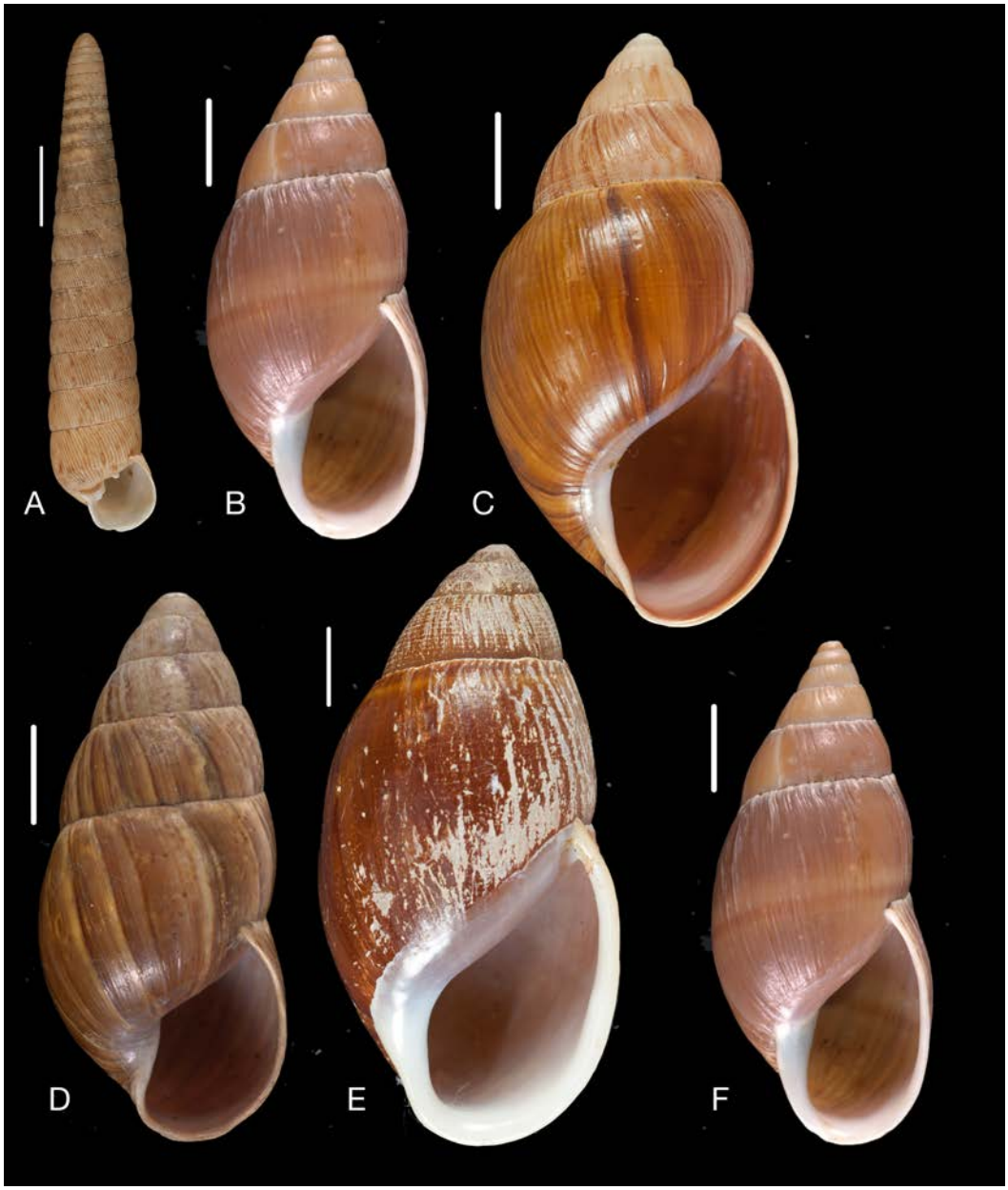

Figure 16 Material collected by the CCP. (A–F) Megaspiridae. *Megaspira elatior* (Spix in *Wagner, 1827*), MNCN 15.05/19283, (A) ventral view; *Thaumastus* (*Thaumastiella*) cf. *koepckei Zilch, 1953*, MNCN 15.05/13501, (B) ventral view; *Thaumastus* (*Thaumastus*) *achilles* (*Pfeiffer, 1853*), MNCN 15.05/13299, (C) ventral view; *Thaumastus* (*Thaumastus*) cf. *orcesi Weyrauch, 1967*, MNCN 15.05/7567, (D) ventral view; *Thaumastus* (*Thaumastus*) *foveolatus* (*Reeve, 1849*), MNCN 15.05/13497, (E) ventral view; *Thaumastus* (*Thaumastus*) *hartwegi* (Pfeiffer in *Philippi, 1846*), MNCN 15.05/13507, (F) ventral view. Scale line 1 cm.

Subgenus *Thaumastus* (*Thaumastiella*) *Weyrauch, 1956*

Thaumastus (*Thaumastiella*) *Weyrauch, 1956*: 11.

Type species. *Bulimulus sarcochrous Pilsbry, 1897*, by original designation.

Thaumastus* (*Thaumastiella*) cf. *koepckei* *Zilch, 1953 [33]
(Fig. 16B)

Thaumastus (*Scholvienia*) *koepckei Zilch, 1953*: 53, figs. 7–9, pl. 14 fig. 3.
Bulimus porphyreus [*sic*] Pfeiffer; *Hidalgo, 1870*: 45; *Hidalgo, 1872*: 65; *Hidalgo, 1893a*: 91 [all *partim*].

Type locality. "Peru Hacienda Monteseco".
Type material. SMF 111487, holotype.
Material examined. "Peru", "(Cat. Am. mer. no. 69)", Coll. Paz, MNCN 15.05/13501 (2).
Remarks. These specimens had been identified as *Bulimus porphyrius* Pfeiffer, 1847, but they are missing both the characteristic white, peripheral girdle, and the rudely wrinkled sculpture on the last whorls (*Breure & Ablett, 2015*: fig. 11iv). Instead, the shell shape and colouration reminds us of *Thaumastus* (*Thaumastiella*) species and we tentatively identify this material as *T.* (*T.*) *koepckei Zilch, 1953*.

Subgenus *Thaumastus* s. str.

***Thaumastus* (*Thaumastus*) *achilles* (*Pfeiffer, 1853*)** [34]
(Fig. 16C)
Bulimus achilles Pfeiffer, 1853: 378.
Bulimus thompsoni [*sic*] Pfeiffer; *Hidalgo, 1870*: 45; *Hidalgo, 1893a*: 91 [all *partim*].

Type locality. [Brazil] "in ripis fluvii Amazonum".
Type material. NHMUK 1975286, lectotype (*Breure, 1978*: 32).
Material examined. "Machahé", "(Cat. Am. mer. no. 68)", Coll. Paz, MNCN 15.05/13299 (2).
Remarks. These species had been misidentified as "*Bulimus thompsoni* Pfr", possibly because the locality was misinterpreted as Ecuadorian, while it is actually in Brazil.

Thaumastus* (*Thaumastus*) cf. *orcesi* *Weyrauch, 1967 [35]
(Fig. 16D)

Thaumastus (*Thaumastus*) *orcesi Weyrauch, 1967*: 473, fig. 2.

Type locality. "Ecuador, cuenca del río Esmeraldas, 35 km al noroeste de Quito, region de Nanegal, 1,500 m".
Type material. IFML-MOLL 3165, holotype (*Breure, 2012*: pl. 6 figs. 59–61).
Material examined. "Loja, Equateur", Coll. Hidalgo, MNCN 15.05/7567 (1).
Remarks. This material was found undetermined in the Hidalgo collection, but has an original label in the handwriting of Paz; it is tentatively regarded as CCP material. The specimen is very similar to Weyrauch's species, but was found at a disjunct locality.

***Thaumastus* (*Thaumastus*) *foveolatus* (*Reeve, 1849*)** [36]
(Fig. 16E)

Bulimus foveolatus Reeve, 1849 [*1848–1850*]: pl. 73 fig. 526; *Hidalgo, 1870*: 45; *Hidalgo, 1872*: 56, pl. 6 figs. 4–5; *Hidalgo, 1893a*: 92; *Hidalgo, 1893b*: 203.

Type locality. "Vitoe, near Sarma [sic, Tarma], Alto-Peru".
Type material. NHMUK 1975275, lectotype (*Breure, 1979*: 44).
Material examined. "Chanchamayo, Peru", "(Cat. Am. mer. no. 71)", Coll. Paz, MNCN 15.05/3496 (2); "Chanchamayo, Peru", Coll. Paz, MNCN 15.05/13497 (1); "Chanchamayo (Perú)", Coll. Hidalgo ex Isern leg., MNCN 15.05/36922 (4); "Pacifico 71", Coll. Hidalgo, MNCN 15.05/36921 (2).
Remarks. The lot with the single specimen corresponds to the one which Hidalgo mentioned to have spiral lines on the last whorl. This is caused by a shell repair at the beginning of the last whorl. All material was collected by Isern, who was the only CCP member to visit the Chanchamayo region in autumn 1863 (*Calatayud, 1994*: 257).

***Thaumastus* (*Thaumastus*) *hartwegi* (Pfeiffer in *Philippi, 1846*)** [37]
(Fig. 16F)

Bulimus hartwegi Pfeiffer in Philippi, 1846 [*1845–1847*]: 111, pl. 4 fig. 1; *Hidalgo, 1870*: 44; *Hidalgo, 1872*: 64, pl. 4 figs. 4–5; *Hidalgo, 1893a*: 91; *Hidalgo, 1893b*: 241.

Type locality. "respublica [sic] Aequatoris, ubi ad 'El Catamaija' prope Loxa".
Type material. NHMUK 1975126 (1), syntype.
Material examined. "Ecuador", "(Cat. Am. mer. no. 67)", Coll. Paz, MNCN 15.05/13507 (2); "Pacifico 67", Coll. Hidalgo, MNCN 15.05/36945 (1); "Cuenca (Ecuador)", Coll. Hidalgo ex Jameson, MNCN 15.05/36942 (1); "Cuenca (Ecuador)", Coll. Azpeitia, MNCN 15.05/14296 (1).
Remarks. The material was mentioned as "Hab. Quito et Cuenca, Équateur (Paz)" by *Hidalgo (1870)*; it agrees with the variation observed in this taxon. The specimen from lot MNCN 15.05/36945 was figured in *Hidalgo, 1872*: pl. 4 figs. 4–5.

***Thaumastus* (*Thaumastus*) *largillierti* (*Philippi, 1845*)** [38]
(Fig. 17A)

Bulimus largillierti Philippi, 1845 [*1845–1847*]: 11, pl. 3 fig. 6.
Bulimus taunaisii Férussac; *Hidalgo, 1870*: 45; *Hidalgo, 1872*: 66; *Hidalgo, 1893a*: 91; *Hidalgo, 1893b*: 204 [all *partim*].

Type locality. "Brasilien, Santa Catarina".
Type material. Not located.
Material examined. "Brasil", Coll. Azpeitia, MNCN 15.05/8096 (1).
Remarks. Hidalgo misidentified this species as *Bulimus taunaisii* Férussac; he (*Hidalgo, 1893b*: 207) mentioned that this species was collected at "Santa Catalina".

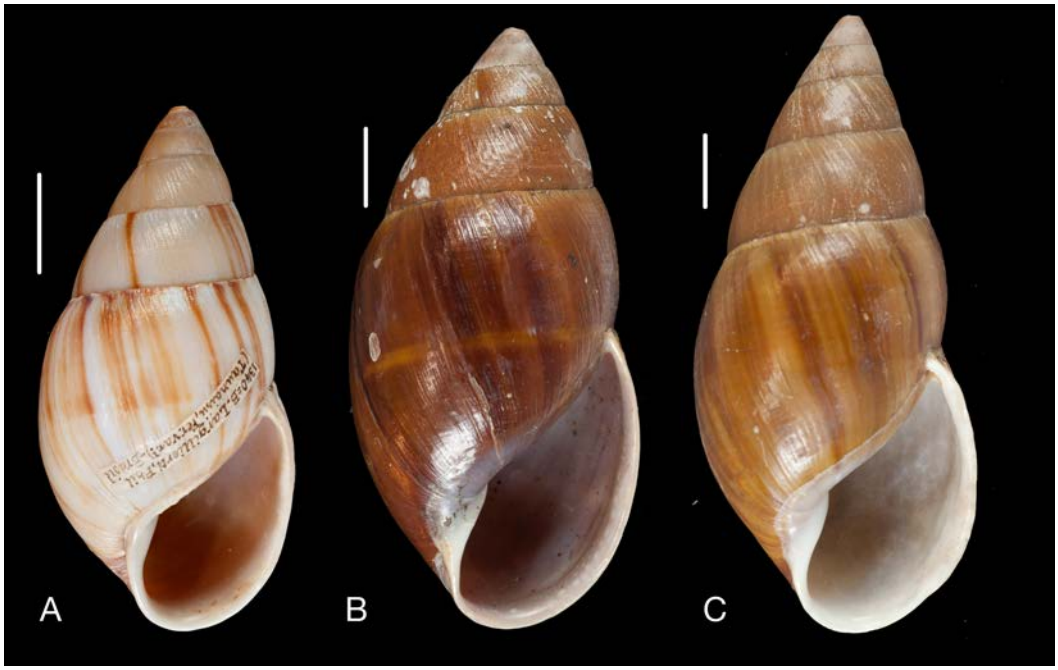

Figure 17 Material collected by the CCP. (A–C) Megaspiridae. *Thaumastus* (*Thaumastus*) *largillierti* (*Philippi, 1845*), MNCN 15.05/8096, (A) ventral view; *Thaumastus* (*Thaumastus*) *magnificus* (*Grateloup, 1839*), MNCN 15.05/13704, (B) ventral view; *Thaumastus* (*Thaumastus*) *taunaisii* (*Férussac, 1822*), MNCN 15.05/36932, (C) ventral view. Scale line 1 cm.

***Thaumastus* (*Thaumastus*) *magnificus* (*Grateloup, 1839*)** [39]
(Fig. 17B)

Bulimus magnificus *Grateloup, 1839*: 165, pl. 4 fig. 1; *Hidalgo, 1893a*: 124.

Type locality. "Pérou".
Type material. NHMUK 1907.11.22.24, lectotype (*Breure, 1978*: 31).
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. [...])", Coll. Paz, MNCN 15.05/13704 (2); "Pacifico 229", Coll. Hidalgo, MNCN 15.05/36934 (1); "Brasil", Coll. Azpeitia, MNCN 15.05/7327 (3).
Remarks. This species, of which the lectotype was recently re-figured by *Breure & Mogollón, 2016*: figs. 27C–27E, is likely restricted to eastern Brazil.

***Thaumastus* (*Thaumastus*) *taunaisii* (*Férussac, 1822*)** [40]
(Fig. 17C)

Helix (*Cochlostyla*) *taunaisii* Férussac, 1822 [*1821–1822*]: 48.
Bulimus taunaisii; *Hidalgo, 1870*: 45; *Hidalgo, 1872*: 66; *Hidalgo, 1893a*: 91; *Hidalgo, 1893b*: 204 [all *partim*].

Type locality. [Brazil] "in ripis fluvii Amazonum".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 70)", Coll. Paz, MNCN 15.05/13288 (2); "Rio Janeiro (Brasil)", "Pacifico 70", Coll. Hidalgo ex "Paz y Martínez"

leg., MNCN 15.05/36932 (8); "Macahé (Brasil)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/21565 (4); "Rio Janeiro, Brazil", Coll. Azpeitia, MNCN 15.05/7349 (1).

Family Orthalicidae Martens in *Albers, 1860*

Genus *Clathrorthalicus Strebel, 1909*

Orthalicus (*Clathrorthalicus*) *Strebel, 1909*: 150.

Type species. *Orthalicus wallisi Strebel, 1909*, by original designation (*Strebel, 1909*: 102).

Clathrorthalicus corydon (***Crosse, 1869***) [41]
(Fig. 18A)

Bulimus corydon Crosse, 1869: 185; *Crosse, 1870*: 104, pl. 6, fig. 6; *Hidalgo, 1870*: 46, pl. 6 fig. 6; *Hidalgo, 1893a*: 93.
Clathrorthalicus corydon; *Breure & Mogollón, 2016*: 46, figs. 39D–39G.

Type locality. "Quito, reipublicae Æquatoris (Paz)".
Type material. "Ecuador", Coll. Paz "(Cat. Am. mer. no. 80)", MNCN 15.05/13683 (1), syntype; "Quito", Coll. Paz "Bulimus Corydon, Crosse/Quito type/Journ. Conchyl. XVII, p./1869 communic. Paz B. 1868", MNCN 15.05/21868 (1), syntype.
Additional material examined. "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/8077 (1).
Remarks. From the labels and further information from the correspondence between Hidalgo and Crosse (*Breure & Backhuys, 2017*), it may be inferred Hidalgo had two specimens when he was making the Catalogue of the CCP material (*Hidalgo, 1870*). One specimen was sent to Crosse for description and returned to Hidalgo; both specimens are considered as belonging to the original series. The specimen from the Azpeitia collection undoubtedly originates from Hidalgo, but is not considered as type material since it cannot be ensured it was already in his possession during 1869.

Genus *Corona Albers, 1850*

Achatina (*Corona*) *Albers, 1850*: 193.

Type species. *Helix (Cochlitoma) regina Férussac, 1821*, by subsequent designation (Martens in *Albers, 1860*: 226).

Corona pfeifferi (***Hidalgo, 1869***) [42]
(Fig. 18B)

Orthalicus pfeifferi Hidalgo, 1869c: 412; *Hidalgo, 1870*: 65, pl. 6 fig. 8; *Hidalgo, 1872*: 135, pl. 8 figs. 3–4; *Hidalgo, 1893a*: 56, 113; *Hidalgo, 1893b*: 292; *Azpeitia, 1923*: 80; *Baratech et al., 1993*: 217.
Corona pfeifferi; *Breure & Mogollón, 2016*: 50, figs. 41A–41E, 43, 89A.

Type locality. [Ecuador] "Canelos, reipublicae Aequatoris".
Type material. "Canelos, Ecuador", Coll. Paz, MACN 15.05/3280 (1), syntype. Coll. Hidalgo, MNCN 15.05/18985 (2).

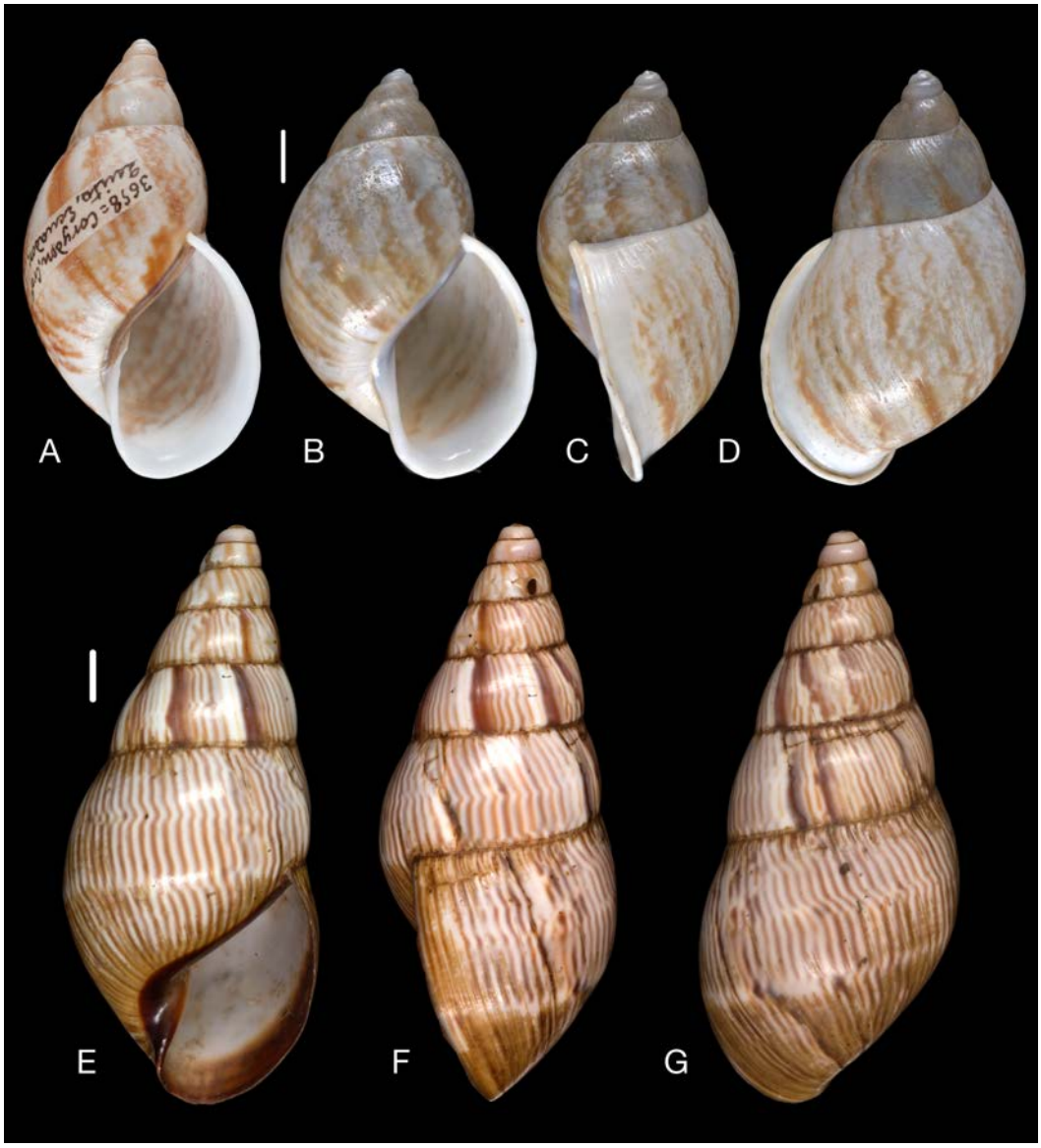

Figure 18 Material collected by the CCP. (A–G) Orthalicidae. *Clathrorthalicus corydon* (*Crosse, 1869*), MNCN 15.05/8077, (A) ventral view; MNCN 15.05/21868, (B) ventral view, (C) lateral view, (D) dorsal view; *Corona pfeifferi* (*Hidalgo, 1869*), MACN 15.05/3280, (E) ventral view, (F) lateral view, (G) dorsal view. Scale line 5 mm.

Remarks. Although the material was said to have been collected by Martinez (*Baratech et al., 1993*), the actual collector was Almagro in June 1865 (*Calatayud, 1994*: 240 (note 173), 280).

Etymology. Named after Louis Pfeiffer.

***Corona regalis* (*Hupé, 1857*)** [43]
(Figs. 19A–19B)

Bulimus regalis *Hupé, 1857*: 34, pl. 10 fig. 3.

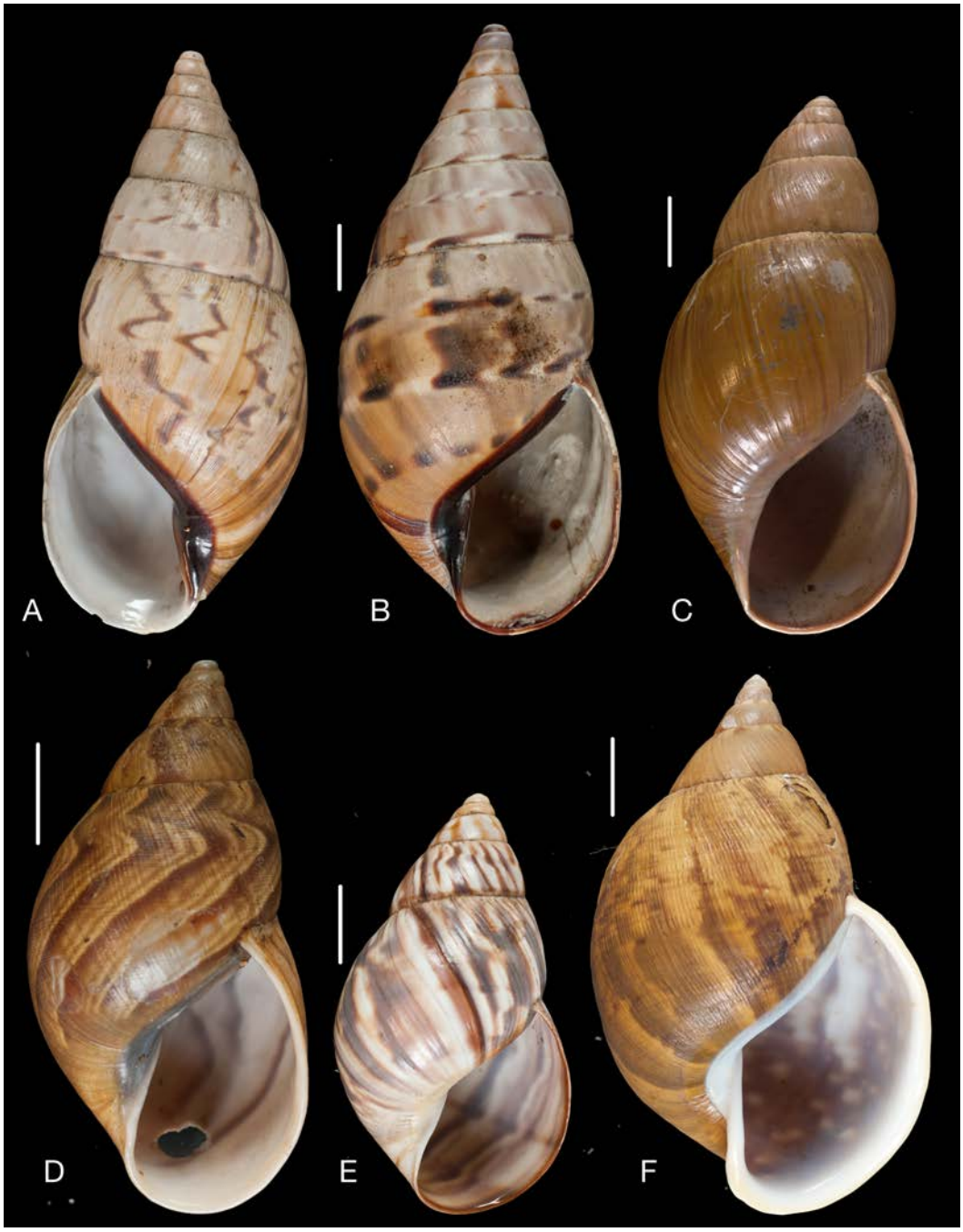

Figure 19 Material collected by the CCP. (A–F) Orthalicidae. *Corona regalis* (*Hupé, 1857*), MNCN 15.05/18964, (A) ventral view; MNCN 15.05/61001, (B) ventral view; *Kara thompsonii* (Pfeiffer, 1845), MNCN 15.05/13701, (C) ventral view; *Orthalicus bifulguratus* (*Reeve, 1849*), MNCN 15.05/15386, (D) ventral view; *Orthalicus princeps* (Broderip in *Sowerby I & II, 1833*), MNCN 15.05/1898, (E) ventral view; *Porphyrobaphe* (*Oxyorthalicus*) *irrorata* (*Reeve, 1849*), MNCN 15.05/13287, (F) ventral view. Scale line 1 cm.

Orthalicus bensoni Reeve; *Hidalgo, 1870*: 64; *Hidalgo, 1872*: 133, pl. 7 fig. 13; *Hidalgo, 1893a*: 113; *Hidalgo, 1893b*: 289.
Orthalicus regina Férussac; *Hidalgo, 1870*: 64; *Hidalgo, 1872*: 134; *Hidalgo, 1893a*: 113; *Hidalgo, 1893b*: 293.

Type locality. "le Brésil".
Type material. Not located.
Material examined. "Napo", "174", Coll. Hidalgo ex Martinez leg., MNCN 15.05/18964 (2); "Napo", "175", Coll. Hidalgo ex Martínez leg. "Ejemplar figurado", MNCN 15.05/61001 (1).
Remarks. Lot MNCN 15.05/18964 comprises one adult shell and one juvenile; both are sinistral. The systematic position follows the provisional scheme of *Breure & Mogollón (2016*: 48), awaiting a thorough revision of the genus. The dextral specimen of lot MNCN 15.05/61001 shows superficial resemblance to *Orthalicus bensoni* (*Reeve, 1849*), but they lack the fine spiral striation which is present on the type (*Breure & Mogollón, 2016*: fig. 48C), are more slender, and have the aperture more elongate-ovate. The specimen is herin tentatively referred to *Corona regalis* (*Hupé, 1857*), of which the type material has not been located. The original figure (*Breure & Mogollón, 2016*: fig. 42A) shows a sinistral specimen, but it is known that eniantomorphy occurs within this species (cf. *Breure & Mogollón, 2016*: figs. 84A–84B). Compared to these figures, the specimen shows three, small spiral bands.

Genus *Kara Strebel, 1910*

Thaumastus (*Kara*) *Strebel, 1910*: 16.

Type species. *Bulimus thompsonii* Pfeiffer, 1845, by monotypy.

Kara thompsonii (Pfeiffer, 1845) [44]
(Fig. 19C)

Bulimus thompsonii Pfeiffer, 1845b: 74; *Hidalgo, 1870*: 45; *Hidalgo, 1872*: 63, pl. 6 figs. 2–3; *Hidalgo, 1893a*: 91; *Hidalgo, 1893b*: 243.

Type locality. [Ecuador] "Quito".
Type material. NHMUK 1975464, lectotype (*Breure, 1978*: 34).
Material examined. "Cuenca (Ecuador)", Coll. Paz, MNCN 15.05/36937 (2);"Ecuador", "(Cat. Am. mer. no. 68)", Coll. Paz, MNCN 15.05/13701 (2); "Pacifico 68", Coll. Paz, MNCN 15.05/36956 (2); "Cuenca Ecuador", Coll. Azpeitia, MNCN 15.05/76214 (2 juv.).
Remarks. *Hidalgo (1870)* reported this species from "Machache et Cuenca, Equateur (Paz)". In *Hidalgo (1872)* only the latter locality was mentioned, as 'Machache' was likely an error for the Brazilian locality Macahé. This material was not collected by the CCP members themselves as they did not visit Cuenca (*Calatayud, 1994*); according to *Almagro (1866*: 164) these shells were a gift from "Yameson" [Jameson] (cf. *Calatayud, 1994*: 203, 207).

Genus *Orthalicus* Beck, 1837

Orthalicus Beck, 1837: 59.

Type species. *Buccinum zebra* Müller, 1774, by subsequent designation (Herrmannsen, 1847 [1847–1849]: 159).

***Orthalicus bifulguratus* (Reeve, 1849)** [45]
(Fig. 19D)

Bulimus bifulguratus Reeve, 1849 [1848–1850]: pl. 82 fig. 606.
Orthalicus bifulguratus; Hidalgo, 1893a: 126.

Type locality. [Colombia] "Andes of Columbia".
Type material. NHMUK 20140082, lectotype (Breure & Schouten, 1985: 29).
Material examined. "Quito", Coll. Paz, MNCN 15.05/15386 (1).
Remarks. This species was added to the catalogue in 1893; the label of Hidalgo seems to have been lost. The specimen is somewhat smaller and slenderer than the lectotype, but shows the same sculpture on the dorsal side of last whorl.

***Orthalicus princeps* (Broderip in Sowerby I & II, 1833)** [46]
(Fig. 19E)

Bulinus princeps Broderip in Sowerby I & II, 1833 [1832–1841]: fig. 18.
Orthalicus princeps; Hidalgo, 1870: 64; Hidalgo, 1872: 136; Hidalgo, 1893a: 113; Hidalgo, 1893b: 290.

Type locality. [El Salvador] "Conchagua, Central America".
Type material. Not located.
Material examined. "Taboga", Coll. Hidalgo ex Martínez leg., MNCN 15.05/18960 (7); "173", Coll. Hidalgo, MNCN 15.05/18983 (1).
Remarks. Hidalgo (1870) mentioned this species from "Panama (Martínez)"; in 1893 he added "en Colombia". The island of Taboga was visited by Martinez both in August and in October 1863 (Calatayud, 1994: 258, 261).

Genus *Porphyrobaphe* Shuttleworth, 1856

Porphyrobaphe Shuttleworth, 1856: 70.

Type species. *Bulimus iostomus* Sowerby I, 1824, by subsequent designation (Martens in Albers, 1860: 227).

Subgenus *Porphyrobaphe* (*Oxyorthalicus*) Strebel, 1909

Porphyrobaphe (*Oxyorthalicus*) Strebel, 1909: 117.

Type species. *Bulimus irrorata* Reeve, 1849, by original designation (Strebel, 1909: 102).

***Porphyrobaphe* (*Oxyorthalicus*) *irrorata* (Reeve, 1849)** [47]
(Fig. 19F)

Bulimus irrorata Reeve, 1849 [*1848–1850*]: pl. 62 fig. 427; *Hidalgo, 1870*: 44; *Hidalgo, 1872*: 59, pl. 6 fig. 1; *Hidalgo, 1893a*: 90; *Hidalgo, 1893b*: 213.

Type locality. "Brazil? New Granada?".
Type material. NHMUK 1975248 (3), syntypes.
Material examined. "Ecuador", "(Cat. Am. mer. n°. 63)", Coll. Paz, MNCN 15.05/13287 (2) [white peristome, as 'var. grevillei']; "Ecuador", "(Cat. Am. mer. n°. 63)" Coll. Paz, MNCN 15.05/13286 (2) [one specimen with peristome 'jaune-orange']; "Nanegal (Ecuador)", Coll. Hidalgo ex Martínez y Saez leg., MNCN 15.05/36907 (4), one shell labelled with "P-63" inside the aperture; [without locality; unregistered; 'P-63' written inside aperture, probably split of from one of the lots mentioned above] (1).
Remarks. *Hidalgo (1870)* mentioned both material from the Paz and Martínez collections, each with different and more precise localities ("La Mocha et Guaranda" respectively "île de Puna et Macas"). The material of the former two localities was collected by Jímenez de la Espada and Isern in November 1864 (*Calatayud, 1994*: 268).

Subgenus *Porphyrobaphe* s.str.

***Porphyrobaphe* (*Porphyrobaphe*) *iostoma* (*Sowerby I, 1824*)** [48]
(Fig. 20A)

Bulimus iostoma Sowerby I, 1824: 58, pl. 5 fig. 1; *Hidalgo, 1870*: 44; *Hidalgo, 1872*: 60, pl. 5 figs. 7–8; *Hidalgo, 1893a*: 90; *Hidalgo, 1893b*: 285.

Type locality. No type locality given.
Type material. Not located.
Material examined. "Guayaquil", "(Cat. Am. mer. n°. 66)" Coll. Paz, MNCN 15.05/3495 (2), MNCN 15.05/13498 (1), MNCN 15.05/13499 (1), MNCN 15.05/13500 (1); "Guayaquil", Coll. Hidalgo ex "Paz y Martínez" leg. "uno de los ejemplares figurado", MNCN 15.05/36949 (6).
Remarks. *Hidalgo (1870)* mentioned this material as "Guayaquil (Paz et Martinez), île de Puna et Macas (Martinez)". One of the specimens is very small but otherwise seems adult and typical.

Genus *Scholvienia Strebel, 1910*

Scholvienia Strebel, 1910: 20.

Type species. *Bulimus bitaeniatus Nyst, 1845*, by subsequent designation (*Pilsbry, 1932*: 391).

***Scholvienia alutacea* (*Reeve, 1849*)** [49]
(Fig. 20B)

Bulimus alutaceus Reeve, 1849 [*1848–1850*]: pl. 72 fig. 522.
Bulimus tarmensis Philippi; *Hidalgo, 1870*: 61; *Hidalgo, 1872*: 114, pl. 4 figs. 8–9; *Hidalgo, 1893a*: 109; *Hidalgo, 1893b*: 207.

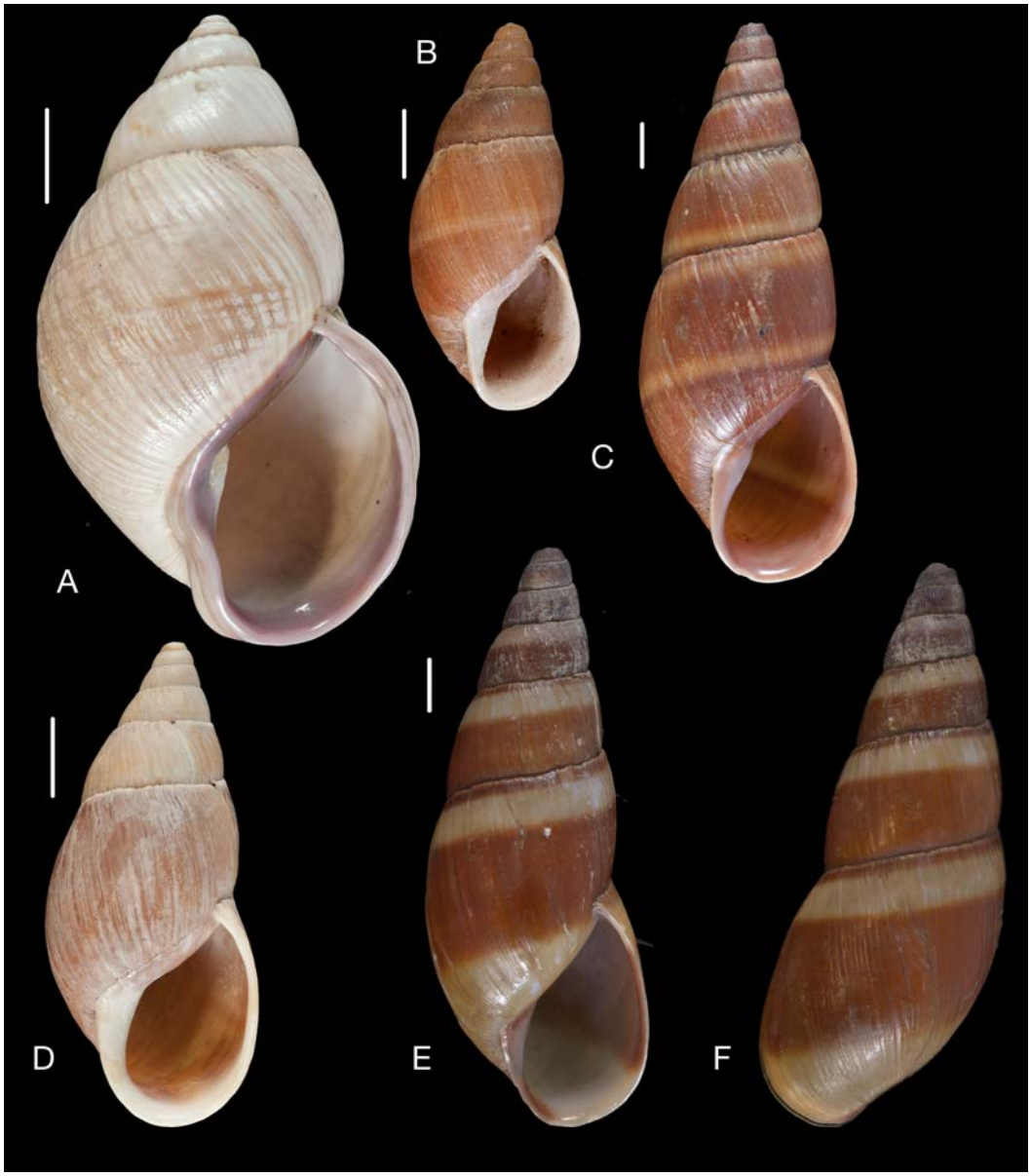

Figure 20 Material collected by the CCP. (A–F) Orthalicidae. *Porphyrobaphe* (*P.*) *iostoma* (*Sowerby I, 1824*), MNCN 15.05/36949, (A) ventral view; *Scholvienia alutacea* (*Reeve, 1849*), MNCN 15.05/13076, (B) ventral view; *Scholvienia bifasciata* (*Philippi, 1845*), MNCN 15.05/13282, (C) ventral view; *Scholvienia porphyria* (Pfeiffer, 1847), MNCN 15.05/36851, (D) ventral view; *Scholvienia iserni* (*Philippi, 1867*), MNCN 15.05/13365, (E) ventral view, (F) dorsal view. Scale line 5 mm (B, C, E, F), 1 cm (A, D).

Type locality. [Peru] "Cuzco, Bolivia".
Type material. NHMUK 1975148, lectotype (*Breure, 1978*).
Material examined. "Chanchamayo", "(Cat. Am. mer. no. 121)", Coll. Paz, MNCN 15.05/13076 (2); "Peru", "(Cat. Am. mer. no. 163)", Coll. Paz, MNCN 15.05/13168 (3).
Remarks. *Hidalgo (1870)* listed this material as "Hab. Chanchamayo, Pérou (Isern)"; the label "(Cat. Am. mer. no. 121)" was apparently misplaced. Possibly these shells were among

the material listed by Isern (“28 *Bulimus* y 4 en alcohol”), collected near Acobamba on the 8th October 1863 (*Blanco, Rodríguez & Rodríguez, 2006*: 143).

***Scholvienia bifasciata* (*Philippi, 1845*)** [50]
(Fig. 20C)

Bulimus bifasciatus Philippi, 1845 [*1845–1847*]: 10, pl. 3 fig. 5; *Hidalgo, 1870*: 46; *Hidalgo, 1872*: 68; *Hidalgo, 1893a*: 92; *Hidalgo, 1893b*: 209.

Type locality. [Peru] “sylvae peruanae”.
Type material. Not located.
Material examined. “Chanchamayo”, “(Cat. Am. mer. n°. 73)”, Coll. Paz, MNCN 15.05/13282 (1); “Chanchamayo (Perú)”, “Pacifico”, Coll. Hidalgo ex Isern, MNCN 15.05/7189 (6); “Chanchamayo”, Coll.Hidalgo ex Isern leg., MNCN 15.05/21243 (10); “Peru”, Coll. Hidalgo ex Isern leg., MNCN 15.05/20339 (2); “Peru”, Coll. Azpeitia, MNCN 15.05/8128 (1).
Remarks. The material consists of specimens ranging in shell height from 44.9 to 59.0 mm, all showing the same characteristics. Awaiting a revision of this and morphologically similar species from the same area (*Breure & Mogollón, 2016*: 67), all specimens are considered to be conspecific.

***Scholvienia iserni* (*Philippi, 1867*)** [51]
(Figs. 20E–20F)

Bulimus iserni Philippi, 1867: 75; *Hidalgo, 1870*: 45; *Hidalgo, 1872*: 67, pl. 6 figs. 6–7; *Hidalgo, 1893a*: 92; *Hidalgo, 1893b*: 208.

Type locality. [Peru] “prope La Oroya”.
Type material. Not located.
Material examined. “Chanchamayo, Peru”, Coll. Paz “(Cat. Am. mer. no. 72)”, MNCN 15.05/13365 (2); “Chanchamayo (Perú)”, Coll. Hidalgo [ex Isern leg.], MNCN 15.05/37156 (4).
Remarks. According to the published data by Hidalgo this material was collected by Isern, possibly between La Oroya and Tarma on the 29th September 1863 (*Blanco, Rodríguez & Rodríguez, 2006*: 143). Also *Philippi (1867)* mentioned “legit amicus infelix, Johannes Isern”.
Etymology. Named after the collector, Juan Isern y Battló.

***Scholvienia porphyria* (Pfeiffer, 1847)** [52]
(Fig. 20D)

Bulimus porphyrius Pfeiffer, 1847a: 114; *Hidalgo, 1870*: 45; *Hidalgo, 1872*: 65; *Hidalgo, 1893a*: 91.

Type locality. “Bolivia”.
Type material. NHMUK 1975277, lectotype (*Breure, 1978*: 46).
Material examined. “Peru”, Coll. Hidalgo ex Almagro, MNCN 15.05/36851 (3).

Remarks. This species is known to occur in Peru, Dept. Apurimac (*Breure & Mogollón, 2016*: 71); the material was probably collected by Almagro during his trip through this region in August 1863 (*Calatayud, 1994*: 256).

Genus *Sultana* *Shuttleworth, 1856*

Orthalicus (*Sultana*) *Shuttleworth, 1856*: 58.

Type species. *Helix sultana* Dillwyn, 1817, by tautonomy.

Subgenus *Sultana* (*Metorthalicus*) *Pilsbry, 1899*

Orthalicus (*Metorthalicus*) *Pilsbry, 1899*: 187.

Type species. *Bulimus yatesi Pfeiffer, 1855*, by original designation.

***Sultana* (*Metorthalicus*) *deburghiae* (*Reeve, 1859*)** [53]
(Fig. 21A)

Bulimus deburghiae Reeve, 1859: 123.
Bulimus gloriosus Pfeiffer; *Hidalgo, 1870*: 44; *Hidalgo, 1872*: 62, pl. 4 figs. 2–3; *Hidalgo, 1893a*: 90; *Hidalgo, 1893b*: 287.

Type locality. "Peruvian side of the Amazon".
Type material. NHMUK 19601622, lectotype (*Breure & Schouten, 1985*: 27).
Material examined. "San José (Ecuador)", Coll. Hidalgo ex "Isern y Espada" leg., MNCN 15.05/36960 (2); "Ecuador", "(Cat. Am. mer. no. 64)", Coll. Paz, MNCN 15.05/13702 (2), MNCN 15.05/76247 (1), MNCN 15.05/76248 (1).
Remarks. The material was probably collected by Isern in June 1863 (*Calatayud, 1994*: 278). One of the specimens corresponds to *Hidalgo, 1872*: pl. 4 figs. 2–3.

***Sultana* (*Metorthalicus*) *fraseri* (*Pfeiffer, 1858*)** [54]
(Fig. 21B)

Bulimus fraseri Pfeiffer, 1858: 239; *Hidalgo, 1870*: 44; *Hidalgo, 1893a*: 90.

Type locality. "in provincia Cuenca reipublicae Aequatoris".
Type material. NHMUK 20140083, lectotype (*Breure & Schouten, 1985*: 28).
Material examined. "Ecuador", Coll. Paz, MNCN 15.05/13505 (2); "Pacifico 62", Coll. Paz, MNCN 15.05/36963 (2); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/76216 (1).
Remarks. *Hidalgo (1870)* wrote "Trouvé sur le chemin de Quito, à 30 ou 40 kilomètres de Chimborazo (Paz)". Probably collected by Almagro or Isern during their trip from Guayaquil to Quito (*Calatayud, 1994*: 268).

***Sultana* (*Metorthalicus*) *kellettii* (*Reeve, 1850*)** [55]
(Fig. 21C)

Bulimus kellettii Reeve, 1850 [*1848–1850*]: pl. 89 fig. 661.

Figure 21 Material collected by the CCP. (A–D) Orthalicidae. *Sultana* (*Metorthalicus*) *deburghiae* (*Reeve, 1859*), MNCN 15.05/36960, (A) ventral view; *Sultana* (*Metorthalicus*) *fraseri* (*Pfeiffer, 1858*), MNCN 15.05/13505, (B) ventral view; *Sultana* (*Metorthalicus*) *kellettii* (*Reeve, 1850*), MNCN 15.05/6881, (C) ventral view; *Sultana* (*Metorthalicus*) *yatesi yatesi* (*Pfeiffer, 1855*), MNCN 15.05/13504, (D) ventral view. Scale line 1 cm.

Bulimus fungairinoi Hidalgo, 1867: 72, pl. 4 fig. 4, 478; Hidalgo, 1870: 44; Hidalgo, 1872: 58, pl. 3 figs. 8–9; Hidalgo, 1893a: 90; Hidalgo, 1893b: 285; Azpeitia, 1923: 58; Fischer-Piette, 1950: 68.
Bulimus jungairignoi [sic] Baratech et al., 1993: 215.
Sultana (*Metorthalicus*) *kellettii*; Breure & Mogollón, 2016: 75, figs. 73A, 79A–79B, 80.

Type locality. "Ecuador?".
Type material. NHMUK 1975241, lectotype (Breure & Schouten, 1985: 28).
Additional type material. "Cuenca (Ecuador)", Coll. Hidalgo ex Jamieson, MNCN 15.05/3159 (2); "Ecuador", "(Cat. Am. mer. no. 65)", Coll. Paz, MNCN 15.05/6881 (1), syntypes of *Bulimus fungairinoi* Hidalgo.
Material examined. "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/3162 (1); "Cuenca, Ecuador", Coll. Azpeitia, MNCN 15.05/3161 (1); "Cuenca, Ecuador", Coll. Paz, MNCN 15.05/3160 (1).
Remarks. This species was initially published as *Bulimus jungairinoi*, but Hidalgo made Crosse correct this in the index (p. 478); see also Breure & Backhuys, 2017. This correction has to be considered as a lapsus calami (Art. 32.5.1.1 ICZN Code). The material was not collected by the CCP members themselves, but was a gift of J. Jameson (cf. Calatayud, 1994: 203).
Etymology. Hidalgo named his taxon after Eduardo Fungairiño, a befriended Madrid-based malacologist (Breure & Backhuys, 2017).

Sultana (***Metorthalicus***) ***yatesi yatesi*** (***Pfeiffer, 1855***) [56]
(Fig. 21D)

Bulimus yatesi Pfeiffer, 1855: 93, pl. 31 fig. 5; Hidalgo, 1872: 59; Hidalgo, 1893a: 125.

Type locality. [Peru] "Meobamba".
Type material. NHMUK 1975239, lectotype (Breure & Schouten, 1985: 28).
Material examined. "Ecuador", "(Cat. Am. mer. no. [...])", Coll. Paz, MNCN 15.05/13504 (1).
Remarks. Hidalgo (1893) published this species with locality data "República del Peru (Almagro)". The species is known to occur in northern Peru at the eastern side of the Andes, but the subspecies *Sultana* (*Metorthalicus*) *yatesi galactostoma* (Ancey, 1890) has been reported from Ecuador without specific locality (Breure & Mogollón, 2016). These authors also reported a record for the nominate taxon from the Chanchamayo valley. In any case, there is no evidence this material was collected by Almagro, who has not travelled in Peru in areas where this species does occur. If the label "Ecuador" has to be trusted, it is likely this specimen was collected on the eastern slopes of the Cordillera.

Family Odontostomidae Pilsbry & Vanatta, 1898

Genus *Anctus* Martens in *Albers, 1860*

Anctus Martens in Albers, 1860: 214.

Type species. *Bulimus angiostomus* Wagner, 1827, by monotypy.

***Anctus angiostomus* (*Wagner, 1827*)** [57]
(Fig. 22A)

Bulimus angiostomus *Wagner, 1827*: 14.
Bulimus capueira Spix; *Hidalgo, 1893a*: 125.

Type locality. [Brazil] "Capueira a Brasiliensibus dictis, in Provinces septemtrionalibus".
Type material.
Material examined. "Brazil", Coll. Paz, MNCN 15.05/13152 (4); "Brasil", Coll. Azpeitia, MNCN 15.05/8075 (2).
Remarks. This species was listed in *Hidalgo (1893a)* as "Bulimus capueira Spix", which is a synonym.

Genus *Bahiensis* *Jousseaume, 1877*

Bahiensis *Jousseaume, 1877*: 311.

Type species. *Helix* (*Cochlogena*) *bahiensis* *Moricand, 1834*, by monotypy.

***Bahiensis bahiensis* (*Moricand, 1834*)** [58]
(Fig. 22B)

Helix (*Cochlogena*) *bahiensis* *Moricand, 1834*: 541, pl. 1 fig. 6.
Bulimus bahiensis; *Hidalgo, 1870*: 63; *Hidalgo, 1893a*: 112.

Type locality. [Brazil] "le Brésil dans les bois près de Bahia [Salvador]"
Type material. MHNG-INVE-64638 (31), syntypes.
Material examined. "Rio Janeiro", "(Cat. Am. mer. n°. 172)", Coll. Paz, MNCN 15.05/13097 (5); "Rio Janeiro", "(comprado)", Coll. Hidalgo, MNCN 15.05/20324 (1).
Remarks. The shell from the Hidalgo collection originated without doubt from Paz, who bought the material while in Brazil.

***Bahiensis janeirensis* (Sowerby I in *Sowerby I & II, 1833*)** [59]
(Fig. 22C)

Bulinus janeirensis Sowerby I in Sowerby I & II, 1833 [*1832–1841*]: 8, fig. 97.
Bulimus janeirensis; *Hidalgo, 1870*: 52; *Hidalgo, 1893a*: 99.

Type locality. [Brazil] "Rio de Janeiro".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. n°. 109)", Coll. Paz, MNCN 15.05/13196 (2).

Genus *Burringtonia* *Parodiz, 1944*

Burringtonia *Parodiz, 1944*: 4.

Type species. *Helix* (*Cochlodina*) *pantagruelina* *Moricand, 1834*, by original designation.

Figure 22 Material collected by the CCP. (A–M) Odontostomidae. *Anctus angiostomus* (*Wagner, 1827*), MNCN 15.05/13152, (A) ventral view; *Bahiensis bahiensis* (*Moricand, 1834*), MNCN 15.05/13097, (B) ventral view; *Bahiensis janeirensis* (Sowerby I in *Sowerby I & II, 1833*), MNCN 15.05/13196, (C) ventral view; *Spixia charpentieri* (Grateloup in *Pfeiffer, 1850*), MNCN 15.05/20205, (D) ventral view; *Spixia striata* (Spix in *Wagner, 1827*), MNCN 15.05/13078, (E) ventral view; *Cyclodontina inflata* (*Wagner, 1827*), MNCN 15.05/8456, (F) ventral view; *Macrodontes gargantua* (*Férussac, 1822*), MNCN 15.05/13366, (G) ventral view; *Moricandia dubiosa* (*Jay, 1839*), MNCN 15.05/12998, (H) ventral view; *Burringtonia exesa* (Spix in *Wagner, 1827*), MNCN 15.05/13364, (I) ventral view; *Plagiodontes daedaleus* (Deshayes in *Férussac & Deshayes, 1851*), MNCN 15.05/13153, (J) ventral view; *Plagiodontes dentata* (*Wood, 1828*), MNCN 15.05/13167, (K) ventral view; *Burringtonia leucotrema* (*Beck, 1837*), MNCN 15.05/13470, (L) ventral view; *Burringtonia labrosa* (*Menke, 1828*), MNCN 15.05/13472, (M) ventral view. Scale line 5 mm.

Burringtonia exesa **(Spix in *Wagner, 1827*)** [60]
(Fig. 22I)

Clausilia exesa Spix in *Wagner, 1827*: pl. 14 fig. 1.
Bulimus exesus; *Hidalgo, 1870*: 51; *Hidalgo, 1893a*: 98.

Type locality. Not given.
Type material. ZSM.
Material examined. "Brasil", "(Cat. Am. mer. no. 105)", Coll. Paz, MNCN 15.05/13364 (4).

Burringtonia labrosa **(*Menke, 1828*)** [61]
(Fig. 22M)

Scarabus labrosus *Menke, 1828*: 78.
Bulimus pantagruelinus Moricand; *Hidalgo, 1870*: 51; *Hidalgo, 1893a*: 98.

Type locality. "inter Rio et Campos, in Brasilia".
Type material. Not located.
Material examined. "Brasil", "(Cat. Am. mer. no. 103)", Coll. Paz, MNCN 15.05/13472 (1); "Rio Janeiro", "(comprado)", Coll. Hidalgo ex Paz, MNCN 15.05/36849 (4).
Remarks. Lot MNCN 15.05/13472 corresponds with the material identified by Hidalgo as "*Bulimus pantagruellinus* Moricand".

Burringtonia leucotrema **(*Beck, 1837*)** [62]
(Fig. 22L)

Odontostomus leucotremus *Beck, 1837*: 54.
Bulimus leucotrema; *Hidalgo, 1893a*: 122

Type locality. "Brasil. Bah[ia]".
Type material. Not located.
Material examined. "Brazil", Coll. Paz, MNCN 15.05/13470 (1).
Remarks. *Hidalgo (1893a)* recorded as locality "Bahia, en el Brasil (Paz)".

Genus *Cyclodontina* *Beck, 1837*

Pupa (*Cyclodontina*) *Beck, 1837*: 88.

Type species. *Clausilia pupoides* Spix in *Wagner, 1827*, by subsequent designation (*Pilsbry, 1898*: 57).

Cyclodontina inflata **(*Wagner, 1827*)** [63]
(Fig. 22F)

Pupa inflata *Wagner, 1827*: 20.

Type locality. [Brazil] "in Provinciis mediis orientalibus".
Type material. ZSM.
Material examined. "Brasil", Coll. Azpeitia ex Paz leg., MNCN 15.05/8456 (1).

Remarks. This species was not mentioned in Hidalgo's catalogue, but the material is likely originating from the CCP.

Genus *Macrodontes* Swainson, 1840

Clausilia (*Macrodontes*) Swainson, 1840: 334.

Type species. *Macrodontes sowerbyii* Swainson, 1840, by monotypy.

***Macrodontes gargantua* (Férussac, 1822)** [64]
(Fig. 22G)

Helix (*Cochlodina*) *gargantua* Férussac 1822 [1821–1822]: 62.
Bulimus odontostomus Sowerby; Hidalgo, 1870: 51; Hidalgo, 1893a: 98.

Type locality. Not given.
Type material. Not located.
Material examined. "Corcovado, Rio Jan.[eiro]", "(Cat. Am. mer. no. 104)", Coll. Paz, MNCN 15.05/13366 (4); "Corcovado, Rio Janeiro, Brasil", Coll. Azpeitia ex Paz leg., MNCN 15.05/7333 (1).

Genus *Moricandia* Pilsbry & Vanatta in Pilsbry, 1898

Odontostomus (*Moricandia*) Pilsbry & Vanatta in Pilsbry, 1898: 57.

Type species. *Helix fusiformis* Rang, 1831, by original designation.

***Moricandia dubiosa* (Jay, 1839)** [65]
(Fig. 22H)

Bulimus dubiosus Jay, 1839: 122, pl. 7 fig. 6.
Bulimus fusiformis Rang; Hidalgo, 1870: 50.

Type locality. "Brazil ?".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. n°. 101)", Coll. Paz, MNCN 15.05/12998 (3); "Rio Janeiro (comprado)", Coll. Hidalgo, MNCN 15.05/37050 (1).
Remarks. One of the specimens was bought by Paz in Rio de Janeiro, where it does occur in the vicinity (Simone, 2006). The systematic position is following the same author.

Genus *Plagiodontes* Doering, 1877

Plagiodontes Doering, 1877: 318.

Remarks. The year of publication is according to Breure & Miquel (2012: 19).
Type species. *Pupa dentata* Wood, 1828, by subsequent designation (Pilsbry, 1898: 57).

***Plagiodontes daedaleus* (Deshayes in Férussac & Deshayes, 1851)** [66]
(Fig. 22J)

Pupa dealdalea Deshayes in Férussac & Deshayes, 1851 [1819–1851]: [2 (2)] 217, pl. 162 figs. 23–24.

Bulimus daedaleus; *Hidalgo, 1870*: 51; *Hidalgo, 1893a*: 98.

Type locality. "Brésil".
Type material. Not located.
Material examined. "Republ. Argentina", "(Cat. Am. mer. nº. 107)", Coll. Paz, MNCN 15.05/13153 (4).
Remarks. According to *Hidalgo (1870)* the material was collected "Salto Oriental". See *Calatayud, 1994*: 252 for the itinerary of Paz, and part of the CCP, through Argentina.

***Plagiodontes dentata* (*Wood, 1828*)** [67]
(Fig. 22K)

Pupa dentata *Wood, 1828*: 50, pl. 8 fig. 71.
Bulimus dentatus; *Hidalgo, 1870*: 51; *Hidalgo, 1872*: 80; *Hidalgo, 1893a*: 98; *Hidalgo, 1893b*: 187.

Type locality. Not given.
Type material. NHMUK 1840.9.12.50 (2), syntypes.
Material examined. "La Concordia", Coll. Hidalgo ex Paz leg., MNCN 15.05/36385 (21); "Montevideo", Coll. Hidalgo ex Martínez leg., MNCN 15.05/36382 (7); "Las Mercedes", Coll. Hidalgo ex Paz leg., MNCN 15.05/36293 (3); "Republ. Argentina", "(Cat. Am. mer. nº. 106)", Coll. Paz, MNCN 15.05/13167 (5).
Remarks. *Hidalgo (1872)* mentioned the specimens from Paz as collected at "La Concordia y Las Mercedes". See *Calatayud, 1994*: 251–252 for the places visited around Montevideo.

Genus *Spixia* Pilsbry & Vanatta in *Pilsbry, 1898*

Odontostomus (*Spixia*) Pilsbry & Vanatta in *Pilsbry, 1898*: 57.

Type species. *Clausilia striata* Spix in *Wagner, 1827*, by subsequent designation (Pilsbry, 1901 [*1901–1902*]: 67).
Remarks. The designation by Pilsbry (1901 [*1901–1902*]) was "*O. spixii* Orb.", which was afterwards shown to comprise two species (*Breure & Ablett, 2012*: 25–26).

***Spixia charpentieri* (Grateloup in *Pfeiffer, 1850*)** [68]
(Fig. 22D)

Bulimus charpentieri Grateloup in *Pfeiffer, 1850*: 14; *Hidalgo, 1870*: 52; *Hidalgo, 1872*: 81; *Hidalgo, 1893a*: 99; *Hidalgo, 1893b*: 185.

Type locality. [Argentina] "Cardova [sic, Cordoba] reipubl. Argentinae".
Type material. Not located.
Material examined. "Republ. Argentina", "(Cat. Am. mer. nº. 108)", Coll. Paz, MNCN 15.05/13091 (7); "Republ. Argentina", "(Cat. Am. mer. nº. 108)", Coll. Paz, MNCN 15.05/13096 (4); "Cordoba de Tucuman", Coll. Hidalgo ex Paz, MNCN 15.05/20205 (41); "Cordoba, Rep. Argentina", Coll. Azpeitia, MNCN 15.05/7192 (19); Coll. Hidalgo, MNCN 15.05/19972 (28); "Pupa Porriana Grateloup. Cordoba, Rep. Argentina—sp.nov. | Bulimus Charpentieri", Coll. Paz, MNCN 15.05/76225 (2).

Remarks. The material varies in size and colouration, some with a brownish apex and fine, axial lines, others totally whitish.

Spixia striata **(Spix in *Wagner, 1827*)** [69]
(Fig. 22E)

Clausilia striata Spix in *Wagner, 1827*: pl. 14 fig. 1.
Bulimus exesus Spix; *Hidalgo, 1870*: 51; *Hidalgo, 1893a*: 98.

Type locality. [Brazil] "in Provinciis S. Pauli et Sebastianopolitana".
Type material. ZSM.
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 105)", Coll. Paz, MNCN 15.05/13078 (3).
Remarks. These specimens were found identified by Hidalgo as "Bulimus exesus Spix", which refers to *Pupa exesa Wagner, 1827*.

Family Bothriembryontidae Iredale, 1937

Genus *Plectostylus Beck, 1837*

Plectostylus Beck, 1837: 58.

Type species. *Bulimus peruvianus* Bruguière, 1789, by subsequent designation (*Gray, 1847*: 176).

Plectostylus broderipii **(Sowerby I in Broderip & Sowerby I, 1832)** [70]
(Fig. 23A)

Bulinus broderipii Sowerby I in *Broderip & Sowerby I, 1832a*: 30.
Bulimus broderipi [sic]; *Hidalgo, 1870*: 58; *Hidalgo, 1872*: 117. [partim].

Type locality. [Chile] "prope Copiapo Chilensium"
Type material. NHMUK 20100655, lectotype (*Breure & Ablett, 2012*: 8).
Material examined. "Bolivia", "(Cat. Am. mer. n°. 151)", Coll. Paz, MNCN 15.05/13467 (6); "Paposo", Coll. Hidalgo, MNCN 15.05/20193 (2), MNCN 15.05/37162 (10); Coll. Azpeitia, MNCN 15.05/8073 (3); "Huasco, Chile", Coll. Azpeitia, MNCN 15.05/8074 (2).
Remarks. The material was listed in *Hidalgo (1870)* as "Huasco, Chili (Martínez); Paposo, Bolivia (Paz)"; both localities are in present-day Chile. Therefore, lot MNCN 15.05/13467 is likely also from Paposo; lot MNCN 15.05/8074 may have originated from Martínez, but reference to his name has been lost. See *Calatayud, 1994*: 258 for the itinerary in northern Chile.

Plectostylus chilensis **(Lesson in *Lesson, Garnot & Guérin-Méneville, 1830*)** [71]
(Fig. 23D)

Bulimus chilensis Lesson in Lesson et al., 1830 [*1826–1831*]: pl. 7 fig. 3; *Hidalgo, 1870*: 55; *Hidalgo, 1872*: 103; *Hidalgo, 1893a*: 103; *Hidalgo, 1893b*: 227.

Type locality. [Chile] "l'ancienne ville de Penco, dans la province de la Concepcion" (Lesson, 1831 [*1830–1831*]: 317).

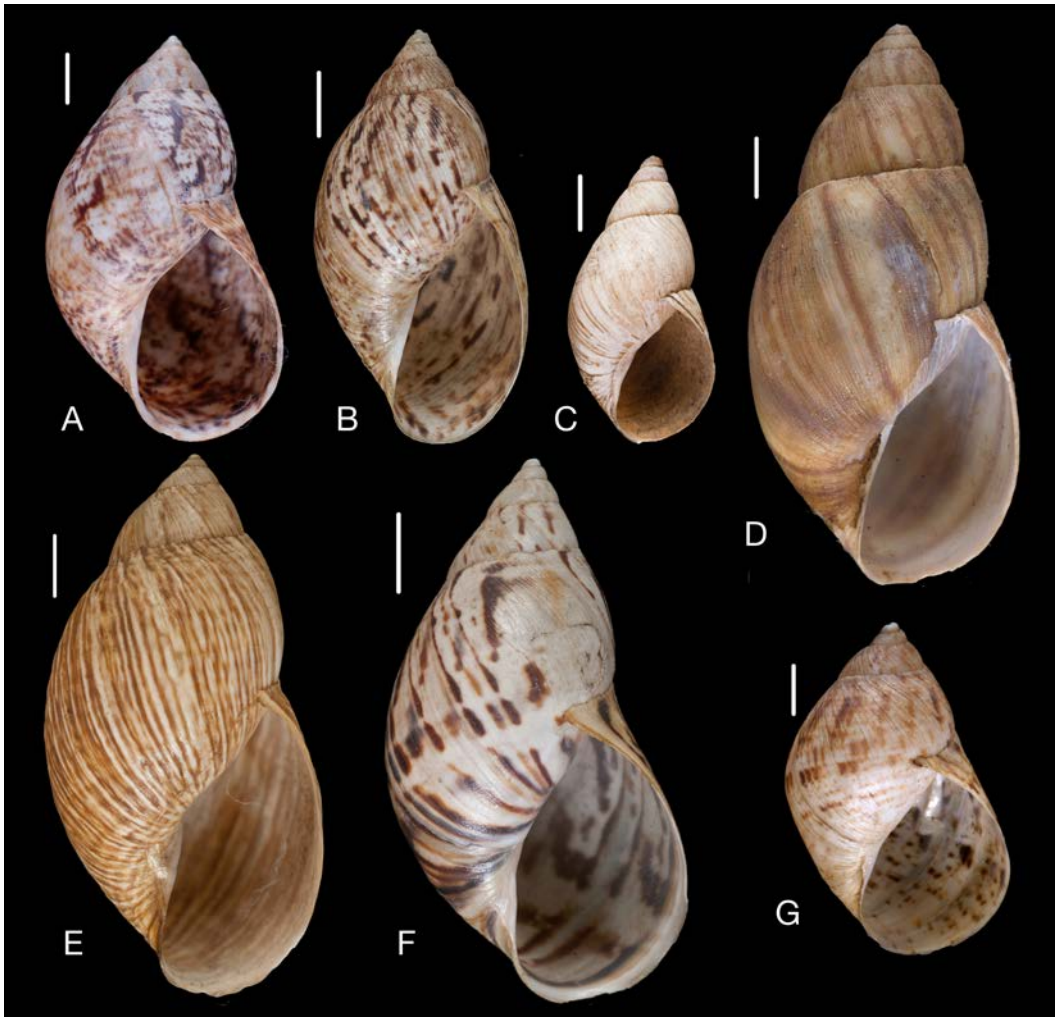

Figure 23 Material collected by the CCP. (A–G) Bothriembryontidae. *Plectostylus broderipii* (Sowerby I in Broderip & Sowerby I, 1832), MNCN 15.05/13467, (A) ventral view; *Plectostylus coquimbensis* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13670, (B) ventral view; *Plectostylus* cf. *reflexus* (*Pfeiffer, 1842*), MNCN 15.05/13886, (C) ventral view; *Plectostylus chilensis* (Lesson in *Lesson, Garnot & Guérin-Méneville, 1830*), MNCN 15.05/13384, (D) ventral view; *Plectostylus peruvianus* (*Bruguière, 1792*), MNCN 15.05/13466, (E) ventral view; *Plectostylus punctulifer* (Sowerby I in *Sowerby I & II, 1833*), MNCN 15.05/76237, (F) ventral view; *Plectostylus coturnix* (Sowerby I in Broderip & Sowerby I, 1832), MNCN 15.05/13678, (G) ventral view. Scale line 5 mm.

Type material. Not located.

Material examined. "Sant°. de Chile", "(Cat. Am. mer. n°. 129)", Coll. Paz, MNCN 15.05/13384 (4); "Valparaiso", Coll. Hidalgo ex "Martínez y Paz" leg., MNCN 15.05/36386 (8); "Pacifico 129", Coll. Hidalgo, MNCN 15.05/20192 (4).

Remarks. The dates of publication of Lesson are according to *Cretella (2010)*.

***Plectostylus coquimbensis* (Broderip in Broderip & Sowerby I, 1832)** [72] (Fig. 23B)

Bulinus coquimbensis Broderip in *Broderip & Sowerby I, 1832a*: 30.

Bulimus coquimbensis; *Hidalgo, 1870*: 59; *Hidalgo, 1872*: 116; *Hidalgo, 1893a*: 107; *Hidalgo, 1893b*: 223.

Type locality. "Chili, Coquimbo".
Type material. Not located.
Material examined. "Chile", "(Cat. Am. mer. n°. 152)", Coll. Paz, MNCN 15.05/13670 (3); "Coquimbo", Coll. Hidalgo ex Martínez, MNCN 15.05/21226 (8).
Remarks. *Hidalgo (1870)* wrote "Coquimbo, República de Chile (Paz y Martínez)", so we must assume that both lots were collected in the same region.

***Plectostylus coturnix* (Sowerby I in Broderip & Sowerby I, 1832)** [73]
(Fig. 23G)

Bulinus coturnix Sowerby I in *Broderip & Sowerby I, 1832a*: 30.
Bulimus coturnix; *Hidalgo, 1870*: 58; *Hidalgo, 1872*: 115; *Hidalgo, 1893a*: 106; *Hidalgo, 1893b*: 224.

Type locality. [Chile] "Huasco".
Type material. NHMUK 20100620 (5), possible syntypes.
Material examined. "Chile", "(Cat. Am. mer. n°. 150)", Coll. Paz, MNCN 15.05/13678 (6); "Huasco", Coll. Hidalgo ex Martínez, MNCN 15.05/20322 (3); "150", Coll. Hidalgo, MNCN 15.05/20245 (1).
Remarks. The material was collected at "Huasco" by both Paz and Martínez according to *Hidalgo* (*1870*, *1872*). The largest specimen exceeds the measurement given by *Hidalgo (1872)*.

***Plectostylus peruvianus* (*Bruguière, 1792*)** [74]
(Fig. 23E)

Bulimus peruvianus *Bruguière, 1792*: 320; *Hidalgo, 1870*: 55; *Hidalgo, 1872*: 102; *Hidalgo, 1893a*: 103; *Hidalgo, 1893b*: 225.

Type locality. "Pérou".
Type material. MNHN 24188, lectotype (*Breure, 1975*: 1143).
Material examined. "Chile", "(Cat. Am. mer. n°. 128)", Coll. Paz, MNCN 15.05/13359 (4); MNCN 15.05/13466 (2); "Pacifico 128", MNCN 15.05/76213 (2); "Valparaiso", Coll. Hidalgo ex Martínez leg., MNCN 15.05/7338 (2); "Valparaiso, Chile", Coll. Azpeitia, MNCN 15.05/13888 (2).

***Plectostylus punctulifer* (Sowerby I in Sowerby I & II, 1833)** [75]
(Fig. 23F)
Bulinus punctulifer Sowerby I in Sowerby I & II, 1833 [1833–1838]: 36
Bulimus broderipi [sic]; *Hidalgo, 1870*: 58; *Hidalgo, 1872*: 117; *Hidalgo, 1893a*: 106; *Hidalgo, 1893b*: 221 [partim].

Type locality. [Chile] "Questa Prado".
Type material. NHMUK 1975171 (8), syntypes.
Material examined. "Paposo", Coll. Hidalgo, MNCN 15.05/76237 (1).

Remarks. This specimen was among lot MNCN 15.05/20193, identified as *Bulimus broderipii*, but may be regarded as a somewhat odd specimen of *Plectostylus punctulifer* which occurs sympatrically at this locality (JF Araya, pers. comm., 2016).

***Plectostylus* cf. *reflexus* (*Pfeiffer, 1842*)** [76]
(Fig. 23C)

Succinea reflexa *Pfeiffer, 1842*: 56.

Type locality. "Pichidanque probe Coquimbo, Chile".
Type material. NHMUK 1975358, lectotype (*Breure, 1978*: 202).
Material examined. "Chile", Coll. Hidalgo, MNCN 15.05/13886 (1).
Remarks. The (subadult) specimen is only tentatively referred to this species.

Family Bulimulidae Tryon, 1867

Genus *Auris* Spix in *Wagner, 1827*
Auris Spix in *Wagner, 1827*: 13.

Type species. *Bulimus melastomus* *Swainson, 1820*, by subsequent designation (*Gray, 1847*: 175).
***Auris chrysostoma* (*Moricand, 1836*)** [77]
(Fig. 24A)
Helix (*Cochlogena*) *rhodospira* var. *β chrysostoma* *Moricand, 1836*: 428.
Bulimus swainsoni; *Hidalgo, 1893a*: 123.
Type locality. [Brazil] "environs de Bahia [Salvador]".
Type material. MHNG-INVE-60161 (5), syntypes.
Material examined. "Brasil", Coll. Paz, MNCN 15.05/13502 (1); "Brasil", Coll. Azpeitia, MNCN 15.05/8123 (1); "Rio Janeiro", "(comprado)", Coll. Hidalgo ex Martínez, MNCN 15.05/36691 (9).
Remarks. The specimen from the Azpeitia collection is much smaller than the type specimen (*Breure, 2016*: fig. 88), but otherwise seems to be adult.

***Auris egregia* (*Jay, 1836*)** [78]
(Fig. 24B)

Pupa egregia *Jay, 1836*: 81, pl. 1 fig. 4.
Bulimus bilabiatus Broderip; *Hidalgo, 1893a*: 123.

Type locality. "Brazil".
Type material. Not located.
Material examined. "Brasil", Coll. Paz, MNCN 15.05/13387 (1).
Remarks. The shape of the aperture and the colouration of the peristome makes us identify this specimen as Jay's species (*Simone, 2006*: fig. 425). The sculpture on the ventral side of the last whorl is stronger than in his figure.

***Auris illheocola* (*Moricand, 1836*)** [79]
(Fig. 24D)

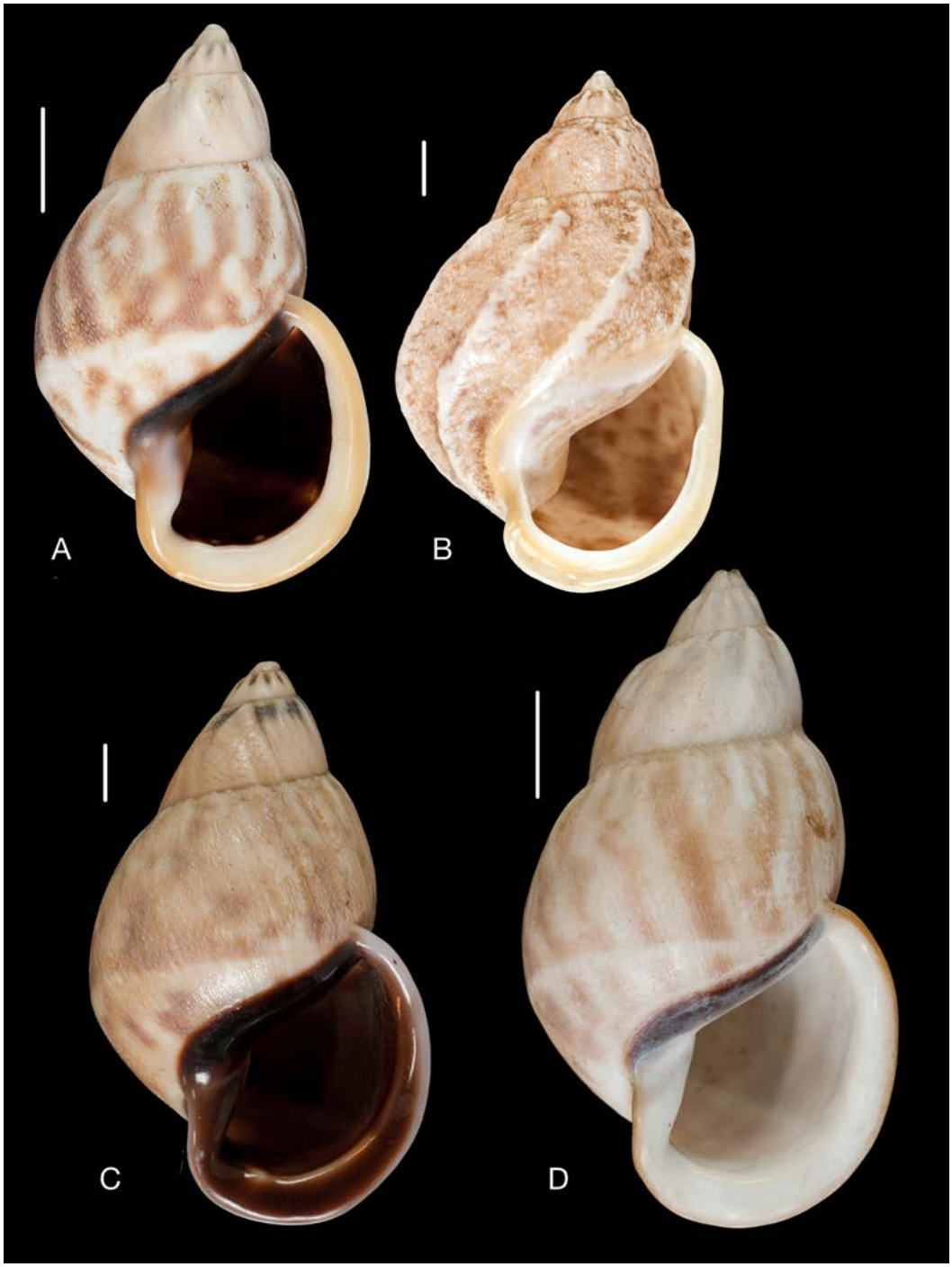

Figure 24 Material collected by the CCP. (A–D) Bulimulidae. *Auris chrysostoma* (*Moricand, 1836*), MNCN 15.05/8123, (A) ventral view; *Auris egregia* (*Jay, 1836*), MNCN 15.05/13387, (B) ventral view; *Auris melastoma* (*Swainson, 1820*), MNCN 15.05/13477, (C) ventral view; *Auris illheocola* (*Moricand, 1836*), MNCN 15.05/13277, (D) ventral view. Scale line 5 mm (B–C), 1 cm (A, D).

Helix (*Cochlogena*) *rhodospira* var. *illheocola* *Moricand, 1836*: 428.
Bulimus illheocola; *Hidalgo, 1893a*: 123.

Type locality. [Brazil] "Illheos".
Type material. MHNG-INVE-60171 (6), syntypes; MHNG-INVE-60169 (2), probable syntypes.
Material examined. "Brasil", Coll. Paz, MNCN 15.05/13277 (1); "Brasil", "224", Coll. Paz, MNCN 15.05/36926 (3).

Auris melastoma (***Swainson, 1820***) [80]
(Fig. 24C)

Bulimus melastomus Swainson, 1820 [*1820–1821*]: pl. 4; *Hidalgo, 1870*: 46; *Hidalgo, 1893a*: 93.

Type locality. "Brazil, in the province of Bahia".
Type material. Not located.
Material examined. "Brasil", "(Cat. Am. mer. no. 79)", Coll. Paz, MNCN 15.05/13477 (2); "Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/8108 (2).
Remarks. *Hidalgo (1893a)* reported the species from "Rio Janeiro, en el Brasil (Martinez)".

Genus *Bostryx* *Troschel, 1847*

Bulimus (*Bostryx*) *Troschel, 1847*: 49.
Type species. *Bulimus* (*Bostryx*) *solutus* *Troschel, 1847*, by monotypy.

Bostryx aequicostatus (***Rehder, 1945***) [81]
(Fig. 25A)

Bulimus scalarioides Philippi in *Pfeiffer, 1867*: 77; *Hidalgo, 1870*: 53; *Hidalgo, 1893a*: 101; *Hidalgo, 1875*: 128, pl. 7 fig. 4; *Hidalgo, 1893a*: 101. Not *Bulimus scalarioides* *Reeve, 1849*.
Peronaeus aequicostata *Rehder, 1945*: 106.

Type locality. [Peru] "provincia Conchucos".
Type material. Not located.
Material examined. "Peru", "(Cat. Am. mer. no. 117)", Coll. Paz, MNCN 15.05/14546 (3).
Remarks. *Hidalgo (1870)* gave as locality "Pataz, Pérou (Paz)", which is in northern Peru, Dept. La Libertad. He compared the shells with *Bostryx scalaricosta* (Morelet, 1863), which is a species from southern Peru and clearly distinct (cf. *Breure, 2016*: fig. 98). *Rehder* (*1945*: 106) noticed the name *Bulimus scalarioides* Philippi in *Pfeiffer, 1867* was preoccupied by *Bulimus scalarioides* *Reeve, 1849*, and introduced *Peronaeus aequicostata* *Rehder, 1945* as a replacement name. Philippi described his taxon from "provincia Conchucos", which is in Dept. Ancash ca. 60 km west of the locality mentioned by *Hidalgo (1870)*. It may be noted that the itinerary of the CCP members does not mention this region (*Calatayud, 1994*), hence it is unclear who collected this material. The shells, however, correspond to Philippi's

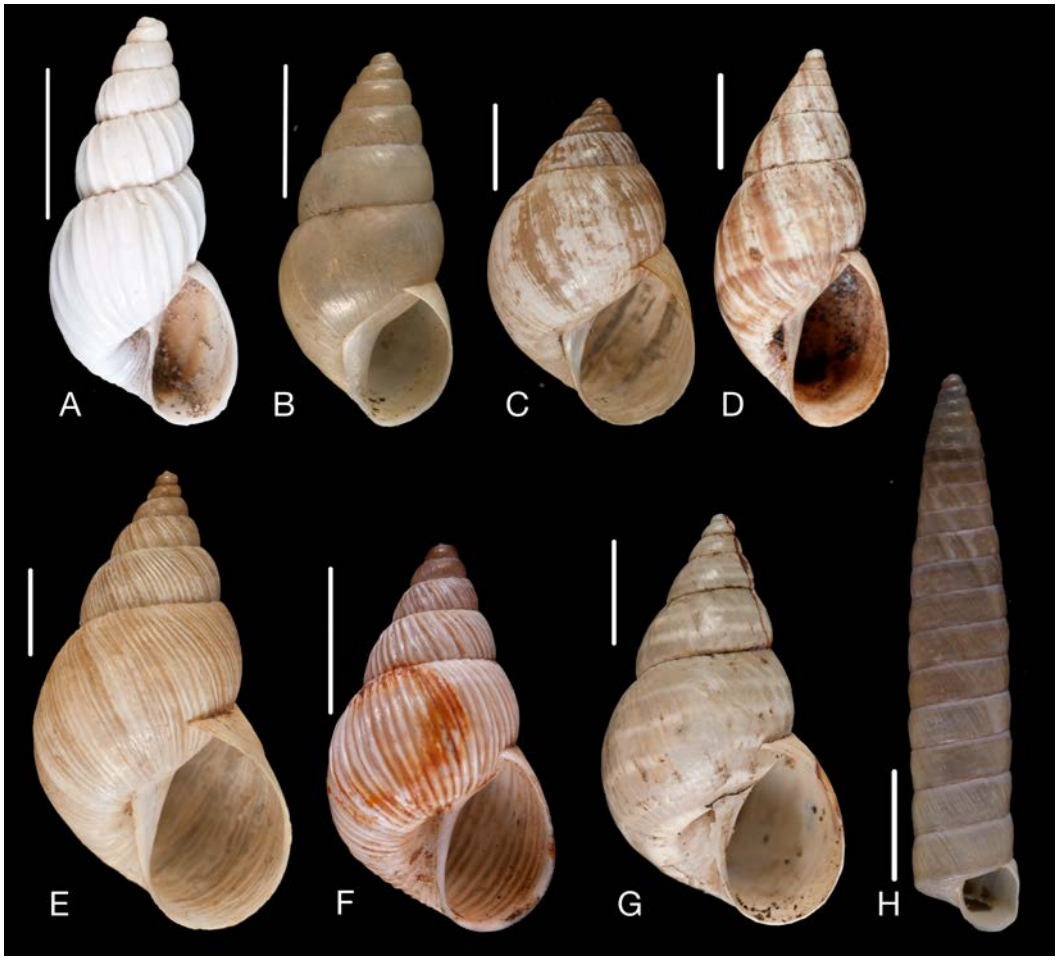

Figure 25 Material collected by the CCP. (A–H) Bulimulidae. *Bostryx aequicostatus* (*Rehder, 1945*), MNCN 15.05/14546, (A) ventral view; *Bostryx bilineatus* (*Sowerby I, 1833*), MNCN 15.05/13216, (B) ventral view; *Bostryx conspersus* (*Sowerby I, 1833*), MNCN 15.05/13179, (C) ventral view; *Bostryx tricinctus* (*Reeve, 1848*), MNCN 15.05/13321, (D) ventral view; *Bostryx modestus* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13160, (E) ventral view; *Bostryx scalariformis* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/21318, (F) ventral view; *Bostryx laurentii* (*Sowerby I, 1833*), MNCN 15.05/13404, (G) ventral view; *Bostryx veruculum* (*Morelet, 1860*), MNCN 15.05/14526, (H) ventral view. Scale line 5 mm.

description. *Weyrauch* (*1964*: fig. 13) has figured one of the shells from the original series collected by Raimondi, now IFML-MOLL 1223a.

***Bostryx affinis* (Broderip in Broderip & Sowerby I, 1832)** [82]
(Fig. 26A)

Bulinus affinis Broderip in *Broderip & Sowerby I, 1832b*: 106.
Bulimus affinis; *Hidalgo, 1870*: 60.

Type locality. "in Peruviâ (Mexillones, desert of Atacama)".
Type material. NHMUK 20100610 (5), possible syntypes.
Material examined. "Bolivia", "(Cat. Am. mer. n°. 162)", Coll. Paz, MNCN 15.05/13170 (5), MNCN 15.05/13171 (5).

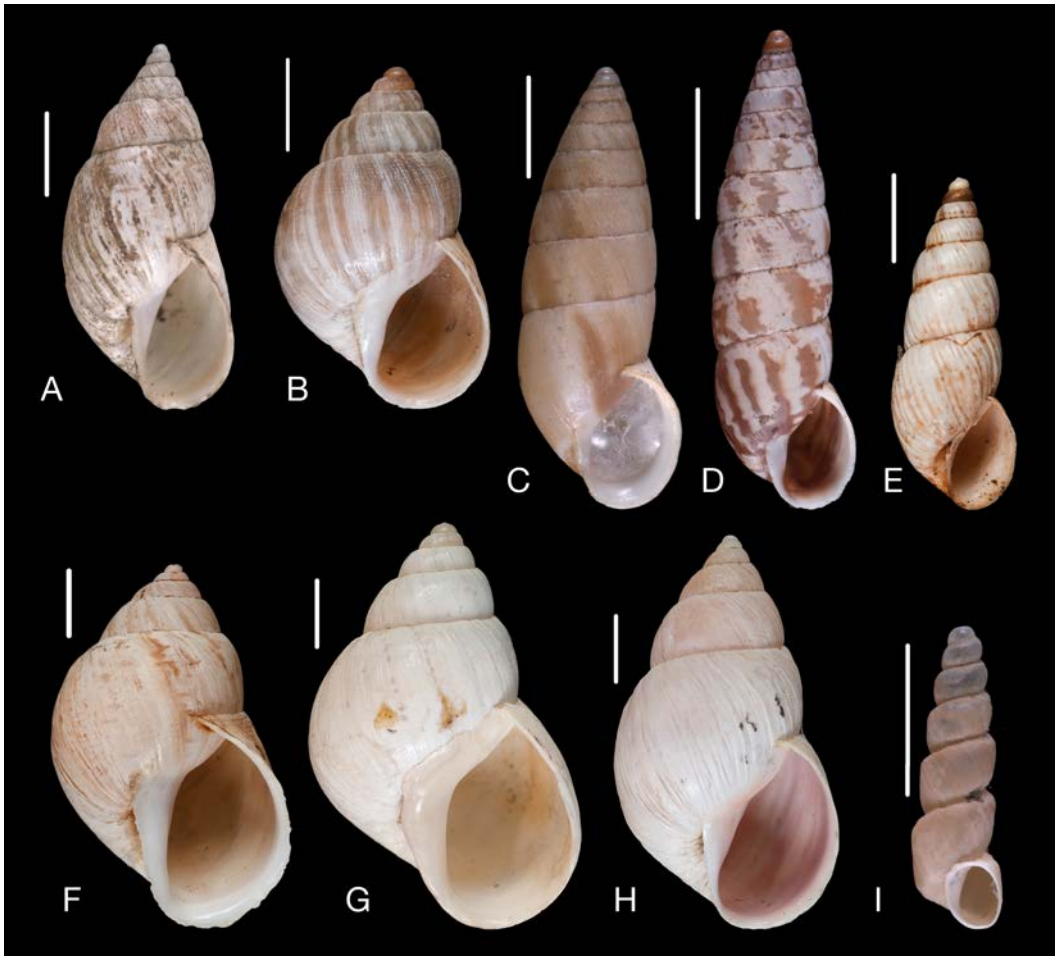

Figure 26 Material collected by the CCP. (A–I) Bulimulidae. *Bostryx affinis* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13170, (A) ventral view; *Bostryx albicans* (Broderip in Broderip and Sowerby I, 1832), MNCN 15.05/13162, (B) ventral view; *Bostryx anachoreta* (*Pfeiffer, 1856*), MNCN 15.05/13173, (C) ventral view; *Bostryx atacamensis* (*Pfeiffer, 1856*), MNCN 15.05/13093, (D) ventral view; *Bostryx hamiltoni* (*Reeve, 1849*), MNCN 15.05/9029, (E) ventral view; *Bostryx derelictus* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13083, (F) ventral view; *Bostryx hennahi* (*Gray, 1828*), MNCN 15.05/12993, (H) ventral view; *Bostryx holostoma* (*Pfeiffer, 1846*), MNCN 15.05/14604, (I) ventral view. Scale line 5 mm.

Remarks. According to *Hidalgo (1870)* the material was collected at "Paposo, Bolivia (Paz)"; this is in present-day Chile. The specimens appear to be partly subadult and juvenile.

***Bostryx albicans* (Broderip in Broderip and Sowerby I, 1832)** [83]
(Fig. 26B)

Bulinus albicans Broderip in *Broderip & Sowerby I, 1832b*: 105.
Bulimus albicans; *Hidalgo, 1870*: 52; *Hidalgo, 1872*: 84; *Hidalgo, 1875*: 128; *Hidalgo, 1893a*: 100.

Type locality. "Copiapo, Chili".

Type material. NHMUK 20100611 (5), possible syntypes.
Material examined. "Chile", "(Cat. Am. mer. nº. 111)", Coll. Paz, MNCN 15.05/13162 (6); "Huasco (Chile)", Coll. Hidalgo ex Martínez, MNCN 15.05/19967 (21); "Huasco, Chile", Coll. Azpeitia, MNCN 15.05/8068 (5).
Remarks. The locality mentioned in *Hidalgo (1870)* is "Huasco, Chili (Paz et Martínez)". In his 1872 publication Hidalgo treated this taxon as a variety ("Testa minor") of *Bulimus albus* (=*Bostryx erythrostomus*; see below).

***Bostryx anachoreta* (*Pfeiffer, 1856*)** [84]
(Fig. 26C)

Bulimus anachoreta *Pfeiffer, 1856*: 208; *Hidalgo, 1870*: 56.

Type locality. [Chile] "Paposo in desert Atacamensi reipublicae Chilensis".
Type material. ZMB 112729 (2), syntypes.
Material examined. "Bolivia", "(Cat. Am. mer. nº. 141)", Coll. Paz, MNCN 15.05/13173 (7); "Paposo", Coll. Hidalgo, MNCN 15.05/19981 (2); Coll. Azpeitia, MNCN 15.05/8067 (5); "Paposo, Bolivia", Coll. Azpeitia, MNCN 15.05/8445 (2).
Remarks. The material from the Hidalgo and Azpeitia collections are supposed to have been originated from the CCP-material. Lot MNCN 15.05/8445 is only tentatively referred to this species.

***Bostryx atacamensis* (*Pfeiffer, 1856*)** [85]
(Fig. 26D)

Bulimus atacamensis *Pfeiffer, 1856*: 207; *Hidalgo, 1870*: 57; *Hidalgo, 1872*: 100; *Hidalgo, 1875*: 128, pl. 7 fig. 5; *Hidalgo, 1893a*: 105.

Type locality. [Chile] "Paposo in deserto Atacamensi reipublicae Chilensis".
Type material. NHMUK 1975312, lectotype (*Breure, 1978*: 53).
Material examined. "Bolivia", "(Cat. Am. mer. nº. 142)", Coll. Paz, MNCN 15.05/13093 (6).
Remarks. According to *Hidalgo (1870)* the material originated from "Paposo, Bolivie (Paz)", which is in present-day Chile.

***Bostryx bilineatus* (*Sowerby I, 1833*)** [86]
(Fig. 25B)

Bulinus bilineatus *Sowerby I, 1833*: 37.
Bulimus fontainei Orbigny; *Hidalgo, 1872*: 126; *Hidalgo, 1875*: 130; *Hidalgo, 1893a*: 119; *Hidalgo, 1893b*: 229.

Type locality. [Ecuador] "ad Sanctam Elena et in Columbiâ".
Type material. ZMB 10261 (4), syntypes.
Material examined. "Guayaquil", "(Cat. Am. mer. nº. [...])", Coll. Paz, MNCN 15.05/13216 (8).
Remarks. This material is unicoloured and corresponds in this respect with *Naesiotus fontainii* (*d'Orbigny, 1838*) (*Breure & Ablett, 2014*: 78, fig. 16H), but have a protoconch

sculpture of excessive fine, spiral lines, which classifies them as *Bostryx*. In one specimen a very faint light peripheral girdle may be discerned, which corresponds to Sowerby's taxon (*Köhler, 2007*: fig. 21). Both Sowerby's and d'Orbigny's taxa have about the same shell height and may thus be easily misinterpreted.

***Bostryx conspersus* (*Sowerby I, 1833*)** [87]
(Fig. 25C)

Bulinus conspersus *Sowerby I, 1833*: 67.
Bulimus conspersus; *Hidalgo, 1870*: 60; *Hidalgo, 1872*: 125

Type locality. [Peru] "collinis prope Lima".
Type material. NHMUK 20100619 (5), probable syntypes.
Material examined. "Cerro de las Conchitas", "(Cat. Am. mer. nº. 160)", Coll. Paz, MNCN 15.05/13178 (4), MNCN 15.05/13179 (4); "Lima", "(Cat. Am. mer. no. 160)", Coll. Paz, MNCN 15.05/13176 (5); "Lima", Coll. Hidalgo "Paz", MNCN 15.05/20329 (15).

***Bostryx derelictus* (Broderip in Broderip & Sowerby I, 1832)** [88]
(Fig. 26F)

Bulinus derelictus Broderip in *Broderip & Sowerby I, 1832b*: 107.
Bulimus derelictus; *Hidalgo, 1870*: 53; *Hidalgo, 1872*: 88; *Hidalgo, 1893a*: 100; *Hidalgo, 1893b*: 262.

Type locality. "Cobijam Bolivia [now Chile] (Puerto del Mar)".
Type material. NHMUK 20100609 (4), probable syntypes.
Material examined. "Cobija", "(Cat. Am. mer. nº. 114)", Coll. Paz, MNCN 15.05/13083 (3); "Cobija", Coll. Hidalgo ex Paz leg., MNCN 15.05/37159 (14); "Cobija, Bolivia", Coll. Azpeitia, MNCN 15.05/9016 (7); "Pacifico 114", Coll. Hidalgo ex Coll. Paz, MNCN 15.05/21314 (3).

***Bostryx erythrostomus* (*Sowerby I, 1833*)** [89]
(Fig. 26G)

Bulinus erythrostoma *Sowerby I, 1833*: 37.
Bulimus albus Sowerby; *Hidalgo, 1870*: 54; *Hidalgo, 1872*: 83; *Hidalgo, 1893a*: 101.
Bulimus erythrostomus; *Hidalgo, 1870*: 54; *Hidalgo, 1872*: 85; *Hidalgo, 1893a*: 102.

Type locality. [Chile] "apud Huasco, Chilae".
Type material. ZMB 10273 (2), ZMB 41572 (2), ZMB 114329 (1), probable syntypes.
Material examined. "Chile", "(Cat. Am. mer. nº. 119)", Coll. Paz, MNCN 15.05/12996 (4); "Coquimbo", "(Cat. Am. mer. nº. 120)", Coll. Paz, MNCN 15.05/13202 (5); "Coquimbo", Coll. Hidalgo ex Martínez, MNCN 15.05/19964 (6); "Huasco", Coll. Hidalgo ex Martínez, MNCN 15.05/19963 (11).
Remarks. *Hidalgo (1870)* mentioned as localities "Chamarcillo (Paz), Huasco et Coquimbo (Paz et Martínez), Chili". In his 1872 publication, he only mentioned the two latter localities.

The specimens which had been identified as *Bulimus albus* by Hidalgo, are entirely white both inside and outside (cf. *Araya, 2015*: fig. 5).

***Bostryx hamiltoni* (*Reeve, 1849*)** [90]
(Fig. 26E)

Bulimus hamiltoni Reeve, 1849 [*1848–1850*]: pl. 83 fig. 610.

Type locality. "Near the Lake of Titicaca, Bolivia".
Type material. NHMUK 1849.5.14.53, lectotype (*Breure, 1978*: 80).
Material examined. "Puno en la Laguna de Chucuito o lago de Titicaca, Bolivia", Coll. Azpeitia, MNCN 15.05/9029 (7).
Remarks. Although this material was not recognised by Hidalgo, and not mentioned in his papers, this material was supposedly collected by Almagro or Isern, who visited the area in July 1863 (*Calatayud, 1994*: 255–256).

***Bostryx hennahi* (*Gray, 1828*)** [91]
(Fig. 26H)

Bulimus hennahi Gray, 1828: 5, pl. 5 fig. 5; *Hidalgo, 1870*: 52; *Hidalgo, 1872*: 87; *Hidalgo, 1893a*: 100; *Hidalgo, 1893b*: 270.

Type locality. [Chile] "Plains near Arica".
Type material. Not located.
Material examined. "Peru", "(Cat. Am. mer. nº. 113)", Coll. Paz, MNCN 15.05/12993 (4), MNCN 15.05/12992 (4); "Tacna (Perú)", Coll. Hidalgo, MNCN 15.05/21236 (13); "Tacna (Perú)", Coll. Azpeitia, MNCN 15.05/7207 (9).
Remarks. *Hidalgo (1870)* published as locality "Tacna, Pérou". See also *Calatayud, 1994*: 258.

***Bostryx holostoma* (*Pfeiffer, 1846*)** [92]
(Fig. 26I)

Bulimus holostoma Pfeiffer, 1846: 28; *Hidalgo, 1870*: 56; *Hidalgo, 1893a*: 104.

Type locality. [Chile] "Cobija, Bolivia".
Type material. NHMUK 1975345, lectotype (*Breure, 1979*: 54).
Material examined. "Cobija", "(Cat. Am. mer. nº. 135)", Coll. Paz, MNCN 15.05/14604 (3).
Remarks. *Hidalgo (1870)* mentioned this species from "Cobija, Bolivie (Paz)"; the locality is in present-day Chile.

***Bostryx lactifluus* (*Pfeiffer, 1857*)** [93]
(Fig. 27A)

Bulimus lactifluus Pfeiffer, 1857: 330; *Hidalgo, 1870*: 56; *Hidalgo, 1893a*: 104.

Type locality. "Chili".
Type material. NHMUK 20100642 (4), possible syntypes.

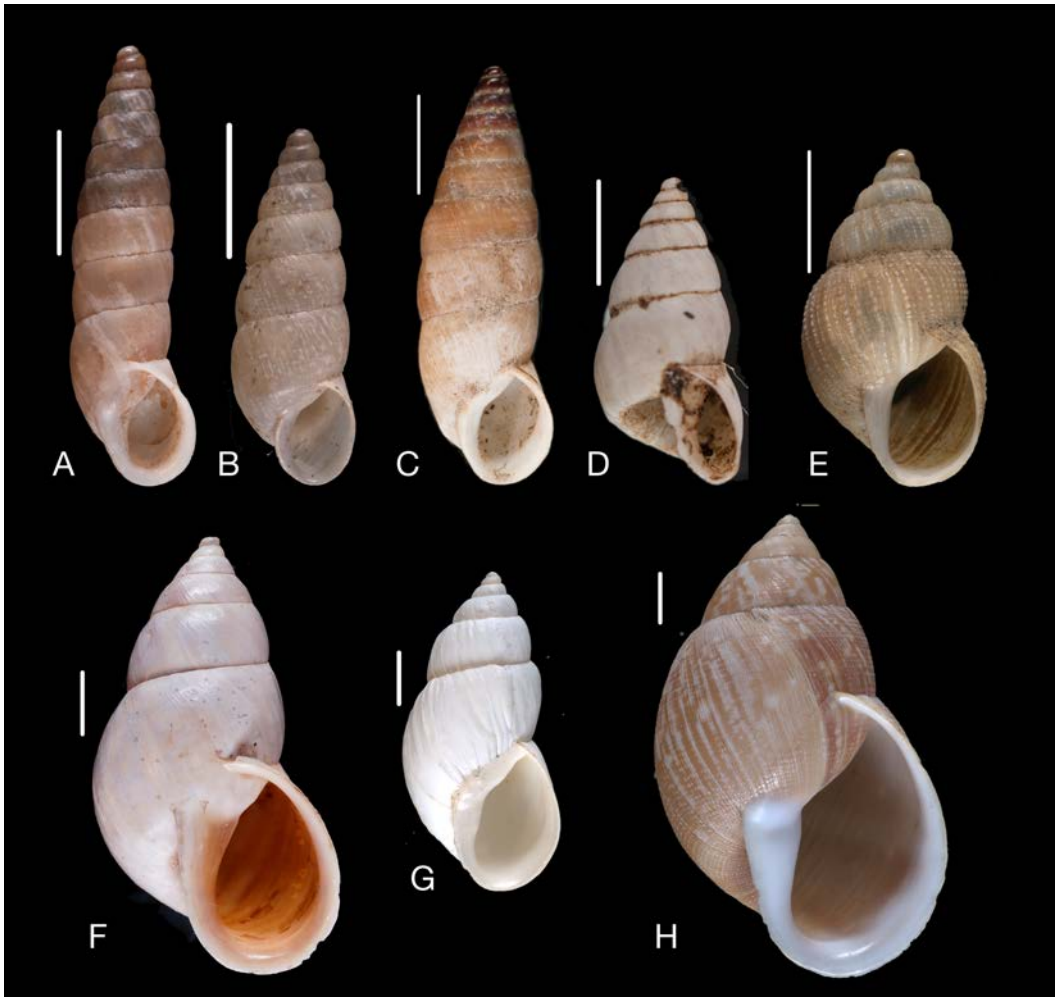

Figure 27 Material collected by the CCP. (A–H) Bulimulidae. *Bostryx lactifluus* (*Pfeiffer, 1857*), MNCN 15.05/13089, (A) ventral view; *Bostryx leucostictus* (*Philippi, 1856*), MNCN 15.05/14540, (B) ventral view; *Bostryx pupiformis* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13190, (C) ventral view; *Bostryx umbilicaris* (*Souleyet, 1842*), MNCN 15.05/14515, (D) ventral view; *Bostryx pustulosus* (Broderip in Broderip & Sowerby, 1832), MNCN 15.05/14618, (E) ventral view; *Bostryx rhodolarynx* (*Reeve, 1849*), MNCN 15.05/3112, (F) ventral view; *Bostryx mejillonensis* (Pfeiffer in *Pfeiffer & Dunker, 1857*), MNCN 15.05/13141, (G) ventral view; *Bostryx rouaulti* (Hupé in *Gay, 1854*), MNCN 15.05/13309, (H) ventral view. Scale line 5 mm.

Material examined. "Cobija", "(Cat. Am. mer. nº. 137)", Coll. Paz, MNCN 15.05/13089 (6); "Cobja, Bolivia", Coll. Azpeitia, MNCN 15.05/8097 (4).

Remarks. The locality lies in present-day Chile.

***Bostryx laurentii* (*Sowerby I, 1833*)** [94]
(Fig. 25G)

Bulinus laurentii *Sowerby I, 1833*: 37.
Bulimus laurentii; *Hidalgo, 1870*: 60; *Hidalgo, 1893a*: 109.

Type locality. [Peru] "Peruvia".

Type material. Not located.
Material examined. "Lima", "(Cat. Am. mer. nº. 161)", Coll. Paz, MNCN 15.05/13184 (6); "Cerro de las Conchitas", "(Cat. Am. mer. nº. 161)", Coll. Paz, MNCN 15.05/13242 (6), MNCN 15.05/13243 (6); "I[sla]. San Lorenzo", "(Cat. Am. mer. nº. 161)", Coll. Paz, MNCN 15.05/13404 (3).

***Bostryx leucostictus* (*Philippi, 1856*)** [95]
(Fig. 27B)

Bulimus leucostictus *Philippi, 1856*: 53; *Hidalgo, 1870*: 56; *Hidalgo, 1893a*: 104.

Type locality. [Chile] "Paposo reipublicae Chilensis".
Type material. Not located.
Material examined. "Atacama", "(Cat. Am. mer. nº. 139)", Coll. Paz, MNCN 15.05/14540 (6).

***Bostryx mejillonensis* (Pfeiffer in *Pfeiffer & Dunker, 1857*)** [96]
(Fig. 27G)

Bulimus mejillonensis Pfeiffer in *Pfeiffer & Dunker, 1857*: 230; *Hidalgo, 1870*: 52; *Hidalgo, 1872*: 83; *Hidalgo, 1893a*: 99; *Hidalgo, 1893b*: 232.

Type locality. [Chile] "Mejillones in desert Atacamensi".
Type material. NHMUK 1975322, lectotype (*Breure, 1978*: 102).
Material examined. "Bolivia", "(Cat. Am. mer. nº. 110)", Coll. Paz MNCN 15.05/13141 (4); "Paposo (Chile)", Coll. Hidalgo ex Paz leg., MNCN 15.05/36319 (3).
Remarks. *Hidalgo (1870)* specified the locality as "Mejillones et Paposo, Bolivia (Paz)"; both places are in present-day Chile.

***Bostryx modestus* (Broderip in Broderip & Sowerby I, 1832)** [97]
(Fig. 25E)

Bulimus modestus Broderip in *Broderip & Sowerby I, 1832b*: 106.
Bulimus modestus; *Hidalgo, 1870*: 53; *Hidalgo, 1872*: 90; *Hidalgo, 1893a*: 100; *Hidalgo, 1893b*: 280.
Bulimus limensis Reeve; *Hidalgo, 1875*: 130; *Hidalgo, 1893a*: 120.
Bulimus philippii Pfeiffer; *Hidalgo, 1870*: 53; *Hidalgo, 1872*: 89.
Bulimus scalariformis; *Hidalgo, 1870*: 54; *Hidalgo, 1872*: 91; *Hidalgo, 1893a*: 101; *Hidalgo, 1893b*: 281 [all in *partim*].

Type locality. "Peruviae montibus, Huacho".
Type material. NHMUK 20120232 (4), possible syntypes.
Material examined. "Lima", "(Cat. Am. mer. nº. 115)", Coll. Paz, MNCN 15.05/12997 (5); MNCN 15.05/13160 (4); MNCN 15.05/13163 (3); "Lima", "(Cat. Am. mer. no. 118)", Coll. Paz, MNCN 15.05/14616 (6); "Lima", Coll. Hidalgo ex Martínez y Paz, MNCN 15.05/21228 (9); "Lima", Coll. Hidalgo ex Paz leg., MNCN 15.05/20313 (5); "Lomas de Pumara, Lima", Coll. Azpeitia, MNCN 15.05/8118 (9); "Lima", Coll. Azpeitia, MNCN 15.05/76200 (17); Coll. Hidalgo, MNCN 15.05/20318 (5).

Remarks. *Hidalgo (1870)* distinguished *Bulimus modestus*, and *B. philippii* as a variety (under the same catalogue number), but synonymized the two taxa in his 1872 publication. These records were based on material from Paz and Martínez. The shells identified by him as *B. scalariformis* proved in part to exceed the size of the type material (see below), and resemble *B. limensis Reeve, 1849*. The systematic position follows *Breure & Ablett (2014)*.

***Bostryx nigropileatus* (*Reeve, 1849*)** [98]

Bulimus nigropileatus Reeve, 1849 [*1848–1850*]: pl. 73 fig. 724 (text no. 725).
Bulimus stenacme Pfeiffer; *Hidalgo, 1872*: 131; *Hidalgo, 1875*: 130; *Hidalgo, 1893a*: 120; *Hidalgo, 1893b*: 279.

Type locality. "Chachapoyas, Alto-Peru".
Type material. NHMUK 1975335, lectotype (*Breure, 1978*: 104).
Material examined. "Perú", Coll. Paz, MNCN 15.05/14531 (1, subadult).
Remarks. *Hidalgo (1872)* gave as locality "Tarma"; the material was collected by Isern (see *Calatayud, 1994*: 257). One specimen was found in the RBINS (Dautzenberg coll., ex Crosse ex Hidalgo).

***Bostryx pupiformis* (Broderip in Broderip & Sowerby I, 1832)** [99]
(Fig. 27C)

Bulinus pupiformis Broderip in *Broderip & Sowerby I, 1832b*: 105.
Bulimus pupiformis; *Hidalgo, 1870*: 56; *Hidalgo, 1872*: 99; *Hidalgo, 1893a*: 104; *Hidalgo, 1893b*: 284.

Type locality. "Chili (Huasco)".
Type material. NHMUK 20100613 (4), probable syntypes.
Material examined. "Bolivia", "(Cat. Am. mer. n°. 142)", Coll. Paz, MNCN 15.05/13090 (7); "Coquimbo", "(Cat. Am. mer. n°. 136)", Coll. Paz, MNCN 15.05/13090 (5); "Huasco", Coll. Hidalgo ex Paz and Martínez leg., MNCN 15.05/20221 (10); "Huasco, Chile", Coll. Azpeitia, MNCN 15.05/8447 (7).
Remarks. The specimens of lot MNCN 15.05/13090 were found mixed with those of lot MNCN 15.05/13093 (*B. atacamensis*). Hidalgo mentioned them as a variety of this latter species, but in his 1872 publication he re-classified them as *B. pupiformis*.

***Bostryx pustulosus* (Broderip in Broderip & Sowerby, 1832)** [100]
(Fig. 27E)

Bulinus pustulosus Broderip in *Broderip & Sowerby I, 1832b*: 105.
Bulimus pustulosus; *Hidalgo, 1870*: 53; *Hidalgo, 1872*: 90; *Hidalgo, 1893a*: 101; *Hidalgo, 1893b*: 293.

Type locality. "Chili (Huasco)".
Type material. NHMUK 1975589 (5), probable syntypes.

Material examined. "Chile", "(Cat. Am. mer. nº. 116)", Coll. Paz, MNCN 15.05/14618 (4); "Huasco", Coll. Hidalgo, MNCN 15.05/19966 (50); "Huasco, Chile", Coll. Azpeitia, MNCN 15.05/8448 (1).

***Bostryx rhodolarynx* (*Reeve, 1849*)** [101]
(Fig. 27F)

Bulimus rhodolarynx Reeve, 1849 [*1848–1850*]: pl. 72 fig. 518; *Hidalgo, 1870*: 47; *Hidalgo, 1872*: 73; *Hidalgo, 1893a*: 95.
Bulimulus (*Scutalus*) *rhodolarynx*; *Hidalgo, 1893b*: 257.

Type locality. [Peru] "Banks of the Aparimao [sic, Apurimac], Alto-Peru".
Type material. NHMUK 1975434, lectotype; 1975435, paralectotype (*Breure, 1978*: 116).
Material examined. "Perú", "(Cat. Am. mer. nº. 89)", Coll. Paz, MNCN 15.05/13669 (3); "Peru", Coll. Hidalgo ex Almagro leg., MNCN 15.05/7342 (11); "Peru", Coll. Azpeitia, MNCN 15.05/3112 (1).
Remarks. *Hidalgo (1870)* only gave the locality "Pérou", but it is known that Almagro travelled through the region where this species occurs (*Calatayud, 1994*: 256).

***Bostryx rouaulti* (Hupé in *Gay, 1854*)** [102]
(Fig. 27H)

Bulimus rouaulti Hupé in *Gay, 1854*: 110, pl. 3 fig. 8; *Hidalgo, 1870*: 54; *Hidalgo, 1872*: 86; *Hidalgo, 1893a*: 102; *Hidalgo, 1893b*: 269.

Type locality. [Chile] "Copiapó".
Type material. MNHN-28119, lectotype (*Breure, 1975*: 1142).
Material examined. "Chile", "(Cat. Am. mer. nº. 121)", Coll. Paz, MNCN 15.05/13309 (6); "Coquimbo", Coll. Hidalgo ex Richardson "(regalado) [a gift]"; "Coquimbo, Chile", Coll. Azpeitia, MNCN 15.05/8104 (5).
Remarks. According to *Hidalgo (1870)*, the material of Paz was also collected at Coquimbo.

***Bostryx scalariformis* (Broderip in Broderip & Sowerby I, 1832)** [103]
(Fig. 25F)

Bulinus scalariformis Broderip in *Broderip & Sowerby I, 1832a*: 31.
Bulimus scalariformis; *Hidalgo, 1870*: 54; *Hidalgo, 1872*: 91; *Hidalgo, 1893a*: 101; *Hidalgo, 1893b*: 281 [all in partim].

Type locality. [Peru] "in Peruviâ. (Ancon)".
Type material. NHMUK 20100635 (5), NHMUK 20100636 (5), probable syntypes.
Material examined. "Lima", "(Cat. Am. mer. no. 118)", Coll. Paz, MNCN 15.05/13094 (8); "Peru", Coll. Hidalgo ex Paz leg., MNCN 15.05/21318 (5).
Remarks. Only the smaller specimens from the series identified by Hidalgo seems to correspond with this species. However, the transition to *Bostryx modestus* (Broderip in

Broderip & Sowerby, 1832) seem to be gradual and future research may prove these two taxa to be synonyms.

***Bostryx tricinctus* (*Reeve, 1848*)** [104]
(Fig. 25D)

Bulimus tricinctus Reeve, 1848 [*1848–1850*]: pl. 57 fig. 380; *Hidalgo, 1870*: 62; *Hidalgo, 1893a*: 110.

Type locality. ".—?".
Type material. NHMUK 1975182, lectotype (*Breure, 1978*: 132).
Material examined. "Huamachuco", "(Cat. Am. mer. no. 166)", Coll. Paz, MNCN 15.05/13321 (5).
Remarks. This species, described by Reeve from a shell without locality data, shows quite some variation in the colour pattern, which may have induced Hidalgo to synonymize this species from northern Peru with shells from Chile identified by him as *Bulimus ferrugineus Reeve, 1849*. This lot (MNCN 15.05/13312) probably has a wrong locality ([Chile] "Huasco") and represent rather bleached specimens which are tentatively referred to *Bostryx tricinctus*.

***Bostryx umbilicaris* (*Souleyet, 1842*)** [105]
(Fig. 27D)

Bulimus umbilicaris Souleyet, 1842: 102; *Hidalgo, 1893a*: 125.

Type locality. [Chile] "Bolivie, environs de Cobija".
Type material. MNHN, lectotype (*Breure, 1975*: 1140).
Material examined. "Cobija", Coll. Paz, MNCN 15.05/14515 (1).

***Bostryx veruculum* (*Morelet, 1860*)** [106]
(Fig. 25H)

Bulimus veruculum Morelet, 1860: 376; *Hidalgo, 1870*: 56; *Hidalgo, 1893a*: 104.

Type locality. "Pérou, Ayacucho".
Type material. MHNG-INVE-60384 (5), MHNG-INVE-60383 (5), syntypes.
Material examined. "Perú", "(Cat. Am. mer. no. 140)", Coll. Paz, MNCN 15.05/14526 (1).
Remarks. *Hidalgo (1870)* wrote "L'étiquette qui portrait la localité exacte de cette coquille a été égarée [the label that gave the exact locality of this shell was lost]", implying that other material collected by the CCP did have those labels. As Paz did not travel in the region where this species occurs, but Almagro did (*Calatayud, 1994*: 256), it is supposed that he collected this specimen.

Genus *Bulimulus Leach, 1814*

Bulimulus Leach, 1814: 42.

Type species. *Helix exilis* Gmelin, 1791, by original designation.

***Bulimulus apodemetes* (*d'Orbigny, 1835*)** [107]
(Fig. 28A)

Helix apodemeta d'Orbigny, 1835: 10.
Bulimus apodemetes; *Hidalgo, 1870*: 52; *Hidalgo, 1872*: 85; *Hidalgo, 1893a*: 100; *Hidalgo, 1893b*: 252.

Type locality. "republica Argentina; republica Boliviana"; see *Breure, 1973*: 114.
Type material. NHMUK 1854.12.4.178–182 (28), syntypes.
Material examined. "Cordoba de Tucuman (Rep. Argentina)", Coll. Hidalgo ex Paz, MNCN 15.05/20305 (17); "Pacifico", Coll. Hidalgo, MNCN 15.05/36311 (7); "Cordoba [de Tucuman], Argentina", Coll. Azpeitia, MNCN 15.05/8070 (2); "Republ. Argentina", "(Cat. Am. mer. nº. 112)", Coll. Paz, MNCN 15.05/12990 (4).
Remarks. *Breure & Ablett (2014)* have placed this taxon in the genus *Bostryx* on account of the smooth protoconch of the type material. However, as it cannot be excluded that this material was worn, we have examined the large series of this species in the CCP-material, and additional non-CCP-material (MNCN 15.05/20306, 20308, Coll. Hidalgo). The protoconch sculpture shows some faint axial wrinkles, irregularly spaced and mostly on the lower part of the protoconch, only becoming more densely and prominent towards the transition to the teleoconch. This sculpture is unlike those observed in Caribbean *Bulimulus* species (*Breure, 1974*) nor in other Argentinan *Bulimulus* species, and is somewhat similar to those observed in some Peruvian *Bostryx* species (e.g., *Breure, 1978*). Further (molecular) studies should provide more evidence for the systematic position of this species. Awaiting this, and also for the stability of nomenclature, we tentatively concur with the recent review of *Cuezzo, Miranda & Constanza Ovando (2013)*.

***Bulimulus bonariensis* (*Rafinesque, 1833*)** [108]
(Fig. 28B)

Siphalomphix bonariensis Rafinesque, 1833: 165.
Bulimus montevidensis Pfeiffer; *Hidalgo, 1870*: 60; *Hidalgo, 1875*: 128; *Hidalgo, 1893a*: 108.
Bulimus sporadicus Orbigny; *Hidalgo, 1872*: 120; *Hidalgo, 1893b*: 273.

Type locality. "Buenos Ayres in South America".
Type material. Not located.
Material examined. "Republ. Argentina", "(Cat. Am. mer. no. 158 Montevidensis)", Coll. Paz, MNCN 15.05/13156 (4), MNCN 15.05/13158 (4); "La Concordia Republica Argentina", Coll. Hidalgo ex Paz, MNCN 15.05/20341 (1); "Rosario", Coll. Hidalgo ex Martínez, MNCN 15.05/21562 (18); "Rosario, Argentina", Coll. Azpeitia, MNCN 15.05/8098 (2); "Montevideo, Uruguay", Coll. Azpeitia, MNCN 15.05/8125 (1); "Paysandu, Uruguay", Coll. Azpeitia, MNCN 15.05/8126 (1).; "Pacifico 158", MNCN 15.05/76232 (6).
Remarks. This species was mentioned from the following localities in *Hidalgo (1870)*: "La Concordia et Montevideo (Paz), El Rosario, Rép. Argentine (Paz)". Although the locality "Paysandu, Uruguay" was not mentioned, the specimen from the Azpeitia collection is

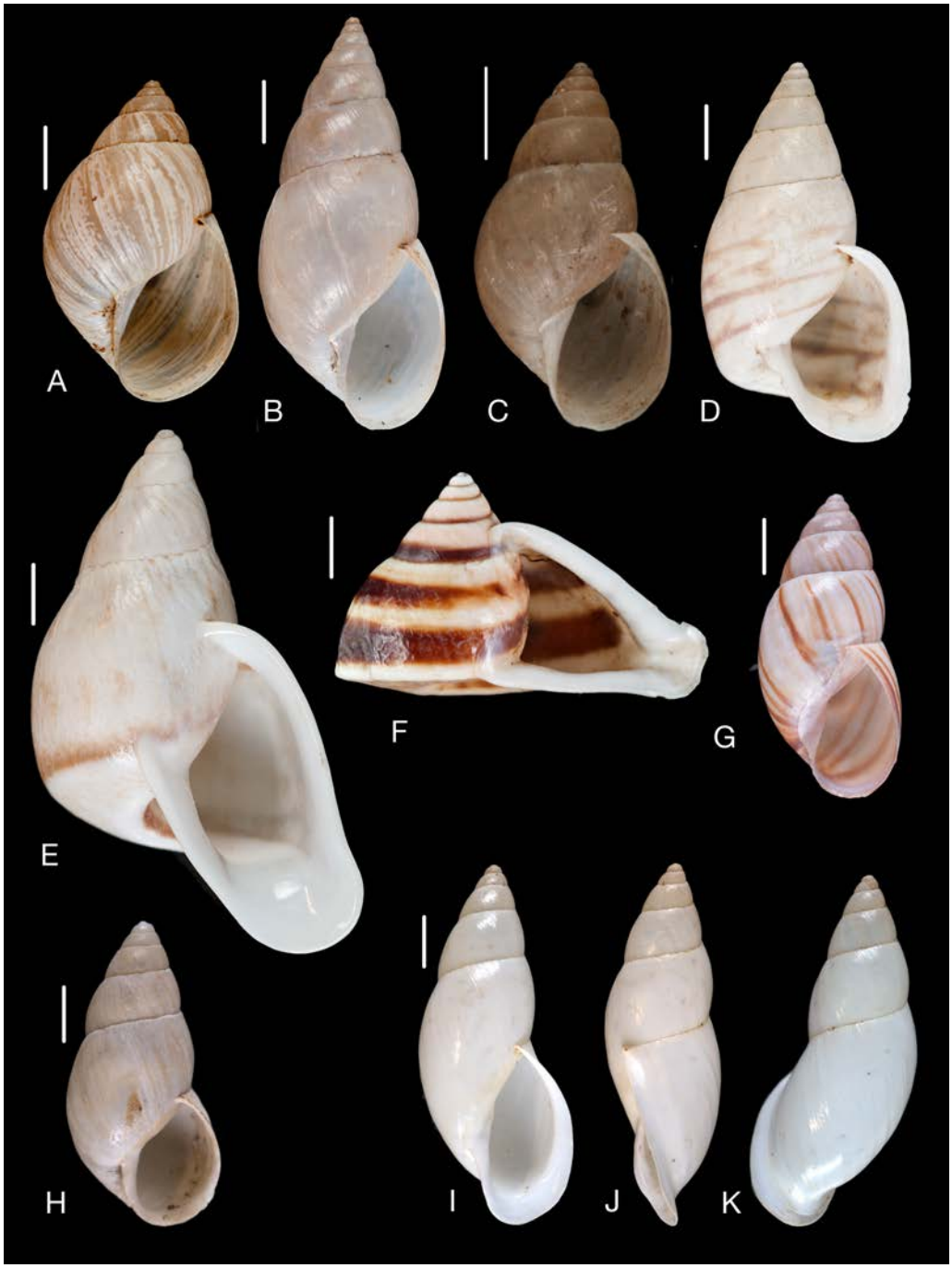

Figure 28 Material collected by the CCP. (A–K) Bulimulidae. *Bulimulus apodemetes* (*d'Orbigny, 1835*), MNCN 15.05/12990, (A) ventral view; *Bulimulus bonariensis* (*Rafinesque, 1833*), MNCN 15.05/21562, (B) ventral view; *Bulimulus tenuissimus* (Férussac in *Férussac & Deshayes, 1832*), MNCN 15.05/13204, (C) ventral view; *Cochlorina aurismuris* (*Moricand, 1838*), MNCN 15.05/13360, (D) ventral view; *Cochlorina aurisleporis* (*Bruguière, 1792*), MNCN 15.05/7181, (E) ventral view; *Cochlorina navicula* (*Wagner, 1827*), MNCN 15.05/13668, (F) ventral view; *Drymaeus* (*Drymaeus*) *ambustus* (*Reeve, 1849*), MNCN 15.05/21234, (G) ventral view; *Drymaeus* (*Drymaeus*) *chenui* (*Philippi, 1867*), MNCN 15.05/20236, (H) ventral view; *Drymaeus* (*Drymaeus*) *baezensis* (*Hidalgo, 1869*), MNCN 15.05/7354, (I) ventral view, (J) lateral view (lip), (K) dorsal view. Scale line 5 mm.

tentatively also assigned to the CCP material. The systematic position follows *Cuezzo, Miranda & Constanza Ovando (2013)*.

***Bulimulus tenuissimus* (Férussac in *Férussac & Deshayes, 1832*)** [109]
(Fig. 28C)

Helix tenuissimus Férussac in Férussac & Deshayes, 1832 [*1820–1851*]: pl. 142B fig. 8.
Bulimus tenuissimus; *Hidalgo, 1870*: 60; *Hidalgo, 1872*: 119; *Hidalgo, 1893a*: 108; *Hidalgo, 1893b*: 228.

Type locality. "le Brésil et Cayenne".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 159)", Coll. Paz, MNCN 15.05/13204 (4).

Genus *Cochlorina Jan, 1830*

Cochlorina Jan, 1830: 5.

Type species. *Bulimus aurisleporis Bruguière, 1792*, by subsequent designation (*Bequaert, 1948*: 190).

***Cochlorina aurisleporis* (*Bruguière, 1792*)** [110]
(Fig. 28E)

Bulimus aurisleporis Bruguière, 1792: 346; *Hidalgo, 1870*: 46; *Hidalgo, 1872*: 70; *Hidalgo, 1893a*: 93; *Hidalgo, 1893b*: 190.

Type locality. "l'île de Madagascar [sic]".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 77)", Coll. Paz, MNCN 15.05/13373 (4), 13383 (2); "Macahé (Brasil)", Coll. Hidalgo ex "Martínez y Paz", MNCN 15.05/37158 (4); "Macahé, Brasil", Coll. Azpeitia, MNCN 15.05/7182 (2); "Pacifico", Coll. Azpeitia, MNCN 15.05/7181 (1).
Remarks. This species was listed in the two versions of the catalogue of CCP material (*Hidalgo, 1870*; *Hidalgo, 1893a*), with locality data "Macahé, en el Brasil (Paz y Martínez)".

***Cochlorina aurismuris* (*Moricand, 1838*)** [111]
(Fig. 28D)

Helix (*Cochlogena*) *aurismuris Moricand, 1838*: 140, pl. 3 figs. 1–3.
Bulimus auris muris; *Hidalgo, 1893a*: 123.

Type locality. [Brazil] "la fazenda de Palmeirinha, entre Caxoeira et Jacobina, province de Bahia".
Type material. MHNG-INVE-60683 (44), MHNG-INVE-60686 (48), syntypes
Material examined. "Brasil", Coll. Paz, MNCN 15.05/13360 (1); Coll. Azpeitia, MNCN 15.05/8069 (1).

Remarks. *Hidalgo (1870)* did not mention this species in his initial catalogue, but in his final overview of the CCP material (*Hidalgo, 1893a*) the species is listed with locality "Bahia, en el Brasil (Paz)".

***Cochlorina navicula* (*Wagner, 1827*)** [112]
(Fig. 28F)

Helix navicula Wagner, 1827: 22.
Bulimus navicula; *Hidalgo, 1893a*: 123.

Type locality. [Brazil] "sylvis aboriginibus Provinciae Bahiensis".
Type material. Not located.
Material examined. "Brasil", Coll. Paz, MNCN 15.05/13668 (1); "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/8107 (1).
Remarks. The species is only mentioned in the final version of the catalogue (*Hidalgo, 1893a*), with locality "Bahia, en el Brasil (Paz)".

Genus *Drymaeus Albers, 1850*

Drymaeus Albers, 1850: 155.

Type species. *Helix hygrohylaea d'Orbigny, 1835*, by subsequent designation (Pilsbry 1898 [*1897–1898*]: 182).

Subgenus *Drymaeus* s.str.

***Drymaeus* (*Drymaeus*) *ambustus* (*Reeve, 1849*)** [113]
(Fig. 28G)

Bulimus ambustus Reeve, 1849 [*1848–1850*]: pl. 74 fig. 535; *Hidalgo, 1870*: 57; *Hidalgo, 1872*: 106; *Hidalgo, 1893a*: 105; *Hidalgo, 1893b*: 244.
Bulimus chamaeleon Pfeiffer; *Hidalgo, 1870*: 57; *Hidalgo, 1872*: 107; *Hidalgo, 1893a*: 106.

Type locality. "—?".
Type material. NHMUK 1975441/1, lectotype (*Breure & Eskens, 1981*: 5).
Material examined. "La Mocha (Ecuador)", Coll. Hidalgo ex Paz, MNCN 15.05/21234 (17); "Altipichi (Ecuador)", Coll. Hidalgo ex Martínez, MNCN 15.05/21230 (9); "Baeza (Ecuador)", Coll. Hidalgo ex Martínez, MNCN 15.05/20334 (1); "Nanegal", Coll. Azpeitia, MNCN 15.05/8092 (2); "Ecuador", "(Cat. Am. mer. nº. 144)", Coll. Paz, MNCN 15.05/13154 (4); "Ecuador", Coll. Paz "(Cat. Am. mer. nº. 145)", MNCN 15.05/13201 (4); "Peru", Coll. Hidalgo ex Almagro, MNCN 15.05/20340 (4) [probably a wrong locality label].
Remarks. *Hidalgo (1870)* mentioned material of *Bulimus chamaeleon* from "la Mocha (Paz)", which may correspond to MNCN 15.05/13201. The material identified as this taxon is smaller than *Bulimus ambustus*. Baeza and La Mocha were visited by Almagro, Espada, Isern and Martinez, "Altipichi" was Alchipichi (visited by Martinez according to

Calatayud, 1994: 265), Nanegal was not mentioned in their itinerary (*Calatayud, 1994*). "Peru" is likely a wrong locality as this species is not otherwise known from that country.

***Drymaeus* (*Drymaeus*) *baezensis* (*Hidalgo, 1869*)** [114]
(Figs. 28I–28K)

Bulimus baezensis *Hidalgo, 1869b*: 189; *Hidalgo, 1870*: 48, pl. 1, fig. 3; *Hidalgo, 1872*: 75, pl. 7, figs. 11–12; *Hidalgo, 1893a*: 51; *Hidalgo, 1893b*: 96; *Azpeitia, 1923*: 72; *Fischer-Piette, 1950*: 74; *Breure, 1975*: 1149, pl. 1 fig. 2; *Calvo, 1994*: 284.

Type locality. "Baeza, reipublitae Aequatorius".
Type material. MNHN, lectotype (*Fischer-Piette, 1950*: 74); "Baeza Ecuador", "(Cat. Am. mer. no. 94)", Coll. Paz ex Martínez leg., MNCN 15.05/3154 (3), MNCN 15.05/3155 (2); "Baeza (Ecuador)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/3205 (5), MNCN 15.05/3206 (7), paralectotypes.
Additional material examined. "Baeza, Ecuador", "(Cat. Am. mer. nº. 94)", Coll. Paz, MNCN 15.05/7354 (2); Coll. Hidalgo "Bulimus Baezensis", MNCN 15.05/8427 (1); "Baeza, Ecuador", Coll. Azpeitia, MNCN 15.05/3156 (1).
Remarks. Lot MNCN 15.05/7354 was found identified as "Bulimus membielinus Crosse". Lots MNCN 15.05/3156 and 8427 probably also originate from the CCP material, but are herein not considered as type material.

***Drymaeus* (*Drymaeus*) *chanchamayensis* (*Hidalgo, 1870*)** [115]
(Figs. 29A–29C)

Bulimus chanchamayensis *Hidalgo, 1870*: 49; *Hidalgo, 1893a*: 72, 96; *Azpeitia, 1923*: 72; *Calvo, 1994*: 284.

Type locality. "Chanchamayo, Pérou".
Type material. "Amazonas", "(Cat. Am. mer. no. 98)", Coll. Paz ex Isern leg., MNCN 15.05/3157 (1), holotype.
Remarks. *Hidalgo (1870)* introduced his species after having compared Pfeiffer, 1867 [*1866–1869*]: 348, pl. 82 figs. 6–7 ("*Bulimus canaliculatus* var.") with *Drymaeus* (*D.*) *canaliculatus* (Pfeiffer, 1845) as figured by Reeve, 1848 [*1848–1850*]: pl. 41 fig. 256; this was the lectotype as re-figured by *Breure & Ablett* (*2014*: 37, figs. 38G–38I) Pfeiffer's material was collected by Thamm "in regione Amazonien superiore" and was considered as holotype by *Köhler* (*2007*: 144, fig. 84), who considered Hidalgo's taxon as a nomen novum. However, since Hidalgo gave as locality "Chanchamayo, Pérou", and this material was collected by Isern (*Calatayud, 1994*: 257), we are certain that Hidalgo had material collected by the CCP at hand when introducing his taxon. Therefore the actual type material for *Bulimus chanchamayensis* *Hidalgo, 1870* is not ZMB 11833 but MNCN 15.05/3157. Since Hidalgo wrote "dans l'exemplaire que j'ai sous les yeux", we interpret this as referring to a singular specimen at hand; therefore the specimen MNCN 15.05/3157 is the holotype.

***Drymaeus* (*Drymaeus*) *chenui* (*Philippi, 1867*)** [116]
(Fig. 28H)

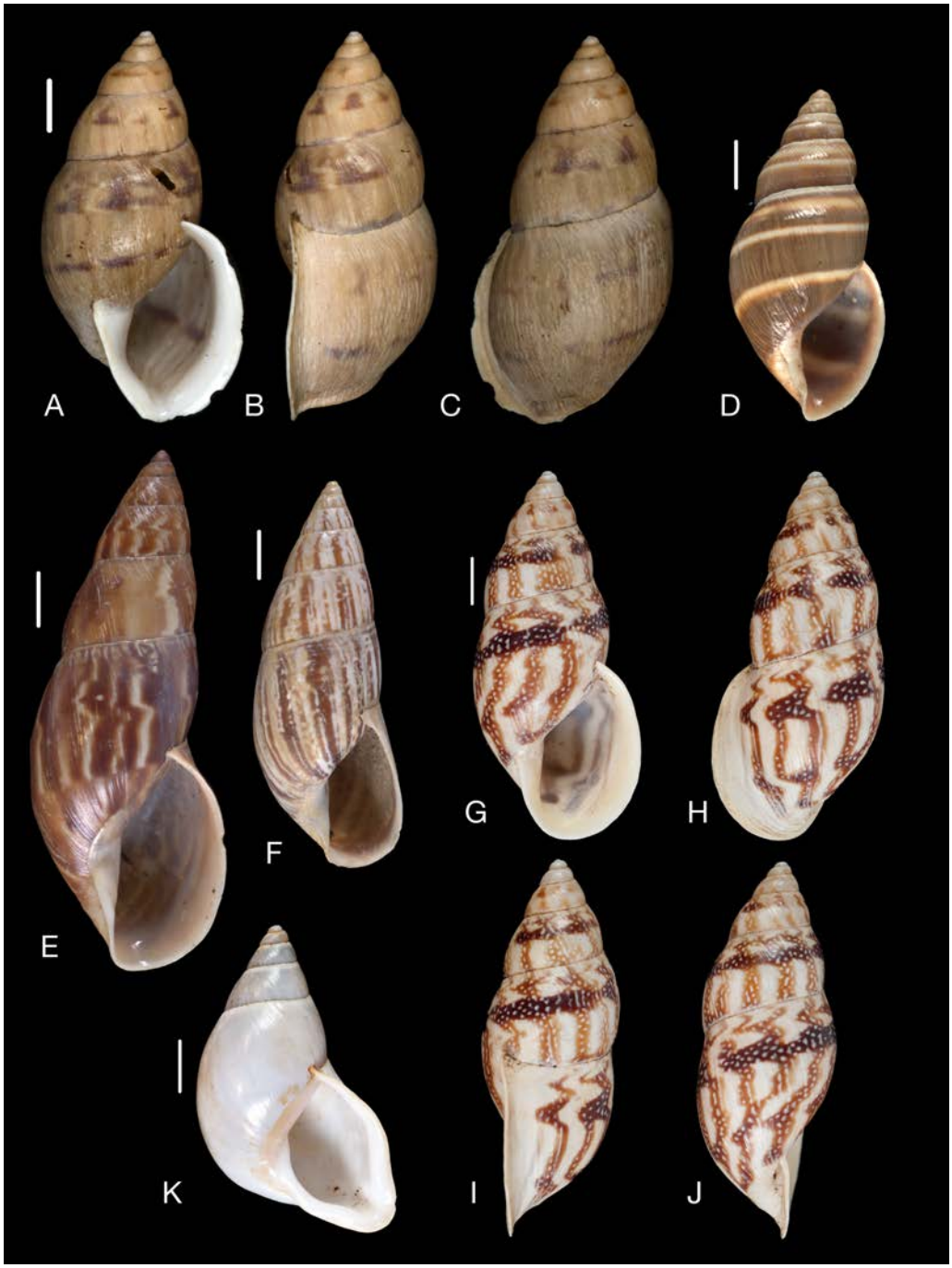

Figure 29 Material collected by the CCP. (A–K) Bulimulidae. *Drymaeus* (*Drymaeus*) *chanchamayensis* (*Hidalgo, 1870*), MNCN 15.05/3157, (A) ventral view, (B) lateral view (lip), (C) dorsal view; *Drymaeus* (*Drymaeus*) *chimborasensis* (*Reeve, 1848*), MNCN 15.05/13426, (D) ventral view; *Drymaeus* (*Drymaeus*) *chrysomelas* (*Martens, 1867*), MNCN 15.05/13461, (E) ventral view; *Drymaeus* (*Drymaeus*) *trujillensis* (*Philippi, 1867*), MNCN 15.05/13679, (F) ventral view; *Drymaeus* (*Drymaeus*) *membielinus* (*Crosse, 1867*), MNCN 15.05/7355, (G) ventral view, (H) lateral view (lip), (I) lateral view (umbilicus), (J) dorsal view; *Drymaeus* (*Drymaeus*) *fallax* (*Pfeiffer, 1853*), MNCN 15.05/13148, (K) ventral view. Scale line 5 mm.

Bulimus chenui Philippi, 1867: 72; Hidalgo, 1870: 58; Hidalgo, 1872: 113; Hidalgo, 1893a: 106; Hidalgo, 1893b: 249.

Type locality. [Peru] "Pachicamac probe Lima".
Type material. Not located.
Material examined. "Pachacamac", Coll. Hidalgo ex Isern, MNCN 15.05/20236 (3).

***Drymaeus* (*Drymaeus*) *chimborasensis* (Reeve, 1848)** [117]
(Fig. 29D)

Bulimus chimborasensis Reeve, 1848 [1848–1850]: pl. 44 fig. 275.
Bulimus decoratus Lea; Hidalgo, 1870: 50.

Type locality. "Chimborazo, Columbia [sic, Ecuador], New Granada".
Type material. NHMUK 1975460 (3), syntypes.
Material examined. "Ecuador", "(Cat. Am. mer. nº. 99)", Coll. Paz, MNCN 15.05/13426 (1).
Remarks. This shell corresponds to the description of *Bulimus chimborasensis* Reeve, 1848, but shows a different colour pattern that reminds of *B. decoratus* Lea, 1838. However, this species was described from "near Carthagena" in northern Colombia. The two species seem nonetheless related.

***Drymaeus* (*Drymaeus*) *chrysomelas* (Martens, 1867)** [118]
(Fig. 29E)

Bulimulus (*Thaumastus*) *chrysomelas* Martens, 1867: 145.
Bulimus chrysomelas; Hidalgo, 1870: 48; Hidalgo, 1893a: 95.

Type locality. ["oberes Amazonenstromgebiets"].
Type material. ZMB 11835a, lectotype (Köhler, 2007: 144).
Material examined. "Napo, Ecuador", Coll. Paz "(Cat. Am. mer. nº. 92)", MNCN 15.05/13461 (1).
Remarks. Hidalgo (1870) indicated Martínez as collector. Compared to the lectotype (Köhler, 2007: fig. 85), the specimen has the inside of the aperture and the columella whitish. Martens (1867) did not mention a specific type locality other than in the title of his publication; according to Köhler the material was labelled "Peru, Chanchamayo".

***Drymaeus* (*Drymaeus*) *expansus* (Pfeiffer, 1848)** [119]
(Figs. 30A–30B)

Bulimus expansus Pfeiffer, 1848b: 60; Hidalgo, 1870: 47; Hidalgo, 1872: 71; Hidalgo, 1893a: 91.

Type locality. [Peru] "Huallaga".
Type material. Not located.
Material examined. "Peru", "(Cat. Am. mer. nº. 81)", Coll. Paz, MNCN 15.05/13480 (1); "Canelos (Ecuador)", Coll. Hidalgo ex Almagro leg., MNCN 15.05/37161 (1).

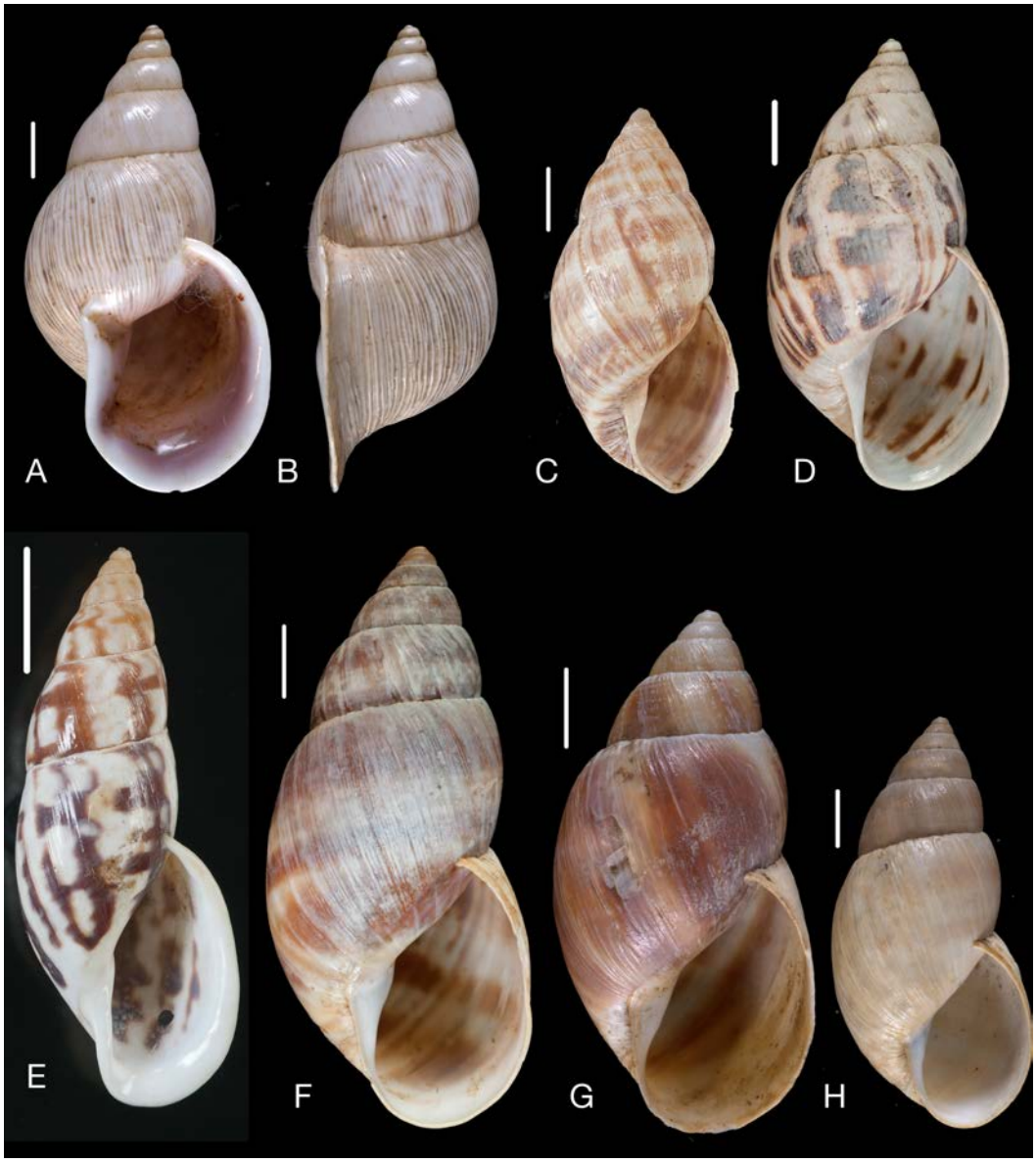

Figure 30 Material collected by the CCP. (A–H) Bulimulidae. *Drymaeus* (*Drymaeus*) *expansus* (Pfeiffer, 1848), MNCN 15.05/13480, (A) ventral view, (B) lateral view (lip); *Drymaeus* (*Drymaeus*) *nystianus* (*Pfeiffer, 1853*), MNCN 15.05/7331, (C) ventral view; *Drymaeus* (*Drymaeus*) *papyraceus* (*Mawe, 1823*), MNCN 15.05/13672, (D) ventral view; *Drymaeus* (*Drymaeus*) *inaequalis* (*Pfeiffer, 1857*), MNCN 15.05/7210, (E) ventral view; *Kuschelenia* (*Bocourtia*) *aequatorius* (*Pfeiffer, 1853*), MNCN 15.05/76211, (F) ventral view; *Kuschelenia* (*Bocourtia*) *caliginosus* (*Reeve, 1849*, MNCN 15.05/21231, (G) ventral view; *Kuschelenia* (*Bocourtia*) cf. *culminea* (*d'Orbigny, 1835*), MNCN 15.05/20238, (H) ventral view. Scale line 5 mm (all except E), 1 cm (E).

Remarks. *Hidalgo (1870)* gave only as locality "Canelos, Equator (Almagro)". This specimen appears not to be full-grown. The locality "Peru" is somewhat doubtful, although Almagro has travelled through this country (*Calatayud, 1994*: 256).

***Drymaeus* (*Drymaeus*) *fallax* (*Pfeiffer, 1853*)** [120]
(Fig. 29K)

Bulimus fallax *Pfeiffer, 1853*: 375; *Hidalgo, 1870*: 50;

Type locality. [Ecuador] "Tunguragua reipublicae Aequatoris".
Type material. NHMUK 1969142, lectotype (*Breure & Ablett, 2014*: 72, figs. 26D–26F).
Material examined. "Quito", "(Cat. Am. mer. nº. 100)", Coll. Paz, MNCN 15.05/13148 (4);
"Quito", Coll. Hidalgo ex "Paz y Martínez", MNCN 15.05/37054 (8);
"Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/8089 (1).

***Drymaeus* (*Drymaeus*) *inaequalis* (*Pfeiffer, 1857*)** [121]
(Fig. 30E)

Bulimus inaequalis *Pfeiffer, 1857*: 330; *Hidalgo, 1870*: 48; *Hidalgo, 1872*: 74, pl 5 figs. 4–5; *Hidalgo, 1893a*: 96; *Hidalgo, 1893b*: 231.
Drymaeus inaequalis; Pilsbry 1897 [*1897–1898*]: 199, pl. 38 figs. 11–15.

Type locality. [Peru] "Banks of the Maranhon".
Type material. Not located.
Material examined. "Ecuador", "(Cat. Am. mer. nº. 93)", Coll. Paz, MNCN 15.05/3356 (2).
"Napo (Ecuador)", "Bulimus hybridus/97./Pacifico", ex Martínez, MNCN 15.05/7210 (3).
Remarks. The label referring to *Bulimus hybridus* probably was misplaced. Pilsbry translated the description which *Hidalgo (1872)* gave and copied his figures [shell actual height 43.5 mm].

***Drymaeus* (*Drymaeus*) *membielinus* (*Crosse, 1867*)** [122]
(Figs. 29G–29J)

Bulimus membielinus *Crosse, 1867*: 445; *Crosse, 1868*: 99, pl. 1 fig. 2; *Hidalgo, 1870*: 47; *Hidalgo, 1872*: 72; *Hidalgo, 1893a*: 94; *Hidalgo, 1893b*: 232.

Type locality. "in Republica Aequatoris".
Type material. "Ecuador", Coll. Paz "(Cat. Am. mer. nº. 82)", MNCN 15.05/7355 (1), syntype; "Napo", Coll. Hidalgo ex Martínez, MNCN 15.05/20344 (1), syntype.
Remarks. *Crosse (1867)* mentioned this species from "coll. Paz et Hidalgo", but he did not mention on how many specimens his description was based. *Hidalgo (1870)* was the first to specify the locality to "Napo, Équateur (Martínez)"; this material (MNCN 15.05/20344) is more faded but still shows traces of a similar colour pattern.
Etymology. Named after Patricio Paz y Membiela.

***Drymaeus* (*Drymaeus*) *nystianus* (*Pfeiffer, 1853*)** [123]
(Fig. 30C)

Bulimus nystianus *Pfeiffer, 1853*: 374; *Hidalgo, 1870*: 50; *Hidalgo, 1872*: 78; *Hidalgo, 1893a*: 97; *Hidalgo, 1893b*: 237.

Type locality. [Ecuador] "in valle Pomasqui reipublicae Aequatoris".
Type material. NHMUK 1975573, lectotype (*Breure, 1979*: 112).
Material examined. "Machache, Ecuador", "(Cat. Am. mer. nº. 102)", Coll. Paz, MNCN 15.05/13674 (3); MNCN 15.05/13675 (3); MNCN 15.05/13676 (3); "Machache (Ecuador)", Coll. Hidalgo ex Paz, MNCN 15.05/21220 (18); "Quito", Coll. Hidalgo ex Martínez leg., MNCN 15.05/37157 (5); "Bulimus nystianus", Coll. Hidalgo, MNCN 15.05/21313 (1); Coll. Azpeitia, MNCN 15.05/7331 (5).
Remarks. *Hidalgo (1870)* gave as localities "Quito (Martínez), Machache, Équateur (Paz)". The latter locality is a lapsus for Machachi (*Calatayud, 1994*: 268). The shells from the Azpeitia collection are the only ones with label "Quito", this material may thus have originated from Martínez, although Azpeitia is known to have copied the published localities on his labels. This is a polymorphic species, which is not unusual in *Drymaeus*.

***Drymaeus* (*Drymaeus*) *papyraceus* (*Mawe, 1823*)** [124]
(Fig. 30D)

Helix papyracea *Mawe, 1823*: 168, fig. 7.
Bulimus papyraceus; *Hidalgo, 1870*: 57; *Hidalgo, 1872*: 108; *Hidalgo, 1893a*: 105; *Hidalgo, 1893b*: 259.

Type locality. "Bahia, Brazil".
Type material. Not located.
Material examined. "Brasil", Coll. Paz "(Cat. Am. mer. no. 143)", MNCN 15.05/13672 (3).; Coll. Hidalgo [ex "Martinex y Paz"], MNCN 15.05/39951 (4); "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/13895 (1).
Remarks. *Hidalgo (1870)* gave as locality "Bahia (Paz et Martinez)".

***Drymaeus* (*Drymaeus*) *trujillensis* (*Philippi, 1867*)** [125]
(Fig. 29F)

Bulimus trujillensis *Philippi, 1867*: 73; *Hidalgo, 1870*: 48; *Hidalgo, 1893a*: 96.

Type locality. [Peru] "prope Trujillo".
Type material. Not located.
Material examined. "Perú", Coll. Paz "(Cat. Am. mer. no. 95)", MNCN 15.05/13679 (1).
Remarks. According to *Hidalgo (1870)* this material was collected at "Huamachuco, Pérou (Paz)". This locality is not listed in *Calatayud (1994)*.

***Drymaeus* (*Drymaeus*) sp.**

Material examined. "Guayaquil", Coll. Hidalgo ex Martínez leg., MNCN 15.05/20333 (2). "Chanchamayo", Coll. Hidalgo ex Isern leg., MNCN 15.05/20346 (3).

Remarks. Both lots contain material that is too juvenile to be identified with certainty.

Genus *Kuschelenia* *Hylton Scott, 1951*

Kuschelenia *Hylton Scott, 1951*: 539.

Type species. *Kuschelenia simulans* *Hylton Scott, 1951*, by monotypy.

Subgenus *Bocourtia* *Rochebrune, 1882*

Bocourtia *Rochebrune, 1882*: 117.

Type species. *Bocourtia lymnaeformis* *Rochebrune, 1882*, by subsequent designation (*Hubendick, 1951*: 114).

***Kuschelenia* (*Bocourtia*) *aequatorius* (*Pfeiffer, 1853*)** [126]
(Fig. 30F)

Bulimus aequatorius *Pfeiffer, 1853*: 420; *Hidalgo, 1870*: 59; *Hidalgo, 1872*: 104; *Hidalgo, 1893a*: 107; *Hidalgo, 1893b*: 273.

Type locality. [Ecuador] "reipublicae Aequatoris, monte Schinchulagua".
Type material. NHMUK 1975377, lectotype (*Breure, 1979*: 85).
Material examined. "Quito", "(Cat. Am. mer. nº. 154)", Coll. Paz, MNCN 15.05/76211 (3); "La Mocha (Ecuador)", Coll. Hidalgo ex Paz, MNCN 15.05/20336 (6); "Quito (Ecuador)", Coll. Hidalgo ex Martínez, MNCN 15.05/37155 (6); "Pacifico 154", Coll. Hidalgo, MNCN 15.05/21271 (1); "Quito", Coll. Azpeitia, MNCN 15.05/7178 (4); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/9014 (1).
Remarks. In both papers by *Hidalgo* (*1870*, *1872*) this material is said to be from "Quito (Paz et Martínez); la Mocha, Équateur (Paz)".

***Kuschelenia* (*Bocourtia*) *caliginosus* (*Reeve, 1849*)** [127]
(Fig. 30G)

Bulimus caliginosus Reeve, 1849 [*1848–1850*]: pl. 82 fig. 609; *Hidalgo, 1870*: 59; *Hidalgo, 1893a*: 108.

Type locality. "—?".
Type material. NHMUK 20100518/1, lectotype (*Breure & Ablett, 2014*: 37)
Material examined. "Ecuador", "(Cat. Am. mer. nº. 156)", Coll. Paz, MNCN 15.05/13468 (2); "156", Coll. Hidalgo, MNCN 15.05/21231 (1).
Remarks. *Hidalgo (1870)* specified the locality as "Chimborazo, Équateur (Paz)"; this is the first confirmed locality as the type material was without locality data (*Breure & Ablett, 2014*).

***Kuschelenia* (*Bocourtia*) *cotopaxiensis* (*Pfeiffer, 1853*)** [128]
(Fig. 31A)

Bulimus cotopaxiensis *Pfeiffer, 1853*: 419; *Hidalgo, 1870*: 59; *Hidalgo, 1872*: 105; *Hidalgo, 1893a*: 107.

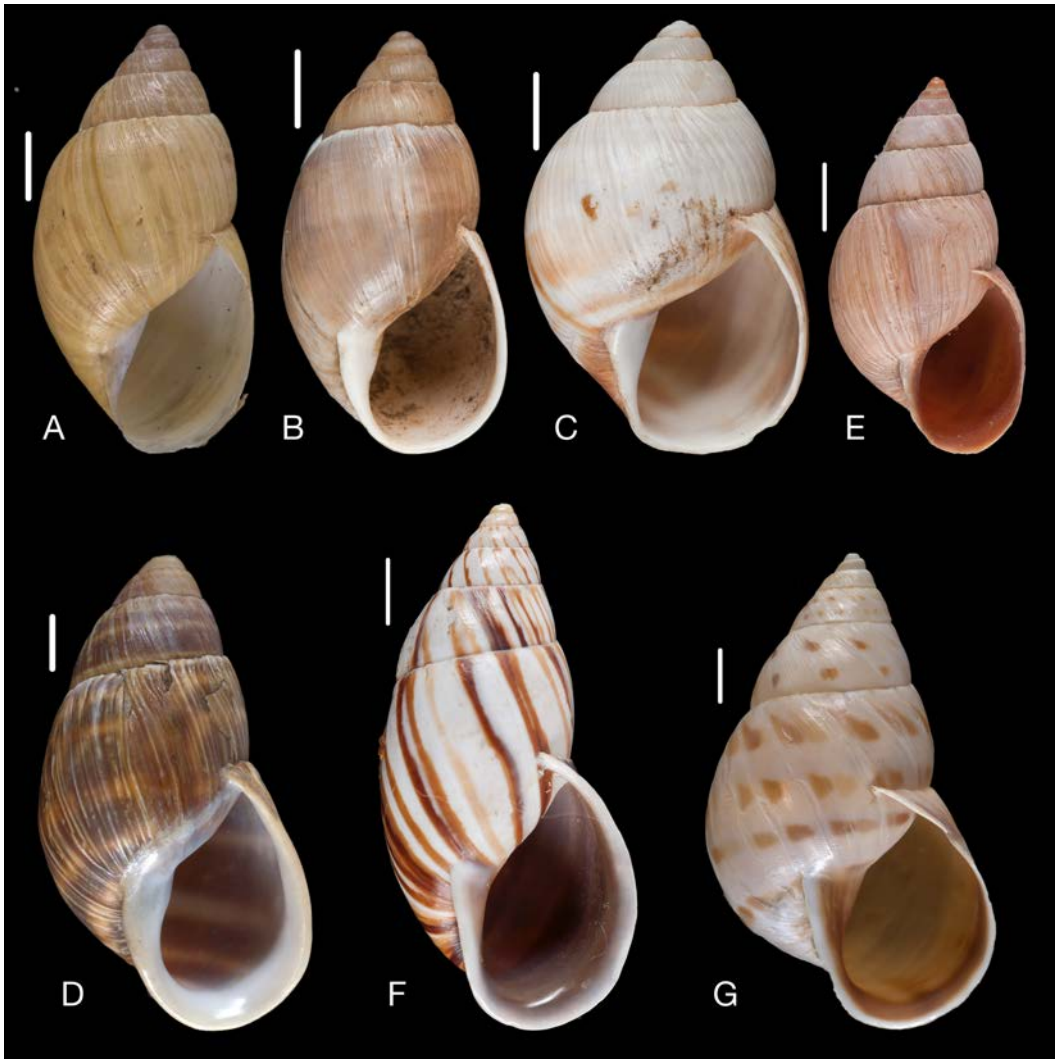

Figure 31 Material collected by the CCP. (A–G) Bulimulidae. *Kuschelenia* (*Bocourtia*) *cotopaxiensis* (*Pfeiffer, 1853*), MNCN 15.05/13142, (A) ventral view; *Kuschelenia* (*Bocourtia*) *petiti* (*Pfeiffer, 1846*), MNCN 15.05/13401, (B) ventral view; *Kuschelenia* (*Kuschelenia*) *revinctus* (*Hupé, 1857*), MNCN 15.05/76198, (C) ventral view; *Kuschelenia* (*Kuschelenia*) *tupacii* (*d'Orbigny, 1835*), MNCN 15.05/21241, (D) ventral view; *Naesiotus quitensis* (Pfeiffer, 1848), MNCN 15.05/13143, (E) ventral view; *Neopetraeus lobbii* (*Reeve, 1849*), MNCN 15.05/13464, (F) ventral view; *Neopetraeus tessellatus* (*Shuttleworth, 1852*), MNCN 15.05/13370, (G) ventral view. Scale 5 mm.

Type locality. "reipublicae Aequatoris, montem Cotopaxi".
Type material. NHMUK 1975370, lectotype (*Breure, 1978*: 175, pl. 9 fig. 9).
Material examined. "Chimborazo", "(Cat. Am. mer. nº. 155)", Coll. Paz, MNCN 15.05/13142 (3); "La Mocha", "(Cat. Am. mer. nº. 155)", Coll. Paz, MNCN 15.05/13409 (2); "Antisana (Ecuador)", Coll. Hidalgo ex Martínez, MNCN 15.05/37105 (11); "Pichincha", Coll. Hidalgo ex Martínez, MNCN 15.05/20331 (1); "Ecuador", Coll. Hidalgo ex Paz, MNCN 15.05/37103 (1); [Ecuador], Coll. Hidalgo, MNCN 15.05/21311 (3); "Ecuador", coll. Azpeitia, MNCN 15.05/9015 (6).

Remarks. *Hidalgo (1870)* reported the material from "Quito (Paz et Martínez), La Mocha, Équateur (Paz)". In *Hidalgo (1872)*, he mentioned "Antisana y Pichincha (Martínez), La Mocha (Paz), en la Republic del Ecuador". One of the specimens from lot MNCN 15.05/13409 is decidedly smaller and somewhat differently shaped, and only tentatively referred to this species. The largest specimen found (MNCN 15.05/20331), is somewhat bleached and worn.

***Kuschelenia* (*Bocourtia*) cf. *culminea* (*d'Orbigny, 1835*)** [129]
(Fig. 30H)

Helix culminea d'Orbigny, 1835: 13.

Type locality. "culminibus Andesensibus, republica Boliviana" (see remarks).
Type material. MNHN, lectotype (*Breure, 1975*: 1143, pl. 1 fig. 3).
Material examined. "Peru", Coll. Hidalgo ex Almagro leg., MNCN 15.05/20238 (2).
Remarks. This material had not been identified by Hidalgo and consequently not listed in his catalogues.

***Kuschelenia* (*Bocourtia*) *petiti* (*Pfeiffer, 1846*)** [130]
(Fig. 31B)

Bulimus petiti Pfeiffer, 1846: 31; *Hidalgo, 1870*: 46; *Hidalgo, 1893a*: 92.

Type locality. "Peru".
Type material. NHMUK 1975374, lectotype (*Breure, 1978*: 181).
Material examined. "Pataz, Peru", "(Cat. Am. mer. nº. 75)", Coll. Paz MNCN 15.05/13401 (2).
Remarks. The locality of this species has been the topic of some confusion (see *Breure & Ablett, 2014*). This locality is not mentioned in the itinerary of the CCP (*Calatayud, 1994*), hence it is unclear who might have collected it.

Subgenus *Kuschelenia* s.str.

***Kuschelenia* (*Kuschelenia*) *revinctus* (*Hupé, 1857*)** [131]
(Fig. 31C)

Bulimus revinctus Hupé, 1857: 39, pl. 7 fig. 2; *Hidalgo, 1870*: 58; *Hidalgo, 1872*: 112, pl. 5 fig. 6.

Type locality. "Pérou, Cuzco".
Type material. MNHN 23256 (7), syntypes.
Material examined. "Peru", Coll. Hidalgo ex Almagro leg., MNCN 15.05/76198 (1).

***Kuschelenia* (*Kuschelenia*) *tupacii* (*d'Orbigny, 1835*)** [132]
(Fig. 31D)

Helix tupacii d'Orbigny, 1835: 16.
Bulimus tupacii; *Hidalgo, 1893a*: 125.

Type locality. "provincia Yungasensi (republica Boliviana)"; restricted to Dept. La Paz, Yanacachi (*Breure, 1975*).
Type material. MNHN 24710, lectotype (*Breure, 1975*: 1144, pl. 2 fig. 3).
Material examined. "Bul. Tupacii d'Orb. Chulumani Bolivie 2,500 m.", "236 Pacifico", Coll. Hidalgo, MNCN 15.05/21241 (2).
Remarks. Hidalgo (1893) gave as locality "República de Bolivia (Paz)". The original label in Paz's handwriting is an exceptional finding among the CCP material.

Genus *Naesiotus* *Albers, 1850*

Naesiotus *Albers, 1850*: 162.

Type species. *Bulimus nux* Broderip, 1832, by subsequent designation (*Dall, 1896*: 426).

***Naesiotus quitensis* (Pfeiffer, 1848)** [133]
(Fig. 31E)

Bulimus quitensis Pfeiffer 1848: 230; *Hidalgo, 1870*: 63; *Hidalgo, 1872*: 130, pl. 7 figs. 5–8; *Hidalgo, 1893a*: 111; *Hidalgo, 1893b*: 263.
Bulimus irregularis Pfeiffer; *Hidalgo, 1870*: 63; *Hidalgo, 1872*: 129; *Hidalgo, 1875*: 128; *Hidalgo, 1893a*: 111.
Bulimus catloviae [sic, *catlowiae*] Pfeiffer var.; *Hidalgo, 1872*: 128, pl. 7 figs. 9–10; *Hidalgo, 1893a*: 112; *Hidalgo, 1893b*: 276.

Type locality. [Ecuador] "Quito".
Type material. NHMUK 1893.2.4.198, lectotype (*Breure, 1979*: 71).
Material examined. "Pillaro", "(Cat. Am. mer. nº. 168 irregularis)", Coll. Paz, MNCN 15.05/12999 (5); "Pillaro", Coll. Hidalgo ex Martínez leg., MNCN 15.05/37051 (9); "Otavalo", "(Cat. Am. mer. nº. 168 irregularis)", Coll. Paz, MNCN 15.05/13143 (4); "Ibarra", "(Cat. Am. mer. nº. 167)", Coll. Paz, MNCN 15.05/13145 (4); "Ibarra", Coll. Hidalgo ex Martínez leg., MNCN 15.05/20307 (11); "Pacifico 167", Coll. Hidalgo, MNCN 15.05/20005 (8); "Pacifico 168", Coll. Hidalgo, MNCN 15.05/20195 (7); "Pillaro, Ecuador", Coll. Azpeitia, MNCN 15.05/8094 (2); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/13891 (1), MNCN 15.05/76210 (9).
Remarks. In *Hidalgo (1870)* material of *Bulimus irregularis* originated from "Ibarra, Otalvo et Pillaro, Équateur (Martínez)"; in *Hidalgo (1872)* only the lot from Pillaro was mentioned.

Genus *Neopetraeus* *Martens, 1885*

Neopetraeus *Martens, 1885*: 194.

Type species. *Otostomus millegranus* Martens, 1883, by subsequent designation (Pilsbry 1898 [*1897–1898*]: 163).

***Neopetraeus lobbii* (*Reeve, 1849*)** [134]
(Fig. 31F)

Bulimus lobbii Reeve, 1849 [*1848–1850*]: pl. 72 fig. 516; *Hidalgo, 1870*: 48; *Hidalgo, 1893a*: 95.

Type locality. "Banks of the Maranon near Balsas, Peru".
Type material. NHMUK 1975431, lectotype (*Breure, 1978*: 215, fig. 365).
Material examined. "Perú", "(Cat. Am. mer. nº. 91)", Coll. Paz, MNCN 15.05/13464 (2); "Pacifico 91", Coll. Hidalgo, MNCN 15.05/21264 (1).
Remarks. *Hidalgo (1870)* gave as specific locality "Cajamarquilla, Pérou (Paz)"; this locality is not listed in the itinerary of the CCP and it thus unclear who might have collected this material.

Neopetraeus tessellatus **(*Shuttleworth, 1852*)** [135]
(Fig. 31G)

Bulimus tessellatus Shuttleworth, 1852: 200; *Hidalgo, 1870*: 61; *Hidalgo, 1872*: 123; *Hidalgo, 1893a*: 109; *Hidalgo, 1893b*: 235.
Bulimus cora d'Orbigny; *Hidalgo, 1870*: 48; *Hidalgo, 1893a*: 95.

Type locality. Not given.
Type material. NHMUK 1854.124.124, lectotype (*Bulimus cora* d'Orbigny; *Breure & Ablett, 2014*: 50, figs. 58A–58B).
Material examined. "Pataz, Perú", "(Cat. Am. mer. no. 164)", Coll. Paz, MNCN 15.05/13372 (2);
"Pataz, Peru", Coll. Azpeitia, MNCN 15.05/8130 (2); "Haumalies, Perú", "(Cat. Am. mer. no. 164)", Coll. Paz, MNCN 15.05/13374 (2); "Sn. Mateo de Huaras", "Pacifico 164", Coll. Hidalgo, MNCN 15.05/7352 (7); "Pacifico 164", Coll. Hidalgo, MNCN 15.05/21266 (3); "Peru", "(Cat. Am. mer. nº. 90)", Coll. Paz, MNCN 15.05/13370 (2); "Huanuco", "Pacifico 90", Coll. Hidalgo ex Coll. Paz, MNCN 15.05/21221 (1).
Remarks. *Hidalgo (1870)* referred *Bulimus cora d'Orbigny, 1835* to the locality "Huanuco, Peru (Paz)" and mentioned to have seen three specimens; for *B. tessellatus* he mentioned "San Mateo de Huaras (Almagro), Haumalies, Pataz, Pérou (Paz)". In his 1872 publication he referred only to the material collected by Almagro at San Mateo de Huarás and did not mention the same Paz material explicitly. The shells from Almagro appear not to be full-grown and were referred to "var. Atahualpa, Dohrn". The locality "Haumalies" is a province in the Huánuco Department. Both localities are not mentioned in the itinerary of the CCP (*Calatayud, 1994*), neither San Mateo de Huaras nor Pataz. Hence the provenance of this material remains unclear.

Genus *Otostomus Beck, 1837*

Otostomus Beck, 1837: 55.

Type species. *Auris signata* Spix in *Wagner, 1827*, by subsequent designation (*Gray, 1847*: 174).

Otostomus signatus **(Spix in *Wagner, 1827*)** [136]
(Fig. 32A)

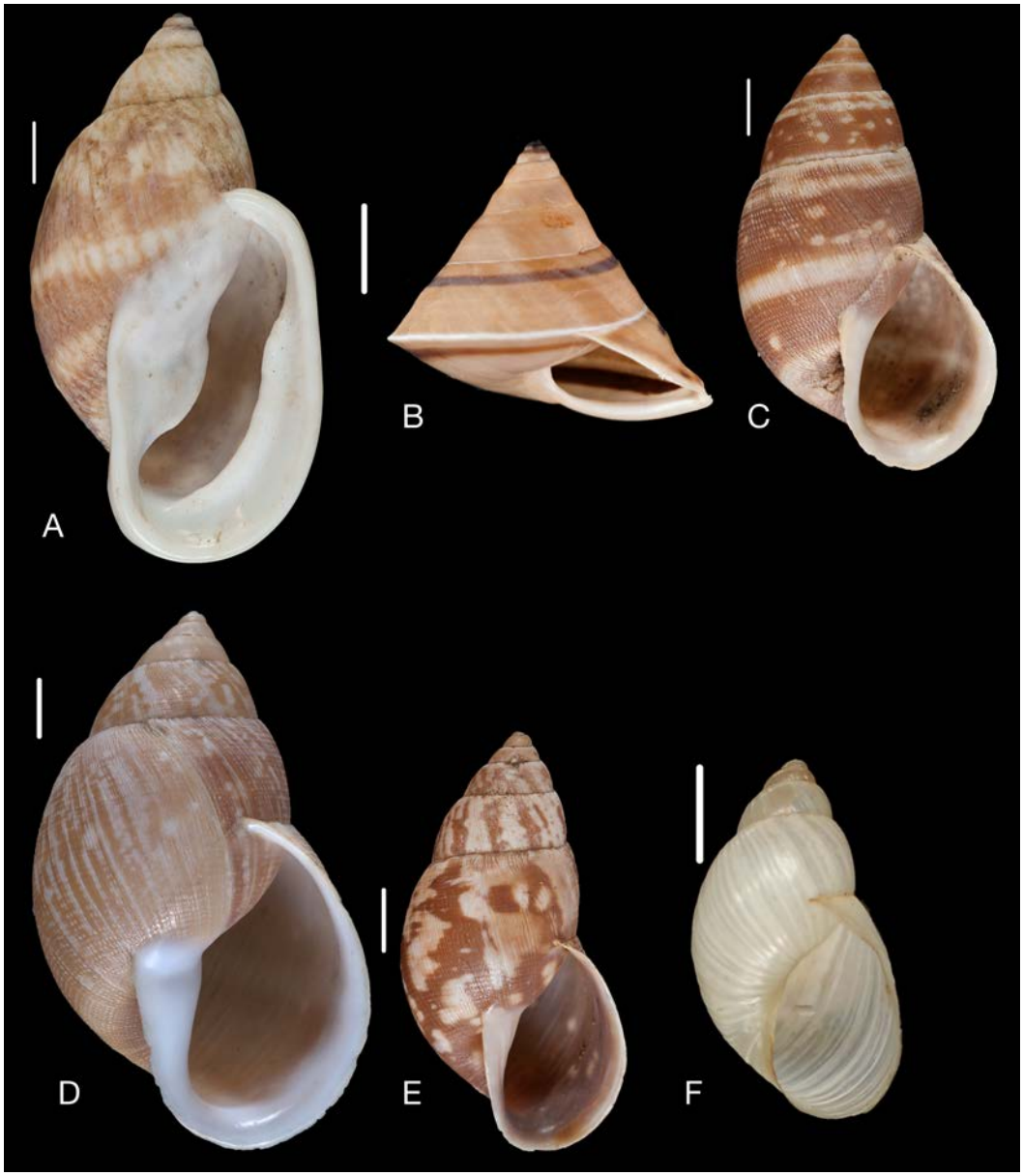

Figure 32 Material collected by the CCP. (A–F) Bulimulidae. *Otostomus signatus* (Spix in *Wagner, 1827*), MNCN 15.05/13371, (A) ventral view; *Oxychona bifasciata* (*Burrow, 1815*), MNCN 15.05/13128, (B) ventral view; *Scutalus mutabilis* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13382, (C) ventral view; *Scutalus proteus* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13390, (D) ventral view; *Scutalus versicolor* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/13146, (E) ventral view; *Stenostylus colmeiroi* (*Hidalgo, 1872*), MNCN 15.05/3301, (F) ventral view. Scale line 5 mm.

Auris signata Spix in *Wagner, 1827*: 17, pl. 12 fig. 3.
Bulimus signatus; *Hidalgo, 1870*: 46; *Hidalgo, 1893a*: 93.

Type locality. [Brazil] "sylvis Provinciae Bahiensis".
Type material. Not located.

Material examined. "Brasil", "(Cat. Am. mer. no. 78)", Coll. Paz, MNCN 15.05/13371 (2); "Brasil", "(comprado)", Coll. Hidalgo ex Paz, MNCN 15.05/7346 (1); "Brasil", Coll. Azpeitia, MNCN 15.05/8115 (1).

Genus *Oxychona Mörch, 1852*

Oxychona Mörch, 1852: 14.

Type species. *Trochus bifasciatus Burrow, 1815*, by monotypy.

***Oxychona bifasciata* (*Burrow, 1815*)** [137]
(Fig. 32B)

Trochus bifasciatus Burrow, 1815: 188, pl. 27 fig. 2.
Helix bifasciata; *Hidalgo, 1870*: 36; *Hidalgo, 1872*: 29, pl. 1 figs. 10–11; *Hidalgo, 1893a*: 84; *Hidalgo, 1893b*: 169.

Type locality. [Brazil] "Pernambuco".
Type material. Not located.
Material examined. "Brasil", "(Cat. Am. mer. no. 31)", Coll. Paz, MNCN 15.05/13128 (4); "P-31", Coll. Paz, MNCN 15.05/39929 (7); Coll. Hidalgo ex Paz "comprado", MNCN 15.05/39931 (3); "Rio Janeiro", Coll. Azpeitia, MNCN 15.05/39930 (3).

Genus *Scutalus Albers, 1850*

Scutalus Albers, 1850: 160.

Type species. *Bulinus proteus* Broderip, 1832, by subsequent designation (Martens in *Albers, 1860*: 217).

***Scutalus mutabilis* (Broderip in Broderip & Sowerby I, 1832)** [138]
(Fig. 32C)

Bulinus mutabilis Broderip in *Broderip & Sowerby I, 1832b*: 108.
Bulimus mutabilis; *Hidalgo, 1870*: 47; *Hidalgo, 1872*: 110; *Hidalgo, 1893a*: 94.
Bulimus versicolor Broderip; *Hidalgo, 1872*: 110.

Type locality. [Peru] "in montibus Pervious (Santos)".
Type material. Not located.
Material examined. "Lima", "(Cat. Am. mer. nº. 86)", Coll. Paz, MNCN 15.05/13382 (4); "Lima", Coll. Hidalgo ex Paz, MNCN 15.05/21270 (1).
Remarks. *Hidalgo (1872)* united this species with *Scutalus versicolor* (Broderip, 1832), likely on account of material collected by Martínez (see below). We regard *S. mutabilis* a distinct species, having the last whorl granose as seen with the naked eye, and in the material examined it is decidedly larger than the other species.

***Scutalus proteus* (Broderip in Broderip & Sowerby I, 1832)** [139]
(Fig. 32D)

Bulinus proteus Broderip in *Broderip & Sowerby I, 1832b*: 107.

Bulimus proteus; *Hidalgo, 1870*: 55; *Hidalgo, 1872*: 109; *Hidalgo, 1893a*: 103; *Hidalgo, 1893b*: 258. [partim].

Type locality. [Peru] "Peruviae montibus (St. Jacinta, near Samanco)".
Type material. NHMUK 20100638, lectotype (*Breure & Ablett, 2014*: 157, figs. 66A–66B).
Material examined. "Lima", "(Cat. Am. mer. nº. 127)", Coll. Paz, MNCN 15.05/13375 (1); MNCN 15.05/13380 (2); MNCN 15.05/13381 (1); MNCN 15.05/13390 (6); Coll. Hidalgo, MNCN 15.05/36966 (13); "Lima", Coll. Azpeitia, MNCN 15.05/8444 (2); MNCN 15.05/8449 (2 juv.); MNCN 15.05/8450 (3).
Remarks. *Hidalgo (1870)* mentioned this species from "Lima (Paz), Pachacamac (Isern)".

***Scutalus versicolor* (Broderip in Broderip & Sowerby I, 1832)** [140]
(Fig. 32E)

Bulinus versicolor Broderip in *Broderip & Sowerby I, 1832b*: 108.
Bulimus versicolor; *Hidalgo, 1870*: 47; *Hidalgo, 1872*: 110; *Hidalgo, 1893a*: 94; *Hidalgo, 1893b*: 260.

Type locality. "in montibus Peruviae (Mongon, near Casma)".
Type material. NHMUK 1842.5.10.180–182 (4), NHMUK 20100637 (4), possible syntypes.
Material examined. "Lima", "(Cat. Am. mer. no. 85)", Coll. Paz, MNCN 15.05/13144 (3); MNCN 15.05/13146 (3); MNCN 15.05/13147 93); MNCN 15.05/13150 (3); MNCN 15.05/13151 (4); "Lima", Coll. Hidalgo "Paz y Martínez", MNCN 15.05/20335 (8); "85 var. Pacifico", Coll. Hidalgo, MNCN 15.05/7357 (10); "Lima", Coll. Azpeitia, MNCN 15.05/7329 (7); MNCN 15.05/13884 (18).
Remarks. *Hidalgo* (*1872*: 111) listed this species, which he considered synonymous with *Scutalus mutabilis*, from "Lima, Republic del Perú (Paz y Martínez)"; all material of *S. mutabilis* originated from Paz. This material, which may have reached the Azpeitia collection via Hidalgo, may thus have originated from Martínez. This species is smaller, with the last whorl seemingly smooth, but under the lens seen to be decussated and weakly granose (Pilsbry, 1897 [*1897–1898*]: 16).

Genus *Stenostylus Pilsbry, 1898*

Drymaeus (*Stenostylus*) Pilsbry, 1898 [*1897–1898*]: 184.

Type species. *Bulimus nigrolimbatus Pfeiffer, 1854*, by subsequent designation (Pilsbry 1898 [*1897–1898*]: 313).

***Stenostylus colmeiroi* (*Hidalgo, 1872*)** [141]
(Fig. 32F)

Bulimus colmeiroi Hidalgo, 1872: 122; *Hidalgo, 1875*: 129, pl. 7 fig. 3; *Hidalgo, 1893a*: 70, 119; *Hidalgo, 1893b*: 224; *Azpeitia, 1923*: 73; *Fischer-Piette, 1950*: 82; *Breure, 1975*: 1153, pl. 10 fig. 6; *Calvo, 1994*: 284.

Type locality. "Baeza, República del Ecuador".

Type material. "Baeza (Ecuador)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/3301 (1), paralectotype; MNHN 20822 (1), lectotype (*Fischer-Piette, 1950*: 82).
Remarks. Hidalgo did not state on how many specimens his description was based. The measurements were given as "Long. 19, diam. 10 millim.". The specimen in the MNCN measures H 19.6, D 10.8; it has 4.9 whorls. This corresponds nearly exactly with the measurements given by Hidalgo, while the specimen in the MNHN, considered as "holotype" by *Fischer-Piette* (*1950*: 82), has a shell height of 17 mm. From correspondence between Hidalgo and Crosse it is known that Hidalgo often donated material to Crosse (*Breure & Backhuys, 2017*).
Etymology. Named after Miguel Colmeiro y Penido (1816–1901), director of the Jardín Botánico in Madrid from 1868 to 1901, and co-founder and first President of the Sociedad española de Historia Natural.

Family Simpulopsidae Schileyko, 1999

Genus *Leiostracus Albers, 1850*

Leiostracus Albers, 1850: 156.

Type species. *Bulimus vittatus* Spix in *Wagner, 1827*, by subsequent designation (Martens in *Albers, 1860*: 213).

***Leiostracus onager* (*Beck, 1837*)** [142]
(Fig. 33A)

Bulimulus onager Beck, 1837: 64.
Bulimus onager; *Hidalgo, 1893a*: 125.

Type locality. Not given.
Type material. Not located.
Material examined. "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/8132 (1).
Remarks. *Hidalgo (1893a)* recorded as locality "Bahia, en el Brasil (Paz)".

***Leiostracus perlucidus* (Spix in *Wagner, 1827*)** [143]
(Fig. 33B)

Bulimus perlucidus Spix in *Wagner, 1827*: pl. 7 fig. 2; *Hidalgo, 1870*: 47; *Hidalgo, 1893a*: 95.

Type locality. "Brasilia".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 88)", Coll. Paz, MNCN 15.05/13341 (1).

***Leiostracus vimineus* (*Moricand, 1834*)** [144]
(Fig. 33C)

Helix (*Cochlogena*) *viminea Moricand, 1834*: 540, pl. 1 fig. 5.
Bulimus vimineus; *Hidalgo, 1870*: 59; *Hidalgo, 1893a*: 108.

Type locality. [Brazil] "le Brésil, dans la province de Bahia".

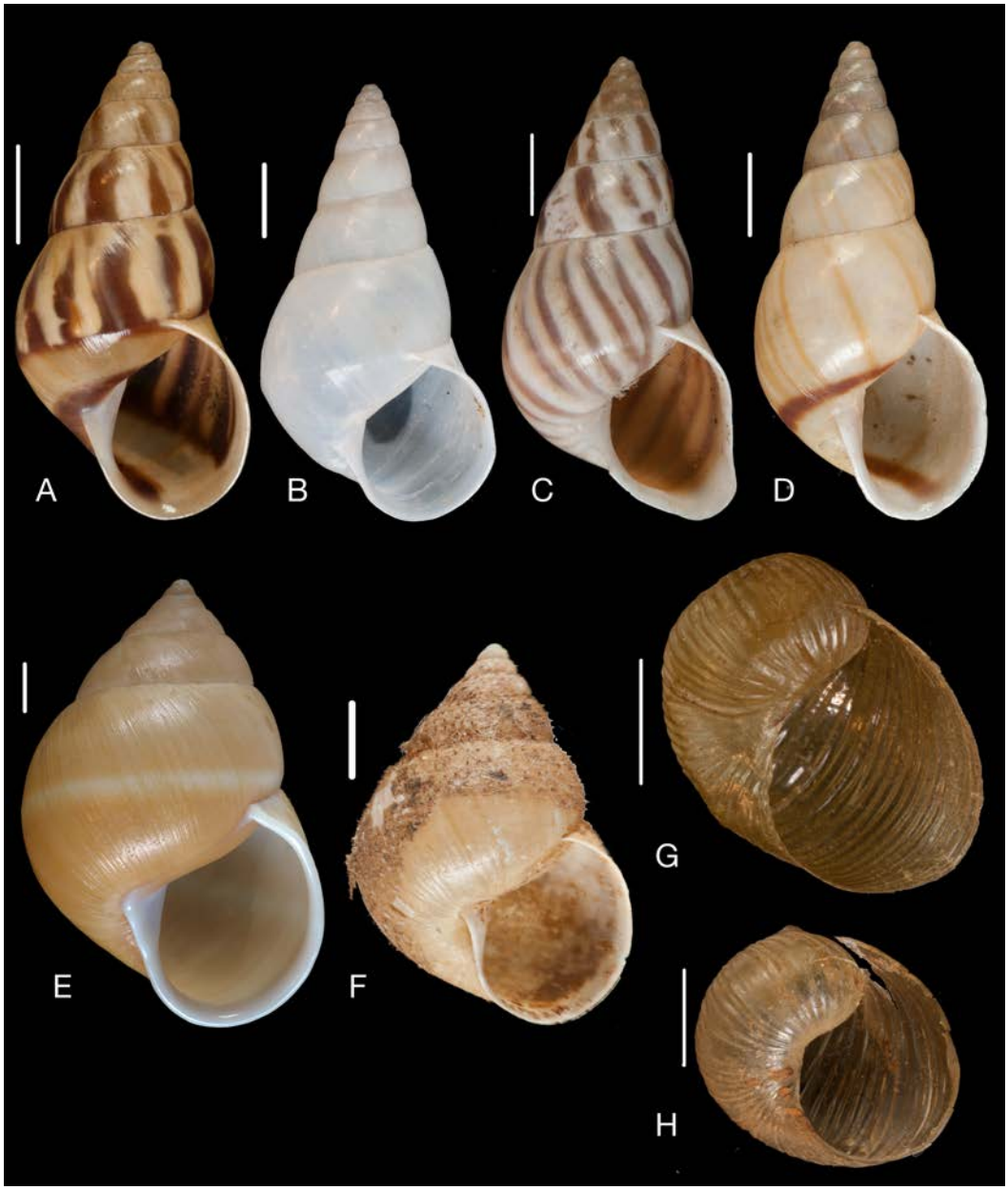

Figure 33 Material collected by the CCP. (A–H) Simpulopsidae. *Leiostracus onager* (*Beck, 1837*), MNCN 15.05/8135, (A) ventral view; *Leiostracus perlucidus* (Spix in *Wagner, 1827*), MNCN 15.05/13341, (B) ventral view; *Leiostracus vimineus* (*Moricand, 1834*), MNCN 15.05/12995, (C) ventral view; *Leiostracus vittatus* (Spix in *Wagner, 1827*), MNCN 15.05/20332, (D) ventral view; *Rhinus heterotrichus* (*Moricand, 1836*), MNCN 15.05/13485, (E) ventral view; *Rhinus scobinatus* (*Wood, 1828*), MNCN 15.05/8116, (F) ventral view; *Simpulopsis rufovirens* (*Moricand, 1846*), MNCN 15.05/20127, (G) ventral view; *Simpulopsis sulculosa* (*Férussac, 1822*), MNCN 15.05/20126, (H) ventral view. Scale line 5 mm.

Type material. MHNG-INVE-64563 (9), syntypes.

Material examined. "Brasil", "(Cat. Am. mer. no. 157)", Coll. Paz, MNCN 15.05/12995 (4); "Rio Janeiro", Coll. Moricand, MNCN 15.05/20069 (1); "Rio Janeiro", Coll. Azpeitia, MNCN 15.05/8131 (2); "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/8455 (1).

Remarks. *Hidalgo (1870)* reported this species from "Rio Janeiro (Paz)".

***Leiostracus vittatus* (Spix in *Wagner, 1827*)** [145]
(Fig. 33D)

Bulimus vittatus Spix in *Wagner, 1827*: pl. 7 fig. 4; *Hidalgo, 1870*: 47; *Hidalgo, 1893a*: 95.

Type locality. [Brazil] "Provinciarum Bahiensis et Pernambucanae".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 87)", Coll. Paz MNCN 15.05/13155 (3), MNCN 15.05/13157 (3); "Rio Janeiro", "(comprado)", Coll. Hidalgo, MNCN 15.05/20332 (1).
Remarks. *Hidalgo (1893a)* mentioned "Rio Janeiro et Bahia, en el Brasil (Paz)".

Genus *Rhinus* Martens in *Albers, 1860*

Rhinus Martens in *Albers, 1860*: 223.

Type species. *Bulimus heterotrichus Moricand, 1836*, by original designation.

***Rhinus heterotrichus* (*Moricand, 1836*)** [146]
(Fig. 33E)

Helix (*Cochlogena*) *heterotricha Moricand, 1836*: 430, pl. 2 figs. 5–6.
Bulimus heterotrichus; *Hidalgo, 1870*: 59; *Hidalgo, 1893a*: 107.

Type locality. Not given [Brazil, Bahia].
Type material. MHNG-INVE-64602 (6), syntypes.
Material examined. "Brazil, Corcovado", ("Cat. Am. mer. n°. 153"), Coll. Paz, 15.05/13485 (4); "Pacifico 113", Coll. Hidalgo, MNCN 15.05/7566 (1).
Remarks. *Hidalgo (1870)* gave as locality "Corcobado, à Rio Janeiro (Paz)".

***Rhinus scobinatus* (*Wood, 1828*)** [147]
(Fig. 33F)

Bulimus scobinatus Wood, 1828: pl. 8 fig. 77; *Hidalgo, 1875*: 131; *Hidalgo, 1893a*: 120.

Type locality. "—".
Type material. Not located.
Material examined. "Bahia, Brasil", Coll. Azpeitia ex Paz leg., MNCN 15.05/8116 (1).
Remarks. *Hidalgo (1893a)* reported this species from "Bahia, en el Brasil (Paz)".

Genus *Simpulopsis Beck, 1837*

Simpulopsis Beck, 1837: 100.

Type species. *Helix sulculosa Férussac, 1821*, by subsequent designation (Martens in *Albers, 1860*: 223).

***Simpulopsis rufovirens* (*Moricand, 1846*)** [148]
(Fig. 33G)

Helix (*Succinea*) *rufovirens* *Moricand, 1846*: 147, pl. 5 fig. 4.
Simpulopsis rufovirens; *Hidalgo, 1870*: 30; *Hidalgo, 1893a*: 78.

Type locality. [Brazil] "le Brésil, dans la province de Bahia".
Type material. MHNG-INVE-64632 (50+), MHNG-INVE-78493 (13), syntypes
Material examined. "Rio Janeiro", Coll. Paz, MNCN 15.05/20127 (1).

***Simpulopsis sulculosa* (*Férussac, 1822*)** [149]
(Fig. 33H)

Helix (*Cochlohydra*) *sulculosa* Férussac, in Férussac & Deshayes 1821 [*1819–1841*]: pl. 11A fig. 6; Férussac, 1822 [*1821–1822*]: 27.
Simpulopsis sulculosa; *Hidalgo, 1870*: 30; *Hidalgo, 1872*: 5; *Hidalgo, 1893a*: 78; *Hidalgo, 1893b*: 220.

Type locality. "Le Brésil".
Type material. MNHN (2), syntypes.
Material examined. "Rio Janeiro", Coll. Hidalgo ex "Martínez y Paz" leg., MNCN 15.05/39949 (2), MNCN 15.05/20126 (1), MNCN 15.05/11935 (5).
Remarks. *Hidalgo (1872)* gave "Botafogo, circa de Rio Janeiro" as a more precise locality; however, the original label stating this locality seems to have been lost.

Family Subulinidae *Fischer & Crosse, 1877*

Genus *Leptinaria Beck, 1837*

Achatina (*Leptinaria*) *Beck, 1837*: 79.

Type species. *Helix unilamellata* *d'Orbigny, 1835*, by subsequent designation (Hermannsen, 1847 [1846–1847]: 583).

***Leptinaria anomala* (*Pfeiffer, 1846*)** [150]
(Fig. 34A)

Achatina anomala *Pfeiffer, 1846*: 89.
Spiraxis anomala; *Hidalgo, 1893a*: 126.

Type locality. "Peru".
Type material. Not located.
Material examined. "Pacifico", Coll. Hidalgo, MNCN 15.05/20183 (1).

***Leptinaria unilamellata* (*d'Orbigny, 1835*)** [151]
(Fig. 34B)

Helix (*Cochlitomae*) *unilamellata* *d'Orbigny, 1835*: 9.

Type locality. "provincia Santa Cruz de la Sierra (republica Boliviana)".
Type material. NHMUK 1854.12.4.84 (6), syntypes.
Material examined. "Guyaquil", ex Martínez, MNCN 15.05/20147 (4); "Guayaquil, Ecuador", Coll. Azpeitia, MNCN 15.05/58992 (1).

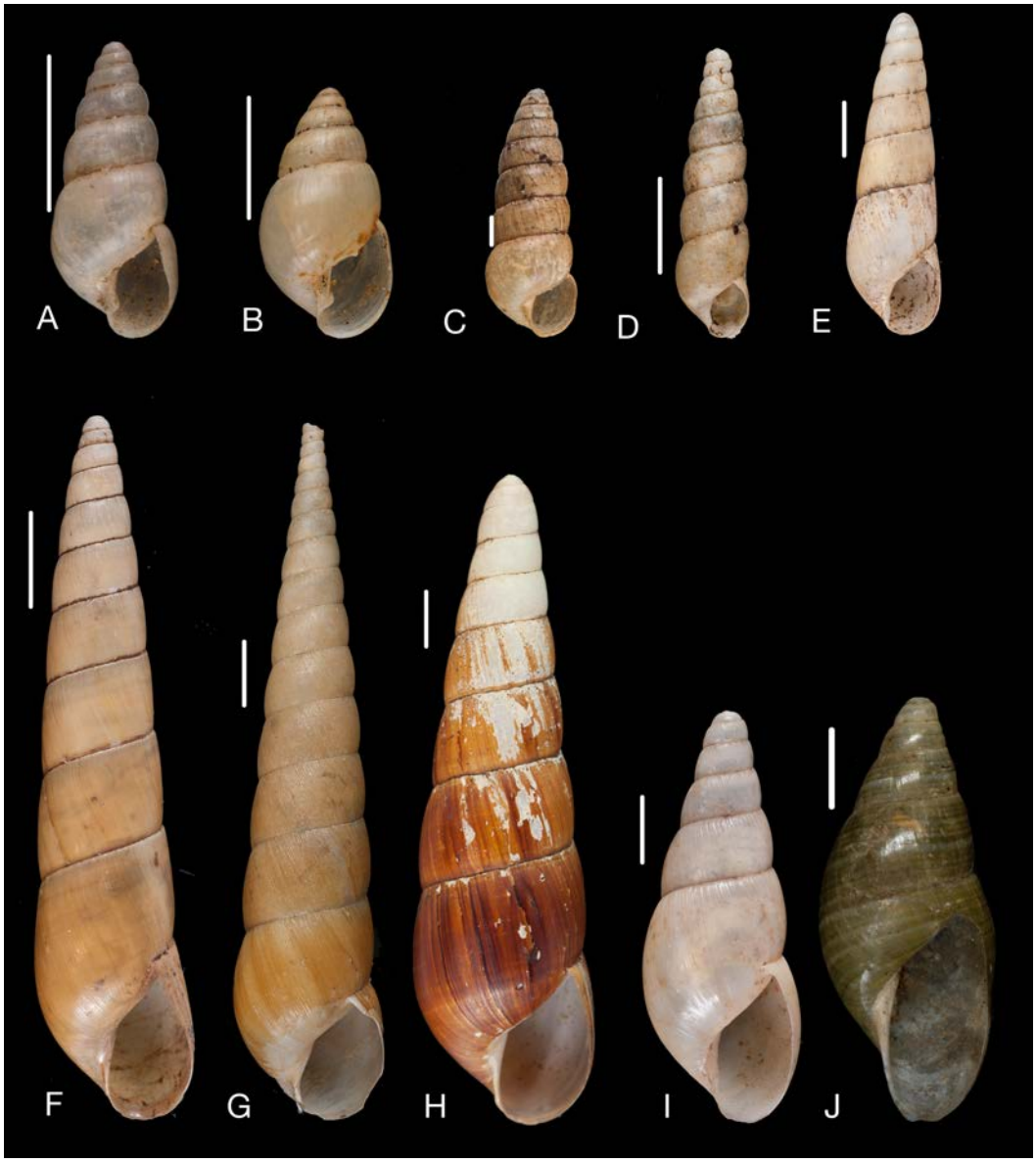

Figure 34 Material collected by the CCP. (A–H) Subulinidae. *Leptinaria anomala* (*Pfeiffer, 1846*), MNCN 15.05/20183, (A) ventral view; *Leptinaria unilamellata* (*d'Orbigny, 1835*), MNCN 15.05/20147, (B) ventral view; *Stenogyra regularis* (*Pfeiffer, 1852*), MNCN 15.05/39953, (C) ventral view; *Subulina octona* (*Bruguière, 1792*), MNCN 15.05/39954, (D) ventral view; *Obeliscus haplostylus* (*Pfeiffer, 1846*), MNCN 15.05/37048, (E) ventral view; *Obeliscus cuneus* riparius (*Pfeiffer, 1854*), MNCN 15.05/15511 (F) ventral view; *Obeliscus obeliscus* (*Moricand, 1834*), MNCN 15.05/15513, (G) ventral view; *Neobeliscus calcareus* (*Born, 1778*), MNCN 15.05/15512, (H) ventral view; *Synapterpes auratus* (*Pfeiffer, 1846*), MNCN 15.05/20330, (I) ventral view; *Synapterpes visendus* (*Hidalgo, 1869*), MNCN 15.05/3208, (J) ventral view. Scale line 1 mm (C), 1 cm (F–H), 5 mm (all others).

Remarks. This was material not being identified by Hidalgo and therefore not listed in his catalogue.

Genus *Neobeliscus* *Pilsbry, 1896*

Neobeliscus *Pilsbry, 1896*: 46.

Type species. *Helix calcareus* *Born, 1780*, by original designation.

***Neobeliscus calcareus* (*Born, 1778*)** [152]
(Fig. 34H)

Turbo calcareus *Born, 1778*: 351.
Bulimus calcareus; *Hidalgo, 1870*: 55; *Hidalgo, 1893a*: 105.

Type locality. Not given.
Type material. Not located.
Material examined. "Corcobado, Rio Jan.", "(Cat. Am. mer. no. 131)", Coll. Paz, MNCN 15.05/15512 (3); "Brasil (comprado)", Coll. Hidalgo, MNCN 15.05/7190 (3); "Corcovado, Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/76199 (1).

Genus *Obeliscus* *Beck, 1837*

Obeliscus *Beck, 1837*: 61.

Type species. *Helix* (*Cochlicella*) *obeliscus* *Moricand, 1834*, by tautonymy.

***Obeliscus cuneus riparius* (*Pfeiffer, 1854*)** [153]
(Fig. 34F)

Bulimus riparius *Pfeiffer, 1854b*: 155; *Hidalgo, 1870*: 55; *Hidalgo, 1872*: 98; *Hidalgo, 1893a*:104, *Hidalgo, 1893b*: 297.

Type locality. [Ecuador] "in ripis fluvii Mira, reipublicae Aequatoris".
Type material. NHMUK 1987018 (3), syntypes.
Material examined. "S^{n}. José Ecuador", "(Cat. Am. mer. n^{o}. 133)", Coll. Paz, MNCN 15.05/15511 (4); "Baeza (Ecuador)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/37160 (12).
Remarks. *Hidalgo (1870)* recorded as localities "Baeza et San José, Équateur (Martínez)".

***Obeliscus haplostylus* (*Pfeiffer, 1846*)** [154]
(Fig. 34E)

Bulimus haplostylus *Pfeiffer, 1846*: 84; *Hidalgo, 1872*: 132; *Hidalgo, 1875*: 130; *Hidalgo, 1893a*: 119; *Hidalgo, 1893b*: 298.

Type locality. [Ecuador] "Loxa reipublicae Aequatoris".
Type material. NHMUK 1987021 (1), probable syntype.
Material examined. "Cuenca (Ecuador)", Coll. Hidalgo ex Martinex ex Jameson "(regalado)", MNCN 15.05/37048 (3); "Ecuador", Coll. Azpeitia, 15.05/76207 (1); Coll. Hidalgo, MNCN 15.05/76206 (1).

Remarks. This species was collected by James Jameson, who gave the material to Martinez (*Calatayud, 1994*: 207).

***Obeliscus obeliscus* (*Moricand, 1834*)** [155]
(Fig. 34G)

Helix (*Cochlicella*) *obeliscus* *Moricand, 1834*: 540, pl. 1 fig. 4.
Bulimus obeliscus; *Hidalgo, 1870*: 55; *Hidalgo, 1893a*: 103.

Type locality. [Brazil] "Brésil, près de Caravelhas".
Type material. MHNG-INVE-66256, holotype.
Material examined. "Bahia", "(Cat. Am. mer. no. 132)", Coll. Paz, MNCN 15.05/15513 (3); "Pacifico 132", Coll. Hidalgo, MNCN 15.05/36384 (1); "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/39947 (2).

Genus *Stenogyra* *Shuttleworth, 1854*

Stenogyra *Shuttleworth, 1854*: 45.

Type species. *Bulimus terebraster* *Lamarck, 1822*, by subsequent designation (Pilsbry in *Pilsbry & Vanatta, 1899*: 370).

***Stenogyra regularis* (*Pfeiffer, 1852*)** [156]
(Fig. 34C)

Bulimus regularis *Pfeiffer, 1852b*: 94; *Hidalgo, 1872*: 123; *Hidalgo, 1875*: 130; *Hidalgo, 1893a*: 119; *Hidalgo, 1893b*: 299.

Type locality. [Brazil] "prope Rio Janeiro".
Type material. Not known.
Material examined. "S^{ta}. Catalina, Pacif^{o}.", Coll. Hidalgo ex Martínez leg., MNCN 15.05/39953 (8); "Rio Janeiro, Pacif^{o}.", Coll. Hidalgo ex Paz leg., MNCN 15.05/39952 (24).

Genus *Subulina* *Beck, 1837*

Subulina *Beck, 1837*: 76.

Type species. *Bulimus octonus* *Bruguière, 1792*, by subsequent designation (*Gray, 1847*: 178).

***Subulina octona* (*Bruguière, 1792*)** [157]
(Fig. 34D)

Bulimus octonus *Bruguière, 1792*: 325.
Achatina octona Chemnitz; *Hidalgo, 1875*: 131; *Hidalgo, 1893a*: 121; *Hidalgo, 1893b*: 300.

Type locality. "l'île de Guadeloupe, & (…) l'île de Saint-Domingue".
Type material. Not located.

Material examined. "Rio Janeiro", Coll. Hidalgo ex "Martínez y Paz" leg., MNCN 15.05/39954 (5).

Genus *Synapterpes* *Pilsbry, 1896*

Synapterpes *Pilsbry, 1896*: 46.

Type species. *Bulimus hanleyi* *Pfeiffer, 1846*, by original designation.

***Synapterpes auratus* (*Pfeiffer, 1846*)** [158]
(Fig. 34I)

Bulimus auratus *Pfeiffer, 1846*: 32; *Hidalgo, 1870*: 58.; *Hidalgo, 1872*: 100; *Hidalgo, 1893a*: 106; *Hidalgo, 1893b*: 246.

Type locality. "Locality unknown".
Type material. NHMUK 1987019 (3), syntypes.
Material examined. "Ecuador", "(Cat. Am. mer. nº. 147)", Coll. Paz, MNCN 15.05/13077 (2); "Baeza (Ecuador", Coll. Hidalgo ex Martínez leg., MNCN 15.05/20330 (7).

***Synapterpes visendus* (*Hidalgo, 1869*) (comb. n.)** [159]
(Fig. 34J)

Bulimus visendus *Hidalgo, 1869a*: 50, pl. 5, fig. 8; *Hidalgo, 1870*: 58; *Hidalgo, 1872*: 101, pl. 8 figs. 1–2; *Hidalgo, 1893a*: 47, 106; *Hidalgo, 1893b*: 247; *Azpeitia, 1923*: 74; *Breure, 1975*: 1153, pl. 1 fig. 5; *Calvo, 1994*: 284.

Type locality. [Ecuador] "Baeza, Reipublicae Aequatoris".
Type material. "Baeza, Ecuador", ex Hidalgo, MNHN-IM-2000-28157, lectotype (*Breure, 1975*: 1153). "Baeza, Ecuador", "(Cat. Am. mer. no. 148)", Coll. Paz, MNCN 15.05/3163 (2); "Baeza (Ecuador)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/3208 (4); "Baeza, Ecuador", Coll. Hidalgo, MNCN 15.05/3207 (1); "Baeza, Ecuador", Coll. Azpeitia, MNCN 15.05/76230 (1), paralectotypes.
Remarks. This taxon has long been considered a *Drymaeus* (*Mesembrinus*) species due to misinterpretation of the general shape. Re-studying of the type material including the MNCN-specimens has convinced us that this species belongs to the genus *Synapterpes* (**comb. n.**). The protoconch is smooth in all specimens (contrary to the pitted protoconch in *Drymaeus*), and the combination of the shell shape, shell size, and the colour pattern corresponds with other species of the genus *Synapterpes*.

Family Spiraxidae H.B. Baker, 1939

Genus *Euglandina* Crosse & P. Fischer in *Fischer & Crosse, 1870*

Euglandina Crosse & P. Fischer in P. Fischer & Crosse, 1870 [*1870–1878*]: 97.

Type species. *Achatina aurata* var. *lignaria* *Reeve, 1849*, by subsequent designation (Pilsbry, 1907 [*1906–1907*]: 175).

Subgenus *Euglandina* (*Cosmomenus*) *Baker, 1941*

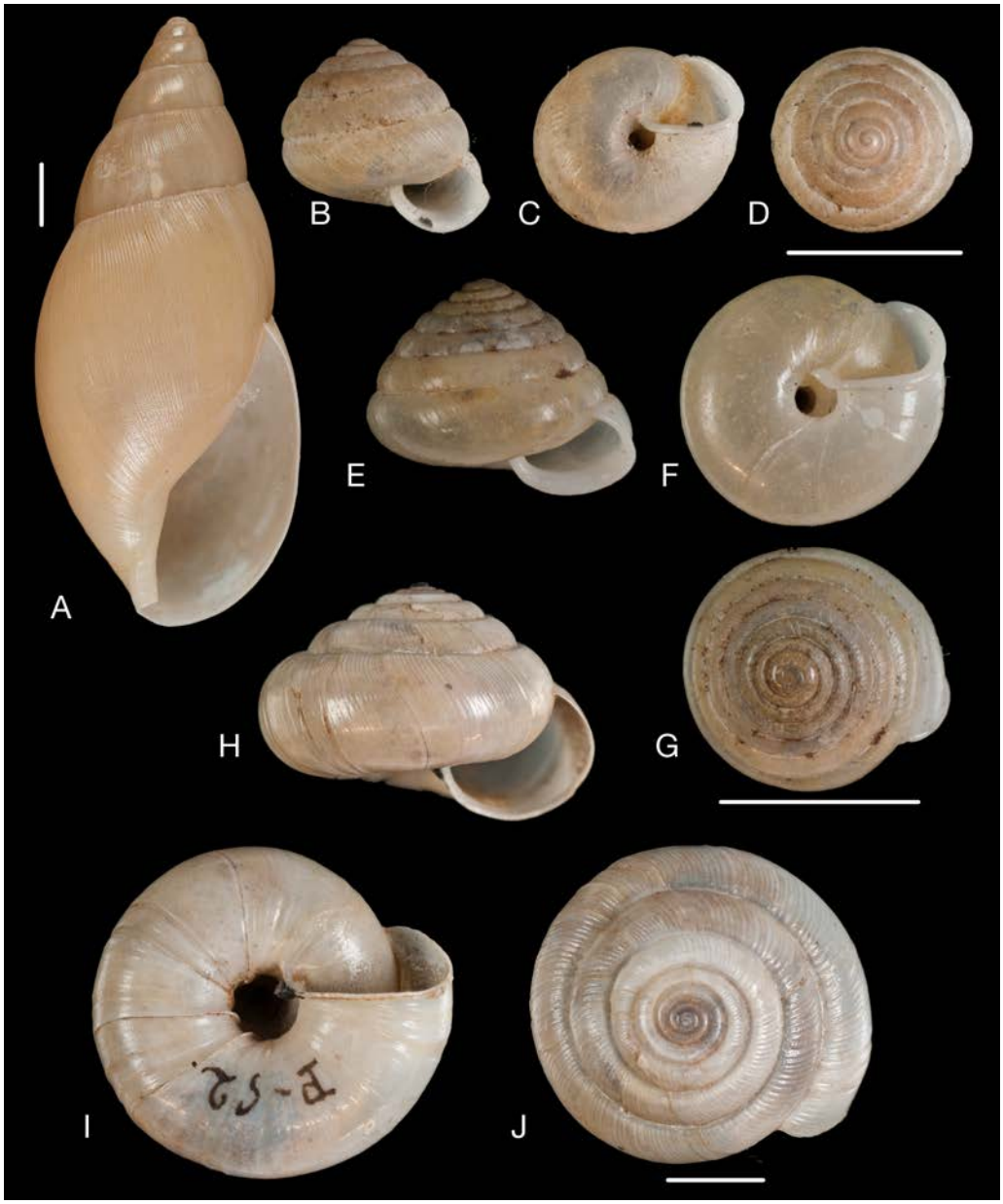

Figure 35 Material collected by the CCP. (A) Spriraxidae. *Euglandina* (*Cosmomenus*) *cumingi* (*Beck, 1837*), MNCN 15.05/76219, (A) ventral view. (B–J) Streptaxidae. *Hypselartemon deshayesianus* (*Crosse, 1863*), MNCN 15.05/19843, (B) ventral view, (C) umbilical view, (D) apical view; *Hypselartemon paivanus* (*Pfeiffer, 1867*), MNCN 15.05/20124, (E) ventral view, (F) umbilical view, (G) apical view; *Rectartemon candidus* (Spix in *Wagner, 1827*), MNCN 15.05/20123, (H) ventral view, (I) umbilical view, (J) apical view. Scale line 5 mm.

Euglandina (*Cosmomenus*) *Baker, 1941*: 54.

Type species. *Glandina cumingi Beck, 1837*, by original designation.

Euglandina (***Cosmomenus***) ***cumingi*** (***Beck, 1837***) [160]
(Fig. 35D)

Glandina cumingi Beck, 1837: 78.
Glandina rosea Férussac; Hidalgo, 1893a: 126.

Type locality. Not stated.
Type material. Not located.
Material examined. "Panamá", Coll. Azpeitia, MNCN 15.05/76219 (5).
Remarks. Hidalgo (1893a) identified this species as "*Glandina rosea* Férussac", reporting it from "Panamá, en Colombia (Paz)". This country was visited by Amor, Espada and Martinez; this material was likely collected by the latter (see Calatayud, 1994: 259).

Family Streptaxidae Gray, 1860

Genus *Hypselartemon* Wenz, 1947

Hypselartemon Wenz, 1947: 36.

Type species. *Streptaxis alveus* Dunker, 1845, by original designation.

***Hypselartemon deshayesianus* (Crosse, 1863)** [161]
(Figs. 35B–35D)

Streptaxis deshayesianus Crosse, 1863: 388; Hidalgo, 1870: 39; Hidalgo, 1872: 45, pl. 3 figs. 5–6; Hidalgo, 1893a: 87; Hidalgo, 1893b: 142.

Type locality. "?".
Type material. Not located.
Material examined. "Rio Janeiro", Coll. Hidalgo ex "Martínez y Paz", MNCN 15.05/20106 (62); "Pacifico 51", Coll. Hidalgo, MNCN 15.05/19843 (7); "Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/39945 (4).

***Hypselartemon paivanus* (Pfeiffer, 1867)** [162]
(Figs. 35E–35F)

Streptaxis paivana Pfeiffer, 1867 [1866–1869]: 43, pl. 1 fig. 2; Hidalgo, 1870: 39; Hidalgo, 1872: 44, pl. 3 figs. 3–4; Hidalgo, 1893a: 87; Hidalgo, 1893b: 135.

Type locality. [Brasil] "in Brasilia loco "Macahe" dicto".
Type material. Not located.
Material examined. "Macahé (Brazil)", Coll. Hidalgo ex "Paz y Martínez", MNCN 15.05/20103 (26); Coll. Hidalgo, MNCN 15.05/20124 (3); "Macahe, Brasil", Coll. Azpeitia, MNCN 15.05/39948 (3).
Remarks. Crosse stated (footnote in Pfeiffer, 1867: 43) that this material originated from Paz. We are therefore confident that the material listed above may be considered as from the original series.

Genus *Rectartemon* Baker, 1925

Rectartemon Baker, 1925: 36.

Type species. *Rectartemon jessei* Baker, 1925, by original designation.

Rectartemon candidus **(Spix in *Wagner, 1827*)** [163]
(Figs. 35H–35J)

Solarium candidum Spix in *Wagner, 1827*: pl. 17 figs. 3–4.
Streptaxis candidus Spix; *Hidalgo, 1870*: 40; *Hidalgo, 1872*: 42; *Hidalgo, 1893a*: 88; *Hidalgo, 1893b*: 134.

Type locality. [Brazil] "Provinciis autralioribis Brasiliae".
Type material. Not located.
Material examined. "P-52", Coll. Hidalgo ex "Martínez y Paz", MNCN 15.05/20123 (1); "P-46", Coll. Hidalgo, MNCN 15.05/76202 (1) [ex-MNCN 15.05/20117].
Remarks. *Hidalgo (1870)* mentioned this species from "Desterro, île de Sainte-Catharine, Brésil (Paz et Martinez); Rio Grande, Brésil (Paz)". See *Calatayud, 1994*: 250–251.

Genus *Streptaxis* *Gray, 1837*

Streptaxis Gray, 1837: 484.

Type species. *Helix* (*Helicogena*) *contusa Férussac, 1821*, by subsequent designation (Herrmannsen, 1849 [*1847–1849*]: 507).

Streptaxis contusus* (*Férussac, 1821) [164]
(Figs. 36A–36C)

Helix (*Helicogena*) *contusa* Férussac, 1821 [*1821–1822*]: 30; Férussac in Férussac & Deshayes 1821 [*1819–1851*]: pl. 31 fig. 1, pl. 36A figs. 2–3.
Streptaxis contusus; *Hidalgo, 1870*: 39; *Hidalgo, 1872*: 41; *Hidalgo, 1893a*: 87.

Type locality. "Le Brésil".
Type material. Not located.
Material examined. "Pacifico 47", Coll. Hidalgo ex "Martínez y Paz", MNCN 15.05/20178 (1); "Rio Janeiro", Coll. Hidalgo ex Martínez leg., MNCN 15.05/20102 (4); "Botofogo, Corcovado, Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/36262 (3).
Remarks. *Hidalgo (1870)* mentioned this species from "Corcobado, à Rio Janeiro (Paz et Martinez)".

Streptaxis crossei* *Pfeiffer, 1867 [165]
(Figs. 36D–36F)

Streptaxis crossei Pfeiffer, 1867: 43, pl. 1 fig.1; *Hidalgo, 1870*: 39; *Hidalgo, 1872*: 43, pl. 3 figs. 1–2; *Hidalgo, 1893a*: 87; *Hidalgo, 1893b*: 139.

Type locality. [Brazil] "Corcobado, props Rio Janeiro Brasiliae".
Type material. Not located.
Material examined. "Rio Janeiro", Coll. Hidalgo ex "Martinez y Paz", MNCN 15.05/20104 (15); Coll. Hidalgo ex "Martinex y Paz", MNCN 15.05/20177 (5); "Botofogo, Corcovado, Rio Janeiro", Coll. Azpeitia, MNCN 15.05/39944 (3), MNCN 15.05/76228 (2).
Remarks. Crosse stated (footnote in *Pfeiffer, 1867*: 43) that this material originated from Paz. We are therefore confident that the material listed above may be considered as from

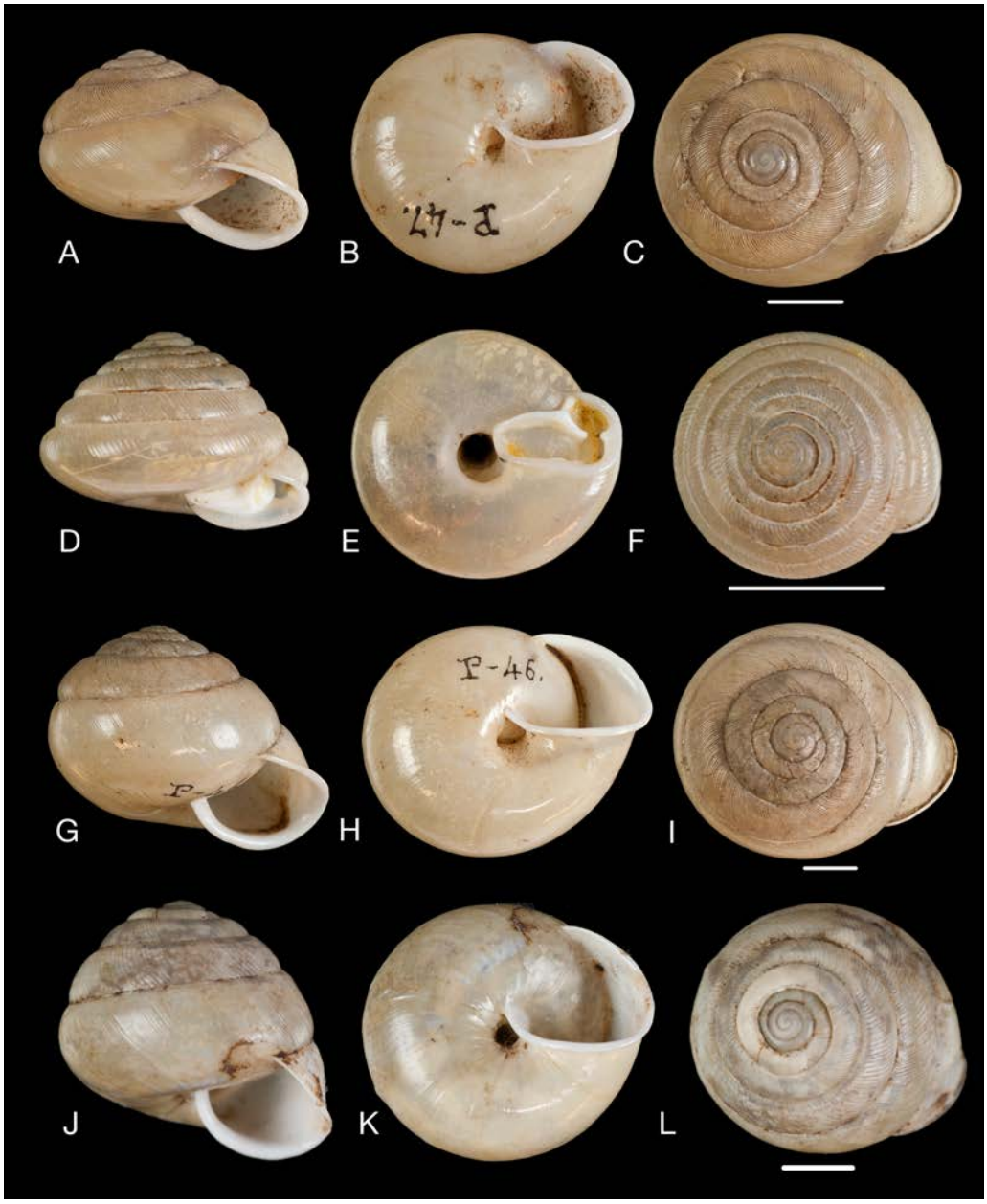

Figure 36 **Material collected by the CCP.** (A–L) Streptaxidae. *Streptaxis contusus* (*Férussac, 1821*), MNCN 15.05/20178, (A) ventral view, (B) umbilical view, (C) apical view; *Streptaxis crossei* (*Pfeiffer, 1867*), MNCN 15.05/20177, (D) ventral view, (E) umbilical view, (F) apical view; *Streptaxis dunkeri* (Pfeiffer in *Philippi, 1845*), MNCN 15.05/20117, (G) ventral view, (H) umbilical view, (I) apical view; *Streptaxis uberiformis* (Pfeiffer, 1848), MNCN 15.05/20125, (J) ventral view, (K) umbilical view, (L) apical view. Scale line 5 mm.

the original series. *Hidalgo (1870)* reported this species from "Macahé, près de Rio Janeiro (Paz et Martinez)"; *Hidalgo (1893a)* from "Botafou, en el Cordovado, cerca de Rio Janeiro (Paz y Martinez)".
Etymology. Named after Hippolyte Crosse.

Streptaxis dunkeri* Pfeiffer in *Philippi, 1845 [166]
(Figs. 36G–36I)

Streptaxis dunkeri Pfeiffer in Philippi 1845 [*1845–1847*]: 7, pl. 6 fig. 15; *Hidalgo, 1870*: 39; *Hidalgo, 1893a*: 89.

Type locality. "Brasilia, prope Neu-Freiburg".
Type material. Not located.
Material examined. "P-46", Coll. Hidalgo MNCN 15.05/20117 (1); "Corcovado, Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/39946 (1).

***Streptaxis uberiformis* Pfeiffer, 1848** [167]
(Figs. 36J–36L)

Streptaxis uberiformis Pfeiffer, 1848a: 89; *Hidalgo, 1870*: 39; *Hidalgo, 1872*: 42; *Hidalgo, 1875*: 128, pl. 7 fig. 8; *Hidalgo, 1893a*: 87.

Type locality. "Brasilia".
Type material. NHMUK 20160371 (1), syntype.
Material examined. MNCN 15.05/20125 (1).
Remarks. Although this material has no label stating its locality nor provenance, there is a label in Crosse's handwriting "No. 7 / Streptaxis uberiformis Pfeiffer / type figure dans le Journal de / Conchyliologie, vol. XXIII"; the specimen corresponds to *Hidalgo, 1875*: pl. 7 fig. 8.

Family Macrocyclidae Thiele, 1926

Genus *Macrocyclus* *Beck, 1837*
Helix (*Macrocyclus*) *Beck, 1837*: 24.

Type species. *Helix laxata Férussac, 1821* (=*Helix peruviana Lamarck, 1822*), by subsequent designation (*Albers, 1850*: 128).

***Macrocyclus peruvianus* (*Lamarck, 1822*)** [168]

Helix (*Helicella*) *laxata* Férussac, 1821 [*1821–1822*]: 39 (nomen nudum).
Helix peruviana Lamarck, 1822: 76.
Helix laxata; *Hidalgo, 1870*: 33; *Hidalgo, 1893a*: 82.

Type locality. "le Pérou".
Type material. Not located.
Material examined. "Pacifico 22", Coll. Hidalgo, MNCN 15.05/76221 (1).
Remarks. The shell has been broken due to its fragility and is therefore not photographed.

Family Strophocheilidae *Pilsbry, 1902*

Genus *Anthinus* *Albers, 1850*

Bulimus (*Anthinus*) *Albers, 1850*: 148.

Type species. *Helix* (*Cochlogena*) *multicolor* *Rang, 1831*, by subsequent designation (Martens in *Albers, 1860*: 189).

Anthinus multicolor (*Rang, 1831*) [169]
(Fig. 37A)

Helix (*Cochlogena*) *multicolor* *Rang, 1831*: 55, pl. 3 fig. 1.
Bulimus multicolor; *Hidalgo, 1870*: 47; *Hidalgo, 1893a*: 94.
Bulimus miersi Sowerby; *Hidalgo, 1870*: 47; *Hidalgo, 1893a*: 94.

Type locality. "Brésil, non loin du Corcovado".
Type material. Not located.
Material examined. "Brasil", "(Cat. Am. mer. no. 83)", Coll. Paz, MNCN 15.05/13458 (3); "Brasil", "(Cat. Am. mer. no. 84)", Coll. Paz MNCN 15.05/13268 (2) [as *Bulimus miersi* Sow.]; "(comprado)", Coll. Hidalgo, MNCN 15.05/7326 (4) [as Bulimus miersi Sow.]; "Rio Janeiro", "(comprado)", Coll. Hidalgo, MNCN 15.05/37104 (1); "83", Coll. Hidalgo, MNCN 15.05/21261 (1); "Macahé, Brasil", Coll. Azpeitia, MNCN 15.05/8100 (1); "Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/8102 (1).
Remarks. This species was listed in *Hidalgo*'s catalogue (*1870*) as number 83 [*multicolor*] from "Macahé, Brésil", respectively number 84 [*miersi*] from "Rio Janeiro"; both localities were credited to Paz. The identification by Hidalgo of part of the material as "Bulimus miersi" was erroneous.

Genus *Austroborus* *Parodiz, 1949*

Strophocheilus (*Austroborus*) *Parodiz, 1949*: 189. Nom. nov. for *Microborus* *Pilsbry, 1926* not Blanford, 1897.

Type species. *Bulimus lutescens* King & Broderip, 1831, by original designation.

Austroborus lutescens (King & Broderip, 1831) [170]
(Fig. 37B)

Bulinus lutescens King & Broderip, 1831: 340.
Bulimus lutescens; *Hidalgo, 1870*: 43; *Hidalgo, 1872*: 55; *Hidalgo, 1893a*: 89.

Type locality. "Maldonado".
Type material. NHMUK 20160373 (5), syntypes.
Material examined. "Montevideo", "(Cat. Am. mer. nº. 61)", Coll. Paz, MNCN 15.05/13671 (3); "Pacifico 61", Coll. Hidalgo, MNCN 15.05/21222 (1).
Remarks. *Hidalgo (1870)* mentioned "Montevideo (Paz et Martínez)"; it is therefore possible that the single shell from the Hidalgo collection originated from Martínez.

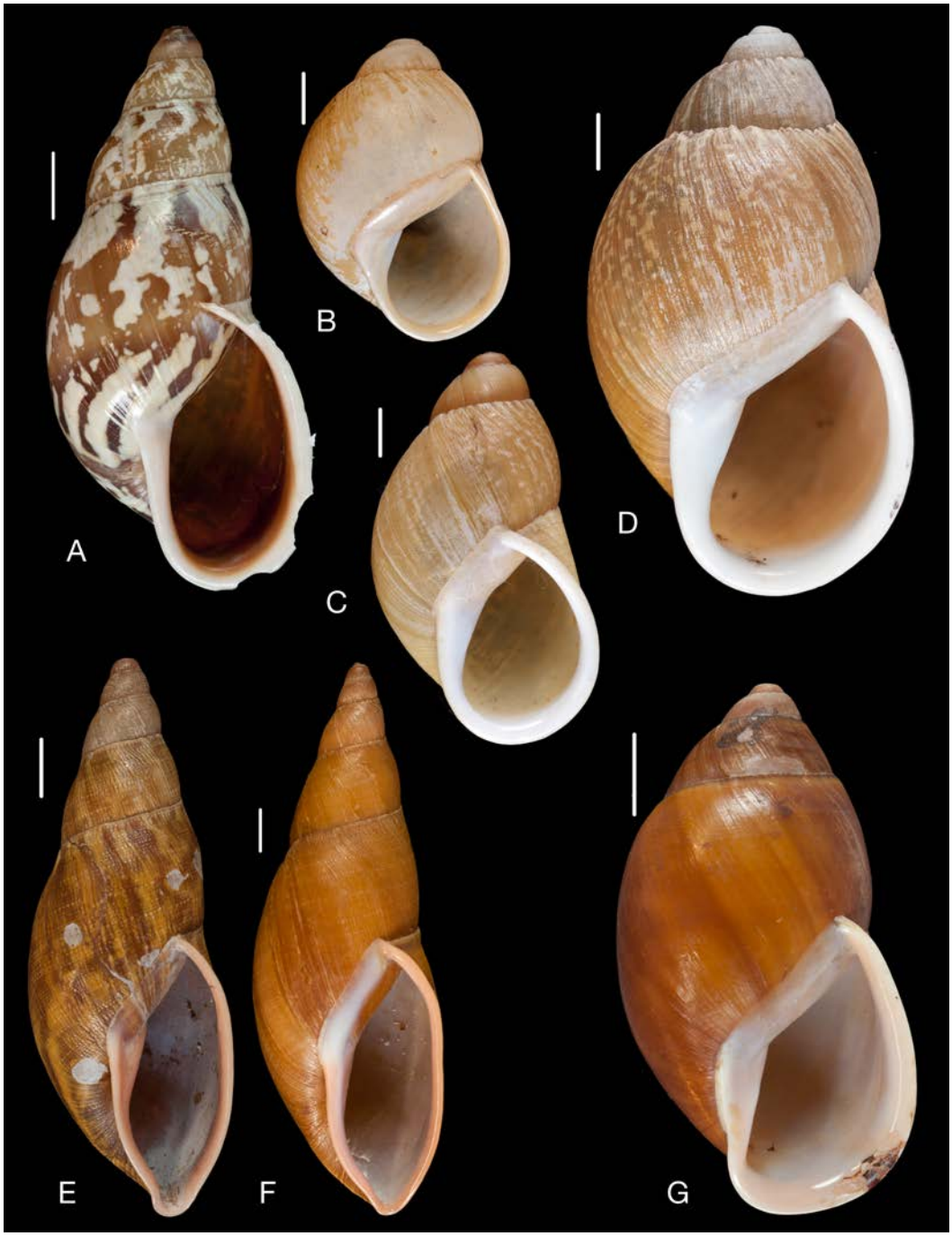

Figure 37 Material collected by the CCP. (A–G) Strophocheilidae. *Anthinus multicolor* (*Rang, 1831*), MNCN 15.05/13268, (A) ventral view; *Austroborus lutescens* (King & Broderip, 1831), MNCN 15.05/13671, (B) ventral view; *Chiliborus chilensis* (*Sowerby I, 1833*), MNCN 15.05/13479, (C) ventral view; *Chiliborus rosaceus* (King & Broderip, 1831), MNCN 15.05/13269, (D) ventral view; *Gonyostomus egregius* (Pfeiffer, 1845), MNCN 15.05/13368, (E) ventral view; *Gonyostomus goniostomus* (*Férussac, 1821*), MNCN 15.05/13369, (F) ventral view; *Speironepion milleri* (Sowerby I in Sowerby I & II, 1838), MNCN 15.05/13298, (G) ventral view. Scale line 5 mm (A–F), 1 cm (G).

Genus *Chiliborus* Pilsbry, 1926

Borus (*Chiliborus*) Pilsbry, 1926: 6.

Type species. *Bulinus chilensis* Sowerby I, 1833, by original designation.

***Chiliborus chilensis* (Sowerby I, 1833)** [171]
(Fig. 37C)

Bulinus chilensis Sowerby I, 1833: 36.
Bulimus crenulatus Pfeiffer; Hidalgo, 1870: 43; Hidalgo, 1872: 54; Hidalgo, 1893a: 89; Hidalgo, 1893b: 200.

Type locality. [Chile] "Coquimbo".
Type material. Not located.
Material examined. "Talcahuano", "(Cat. Am. mer. no. 60)", Coll. Paz, MNCN 15.05/13479 (1); "Huasco", "(Cat. Am. mer. nº. 60)", Coll. Paz, MNCN 15.05/13478 (2); "Huasco Martínez ", "Huasco (Chile)", Coll. Hidalgo ex Martínez, MNCN 15.05/20206 (17).
Remarks. Hidalgo mentioned as localities "Talcahuano et Coquimbo (Paz), Huasco (Paz et Martínez), Chili". The locality 'Talcahuano' was no longer mentioned in Hidalgo (1872). The largest specimen in the material is from this locality.

***Chiliborus rosaceus* (King & Broderip, 1831)** [172]
(Fig. 37D)

Bulinus rosaceus King & Broderip, 1831: 341.
Bulimus rosaceus; Hidalgo, 1870: 43; Hidalgo, 1872: 53; Hidalgo, 1893a: 89; Hidalgo, 1893b: 198.

Type locality. "ad oras Americae meridionalis (Chile)".
Type material. Not located.
Material examined. "Valparaiso", "(Cat. Am. mer. nº. 59)", Coll. Paz, MNCN 15.05/13269 (4); "Valparaiso", "Pacifico 59", Coll. Hidalgo, ex "Paz y Martinez", MNCN 15.05/36925 (9); "Huasco ! Paz", Coll. Azpeitia ex Paz leg., MNCN 15.05/7344 (1); "Chile", "(Cat. Am. mer. nº. 59)", Coll. Azpeitia, MNCN 15.05/8113 (4).
Remarks. Hidalgo mentioned as locality "Valparaiso (Paz et Martínez)".

Genus *Gonyostomus* Beck, 1837

Bulimus (*Gonyostomus*) Beck, 1837: 53.

Type species. *Helix* (*Cochlogena*) *goniostoma* Férussac, 1821, by tautonymy.

***Gonyostomus egregius* (Pfeiffer, 1845)** [173]
(Fig. 37E)

Bulimus egregius Pfeiffer, 1845a: 67; Hidalgo, 1893a: 122.

Type locality. "Locality unknown".
Type material. NHMUK 19991589 (3), syntypes.

Material examined. "Cabo Frio, Rio Jan[eiro].", "(Cat. Am. mer. no. 97)", Coll. Paz, MNCN 15.05/13368 (4) [as *Bulimus hybridus* Gould]; "Macahé, Brasil", Coll. Azpeitia, MNCN 15.05/7208 (1).

***Gonyostomus goniostomus* (*Férussac, 1821*)** [174]
(Fig. 37F)

Helix (*Cochlogena*) *goniostoma* Férussac, 1821 [*1821–1822*]: 57.
Bulimus goniostomus; *Hidalgo, 1870*: 49; *Hidalgo, 1872*: 77; *Hidalgo, 1893a*: 96.

Type locality. "Le Brésil, près Rio Janeiro, à l'aqueduc de Corcovado".
Type material. Not located.
Material examined. "Cabo Frio, Brasil", "(Cat. Am. mer. no. 96)", Coll. Paz, MNCN 15.05/13369 (4); "(comprado)", Coll. Hidalgo, MNCN 15.05/7205 (2); "Macahé, Brasil", Coll. Azpeitia, MNCN 15.05/8110 (2).
Remarks. *Hidalgo (1870)* gave as locality "Macahé, près de Cabo Frio, Brésil (Paz)".

Genus *Megalobulimus* *Miller, 1878*

Bulimus (*Megalobulimus*) *Miller, 1878*: 172.

Type species. *Boris garciamoreni Miller, 1878*, by monotypy.

***Megalobulimus granulosus* (*Rang, 1831*)** [175]
(Fig. 38A)

Helix (*Cochlogena*) *granulosa Rang, 1831*: 53, pl. 2.
Bulimus granulosus; *Hidalgo, 1870*: 43; *Hidalgo, 1872*: 51; *Hidalgo, 1893a*: 89; *Hidalgo, 1893b*:197.

Type locality. "l'intérieur du Brésil".
Type material. Not located.
Material examined. "S^{ta}. Catalina", "(Cat. Am. mer. no. 58)", Coll. Paz, MNCN 15.05/13294 (2); "S^{ta}. Catalina (Brasil)", Coll. Hidalgo ex "Martínez y Paz" leg., MNCN 15.05/36847 (6); "I. Sta. Catalina, Brasil", Coll. Azpeitia, MNCN 15.05/7206 (3).

***Megalobulimus gummatus* (*Hidalgo, 1870*)** [176]
(Fig. 38B)

Bulimus gummatus Hidalgo, 1870: 41; *Hidalgo, 1872*: 49, pl. 4 fig. 1; *Hidalgo, 1875*: 128; *Hidalgo, 1893a*: 62, 88; *Hidalgo, 1893b*: 195; *Azpeitia, 1923*: 73; *Calvo, 1994*: 284.

Type locality. [Brazil] "Rio Janeiro".
Type material. "Rio Janeiro", "Viaje al Pacifico, M[oluscos]", Coll. Paz, MNCN 15.05/7899 (3); "Pacifico 55", Coll. Hidalgo, MNCN 15.05/3204 (1); "Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/3199 (1), syntypes.
Remarks. The name *Bulimus gummatus* was introduced by Hidalgo in his catalogue (*Hidalgo, 1870*), based on material from Paz, with reference to *Bulimus cantagallanus* Pfeiffer, 1859 not *Rang, 1831*. Hidalgo gave a lengthy discussion about the differences in

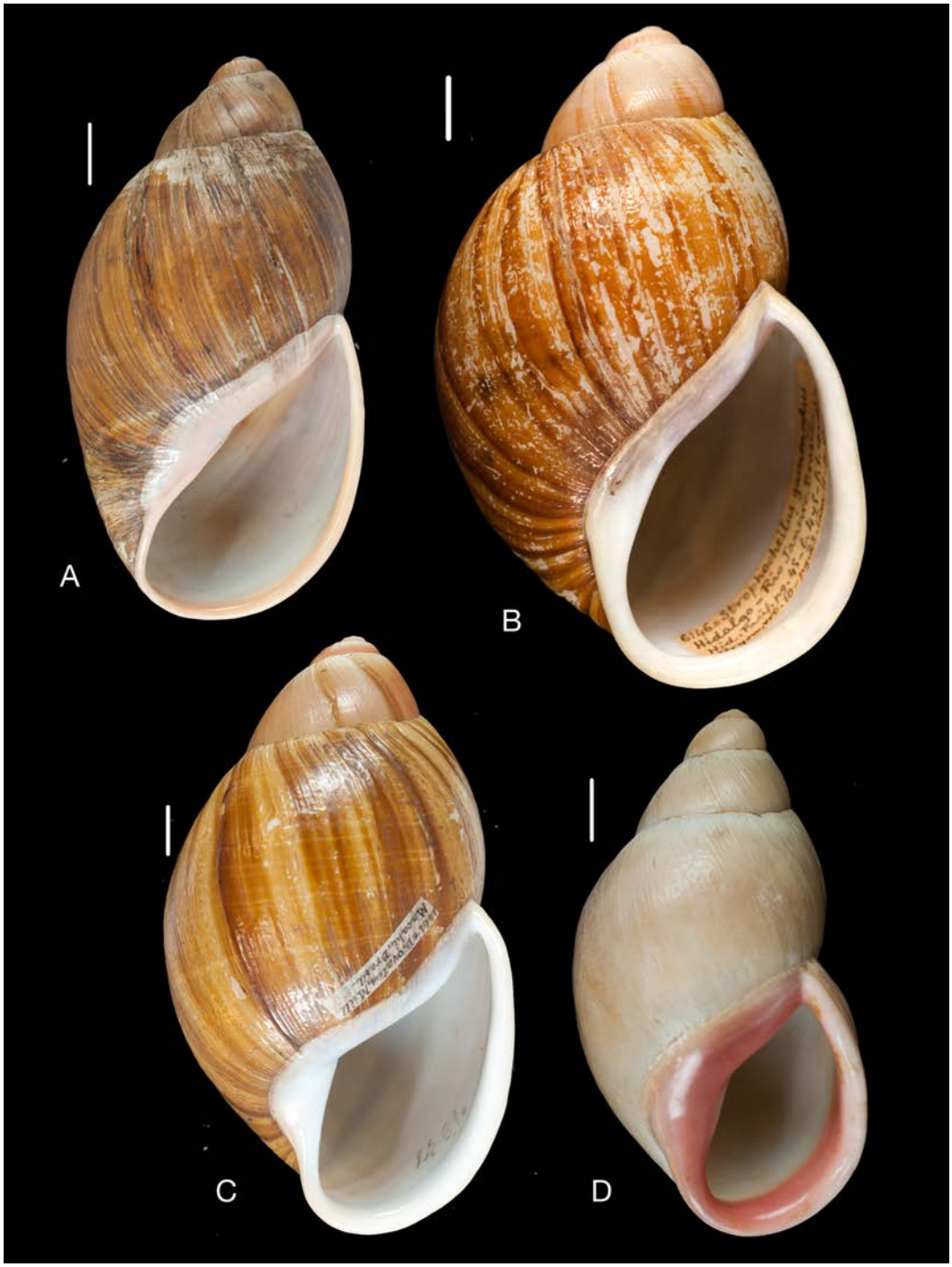

Figure 38 Material collected by the CCP. (A–D) Strophocheilidae. *Megalobulimus granulosus* (*Rang, 1831*), MNCN 15.05/13294, (A) ventral view; *Megalobulimus gummatus* (*Hidalgo, 1870*), MNCN 15.05/3199, (B) ventral view; *Megalobulimus ovatus* (*Müller, 1774*), MNCN 15.05/7336, (C) ventral view; *Megalobulimus oblongus* (*Müller, 1774*), MNCN 15.05/36948, (D) ventral view. Scale line 1 cm.

the descriptions of the two authors. The taxon was considered a subspecies of *Strophocheilus terrestris* Spix in *Wagner, 1827* by *Bequaert* (*1948*: 115), but treated a distinct species by *Simone* (*2006*: 211); however, the latter author gave an erroneous year of publication.

***Megalobulimus oblongus* (*Müller, 1774*)** [177]
(Fig. 38D)

Helix oblonga Müller, 1774: 86.
Bulimus oblongus; *Hidalgo, 1870*: 43; *Hidalgo, 1872*: 52; *Hidalgo, 1893a*: 89; *Hidalgo, 1893b*: 196.

Type locality. Not given.
Type material. Not located.
Material examined. "Uruguay", "Pacifico 57", Coll. Hidalgo ex Martínez leg., MNCN 15.05/36948 (5); "Brasil", "(Cat. Am. mer. no. 57)", Coll. Paz, MNCN 15.05/13292 (1), MNCN 15.05/13297 (2).
Remarks. *Hidalgo* (*1870*, *1872*, *1893a*) reported the material from "Uruguay (Martinez)"; it is unclear why the material of Paz (with the correct catalogue number) was not mentioned by Hidalgo.

***Megalobulimus ovatus* (*Müller, 1774*)** [178]
(Fig. 38C)

Helix ovata Müller, 1774: 85.
Bulimus ovatus; *Hidalgo, 1870*: 40; *Hidalgo, 1872*: 47; *Hidalgo, 1893a*: 88; *Hidalgo, 1893b*: 194.

Type locality. "in India orientali [*sic*]".
Type material. Not located.
Material examined. "Macahé (Brazil)", "Viaje al Pacifico", Coll. Paz, MNCN 15.05/36943 (2); "Macahé, Brasil", Coll. Azpeitia, MNCN 15.05/7336 (2); "Viaje al Pacifico", Coll. Graells, MNCN 15.05/7900 (5).
Remarks. This material was mentioned by *Hidalgo (1870)* from "Macahé, Brésil (Paz et Martinez)".

***Megalobulimus popelairianus* (*Nyst, 1845*)** [179]
(Fig. 39A)

Bulimus popelairianus Nyst, 1845: 151, pl. 3 fig. 5; *Hidalgo, 1870*: 40; *Hidalgo, 1872*: 46; *Hidalgo, 1893a*: 88.

Type locality. "South America".
Type material. RBINS MT.2890, syntype.
Material examined. "Pacifico 53", Coll. Hidalgo, MNCN 15.05/36952 (1); "Napo, Ecuador", Coll. Azpeitia, MNCN 15.05/48045 (3).
Remarks. *Hidalgo (1870)* gave as localities "Quito (Isern), Bodega (Paz), Napo (Martínez)"; the second locality was not mentioned in *Hidalgo (1872)*. The shell from lot MNCN 15.05/36952 is only tentatively referred to this species, as it is relatively slender.

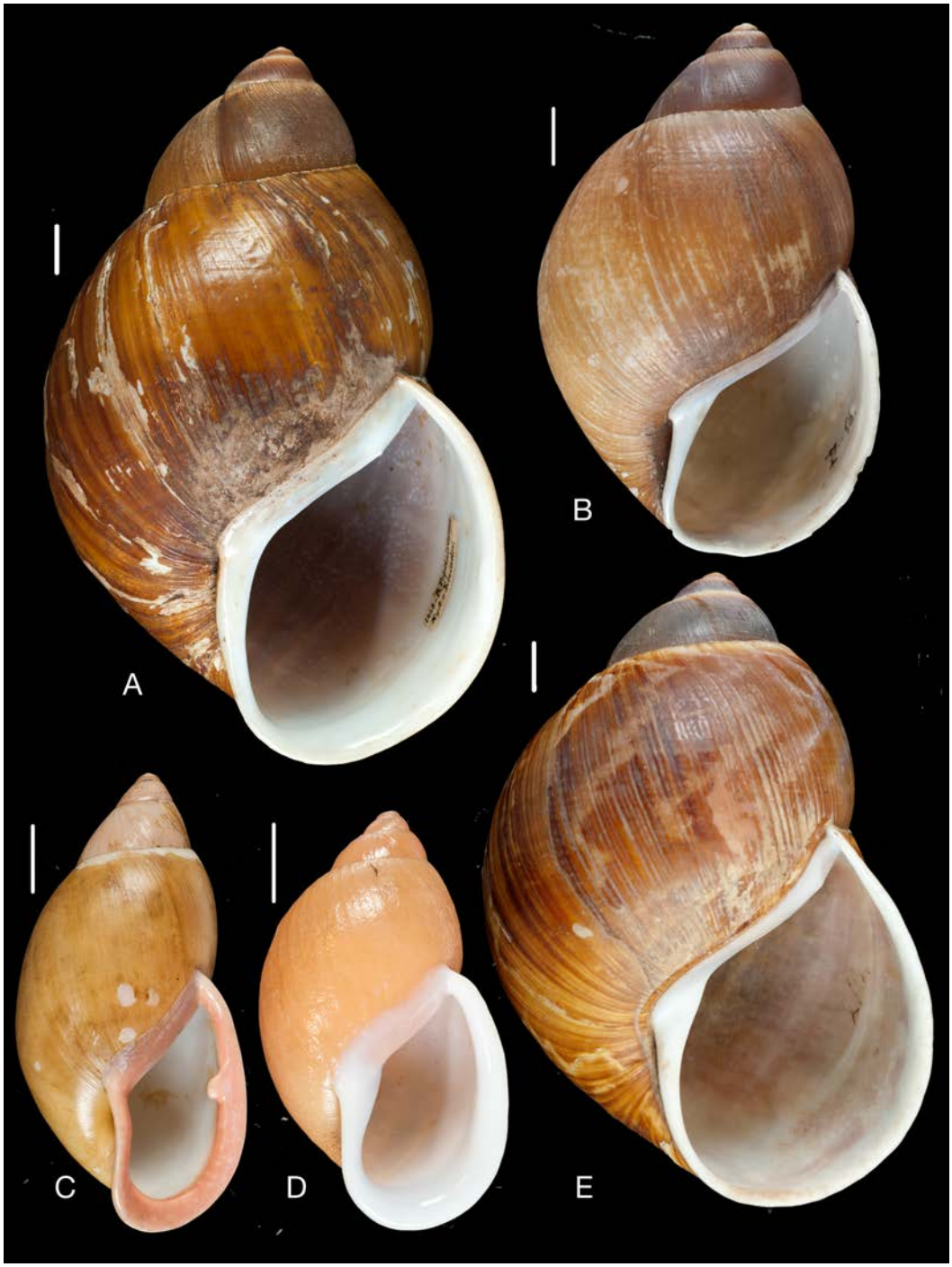

Figure 39 Material collected by the CCP. (A–E) Strophocheilidae. *Megalobulimus popelairianus* (*Nyst, 1845*), MNCN 15.05/48045, (A) ventral view; *Megalobulimus terrestris* (Spix in *Wagner, 1827*), MNCN 15.05/36940, (B) ventral view; *Mirinaba planidens* (*Michelin, 1831*), MNCN 15.05/13284, (C) ventral view; *Strophocheilus pudicus* (*Müller, 1774*), MNCN 15.05/13283, (D) ventral view; *Megalobulimus valenciennesii* (*Pfeiffer, 1842*), MNCN 15.05/7487, (E) ventral view. Scale line 1 cm.

Megalobulimus terrestris (**Spix in *Wagner, 1827***) [180]
(Fig. 39B)

Bulimus terrestris Spix in *Wagner, 1827*: pl. 6 fig. 1.
Bulimus cantagallanus Rang; *Hidalgo, 1870*: 43; *Hidalgo, 1872*; 50; *Hidalgo, 1893a*: 89.

Type locality. [Brazil] "Provinciae Bahiensis".
Type material. ZSM.
Material examined. "Brazil", Coll. Paz "(Cat. Am. mer. nº. 56)", MNCN 15.05/13295 (1); Coll. Hidalgo "Pacifico 56", MNCN 15.05/36940 (2).
Remarks. The name used by Hidalgo is considered a junior subjective synonym by *Bequaert* (*1948*: 108). The material was recorded by *Hidalgo (1870)* from "Rio Janeiro (Paz)".

Megalobulimus valenciennesii (***Pfeiffer, 1842***) [181]
(Fig. 39D)

Bulimus valenciennesii Pfeiffer, 1842: 52; *Hidalgo, 1893a*: 122.

Type locality. "Brasil int[erior].".
Type material. Not located.
Material examined. "Brasil", Coll. Paz, MNCN 15.05/7487 (1).
Remarks. This material was mentioned by *Hidalgo (1893a)* from "República del Brasil (Paz)".

Genus *Mirinaba* *Morretes, 1952*

Strophocheilus (*Mirinaba*) *Morretes, 1952*: 111.
Type species. *Strophocheilus erythrostoma* Pilsbry, 1895, by original designation.

Mirinaba planidens (***Michelin, 1831***) [182]
(Fig. 39C)

Bulimus planidens Michelin, 1831: pl. 25; *Hidalgo, 1870*: 46; *Hidalgo, 1893a*: 93.

Type locality. "Brazil".
Type material. MNHN ?
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 76)", Coll. Paz, MNCN 15.05/13284 (2); "Rio Janeiro (Brasil)", Coll. Hidalgo ex Paz leg., MNCN 15.05/36827 (2); "Corcovado, Rio Janeiro, Brasil", Coll. Azpeitia, MNCN 15.05/7339 (2).
Remarks. See *Bequaert* (*1948*: 40) for a discussion on the dates of publication of this species. This material was mentioned by *Hidalgo (1870)* from "Corcobado, à Rio Janeiro (Paz)".

Genus *Speironepion* *Bequaert, 1948*

Strophocheilus (*Speironepion*) *Bequaert, 1948*: 26.

Type species. *Bulinus milleri* Sowerby, 1838, by original designation.

***Speironepion milleri* (Sowerby I in Sowerby I & II, 1838)** [183]
(Fig. 37F)

Bulinus milleri Sowerby I in Sowerby I & II, 1838 [1832–1838]: fig. 94.
Bulimus milleri; *Hidalgo, 1893a*: 124.

Type locality. Not given.
Type material. Not located.
Material examined. "Brasil", Coll. Paz, MNCN 15.05/13298 (2).

Genus *Strophocheilus* Spix in *Wagner, 1827*

Strophocheilus Spix in *Wagner, 1827*: pl. 11.

Type species. *Strophocheilus almeida* Spix in *Wagner, 1827*, by subsequent designation (*Nevill, 1878*: 122).

***Strophocheilus pudicus* (*Müller, 1774*)** [184]
(Fig. 39D)

Helix pudica Müller, 1774: 97.
Bulimus almeida Spix; *Hidalgo, 1893a*: 124.

Type locality. Not given.
Type material. Not located.
Material examined. "Brasil", Coll. Paz, MNCN 15.05/13283 (2); "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/7179 (2).
Remarks. *Hidalgo (1893a)* published as locality "Bahia, en el Brasil (Paz)".

Family Scolodontidae H.B. Baker, 1928

Genus *Happia Bourguignat, 1889*

Happia Bourguignat, 1889: 39. Nom. nov. for *Ammonoceras Pfeiffer, 1856* not *Lamarck, 1822*.

Type species. *Helix vitrina Wagner, 1827*, by subsequent designation (*Gude, 1902*: 233).

***Happia* cf. *cuzcana* (*Philippi, 1869*)** [185]
(Figs. 40A–40C)

Helix cuzcana Philippi, 1869: 37.
Helix baezensis Hidalgo, 1869c: 411; *Hidalgo, 1870*: 38, pl. 6 fig. 2; *Hidalgo, 1872*: 26, 152; *Hidalgo, 1875*: 127; *Hidalgo, 1893a*: 86; *Hidalgo, 1893b*: 281; *Azpeitia, 1923*: 85; *Calvo, 1994*: 284.

Type locality. [Peru] "valle Setae Crucis, dept. del Cuzco".
Type material. Not located.
Additional type material examined. "Baeza", "(Cat. Am. mer. no. 45)", Coll. Paz, MNCN 15.05/3304 (2); Coll. Hidalgo, MNCN 15.05/3177 (1), syntypes of *Helix baezensis* Hidalgo.

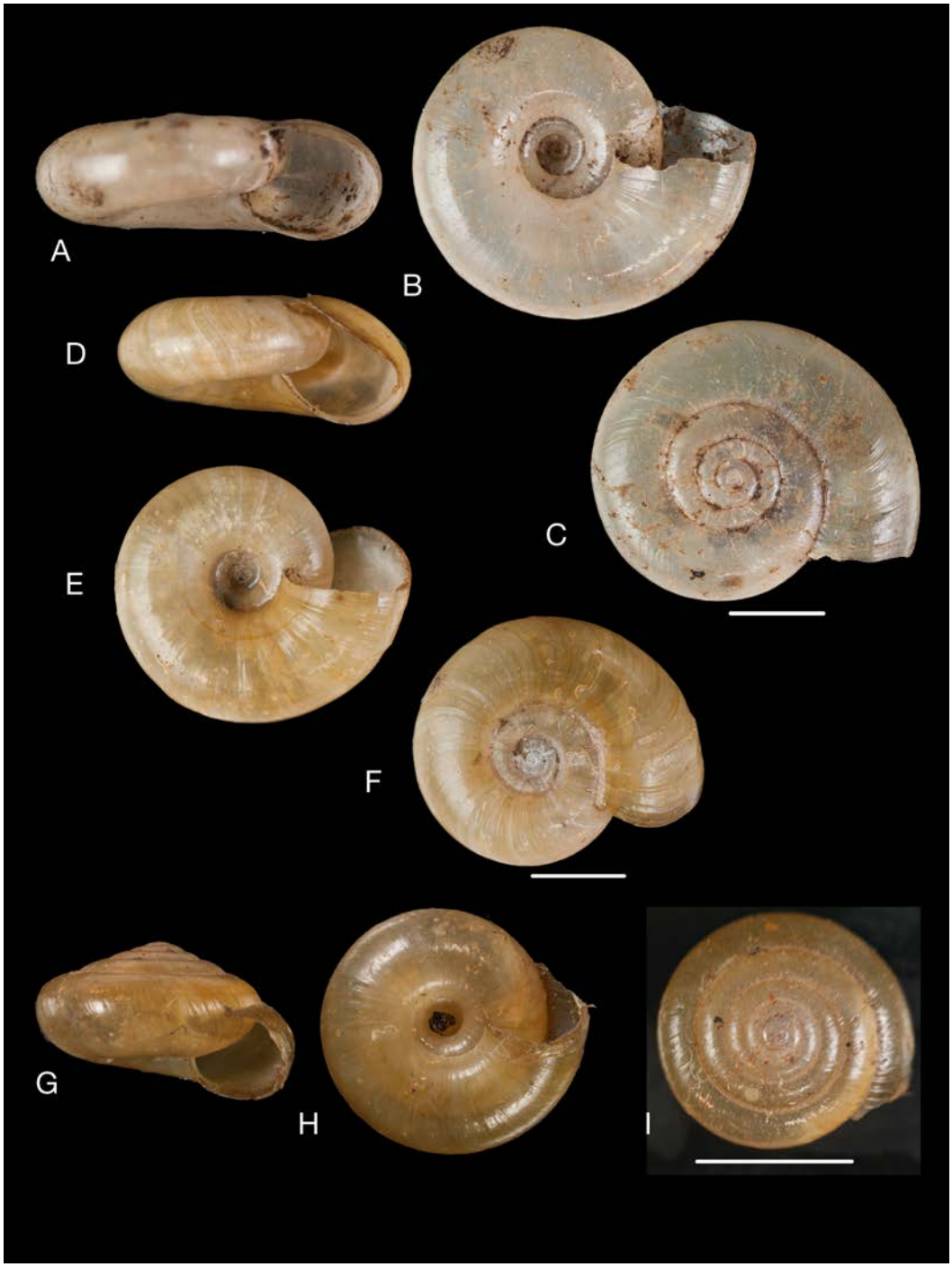

Figure 40 Material collected by the CCP. (A–I) Scolodontidae. *Happia* cf. *cuzcana* (*Philippi, 1869*), MNCN 15.05/3304, (A) ventral view, (B) umbilical view, (C) apical view; *Happia vitrina* (*Wagner, 1827*), MNCN 15.05/12959, (D) ventral view, (E) umbilical view, (F) apical view; *Prohappia besckei* (*Dunker, 1847*), MNCN 15.05/12578, (G) ventral view, (H) umbilical view, (I) apical view. Scale line 5 mm.

Remarks. Both taxa from Philippi and Hidalgo have been synonymised in literature (e.g., *Cousin, 1887*), but we prefer to do this only tentatively given the great geographical distance between the type localities and the lack of in-depth studies for this group.

Happia vitrina (***Wagner, 1827***) [186]
(Figs. 40D–40F)

Helix vitrina *Wagner, 1827*: 25; *Hidalgo, 1870*: 36; *Hidalgo, 1893a*: 84.

Type locality. "Provinciis australioribus Brasiliae".
Type material. Not located.
Material examined. "Rio Janeiro", "(Cat. Am. mer. no. 34)", Coll. Paz, MNCN 15.05/12959 (3); Coll. Hidalgo, MNCN 15.05/39934 (1).

Genus *Prohappia Thiele, 1927*

Happia (*Prohappia*) *Thiele, 1927*: 313.

Type species. *Helix besckei* *Dunker, 1847*, by original designation.

Prohappia besckei (***Dunker, 1847***) [187]
(Figs. 40G–40I)

Helix besckei *Dunker, 1847*: 81; *Hidalgo, 1870*: 37; *Hidalgo, 1893a*: 85.

Type locality. "Brasilia".
Type material. Not located.
Material examined. "Rio Janeiro", Coll. Paz, MNCN 15.05/12578 (2); "Rio Janeiro", Coll. Hidalgo ex Martínez y Saez leg., MNCN 15.05/39950 (1); Coll. Hidalgo ex "Martínez y Paz", MNCN 15.05/39928 (1).

Family Charopidae Hutton, 1884

Genus *Lilloiconcha Weyrauch, 1965*

Lilloiconcha *Weyrauch, 1965*: 127.

Type species. *Austrodiscus superbus tucumanus* Hylton Scott, 1963, by original designation.

Lilloiconcha pazi (***Philippi, 1866***) [188]
(Figs. 41A–41C)

Helix pazi; *Philippi, 1866*: 39; *Hidalgo, 1870*: 39; *Hidalgo, 1872*: 44, pl. 2 figs. 10–11; *Hidalgo, 1875*: 127; *Hidalgo, 1893a*: 85; *Hidalgo, 1893b*: 145.

Type locality. [Chile] "Prope Valparaiso".
Type material. Not located.
Material examined. "Valparaiso", Coll. Hidalgo ex Paz leg., MNCN 15.05/76220 (88).
Remarks. The material which Philippi used for his description was collected by the CCP, and likely presented to him during their meeting on the 18th May 1863 in Santiago de Chile (*Blanco, Rodríguez & Rodríguez, 2006*: 112–113).

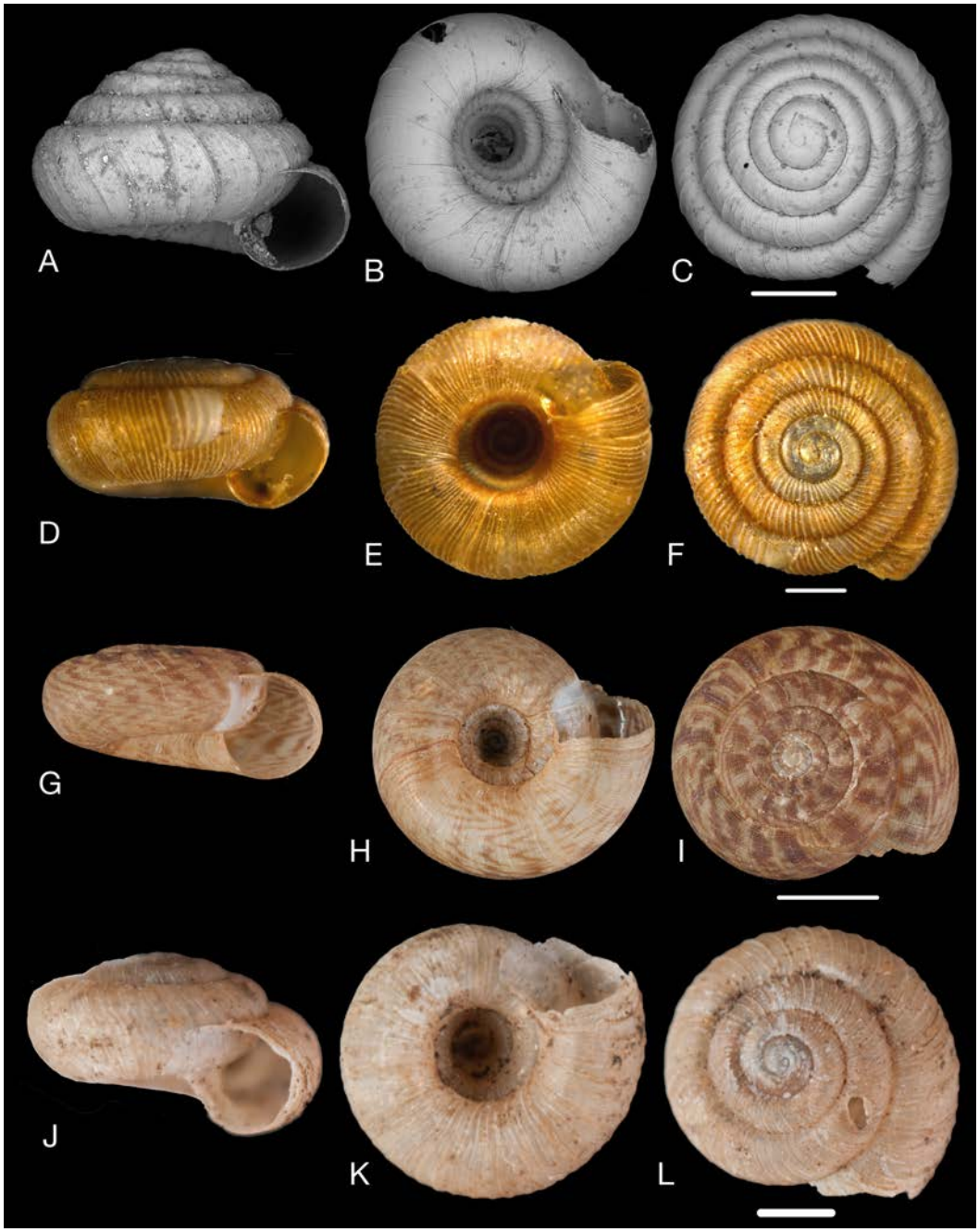

Figure 41 **Material collected by the CCP.** (A–L) Charopidae. *Lilloiconcha pazi* (*Philippi, 1866*), MNCN 15.05/76220, (A) ventral view, (B) umbilical view, (C) apical view; *Ptychodon amancaezensis* (*Hidalgo, 1869*), MNCN 15.05/3173, (D) ventral view, (E) umbilical view, (F) apical view; *Stephanoda binneyana* (Pfeiffer, 1847), MNCN 15.05/12956, (G) ventral view, (H) umbilical view, (I) apical view; *Zilchogyra costellata* (*d'Orbigny, 1835*), MNCN 15.05/76209, (J) ventral view, (K) umbilical view, (L) apical view. Scale line 500 μm (D–F), 1 mm (A–C), 5 mm (G–L).

Etymology. Named after Patricio Paz y Membiela.

Genus *Ptychodon* *Ancey, 1888*

Ptychodon *Ancey, 1888*: 372.

Type species. *Strobila leiodus* Hutton, 1883, by original designation.

***Ptychodon amancaezensis* (*Hidalgo, 1869*)** [189]
(Figs. 41D–41F)

Helix amacaezensis *Hidalgo, 1869*: 411; *Hidalgo, 1870*: 38, pl. 6 fig. 3; *Hidalgo, 1893a*: 55, 86; *Azpeitia, 1923*: 80; *Calvo, 1994*: 284.

Type locality. "Amancaez, in vicinio urbis Lima dictae, reipublicae Peruvianae".
Type material. "Amancaez", Coll. Paz "(Cat. Am. mer. no. 44)", MNCN 15.05/3173 (62), syntypes.

Stephanoda* Martens in *Albers, 1860

Helix (*Stephanoda*) Martens in *Albers, 1860*: 88.

Type species. *Helix dissimilis* *d'Orbigny, 1837*, by original designation.

***Stephanoda binneyana* (Pfeiffer, 1847)** [190]
(Figs. 41G–41I)

Helix binneyana *Pfeiffer, 1847b*: 13; *Hidalgo, 1870*: 34; *Hidalgo, 1872*: 24; *Hidalgo, 1893a*: 85; *Hidalgo, 1893b*: 148.

Type locality. [Chile] "insula Chiloe".
Type material. Not located.
Material examined. "Valdivia", Coll. Paz "(Cat. Am. mer. no. 37)", MNCN 15.05/12956 (4); [Coll. Hidalgo,] MNCN 15.05/76234 (1).
Remarks. Lot 76234 only has a species label, but is written in Hidalgo's hand.

Genus *Zilchogyra* *Weyrauch, 1965*

Zilchogyra *Weyrauch, 1965*: 122.

Type species. *Helix costellata* *d'Orbigny, 1835*, by original designation.

***Zilchogyra costellata* (*d'Orbigny, 1835*)** [191]
(Figs. 41J–41L)

Helix costellata *d'Orbigny, 1835*: 5; *Hidalgo, 1870*: 37; *Hidalgo, 1872*: 31; *Hidalgo, 1893a*: 85; *Hidalgo, 1893b*: 146.

Type locality. "Montevideo (republica Paraguayensi orientali)".
Type material. NHMUK 1854.12.4.69 (2), syntypes.
Material examined. "Sta. Lucia (Montevideo)", Coll. Hidalgo ex Paz leg., MNCN 15.05/76209 (13).

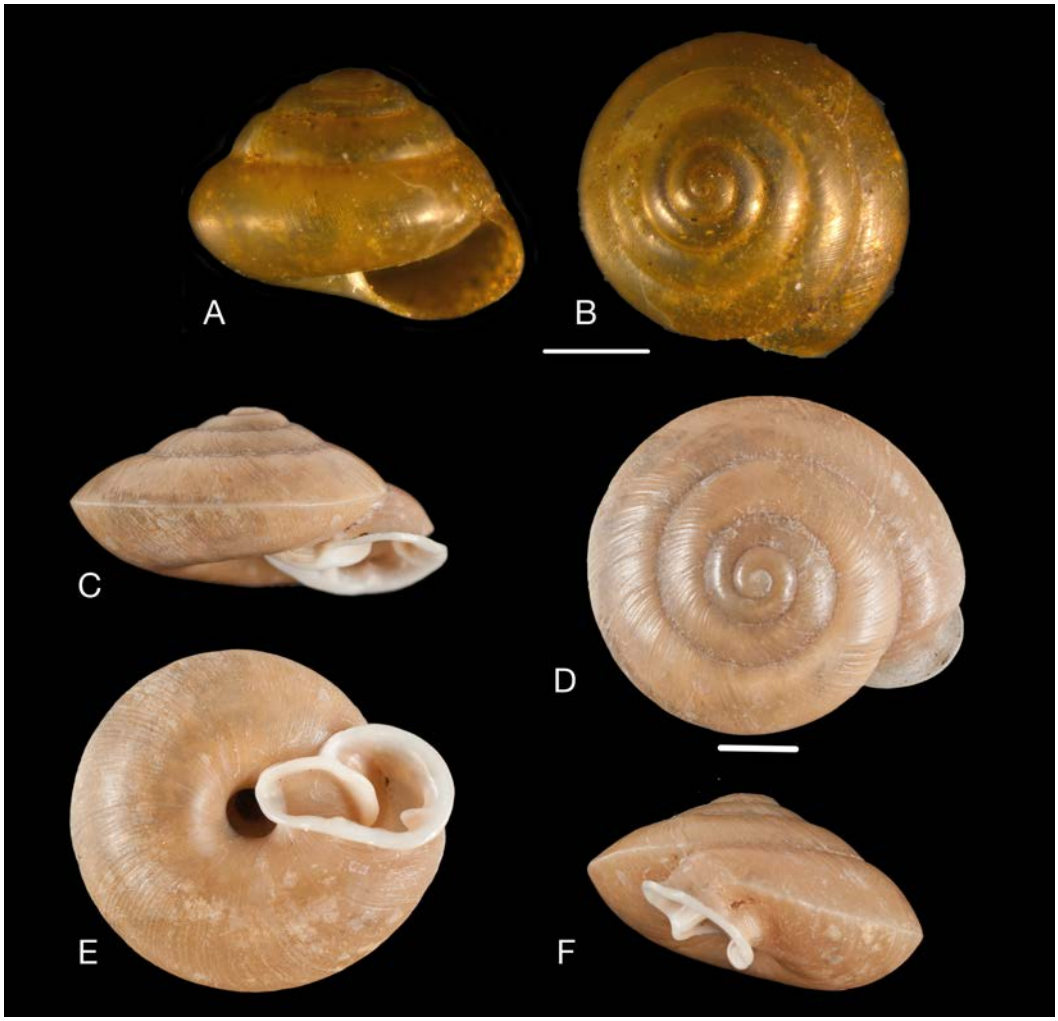

Figure 42 Material collected by the CCP. (A–B) Euconulidae. *Euconulus martinezi* (*Hidalgo, 1869*), MNCN 15.05/3190, (A) ventral view, (B) apical view. (C–F) Pleurodontidae. *Labyrinthus manueli Higgins, 1872*, MNCN 15.05/13803, (C) ventral view, (D) apical view, (E) umbilical view, (F) lateral view (lip). Scale line 1 mm (A–B), 5 mm (C–F).

Family Euconulidae H.B. Baker, 1928

***Euconulus martinezi* (*Hidalgo, 1869*)** [192]
(Figs. 42A–42B)

Helix martinezi *Hidalgo, 1869*: 411; *Hidalgo, 1870*: 38, pl. 6 fig. 4; *Hidalgo, 1872*: 23, pl. 2 figs. 12–13; *Hidalgo, 1893a*: 54, 86; *Hidalgo, 1893b*: 144; *Azpeitia, 1923*: 89; *Calvo, 1994*: 284.

Type locality. "Bahia, imperii Brasiliani".
Type material. "Bahia", "(Cat. Am. mer. no. 43)", Coll. Hidalgo ex Paz leg., MNCN 15.05/3188 (86); "Bahia", Coll. Hidalgo ex Paz leg., MNCN 15.05/3189 (35); "Bahia", Coll. Hidalgo ex Martínez leg., MNCN 15.05/3190 (38), syntypes.

Additional material examined. "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/3300 (6); "Brasil? (Ej. Paz)", Coll. Azpeitia, MNCN 15.05/2299 (8), Coll. Hidalgo, MNCN 15.05/3202 (16).
Etymology. Named after Francisco de Paula Martinez y Sáez.

Family Pleurodontidae Ihering, 1912

Genus *Labyrinthus Beck, 1837*

Helix (*Labyrinthus*) *Beck, 1837*: 33.

Type species. *Helix otis Lightfoot, 1786*, by subsequent designation (*Gray, 1847*: 173).

Labyrinthus manueli Higgins, 1872 [193]
(Figs. 42C–42F)

Helix quadridentata Broderip; *Hidalgo, 1870*: 33; *Hidalgo, 1872*: 16, pl. 1 figs. 8–9; *Hidalgo, 1893a*: 81. Not *Caracolla quadridentata* Broderip, 1832.
Labyrinthus manueli Higgins, 1872: 686, pl. 56 fig. 5a.
Helix manueli; *Hidalgo, 1893b*: 182.

Type locality. "Macas, Ecuador".
Type material. NMW 1955.158.01192 (1), syntype.
Material examined. "Ecuador", "(Cat. Am. 21)", Coll. Paz, MNCN 15.05/13803 (2); "Napo (Ecuador)", Coll. Hidalgo ex Martínez leg., "individuo figurado", MNCN 15.05/58498; "Napo, Ecuador", Coll. Azpeitia, MNCN 15.05/58499 (2); "21. Pacifico", Coll. Graells, MNCN 15.05/58500 (1).
Remarks. *Hidalgo (1870)* mentioned "Napo, République de l'Équateur (Martínez)". His label appears to have been written after 1872, as he gave the correct species name ("Helix Manueli Higgins / (quadridentata Brod.)").

***Labyrinthis raimondii* (*Philippi, 1867*)** [194]
(Figs. 43A–43D)

Helix raimondii Philippi, 1867: 65; *Hidalgo, 1870*: 33; *Hidalgo, 1872*: 17, pl. 2 figs. 4–5; *Hidalgo, 1893a*: 81; *Hidalgo, 1893b*: 180.

Type locality. "provincia Loreto inter S[anta]. Catalina et Yanayaco".
Type material. Not located.
Material examined. "Napo (Ecuador)", Coll. Hidalgo, MNCN 15.05/58495 (5); "Napo, Ecuador", Coll. Azpeitia, MNCN 15.05/58493 (2); "Ecuador", "(Cat. Am. mer. no. 20)", Coll. Paz, MNCN 15.05/14081 (2), MNCN 15.05/14116 (1); "Ecuador", Coll. Graells, MNCN 15.05/58494 (1).
Remarks. *Hidalgo (1870)* mentioned "Napo, République de l'Équateur (Martínez)", and stated he found the shells nearly the same as *Helix taratoponensis* Moricand. The figured specimen corresponds to Hidalgo (*1872*: pl. 2 figs. 4–5).

***Labyrinthus otis otis* (*Lightfoot, 1786*)** [195]
(Figs. 43E–43H)

Figure 43 Material collected by the CCP. (A–H) Pleurodontidae. *Labyrinthis raimondii* (*Philippi, 1867*), MNCN 15.05/58495, (A) ventral view, (B) apical view, (C) umbilical view, (D) lateral view (lip); *Labyrinthus otis otis* (*Lightfoot, 1786*), MNCN 15.05/13957, (E) ventral view, (F) apical view, (G) umbilical view, (H) lateral view (lip). Scale line 5 mm.

Helix otis Lightfoot, 1786: 38, 53.
Helix labyrinthus Chemnitz; Hidalgo, 1870: 33; Hidalgo, 1893a: 81.

Type locality. Not given.
Type material. Not located.
Material examined. "Panama", "(Cat. Am. mer. no. 18)", Coll. Paz, MNCN 15.05/13957 (1); "Panamá", Coll. Hidalgo, MNCN 15.05/58515 (1).
Remarks. The material was likely collected by Martinez (Calatayud, 1994: 259).

Labyrinthus plicatus (***Born, 1780***) [196]
(Figs. 44A–44D)

Helix plicata Born, 1780: 368; *Helix plicatus*; Hidalgo, 1870: 33; Hidalgo, 1893a: 81.

Type locality. "East Indies" [sic, see Solem, 1966: 122]
Type material. Not located.
Material examined. "Panamá", "(Cat. Am. mer. no. 19)", Coll. Paz, MNCN 15.05/14208 (2); "Panama", Coll. Azpeitia, MNCN 15.05/58497 (1); "Pacifico 19", Coll. Grealls, MNCN 15.05/58496 (3).
Remarks. The material was likely collected by Martinez (Calatayud, 1994: 259).

Genus *Isomeria* *Albers, 1850*

Helix (*Isomeria*) Albers, 1850: 126.

Type species. *Helix oreas* Koch, 1844, by monotypy.

Isomeria aequatoriana (***Hidalgo, 1867***) [197]
(Figs. 44E–44G)

Helix aequatoriana Hidalgo, 1867b: 307, pl. 8 fig. 2; Hidalgo, 1870: 31; Hidalgo, 1893a: 45, 79; Azpeitia, 1923: 84; Calvo, 1994: 284.

Type locality. "Republica Aequatoris".
Type material. "(Cat. Am. mer. no. 8)", Coll. Paz, MNCN 15.05/3170 (1), MNCN 15.05/3171 (1), syntypes.
Additional material examined. "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/3172 (2).
Remarks. Hidalgo had the largest syntype sent to Paris for illustration and marked it "tipo".

Isomeria bituberculata (***Pfeiffer, 1853***) [198]
(Figs. 45A–45C)

Helix bituberculata Pfeiffer, 1853: 242; Hidalgo, 1870: 32; Hidalgo, 1872: 14; Hidalgo, 1893a: 80; Hidalgo, 1893b: 176.

Type locality. [Ecuador] "prope Tunguragua reipublicae Aequatoris".
Type material. NHMUK 20160369 (3), syntypes.
Material examined. "Quito", Coll. Hidalgo ex Martínez leg., MNCN 15.05/58505 (2); "Quito", "(Cat. Am. mer. no. 14)", Coll. Paz MNCN 15.05/13582 (2); "Quito", Coll.

Figure 44 Material collected by the CCP. (A–G) Pleurodontidae. *Labyrinthis plicatus* (*Born, 1780*), MNCN 15.05/14208, (A) ventral view, (B) apical view, (C) umbilical view, (D) lateral view (lip); *Isomeria aequatoriana* (*Hidalgo, 1867*), MNCN 15.05/3170, (E) ventral view, (F) apical view, (G) umbilical view. Scale line 5 mm (A–D), 1 cm (E–G).

Figure 45 **Material collected by the CCP.** (A–I) Pleurodontidae. *Isomeria bituberculata* (*Pfeiffer, 1853*), MNCN 15.05/58506, (A) ventral view, (B) umbilical view, (C) apical view; *Isomeria bourcieri* (*Pfeiffer, 1853*), MNCN 15.05/58504, (D) lateral view (lip), (E) umbilical view, (F) apical view; *Isomeria cymatodes* (*Pfeiffer, 1852*), MNCN 15.05/58506, (G) ventral view, (H) umbilical view, (I) apical view. Scale line 5 mm.

Paz "(Cat. Am. mer. no. 15)", MNCN 15.05/14022 (3); "Quito, Ecuador", Coll. Azpeitia, MNCN 15.05/58508 (2); "P-14", Coll. Graells, MNCN 15.05/58506 (1); "Ecuador", Coll. Hidalgo, MNCN 15.05/58507 (1).

Isomeria bourcieri **(*Pfeiffer, 1853*)** [199]
(Figs. 45D–45F)

Helix bourcieri *Pfeiffer, 1853*: 209; *Hidalgo, 1870*: 32; *Hidalgo, 1872*: 15; *Hidalgo, 1893a*: 80; *Hidalgo, 1893b*: 178.

Type locality. [Ecuador] "Otoralo [sic, Otovalo] reipublicae Aequatoris".
Type material. NHMUK 20160370 (3), syntypes.
Material examined. "Pacifico" "P-15", Coll. Graells, MNCN 15.05/58504 (3); "Nanegal, Ecuador", Coll. Azpeitia, MNCN 15.05/58503 (3).
Remarks. *Hidalgo (1870)* reported the material from "Nanegal"; this locality was not mentioned in the itinerary of the CCP (*Calatayud, 1994*).

Isomeria cymatodes **(*Pfeiffer, 1852*)** [200]
(Figs. 45G–45I)

Helix cymatodes *Pfeiffer, 1852b*: 92; *Hidalgo, 1870*: 31; *Hidalgo, 1872*: 11, pl. 2 figs. 1, 3; *Hidalgo, 1893a*: 79; *Hidalgo, 1893b*: 171.

Type locality. "…?".
Type material. Not located.
Material examined. "Ecuador", "(Cat. Am. mer. no. 9)", Coll. Paz, MNCN 15.05/14128 (2); "Napo (Ecuador)", Coll. Hidalgo ex Martínez leg., MNCN 15.05/58502 (2); "Napo, Ecuador", Coll. Azpeitia, MNCN 15.05/58501 (3).

Isomeria globosa **(Broderip in Broderip & Sowerby I, 1832)** [201]
(Figs. 46A–46C)

Carocolla globosa Broderip in *Broderip & Sowerby I, 1832a*: 30.

Helix subcastanea Pfeiffer; *Hidalgo, 1870*: 32; *Hidalgo, 1872*: 14; *Hidalgo, 1893a*: 80; *Hidalgo, 1893b*: 176.

Type locality. "Insulae Tumaco, Columbiae Occidentalis".
Type material. Not located.
Material examined. "Ecuador", "(Cat. Am. mer. no. 11)", Coll. Paz, MNCN 15.05/14100 (1), MNCN 15.05/14203 (2); "Ecuador", Coll. Hidalgo, MNCN 15.05/58516 (1).
Remarks. As *Solem (1966*: 191) has shown, the replacement name introduced by Pfeiffer and used by Hidalgo, was an unnecessary proposal. *Hidalgo (1870)* reported the material from "Quito".

Isomeria jacksoni ***Solem, 1966*** [202]
(Figs. 46D–46F)

Figure 46 Material collected by the CCP. (A–I) Pleurodontidae. *Isomeria globosa* (Broderip in Broderip & Sowerby I, 1832), MNCN 15.05/58516, (A) ventral view, (B) umbilical view, (C) apical view; *Isomeria jacksoni* Solem, 1966, MNCN 15.05/58512, (D) lateral view (lip), (E) umbilical view, (F) apical view; *Isomeria juno* (Pfeiffer, 1850), MNCN 15.05/13984, (G) ventral view, (H) umbilical view, (I) apical view. Scale line 5 mm.

Helix atrata Pfeiffer; *Hidalgo, 1870*: 31; *Hidalgo, 1872*: 12; *Hidalgo, 1893a*: 79; *Hidalgo, 1893b*: 173.
Isomeria jacksoni *Solem, 1966*: 178. New name for *Helix atrata* *Pfeiffer, 1854* not Reeve, 1852.

Type locality. "Puntophaya, reipublicae Aequatoris" (*Pfeiffer, 1854*: 153).
Type material. NHMUK 200160372 (3), syntypes.
Material examined. "Ecuador", Coll. Paz, MNCN 15.05/14127 (1); "Napo (Ecuador)", Coll. Hidalgo ex Martínez y Saez leg., MNCN 15.05/58512 (4); "Pacifico", Coll. Graells, MNCN 15.05/58511 (1).
Remarks. *Hidalgo (1870)* mentioned material from "Macas et Napo, République de l'Équateur (Martínez)"; the specimens from Macas have not been located.

***Isomeria juno* (*Pfeiffer, 1850*)** [203]
(Figs. 46G–46I)

Helix juno *Pfeiffer, 1850*: 66; *Hidalgo, 1870*: 32; *Hidalgo, 1872*: 13, pl. 1 figs. 6–7; *Hidalgo, 1893a*: 80; *Hidalgo, 1893b*: 175.

Type locality. "Andibus Columbiae".
Type material. Not located.
Material examined. "Quito", Coll. Hidalgo, MNCN 15.05/58483 (2); "Baeza, Ecuador", "(Cat. Am. mer. no. 13)", Coll. Paz, MNCN 15.05/13982 (2), MNCN 15.05/13984 (2), MNCN 15.05/13990 (2); "Baeza (Ecuador)", "Pacifico 13", Coll. Hidalgo ex Martínez leg., MNCN 15.05/58481 (27); "Baeza, Ecuador", Coll. Azpeitia, MNCN 15.05/58486 (20); "Ecuador", Coll. Graells, MNCN 15.05/58484 (3).

***Isomeria morula* (*Hidalgo, 1870*)** [204]
(Figs. 47A–47C)

Helix martinii *Bernardi, 1858*: 93, pl. 1 fig. 3. Not *Pfeiffer, 1854*.
Helix morula *Hidalgo, 1870*: 32 (new name for *Helix martinii* Bernardi not Pfeiffer); *Hidalgo, 1893a*: 80.

Type locality. "Quito, République de l'Équateur".
Type material examined. "Ecuador", "(Cat. Am. mer. no. 12)", Coll. Paz, MNCN 15.05/60012, lectotype (*Borrero & Araujo, 2012*: 146).
Remarks. Bernardi based himself on material from Paz; *Borrero & Araujo (2012)* assumed this specimen was returned to Paz, and they considered it as type material.

Genus *Polygyratia* *Gray, 1847*

Polygyratia *Gray, 1847*: 173.

Type species. *Helix polygyrata* *Born, 1778*, by monotypy.

***Polygyratia polygyrata* (*Born, 1778*)** [205]
(Figs. 47D–47F)

Figure 47 Material collected by the CCP. (A–L) Pleurodontidae. *Isomeria morula* (*Hidalgo, 1870*), MNCN 15.05/60012, (A) ventral view, (B) umbilical view, (C) apical view; *Polygyratia polygyrata* (*Born, 1778*), MNCN 15.05/14101, (D) lateral view (lip), (E) umbilical view, (F) apical view; *Polygyratia heligmoida* (*d'Orbigny, 1835*), MNCN 15.05/76238, (G) ventral view, (H) umbilical view, (I) apical view; *Polygyratia reyrei* (*Souverbie, 1858*), MNCN 15.05/76235, (J) ventral view, (K) umbilical view, (L) apical view. Scale line 1 mm (J–L), 5 mm (A–I).

Helix polygyrata Born, 1778: 382; Hidalgo, 1870: 32; Hidalgo, 1893a: 80.

Type locality. Not given.
Type material. Not located.
Material examined. "Brasil", "(Cat. Am. mer. no. 16)", Coll. Paz MNCN 15.05/14101 (1); "Pacifico 16", Coll. Hidalgo, MNCN 15.05/39937 (4); "Bahia, Brasil", Coll. Azpeitia, MNCN 15.05/39938 (3).
Remarks. Hidalgo (1870) gave as locality "Bahia, Brésil (Paz)".

***Polygyratia heligmoida* (d'Orbigny, 1835)** [206]
(Figs. 47G–47I)

Helix (*Helicogena*) *heligmoida* d'Orbigny, 1835: 2.
Helix heligmoida; Hidalgo, 1870: 33; Hidalgo, 1872: 25; Hidalgo, 1893a: 81; Hidalgo, 1893b: 151.

Type locality. "provincia Guayaquilensi (republica Colombiana)".
Type material. NHMUK 1854.12.4.106 (3), syntypes.
Material examined. "Guayaquil", Coll. Hidalgo ex Paz, MNCN 15.05/76238 (15).

***Polygyratia reyrei* (Souverbie, 1858)** [207]
(Figs. 47J–47L)

Helix reyrei Souverbie, 1858: 65; Hidalgo, 1870: 36; Hidalgo, 1893a: 84.

Type locality. "Guayaquil (Columbia)".
Type material. Not located.
Material examined. [Guayaquil], Coll. Hidalgo, MNCN 15.05/19733 (12); "Ecuador", Coll. Azpeitia, MNCN 15.05/76235 (12).

Genus *Solaropsis* Beck, 1837

Helix (*Solaropsis*) Beck, 1837: 27.

Type species. *Helix pellis serpentis* Chemnitz, 1795 (=*Helix undata* Lightfoot, 1786), by subsequent designation (Herrmannsen, 1848 [1847–1849]: 468).

***Solaropsis brasiliana* (Deshayes, 1832)** [208]
(Figs. 48A–48C)

Helix brasiliana Deshayes in Férussac & Deshayes, 1832 [1819–1851]: 211; Hidalgo, 1870: 31; Hidalgo, 1893a: 79; Hidalgo, 1893b: 183.

Type locality. "le Brésil".
Type material. Not located.
Material examined. "Brasil", "(Cat. Am. mer. no. 7)", Coll. Paz, MNCN 15.05/14082 (1), MNCN 15.05/14117 (3); "Rio Janeiro", "Pacifico 7" "(comprado)", Coll. Hidalgo ex Paz, MNCN 15.05/39932 (5); "Brasil", Coll. Azpeitia, MNCN 15.05/39939 (2); Coll. Graells, MNCN 15.05/39933 (1).

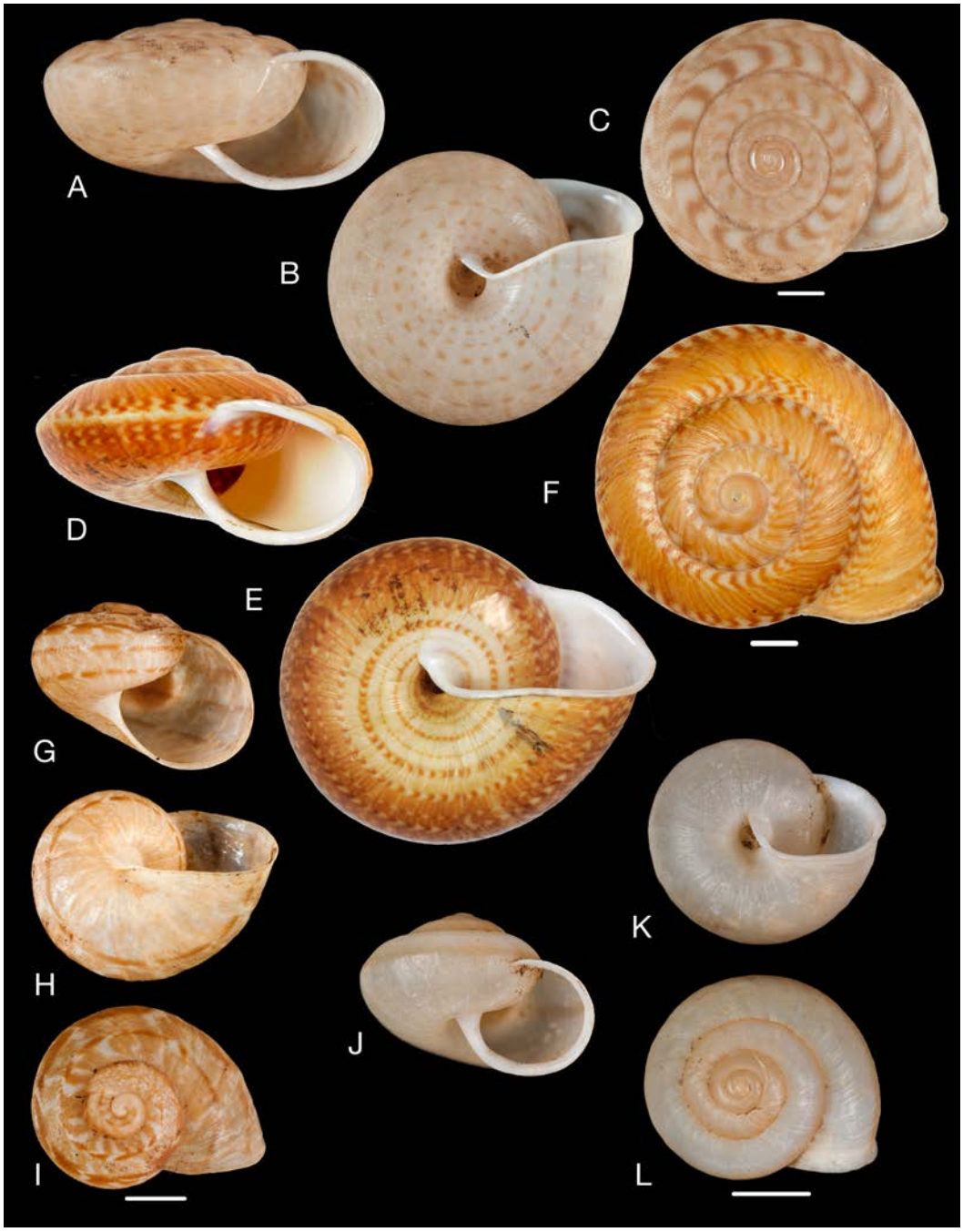

Figure 48 Material collected by the CCP. (A–I) Pleurodontidae. *Solaropsis brasiliana* (Deshayes, 1832), MNCN 15.05/14082, (A) ventral view, (B) umbilical view, (C) apical view; *Solaropsis gibboni* (*Pfeiffer, 1846*), MNCN 15.05/3169, (D) lateral view (lip), (E) umbilical view, (F) apical view; *Psadara quadrivittata* (*Hidalgo, 1869*), MNCN 15.05/3193, (G) ventral view, (H) umbilical view, (I) apical view. (J–L) Bradybaenidae. *Bradybaena similaris* (Férussac in *Rang, 1831*), MNCN 15.05/13124, (J) ventral view, (K) umbilical view, (L) apical view. Scale line 5 mm (A–C, G–L), 1 cm (D–F).

Solaropsis gibboni **(*Pfeiffer, 1846*)** [209]
(Figs. 48D–48F)

Helix gibboni *Pfeiffer, 1846*: 37. New name for *Helix magnifica* *Lea, 1838* not *Férussac, 1821*.
Helix amori *Hidalgo, 1867*: 71, pl. 1 fig. 3; *Hidalgo, 1870*: 30; *Hidalgo, 1872*: 7, pl. 1 figs. 1–3; *Hidalgo, 1893a*: 40, 79; *Azpeitia, 1923*: 85.

Type locality. "New Granada" (*Lea, 1838*: 89).
Type material. USNM 105367, holotype.
Additional type material. (*Helix amori* *Hidalgo, 1867*) "Tena (Ecuador)", Coll. Paz ex Martínez leg., MNCN 15.05/3166 (2), MNCN 15.05/3168 (2), syntypes.
Additional material examined. "Tena, Ecuador", Coll. Azpeitia, MNCN 15.05/3169 (1).
Remarks. *Hidalgo (1867)* described his taxon from "Tena Republican Aequatoris", and mentioned it had been collected by Martinez.
Etymology. Hidalgo named this species after Fernando Amor y Mayor.

Genus *Psadara* *Miller, 1878*

Helix (*Psadara*) *Miller, 1878*: 162.

Type species. *Helix selenostoma* *Pfeiffer, 1852*, by subsequent designation (*Pilsbry, 1926*: 13).

Psadara quadrivittata **(*Hidalgo, 1869*)** [210]
(Figs. 48G–48I)

Helix quadrivittata *Hidalgo, 1869c*: 410; *Hidalgo, 1870*: 34, pl. 6 fig. 1; *Hidalgo, 1872*: 10, pl. 2, figs. 6–7; *Hidalgo, 1893a*: 52, 82; *Hidalgo, 1893b*: 185; *Azpeitia, 1923*: 91.

Type locality. "Baeza, reipublicae Aequatoris".
Type material examined. "Baeza Ecuador", Coll. Hidalgo "(Cat. Am. mer. no. 25)" ex Martínez y Saez leg., MNCN 15.05/3193 (1); "Baeza (Ecuador)", Coll. Hidalgo ex Martínez y Saez leg., MNCN 15.05/3194 (1), syntypes.

Family Bradybaenidae Pilsbry, 1939

Genus *Bradybaena* *Beck, 1837*

Bradybaena *Beck, 1837*: 18.

Type species. *Helix* (*Helicella*) *similaris* *Rang, 1831*, by subsequent designation (*Gray, 1847*: 173).

Bradybaena similaris **(Férussac in *Rang, 1831*)** [211]
(Figs. 48J–48L)

Helix similaris Férussac, 1821 [*1821–1822*]: 43 (nomen nudum); Férussac in *Rang, 1831*: 15.
Helix similaris; *Hidalgo, 1870*: 36; *Hidalgo, 1872*: 20; *Hidalgo, 1893a*: 84; *Hidalgo, 1893b*: 154.

Type locality. "Timor" (*Férussac, 1821*: 43).
Type material. Not located.
Material examined. "Bahia", Coll. Paz "(Cat. Am. mer. no. 23)", MNCN 15.05/12970 (5), MNCN 15.05/13124 (4); "Bahia", Coll. Hidalgo ex "Martinez y Paz", MNCN 15.05/39936 (21); Coll. Hidalgo "P-33", MNCN 15.05/20280 (8); Coll. Hidalgo, MNCN 15.05/39935 (2).
Remarks. This species has invariably been cited as '(Férussac, 1821)', overlooking the fact that the original citation was a nomen nudum. The first description appeared in *Rang (1831)*, who cited Férussac as author.

Material supposed to be present but not located

Despite intensive searching, we have been unable to locate material of the following 34 species listed by Hidalgo (numbers between parenthesis before the species name refer to his catalogue): (185) *Clausilia crossei Hidalgo, 1869* [22], (193) *Cyclophorus hidalgoi Crosse, 1866* [212], (134) *Bulimus cuneus Pfeiffer, 1853* [213], (231) *B. elegans Pfeiffer, 1842* [214], (210) *B. fucatus Reeve, 1849* [215], (74) *B. inca d'Orbigny, 1835* [216], (205) *B. kuehnholtzianus Crosse, 1870* [217], (233) *B. musivus Pfeiffer, 1855* [218], (130) *B. ochsenii* Dunker, 1856 [219], (171) *B. orophilus Morelet, 1860* [220], (211) *B. peliostomus Pfeiffer, 1867* [221], (232) *B. petasites Miller, 1878* [222], (208) *B. sylvaticus* Spix in *Wagner, 1827* [223], (230) *B. variegatus Pfeiffer, 1842* [224], (170) *B. vespertinus Pfeiffer, 1858* [225], (219) *B. wagneri Pfeiffer, 1842* [226], (179) *Glandina striata Müller, 1774* [227], (201) *Helicina rhynchostoma* Shuttleworth in Pfeiffer, 1865 [228], (23) *Helix andium* Philippi in *Pfeiffer, 1867* [229], (27) *H. angrandi* Morelet, 1863 [230], (41) *H. bryophyla* Philippi, 1855 [231], (28) *H. claromphalos* Hupé & Deville, 1850 [232], (24) *H. flora Pfeiffer, 1850* [233], (216) *H. hidalgonis* Doering, 1878 [234], (38) *H. insignis d'Orbigny, 1835* [235], (32) *H. lactea Müller, 1774* [236], (214) *H. mauritii* Jousseaume, 1887 [237], (215) *H. patasensis Pfeiffer, 1859* [238], (30) *H. reentsi* Philippi, 1855 [239], (26) *H. trenquelleonis* Grateloup in *Pfeiffer, 1850* [240], (42) *H. trochilioneides d'Orbigny, 1835* [241], (29) *H. tschudiana Philippi, 1867* [242], (240) *Orthalicus phlogerus d'Orbigny, 1835* [243], (178) *Tornatellina funcki* (Pfeiffer, 1848) [244], (177) *T. lamellosa* (*Reeve, 1849*) [245].

DISCUSSION

When the Spanish expedition set out in 1862, many areas they would visit had already been explored and many species described. Brazil had been visited by Spix (*Wagner, 1827*) and by Blanchet in Bahia (species described by Moricand; see *Breure & Tardy, 2016*; *Breure, 2016*). d'Orbigny and some French expeditions had explored Brazil, Argentina, Bolivia, Chile and Peru (*d'Orbigny [1834–1847]*; *Hupé, 1857*); Peru also had been explored by Angrand (species described by Morelet; see *Breure, 2016*). The countries at the western coast of South America had previously been visited by Cuming (many species described by Broderip, Sowerby, Reeve and Pfeiffer). Thus of the regions visited, only Ecuador was relatively poorly explored; hence the majority of the new species from the CCP material originated from this country (Table 1). In total 31 new species were described, of which 22 by Hidalgo, five by Crosse, two by Pfeiffer and two by Philippi; compare *Calvo (1994)* who listed only 19 species, all described by Hidalgo. The CCP may have collected a substantial

Table 1 New taxa described on the basis of CCP material. Taxa arranged alphabetically on species name, with country of origin. Junior subjective synonyms indicated by asterisk.

Genus	(Subgenus)	Species	Authority	Country
Isomeria		*aequatorianus*	(*Hidalgo, 1867*)	Ecuador
Ptychodon		*amancaezensis*	(*Hidalgo, 1869*)	Peru
Solaropsis		*amori*	(*Hidalgo, 1867*)	Ecuador
Plekocheilus	(*Eurytus*)	*aristaceus*	(*Crosse, 1869*)	Ecuador
Happia		*baezensis**	(*Hidalgo, 1869*)	Ecuador
Drymaeus	(*Drymaeus*)	*baezensis*	(*Hidalgo, 1869*)	Ecuador
Plekocheilus	*(Plekocheilus)*	*cecepeus*	*Breure & Araujo, 2015*	Ecuador
Drymaeus	(*Drymaeus*)	*chanchamayensis*	(*Hidalgo, 1870*)	Peru
Stenostylus		*colmeiroi*	(*Hidalgo, 1872*)	Ecuador
Clathrorthalicus		*corydon*	(*Crosse, 1869*)	Ecuador
Neocyclotus		*crosseanus*	(Hidalgo, 1866)	Ecuador
Streptaxis		*crossei*	(*Pfeiffer, 1867*)	Brazil
Incania		*crossei*	(*Hidalgo, 1869*)	Ecuador
Neocyclotus		*fischeri**	(*Hidalgo, 1867*)	Ecuador
Sultana	(*Metorthalicus*)	*fungarinoi*	(*Hidalgo, 1867*)	Ecuador
Megalobulimus		*gummatus*	(*Hidalgo, 1872*)	Brazil
Neocyclotus		*hidalgoi*	(*Crosse, 1866*)	Ecuador
Scholvienia		*iserni*	(*Philippi, 1867*)	Peru
Plekocheilus	(*Eurytus*)	*jimenezi*	(*Hidalgo, 1872*)	Ecuador
Euconulus		*martinezi*	(*Hidalgo, 1869*)	Brazil
Buckleyia		*martinezi*	(Hidalgo, 1866)	Ecuador
Drymaeus	(*Drymaeus*)	*membielinus*	(*Crosse, 1867*)	Ecuador
Isomeria		*morula*	(*Hidalgo, 1870*)	Ecuador
Hypselartemon		*paivanus*	(*Pfeiffer, 1867*)	Brazil
Lilloiconcha		*pazi*	(*Philippi, 1866*)	Chile
Gastrocopta		*pazi*	(*Hidalgo, 1869*)	Peru, Ecuador
Neocyclotus		*pazi*	(*Crosse, 1866*)	Ecuador
Neocyclotus		*perezi*	(Hidalgo, 1866)	Ecuador
Corona		*pfeifferi*	(*Hidalgo, 1869*)	Ecuador
Psadara		*quadrivittata*	(*Hidalgo, 1869*)	Ecuador
Plekocheilus	(*Eurytus*)	*semipictus**	(*Hidalgo, 1869*)	Ecuador
Synapterpes		*visendus*	(*Hidalgo, 1869*)	Ecuador

larger number of land molluscs than hitherto known, not so much in the number of species but in the number of specimens. *Almagro* (*1866*: 162–164) listed a total number of 'Univalvos terrestres' of 2,117 specimens, including those collected from Tenerife and those received from the Pacific. However, it cannot be excluded this was an underestimation, as the title of his book suggest it may have been restricted to those that were on public display. After the return of the CCP in Madrid, and during the following decades, specimens have been in a 'state of flux', being partially transferred from the collection of Paz, to Hidalgo's collection, and from there to collections abroad and to Azpeitia. Moreover, duplicates from

the CCP material have probably been distributed within Spain, but we do not know how much shell material was involved.

The number of lots recognised as CCP material has been augmented through this study from 230 to 560 lots, totalling 3,470 specimens. Actually, this number is somewhat larger as we know from the correspondence of Hidalgo with Crosse that during the years of study of the CCP material, he gifted Crosse and some others material originating from this expedition (*Breure & Backhuys, 2017*). When Hidalgo started to study the CCP material, original labels seem to have been removed or lost. The example of the label with very precise locality data in the handwriting of Paz (MNCN 15.05/7344) makes one wonder if originally similar labels were present with other specimens (at least Paz could have had the opportunity of doing so). Other indications are the meticulous way in which part of the CCP members kept their diaries (Almagro, Isern, Jiménez de la Espada, and Martinez), and the detailed locality data with the botanical material of Isern (*Blanco, Rodríguez & Rodríguez, 2006*). It is remarkable that *Hidalgo* (*1870*: 56) in only one case wrote "L'étiquette qui portrait la localité exacte de cette coquille a été égarée", which could be an indication that these original labels with more precise information were provided by the collectors. Hidalgo published in several cases more precise localities than the current labels show, and the original labels may have disappeared through the flux of the collection over time.

When Hidalgo, describing a new species, had more than one specimen at hand, he appeared to have kept in Madrid the shell of which he mentioned the dimensions in the text of his publications, and sent another one to Crosse for illustration in the Journal de Conchyliologie (see e.g., *Stenostylus colmeiroi*). As in such cases this shell was often kept by Crosse and ended up in "Coll. JdeC", and consequently is now in the MNHN, these specimens were often not the ones which the author had used as 'the type'. Later authors, being unaware of this mechanism, may thus have considered this material as the 'holotype' (*Fischer-Piette, 1950*) or 'lectotype' (*Breure, 1975*), noticing at the same time that the dimensions did not match those given in the original publication. This shows once more that contextual information from early science networks can help to give a more precise interpretation when studying historical collections.

CONCLUSION

The CCP expedition yielded 245 species of land molluscs, of which 32 were new to science and described by six authors between 1866 and 2015. In total 3,470 specimens have been located in the MNCN collection that (presumably) originate from this expedition; these specimens belong to 211 species. Nearly all of the original labels have been lost, either at the initial stage of determination by Hidalgo or subsequently during the 'flux' of the collection. The publication of collection localities by Hidalgo often reveals more precise localities than the current labels suggest; the published diaries of some CCP members allowed for a check of these localities and also gives a collection date in the majoriy of cases. Research in archives has revealed that the study of this material and the publication of its results have been hampered by several obstacles. This contextual research has thus shed light on the historical collection by this Spanish expedition.

ACKNOWLEDGEMENTS

The following colleagues supplied information on material in collections under their charge or provided otherwise help with identifications: Jonathan Ablett (London), Juan Francisco Araya (Copiapó), Virginie Héros (Paris), Eugenia Salas Oroño (Tucumán), Enrico Schwabe (München). Many thanks are due to Javier de Andrés, Lola Bragado, and the Servício de Fotografía (Jesús Muñoz), all MNCN, for extensive practical assistance during this study. We thank José Leal (The Nautilus) for allowing the reproduction of the Pfeiffer portrait, and Wim Backhuys (Crosse Foundation) for permission to use a portrait and a letter present in the Crosse archive. Jonathan Ablett deserves our gratefulness for a grammatical check of a draft of the manuscript. The reviews of Carl Christensen and an anonymous reviewer helped to improve the manuscript and is here thankfully acknowledged.

ADDITIONAL INFORMATION AND DECLARATIONS

Funding

This work was supported by a grant from the SYNTHESYS Project (http://www.synthesys.info) which was financed by European Community Research Infrastructure Action under the FP7 Integrating Activities Programme; the grant was awarded to ASHB under number ES-TAF-5322. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Grant Disclosures

The following grant information was disclosed by the authors:
European Community Research Infrastructure Action: ES-TAF-5322.

Competing Interests

The authors declare there are no competing interests.

Author Contributions

- Abraham S.H. Breure conceived and designed the experiments, performed the experiments, analyzed the data, contributed reagents/materials/analysis tools, wrote the paper, prepared figures and/or tables, reviewed drafts of the paper.
- Rafael Araujo analyzed the data, contributed reagents/materials/analysis tools, wrote the paper, reviewed drafts of the paper.

Data Availability

The following information was supplied regarding data availability:

A supplementary file with a list of species of land Mollusca collected by the Comisión Científica del Pacífico (1862–1866) in South America, and stored in the collection of the Museo Nacional de Historia Natural in Madrid, Spain, is on Figshare: Breure, Bram (2016): Summary of CCP material studied. figshare. https://doi.org/10.6084/m9.figshare.4231904.v1.

REFERENCES

Albers JC. 1850. *Die Heliceen nach natürlicher Verwandschaft systematisch geordnet von Joh. Christ. Albers.* Berlin: Enslin, 1–262.

Albers JC. 1860. *Die Heliceen nach natürlicher verwandschaft systematisch geordnet von Joh. Christ. Albers.* 2e Ausgabe. Leipzig: Engelmann, i–xviii +1–359.

Almagro M de. 1866. *Breve descripción de los viajes hechos en América por la Comisión Científica enviada por el Gobierno de S.M.C. durante los años de 1862 á 1866. Acompañada de dos mapas y de la Enumeración de la colecciones que forman la exposición pública.* Madrid: Rivadeneyra, 1–174.

Álvarez Halcón RM. 1997. Approximación de la vida y obra del naturalista Florentino Azpeitia Moros (1859–1934). *Llull* **20(38)**:7–57.

Álvarez Halcón RM. 1998. Reseña biográfica de un científico naturalista nacido en Ateca: Florentino Azpeitia Moros (1859–1934). *Ateca* **4**:93–118.

Ancey CF. 1888. Nouvelles contributions malacologiques, IX. Catalogue raisonné des mollusques Néo-Calédoniens publiés jusqu'à ce jour, et compris par les auteurs dans les genres *Hyalina*, *Helix*, *Diplomphalus*, etc. *Bulletin de la Société malacologie de France* **5**:357–376.

Araya JF. 2015. The Bulimulidae (Mollusca: Pulmonata) from the Región de Atacama, northern Chile. *PeerJ* **3**:e1383 DOI 10.7717/peerj.1383.

Azpeitia F. 1923. El Doctor Hidalgo y sus publicaciones malacológicas. *Revista de la Real Academia de Ciencias* **21**:58–120.

Baker HB. 1925. The Mollusca collected by the Michigan-Williamson Expedition in Venezuela, IV. *Occasional Papers of the Museum of Zoology, University of Michigan* **167**:1–49.

Baker HB. 1941. Outline of American Oleacininae and new species from Mexico. *The Nautilus* **55**:54–61.

Baratech L, Calvo M, Villena M, Aparicio MT. 1993. Parte II. Gasterópodos terrestres: 173–321. In: Templado J, Baratech L, Calvo M, Villena M, Apacicio MT, eds. *Los "ejemplares tipo" de las colecciones malacologicas del Museo Nacional de Ciencias Naturales. Monografías Museo Nacional de Ciencias Naturales*, Madrid: Museo Nacional de Ciencias Naturales, 1–328.

Barras de Aragón F. 1949. Los últimos escritores de Indias. Bibliografía de españoles del siglo XIX que escribieron sobre países de fuera de Europa o viajaron por ellos. *Real Sociedad Geográfica, Serie B* **205**:1–215.

Barreiro AJ. 1926. *Historia de la Comisión Científica del Pacífico (1862–1865).* Madrid: Ampliación de Estudios e Investigaciones Científicas/Museo Nacional de Ciencias Naturales, 1–129.

Barreiro AJ. 1992. *El Museo Nacional de Ciencias Naturales (1771–1935).* Aranjuez: Doce Calles, 1–509.

Bartsch P, Morrison JPE. 1942. The cyclophorid mollusks of the mainland of America. *Bulletin United States National Museum* **181**:142–282.

Beck H. 1837. *Index molluscorum praesentis aevi Musei Principis augustissimi Christiani Frederici*. Hafniae, 1–124.

Bequaert JC. 1948. Monograph of the Strophocheilidae, a Neotropical family of terrestrial mollusks. *Bulletin of the Museum of Comparative Zoology* **100**:1–210.

Bernardi AC. 1858. Description d'espèces nouvelles. *Journal de Conchyliologie* **7**:90–94.

Blanco P, Rodríguez D, Rodríguez P. 2006. *El estudiante de las hierbas. Diario del botánico Juan Isern Batlló y Carrera (1821–1866)*. Madrid: CSIC, 1–731.

Born I. 1778. *Index rerum naturalium Musei Cæsarei Vindobonensis. Pars I.ma. Testacea. Verzeichniß der natürlichen Seltenheiten des k. k. Naturalien Cabinets zu Wien. Erster Theil. Schalthiere*. Vindobonæ: Kraus, [1–40], 1–458, [1–82].

Born I. 1780. *Testacea Musei Cæsarei Vindobonensis, quæ jussu Mariæ Theresiæ Augustæ disposuit et descripsit*. Vindobonae: Sumptibus J.P. Kraus, i–xxxvi, 1–442.

Borrero FJ, Araujo R. 2012. Clarification of the taxonomic status of Isomeria murula (Hidalgo, 1870), from Ecuador (Gastropoda: Pleurodontidae). *Journal of Conchology* **41**:145–152.

Borrero FJ, Breure ASH. 2011. The Amphibulimidae (Mollusca: Gastropoda: Orthalicoidea) from Colombia and adjacent areas. *Zootaxa* **3054**:1–59.

Bouchet P, Rocroi JP. 2005. Classification and nomenclature of gastropod families. *Malacologia* **47**:1–397.

Bourguignat JR. 1889. *Mollusques de l'Afrique équatoriale de Moguedouchou à Bagamoyo et de Bagamoyo au Tanganika*. Paris: Dumoulin, 1–229.

Breure ASH. 1973. Index to the Neotropical land Mollusca described by Alcide D'Orbigny, with notes on the localities of the mainland species. *Basteria* **37**:113–135.

Breure ASH. 1974. Caribbean land molluscs: Bulimulidae I. Bulimulus. *Studies Fauna Curacao and Caribbean Islands* **45**:1–80.

Breure ASH. 1975. Types of Bulimulidae (Mollusca, Gastropoda) in the Muséum national d'Histoire naturelle, Paris. Bulletin du Muséum national d'Histoire naturelle (3) 331. *Zoologie* **233**:1137–1187.

Breure AS. 1978. Notes on and descriptions of Bulimulidae (Mollusca, Gastropoda). *Zoologische Verhandelingen Leiden* **164**:1–255.

Breure ASH. 1979. Systematics, phylogeny and zoogeography of Bulimulinae (Mollusca). *Zoologische Verhandelingen Leiden* **168**:1–215.

Breure ASH. 2012. Weyrauch's type localities: a clarification; with illustrations of types of Orthalicoidea (Mollusca, Gastropoda, Stylommatophora) in the Tucumán museum. *Folia Conchyliologica* **17**:4–24.

Breure ASH. 2016. Annotated type catalogue of the Orthalicoidea (Mollusca, Gastropoda, Stylommatophora) in the Muséum d'histoire naturelle, Geneva. *Revue Suisse de Zoologie* **123**:57–103.

Breure ASH, Ablett JD. 2012. Annotated type catalogue of the Bothriembryontidae and Odontostomidae (Mollusca, Gastropoda, Orthalicoidea) in the Natural History Museum, London. *ZooKeys* **182**:1–70 DOI 10.3897/zookeys.182.2720.

Breure ASH, Ablett JD. 2014. Annotated type catalogue of the Bulimulidae (Mollusca, Gastropoda, Orthalicoidea) in the Natural History Museum, London. *ZooKeys* **392**:1–367 DOI 10.3897/zookeys.392.6328.

Breure ASH, Ablett JD. 2015. Annotated type catalogue of the Megaspiridae, Orthalicidae, and Simpulopsidae (Mollusca, Gastropoda, Orthalicoidea) in the Natural History Museum, London. *ZooKeys* **470**:17–143 DOI 10.3897/zookeys.470.8548.

Breure ASH, Araujo R. 2015. A snail in the long tail: a new *Plekocheilus* species collected by the 'Comisión Científica del Pacífico' (Mollusca, Gastropoda, Amphibulimidae). *ZooKeys* **516**:85–93 DOI 10.3897/zookeys.516.10228.

Breure ASH, Backhuys W. 2017. Science networks in action: the collaboration between J.G. Hidalgo and H. Crosse, and the creation of 'Moluscos del Viaje al Pacifico, Univalvos terrestres'. *Iberus* **35**:11–30.

Breure ASH, Eskens AAC. 1981. Notes on and descriptions of Bulimulidae (Mollusca, Gastropoda), II. *Zoologische Verhandelingen Leiden* **186**:1–111.

Breure ASH, Miquel SE. 2012. More than a number: clarifying the dates of publication of some papers of A. Doering on land and freshwater shells from Argentina, and a note on his taxon *Clessinia* (Odontostomidae). *Zootaxa* **3572**:18–22.

Breure ASH, Mogollón V. 2016. Synopsis of Central Andean Orthalicoid land snails (Gastropoda, Stylommatophora), excluding Bulimulidae. *ZooKeys* **588**:1–199 DOI 10.3897/zookeys.588.7906.

Breure ASH, Schouten JR. 1985. Notes on and descriptions of Bulimulidae (Mollusca, Gastropoda), III. *Zoologische Verhandelingen Leiden* **216**:1–98.

Breure ASH, Tardy E. 2016. From the shadows of the past: Moricand senior and junior, two 19th century naturalists from Geneva, their newly described taxa, and molluscan types. *Revue suisse de Zoologie* **123**:113–138.

Broderip WJ, Sowerby I GB. 1832a. Characters and descriptions of new species of Mollusca and Conchifera collected by Mr. Cuming. In: *Proceedings of the Committee of Science and Correspondence of the Zoological Society of London (1832)*, 25–33.

Broderip WJ, Sowerby I GB. 1832b. Characters of new shells from the collection formed by Mr. Cuming. In: *Proceedings of the Committee of Science and Correspondence of the Zoological Society of London (1832)*, 104–108.

Bruguière JG. 1792. *Encyclopédique méthodique. Histoire naturelle des vers, Tome premier*. Paris: Pancoucke, 1–757.

Burrow EJ. 1815. *Elements of conchology, according to the Linnean system*. London: Mawe, Wood & Coles, Duncan & Cochran, i–xv, 1–248.

Calatayud MA. 1994. *Diario de Don Francisco de Paula Martínez y Sáez. Miembro de la Comisión Científica al Pacífico 1862–1865. Edición crítica, transcripción del original, biografía, itinerario e índices*. Madrid: Consejo Superior de Investigaciones Científicas, 1–317.

Calvo M. 1994. Informe sobre el material malacológico recogido durante la "Expedición al Pacífico (1862–1865)". In: Calatayud MA, ed. *Diario de Don Francisco de Paula Martínez y Sáez. Miembro de la Comisión Científica al Pacífico 1862–1865. Edición*

crítica, transcripción del original, biografía, notas, itinerario e índices. Madrid: Consejo Superior de Investigaciones Científicas, 283–287.

Children JG. 1823. Lamarck's genera of shells. *Quarterly Journal of Science, Literature, and the Arts* **15**:216–258.

Cousin A. 1887. Faune malacologique de la république de l'Équateur. *Bulletin de la Société zoologique de France* **12**:187–287.

Cretella M. 2010. The complete collation and dating of the section 'Zoologie' of the 'Coquille' voyage. *Bollettino Malacologico* **46**:83–103.

Crosnier A, Clark PF. 1998. Publication dates of the Recherches zoologiques pour servir à l'histoire de la faune de l'Amérique centrale et du Mexique. *Archives of Natural History* **25**:87–101 DOI 10.3366/anh.1998.25.1.87.

Crosse H. 1863. Diagnoses d'espèces nouvelles. *Journal de Conchyliologie* **11**:388–389.

Crosse H. 1866. Description d'espèces nouvelles de la République de l'Équateur. *Journal de Conchyliologie* **14**:354–357.

Crosse H. 1867. Diagnoses molluscorum novorum. *Journal de Conchyliologie* **15**:444–449.

Crosse H. 1868. Description d'espèces nouvelles. *Journal de Conchyliologie* **16**:97–101.

Crosse H. 1869. Diagnoses molluscorum novorum. *Journal de Conchyliologie* **17**:183–188.

Crosse H. 1870. Descriptions des espèces nouvelles. *Journal de Conchyliologie* **18**:97–109.

Cuezzo MG, Miranda MJ, Constanza Ovando XM. 2013. Species catalogue of Orthalicoidea in Argentina (Gastropoda: Stylommatophora). *Malacologia* **56**:135–191 DOI 10.4002/040.056.0210.

Dall WH. 1896. Insular land shell faunas, especially as illustrated by the data obtained by Dr. G. Baur in the Galapagos Islands. In: *Proceedings of the Academy of Natural Sciences of Philadelphia (1896)*, 395–460.

Deville E, Hupé H. 1850. Description des quelques coquilles nouvelles provenant de l'expédition de M. de Castelnau. *Revue et Magasine de Zoologie (2)* **2**:638–644.

Doering A. 1877. Apuntes sobre la fauna de moluscos de la República Argentina (Tercera parte). *Boletin de la Academia Nacional de Ciencias Exactas en Córdoba, Buenos Aires* **2(3)**:300–339.

d'Orbigny A. 1834–1847. *Voyage dans L'Amérique mériodionale (Le Brésil la république orientale de l'Uruguay la république Argentine la Patagonie la république du Chile la république de Bolivia, la république du Pérou) exécuté pendant les années 1826, 1827, 1828, 1829, 1830, 1831, 1832, et 1833. Tome 5, Partie 3, Mollusques*. Paris: Bertrand/Strasbourg: Levrault, 1–758.

d'Orbigny A. 1835. Synopsis terrestrium et fluviatilium molluscorum, in suo per Americam meriodionalem itinere. *Magasin de Zoologie* **5(61)**:1–44.

Draparnaud JPR. 1801. *Tableau des mollusques terrestres et fluviatiles de la France*. Montpellier: Renaud/Paris: Bossange, Masson & Besson, 1–116.

Duncan FM. 1937. On the dates of publication of the Society's 'Proceedings' 1859–1926. With an Appendix establishing the dates of publication of the 'Proceedings' 1830–1858, compiled by the late F.H. Waterhouse, and of the 'Transactions' 1833–1869, by the late Henry Peavot, originally published in P.Z.S. 1893, 1913. *Proceedings of the Zoological Society of London* **107**:71–84 DOI 10.1111/j.1469-7998.1937.tb08500.x.

Dunker W. 1847. Diagnosen neuer Heliceen. *Zeitschrift für Malakozoologie* **4**:81–84.

Emig CC. 2015. Rudolph Amandus Philippi 1808–1904. *Available at http://paleopolis.rediris.es/benthos/SCI/Philippi/Philippi.html* (accessed on 19 July 2016).

Férussac, AEJPJF d'Audebard de. '1821' [1821–1822]. *Tableaux systématiques des animaux mollusques classés en familles naturelles, dans lesquels on a établi la concordance de tous les systèmes; suivis d'un prodrome général pour tous les mollusques terrestres ou fluviatiles, vivants ou fossiles.* Paris: Bertrand/Londres: Sowerby, j–xlvij [= 1–47], [1], 1–27, 1–110 [1].

Férussac AEJPJF d'Audebard de, Deshayes GP. 1819–1851. *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; classés d'après les caractères essentiels que présentent ces animaux et leurs coquilles.* Paris: Ballière, Tome 1:1–8 +1–184; Tome 2(1): [1–3], 1–402; 2(2): 1–260, [1–2], i–xvi.

Fischer P, Crosse H. 1870–1878. Études sur les mollusques terrestres et fluviatile du Mexique et du Guatemala. In: Milne-Edwards H, ed. *Recherches zoologiques pour server à l'histoire de la fauna de l'Amérique central et du mexique*. 7 (I). 1–702.

Fischer P, Crosse H. 1880–1902. Études sur les mollusques terrestres et fluviatile du Mexique et du Guatemala. In: Milne-Edwards H, ed. *Recherches zoologiques pour server à l'histoire de la fauna de l'Amérique central et du Mexique*. 7 (II): [1–6], 1–731, [1–41].

Fischer-Piette E. 1950. Liste des types décrits dans le Journal de Conchyliologie et conservés dans la collection de ce Journal. *Journal de Conchyliologie* **90**: 8–23, 65–82, 149–180.

Gay C. 1854. Historia física y política de Chile según documentos adquiridos en esta república durante doze años de residencia en ella y publicada bajo los auspicios del Supremo Gobierno. In: *Zoología*, 8. Santiago: Museo de Historia natural, 1–491.

Gogorza J. 1908. Datos biográficos del profesor D. Francisco de Paula Martínez y Sáez. *Boletín de la Sociedad Española de Historia Natural* **8**:202–215.

Grateloup JPS de. 1839. Note sur un mémoire relatif à des mollusques exotiques nouveaux ou peu connus. *Actes de la Société linnéenne de Bordeaux* **11**:161–170.

Gray JE. 1824. Monograph of the genus *Helicina*. *The Zoological Journal* **1**:62–71.

Gray JE. 1828. *Spicilegia zoological; or original figures and short systematic descriptions of new and unfigured animals.* London: Treütel, Würtz & Co. & Wood, 1–12.

Gray JE. 1837. On a new genus of land shells (*Streptaxis*). *Magazine of Natural History (n.s.)* **1**:484–487.

Gray JE. 1847. A list of the genera of recent Mollusca, their synonyma and types. *Proceedings of the Zoological Society of London* **15**:129–219.

Gude GK. 1902. A synopsis of the genus *Streptaxis* and its allies. *Proceedings of the Malacological Society of London* **5**:201–244.

Guilding L. 1828. Observations on the zoology of the Caribbean Islands. *Zoological Journal* **3**:527–544.

Haas F. 1915. Spanischer Brief II. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft* **1**:76–83.

Haas F. 1916. Náyades del viaje al Pacífico verificado de 1862 a 1865 por una comisión de naturalistas enviada por el Gobierno español. *Trabajos del Museo Nacional de Ciencias Naturales, Serie Zoológica* **25**:1–63.

Herrmannsen AN. 1847–1849. *Indicis generum malacozoorum primordia. Nomina subgenerum, generum, familiarum, tribuum, ordinum, classium; adjectis auctoribus, temporibus, locis systematicis atque literariis, etymis, synonymis. Praetermittuntur Cirripedia, Tunicata et Rhizopoda*. Vol. II. Casselis: Fischer, xxviii–xlii, 1–717.

Hidalgo JG. 1866a. Description d'un *Cyclophorus* nouveau. *Journal de Conchyliologie* **14**:273–274.

Hidalgo JG. 1866b. Description d'espèces nouvelles de la République de l'Équateur. *Journal de Conchyliologie* **14**:343–346.

Hidalgo JG. 1867. Description d'espèces terrestres nouvelles de la République de l'Équateur. *Journal de Conchyliologie* **15**:71–73.

Hidalgo JG. '1869' [1872]. *Moluscos del Viaje al Pacífico verificado de 1862 a 1865 por una comisión de naturalistas enviada por el Gobierno Español. Parte Primera, Univalvos Terrestres*. Madrid: Bailly-Ballière, 1–152.

Hidalgo JG. 1869a. Description d'un *Bulimus* nouveau de la république de l'Équateur. *Journal de Conchyliologie* **17**:50–51.

Hidalgo JG. 1869b. Diagnoses molluscorum novorum. *Journal de Conchyliologie* **17**:188–189.

Hidalgo JG. 1869c. Descriptions d'espèces nouvelles. *Journal de Conchyliologie* **17**:410–413.

Hidalgo JG. 1870. Catalogue des coquilles terrestres recueillies par les naturalists de la commission scientifique espagnole sur divers points de l'Amérique méridionale. *Journal de Conchyliologie* **18**:27–70.

Hidalgo JG. 1875. Supplément au catalogue des coquilles terrestres recueillies dans l'Amérique méridionale. *Journal de Conchyliologie* **23**:127–131.

Hidalgo JG. 1879. *Moluscos del Viaje al Pacífico, verificado de 1862 a 1865 por una comisión de naturalistas enviada por el gobierno español. Parte tercera: Univalvos marinos*. Madrid: Miguel Ginesta, 1–144.

Hidalgo JG. 1893a. Catálogo de las conchas terrestres recogidas por los naturalistas de la comisión científica española en diversos puntos de la América meridional. In: Hidalgo JG, ed. *1893–1900. Obras Malacológicas. Parte III, Descripción de los moluscos recogidos por la comisión científica enviada por el Gobierno Español á la América Meridional*. Madrid: Aguado, 75–134.

Hidalgo JG. 1893b. Descripción de los moluscos terrestres recogidos durante el viaje al Pacífico, verificado de 1862 a 1865 por una Comisión de naturalistas enviada por el Gobierno español. In: Hidalgo JG, ed. *1893–1900 Obras Malacológicas. Parte III, Descripción de los moluscos recogidos por la Comisión Científica enviada por el Gobierno Español á la América Meridional*. Madrid: Aguado, 134–331.

Hidalgo JG. 1913?. Al lector [Autobiography and bibliography]. MNCN Library [Author's reprint, F-II-5761].

Hidalgo JG. 1918?. Relación de lo consignado en las cartas particulares de mucho naturalistas extranjeros acerca de mis principales publicaciones cientificas, con la fecha del año en que se escribieron. MNCN Library [Author's reprint, F.-II-5737].

Higgins ET. 1872. Descriptions of new species of shells collected by Mr. Clarence Buckley in Ecuador. *Proceedings of the Zoological Society of London* **(1872)**:685–687.

Hubendick B. 1951. Recent Lymnaeidae, their variation, morphology, taxonomy, nomenclature, and distribution. *Kungliga Svenska Vetenskapsakademiens Handlingar* **3(1)**:1–233.

Hupé H. 1857. Mollusques. In: Castelnau F de, ed. *Animaux ou rares recueillis pendant l'expédition dans les parties centrales de l'Amérique du Sud, de rio de Janeiro à Lima, et de Lima au Para, exécutée par ordre du Gouvernement français pendant les années 1843 à 1847*, 8. Paris: Bertrand, 1–103.

Hylton Scott MI. 1951. *Kuschelenia*, nuevo género de Bulimulidae (Moll. Pulmonata). *Acta Zoologica Lilloana* **12**:539–543.

Jan G. 1830. *Scientiae naturalis cultoribus. Conspectus methodicus testaceorum in collectione mea exstantium anno 1830.* Parma, 1–8.

Jay JC. 1836. *A catalogue of recent shells with descriptions of new or rare species in the collection of John C. Jay*. Second edition. New York: Fanshaw, 1–82.

Jay JC. 1839. *A catalogue of the shells, arranged according to the Lamarckian system; together with descriptions of new or rare species, contained in the collection of John C. Jay*. Third edition. New York: Wiley & Putnam, 1–125.

Jímenez de la Espada M. 1875. *Vertebrados del Viaje al Pacífico verificado de 1862 a 1865 por una comisión de naturalistas enviada por el Gobierno Español. Batracios*. Madrid: Miguel Ginesta, 1–208.

Jousseaume F. 1877. Quelques faits intéressant de la faune malacologique du Brésil. *Bulletin du Société zoologique de France* **2**:311–312.

Kobelt W. 1899–1902. Die Familie Buliminidae. *Systematisches Conchylien-Cabinet von Martini und Chemnitz* **I, 13(2)**:397–1051.

Köhler F. 2007. Annotated type catalogue of the Bulimulidae (Pulmonata, Orthalicoidea, Bulimulidae) in the Museum für Naturkunde Berlin. *Mitteilungen Museum für Naturkunde Berlin, Zoologische Reihe* **83**:125–159 DOI 10.1002/mmnz.200700004.

Lamarck JBPA de. 1799. Prodrome d'une nouvelle classification des coquilles. *Mémoires de la Sociétéé d'Histoire Naturelle de Paris* **1**:63–91.

Lamarck JBPA de. 1822. *Histoire naturelle des animaux sans vertèbres, …, Précédée d'une introduction offrant la détermination des caractères essentiels de l'animal, sa distinction du végétal et des autres corps naturels, enfin, l'exposition des principes fondamentaux de la zoologie. Tome 6 pt 2*. Paris: Verdière, [1–3] +1–232.

Lea I. 1838. Description of new freshwater and land shells. *Transactions of the American Philosophical Society (NS)* **6**:1–154.

Lea I. 1866a. Description of twelve new species of Unionidae from South America. *Proceedings of the Academy of Natural Sciences of Philadelphia* **18**:33–35.

Lea I. 1866b. New Unionidae, Melanidae, etc., chiefly of the United States. *Journal of the Academy of Natural Sciences of Philadelphia (2)* **6**:5–65.

Lea I. 1867. New Unionidae, Melanidae, etc., chiefly of the United States. *Journal of the Academy of Natural Sciences of Philadelphia (2)* **6**:113–187.

Lea I. 1869a. New Unionidae, Melanidae, etc., chiefly of the United States. *Journal of the Academy of Natural Sciences of Philadelphia (2)* **6**:249–302.

Lea I. 1869b. New Unionidae, Melanidae, etc., chiefly of the United States. *Journal of the Academy of Natural Sciences of Philadelphia (2)* **6**:303–343.

Leach WE. 1814. *The zoological miscellany; being descriptions of new, or interesting animals. Illustrated with coloured figures, drawn from nature, By R. P. Nodder, I.* London: Nodder, 1–144.

Lesson RP. 1830–1831. *Voyage autour du monde, Exécuté par Ordre du Roi, sur La Corvette de Sa Majesté, La Coquille, pendant les années 1822, 1823, 1824 et 1825, sous le ministere et conformément aux Instructions de S.E.M. le Marquis de Clermont-Tonnerre, Ministre de la Marine. Zoologie. 1re Partie.* Paris: Bertrand, 1–471.

Lesson RP, Garnot P, Guérin-Méneville FE. 1826–1831. *Voyage autour du monde, exécuté par Ordre du Roi, sur La Corvette de Sa Majesté, La Coquille, pendant les années 1822, 1823, 1824 Et 1825, sous le ministere et conformément aux Instructions de S.E.M. le Marquis de Clermont-Tonnerre, Ministre de la Marine. Zoologie.* Atlas. Paris: Bertrand, pls 1–157.

Lightfoot J. 1786. *A catalogue of the Portland Museum, lately the property of the Duchess Dowager of Portland, deceased: which will be sold by auction by Mr. Skinner and Co. on Monday the 24th of April, 1786, and the thirty-seven following days (...) at her late dwelling-house, in Privy-Garden, Whitehall, by order of the Acting Executrix.* London: Skinner, i–viii, 1–194.

López-Ocón L. 1997. El fomento de la educación y de la ciencia en la sociedad española del sexinio democrático. *Boletín Institución Libre de Enseñance* **28–29**:127–128.

López-Ocón L. 2003. La Comisión Científica del Pacífico: de la ciencia imperial a la ciencia federativa. *Bulletin de l'Institut Francais d'Études Andines* **32**:479–515 DOI 10.4000/bifea.6118.

López-Ocón L, Badía S. 2003. Overcoming obstacles: the triple mobilization of the Comisión Científica del Pacífico. *Science in Context* **16**:505–534 DOI 10.1017/S0269889703000942.

Martens E von. 1867. Über einige Landschnecken des oberon Amazonenstromgebiets. *Malakozoologische Blätter* **14**:133–146.

Martens E von. 1885. Über *Bulimulus* und *Otostomus*. *Conchologische Mittheilungen* **2**:190–197.

Martínez y Sáez F. '1869' [1879?]. *Moluscos del Viaje al Pacífico, verificado de 1862 a 1865 por una comisión de naturalistas enviada por el Gobierno Español. Parte segunda: Bivalvos Marinos.* Madrid: Miguel Ginesta, 1–78.

Martínez y Sáez F. 1879. *Distribución metódica de los vertebrados: con la caracteristica de las clases, subclases, ordenes, familias, subfamilias y géneros de los mismos.* Madrid: Fortanet, 1–528.

Mawe J. 1823. *The Linnean system of conchology, describing the orders, genera, and species of shells, arranged into divisions and families*. London: Mawe & Longman, Hurst, Rees, Orme & Brown, i–xv, 1–207.

Menke CT. 1828. *Synopsis methodica molluscorum generum omnium et specierum eurum, quae in Museo Menkeano adservantur; cum synonymia critica et novarum specierum diagnosibus*. Pyrmonti, i–xii, 1–91.

Michelin H. 1831. *Bulimus planidens* Michelin. *Magasin de Zoologie* **1**:25.

Miller K. 1878. Die Binnenmollusken von Ecuador. *Malakozoologische Blätter* **25**:153–199.

Miller RR. 1968. *For science and national glory: the Spanish Scientific Expedition to America, 1862–1866*. Norman: University of Oklahoma Press, i–xiv +1–194.

Mörch OAL. 1852. *Catalogus conchyliorum quæ reliquit D. Alphonso d'Aguirra & Gadea Comes de Yoldi. Fasciculus primus. Cephalophora*. Hafniae: Klein, 1–170.

Morelet A. 1860. Colimacea in intimâ Peruvii regione a Cl. Angrand collecta. *Journal de Conchyliologie Paris* **8**:371–376.

Moricand S. 1834. Note sur quelques espèces nouvelles de coquilles terrestres. *Mémoires de la Société de physique et d'histoire naturelle de Genève* **6(2)**:537–543.

Moricand S. 1836. Mémoire sur les coquilles terrestres et fluviatiles, envoyées de Bahia par M.J. Blanchet. *Mémoires de la Société de physique et d'histoire naturelle de Genève* **7(2)**:415–446.

Moricand S. 1838. Premier supplément au mémoire sur les coquilles terrestres et fluviatiles, envoyées de Bahia par M. J. Blanchet. *Mémoires de la Société de physique et d'histoire naturelle de Genève* **8(1)**:139–148.

Moricand S. 1846. Troisième supplément au mémoire sur les coquilles terrestres et fluviatiles de la province de Bahia, envoyées par M. Blanchet. *Mémoires de la Société de physique et d'histoire naturelle de Genève* **11(1)**:147–160.

Morretes FL de. 1952. Novas especes Brasileiras da familia Strophocheilidae. *Archivos de Zoologia do Estado de São Paulo* **8**:109–126.

Müller OF. 1774. *Vermivm terrestrium et fluviatilium, seu animalium infusoriorum, helminthicorum, et testaceorum, non marinorum, succincta historia. Volumen alterum*. Havniæ: Heineck/Lipsiæ:Faber, i–xxxvi, 1–214.

Nevill G. 1878. *Hand list of Mollusca in the Indian Museum, Calcutta*. Calcutta: Trustees of the Indian Museum, i–xv, 1–338.

Nyst H. 1845. Notice sur quelques *Bulimus* nouveaux ou peu connus. *Bulletin de L' Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique* **12(2)**:146–153.

Parodiz JJ. 1944. Contribuciones al conocimiento de los moluscos terrestres sudamericanos, 1. *Comunicaciones zoológicas del Museo de Historia Natural de Montevideo* **1(8)**:1–9.

Parodiz JJ. 1949. Austroborus n. nom. pro *Microborus* Pilsbry, 1926. *Physis* **20**:189–190.

Perejón A. 2012. Fernando Amor y Mayor (1823?–1863), nuevos datos para su biografía y análisis de las aportaciones geológicas de su obra. *Boletín de la Real Sociedad Española de Historia Natural, Sección Geológica* **106**:53–84.

Pfeiffer L. 1842. *Symbolae ad historiam heliceorum, II*. Casselis: Fischeri, 1–147.

Pfeiffer L. 1845a. Descriptions of twenty-two new species of land-shells, belonging to the collection of Mr. H. Cuming. *Proceedings of the Zoological Society of London* (**1845**):63–68.

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* (**1845**):71–75.

Pfeiffer L. 1846. *Symbolae ad historiam heliceorum, III*. Casselis: Fischeri, 1–100.

Pfeiffer L. 1847a. Description of thirty-eight new species of land-shells, in the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London* (**1846**):109–116.

Pfeiffer L. 1847b. Diagnosen neuer Heliceen. *Zeitschrift für Malakozoologie* **4**:12–16.

Pfeiffer L. 1848a. Nachträge zu L. Pfeiffer Monographia Heliceorum viventium. *Zeitschrift für Malakozoologie* **5**:89–94.

Pfeiffer L. 1848b. *Monographia heliceorum viventium: sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum*. 2. Lipsiae: Brockhaus, 1–597.

Pfeiffer L. 1850. Neue Landschnecken. *Zeitschrift für Malakozoologie* **7**:13–15.

Pfeiffer L. 1852a. Conspectus Cyclostomaceorum (Schluss). *Zeitschrift für Malakozoologie* **8**:177–178.

Pfeiffer L. 1852b. Diagnosen neuer Heliceen. *Zeitschrift für Malakozoologie* **9**:91–95.

Pfeiffer L. 1852–1860. Die Schnirkelschnecken nebst den zunächst verwandten Gattungen. Dritter Theil. *Systematisches Conchylien-Cabinet von Martini und Chemnitz* **I, 12(3)**:291–524.

Pfeiffer L. 1853. *Monographia heliceorum viventium: sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitarum*. 3. Lipsiae: Brockhaus, 1–711.

Pfeiffer L. 1853–1854. Cyclostomaceen. Zweite Abteilung. *Systematisches Conchylien-Cabinet von Martini und Chemnitz* **I, 19(2)**:229–400.

Pfeiffer L. 1854a. Description of sixty-six new land shells, from the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London* (**1852**):56–70.

Pfeiffer L. 1854b. Descriptions of nineteen new species of land shells, collected by M. Bourcier, Consul-general, Quito. *Proceedings of the Zoological Society of London* (**1852**):151–156.

Pfeiffer L. 1854c. Zur Molluskenfauna der Insel Cuba. *Malakozoologische Blätter* **1**:170–213.

Pfeiffer L. 1855. Description of fourty-seven new species of Helicea from the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London* (**1855**):91–101.

Pfeiffer L. 1856. Diagnosen neue Landschnecken. *Malakozoologische Blätter* **3**:206–209.

Pfeiffer LH. 1857. Descriptions of fifty-eight new species of helicea from the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London* (**1856**):324–336.

Pfeiffer L. 1858. Diagnosen neuer Schnecken-Arten. *Malakozoologische Blätter* **5**:238–240.

Pfeiffer L. 1862. Description of thirty-six new land shells, from the collection of H. Cuming, Esq. *Proceedings of the Zoological Society of London* (**1862**):268–278.

Pfeiffer L. 1866–1869. Novitates conchologicae, series prima. Mollusca extramarina. In: *Descriptions et figures de coquilles extramarines nouvelles ou peu connues*. 3. Cassel: Fischer, 301–510.

Pfeiffer L. 1867. Nachschrift. *Malakozoologische Blätter* **14**:76–80.

Pfeiffer L, Dunker W. 1857. Diagnosen neuer Heliceen. *Malakozoologische Blätter* **4**:229–232.

Philippi RA. 1845–1847. *Abbildungen und Beschreibungen neuer oder wenig gekannter Conchylien*. 2. Cassel: Theodor Fischer, 1–231.

Philippi RA. 1856. Zwei neue Chilesische Heliceen. *Malakozoologische Blätter* **3**:52–53.

Philippi RA. 1866. Diagnosen einige neuen Arten. *Malakozoologische Blätter* **13**:38–40.

Philippi RA. 1867. Descriptio brevis molluscorum quorundum terrestrium, a clarissomo viro Antonio Raimondi in Peruvia lectorum. *Malakozoologische Blätter* **14**:65–76.

Philippi RA. 1869. Diagnoses molluscorum terrestrium et fluviatilium peruanorum. *Malakozoologische Blätter* **16**:32–42.

Pilsbry HA. 1896. Note on *Bulimus hanleyi* and *B. coronatus*. *The Nautilus* **10**:46.

Pilsbry HA. 1897–1898. American Bulimulidae: *Bulimulus*, *Neopetraeus*, *Oxychona* and South American *Drymaeus*. *Manual of Conchology (2)* **11**:1–399.

Pilsbry HA. 1898. Notes on the genus *Odontostomus*. *The Nautilus* **12**:57–58.

Pilsbry HA. 1899. American Bulimulidae: North American and Antillean *Drymaeus*, *Leiostracus*, Orthalicinae and Amphibuliminae. *Manual of Conchology (2)* **12**:1–258.

Pilsbry HA. 1901–1902. Oriental bulimoid Helicidae; Odontostomidae; Cerionidae. *Manual of Conchology (2)* **14**:1–302.

Pilsbry HA. 1906–1907. Achatinidae: stenogyrinae and coeliaxinae. *Manual of Conchology (2)* **18**: i–xii, 1–357.

Pilsbry HA. 1916–1918. Pupillidae (Gastrocoptinae). *Manual of Conchology (2)* **24**: i–xii, 1–380.

Pilsbry HA. 1926. South American land and freshwater mollusks: Notes and descriptions, VI. *Proceedings of the Academy of Natural Sciences of Philadelphia* **78**:1–15.

Pilsbry HA. 1932. South American land and freshwater mollusks, VIII. Collections of the Carrier-Roberts Peruvian expedition of 1932. *Proceedings of the Academy of Natural Sciences of Philadelphia* **84**:387–402.

Pilsbry HA, Vanatta EG. 1899. Morphological and systematic notes on South American land snails: Achatinidae. *Proceedings of the Academy of Natural Sciences of Philadelphia* **51**:366–374.

Poliński W. 1922. Neue Clausilliden aus Peru. *Bulletin International de l'Académie polonaise des Sciences et des Lettres, Classe des Sciences mathatiques et naturelles, B. Sciences Naturelles* **1921**:121–142.

Poyard C, Fischer H, Bergeron PJJ, Dautzenberg P. 1898?. *Vie et travaux de Joseph-Charles-Hippolyte Crosse*. Paris: Delalain, 59 [+2] pp.

Puig-Samper MA. 1988. *Crónica de una expedición romántica al Nuevo Mundo*. Madrid: Consejo Superior de Investigaciones Científicas, 1–459.

Rafinesque CS. 1833. On 3 N[ew].G[enera]. of land shells from Buenos Ayres in South America. *Atlantic Journal* **5**:165.

Rang S. 1831. Description des coquilles terrestres recueillies pendant un voyage à la côte occidentale d'Afrique, et au Brésil. *Annales des Sciences Naturelles* **24(93)**:5–60.

Reeve LA. 1842. *Conchologica systematica, or complete system of conchology: in which the Lepades and conchiferous Mollusca are described and classified according to their natural organization and habits.* 2. London: Longman, Brown, Green & Longmans, 1–337.

Reeve LA. 1848–1850. *Conchologica iconica or illustrations of the shells of molluscous animals, 5. Bulimus.* London: Reeve, Benham and Reeve, i–ix, 89 pls. + legend.

Reeve LA. 1859. Description of two new species of *Bulimus* from the collection of Mrs. de Burgh. *Proceedings of the Zoological Society of London* **(1859)**:123–124.

Rehder HA. 1945. The Chilean species of the molluscan genus *Peronaeus* (Bulimulidae). *Revista chilena de Historia natural* **48**:102–107.

Rochebrune AT de. 1882. Supplement au documents sur la faune malacologie de la Cochinchina et du Cambodge. *Bulletin de la Société Philomatique de Paris (7)* **6**:99–119.

Shuttleworth RJ. 1852. Diagnosen neuer Mollusken. *Mittheilungen naturforschende Gesellschaft Bern* **(1852)**:193–202.

Shuttleworth RJ. 1854. Beiträge zur näheren Kenntniss der Land- und Süsswasser-Mollusken der Insel Portorico. *Mittheilungen naturforschende Gesellschaft Bern* **(1854)**:33–56.

Shuttleworth RJ. 1856. *Notitiae Malacologicae oder Beiträge zur naheren Kenntniss der Mollusken, 1.* Bern: Haller, 1–90.

Simone LRL. 2006. *Land and freshwater molluscs of Brazil.* São Paulo: EGB/Fapesp, 1–390.

Solem A. 1956. The helicoid cyclophorid mollusks of Mexico. *Proceeding of the Academy of Natural Science of Philadelphia* **108**:41–59, 279.

Solem A. 1966. The Neotropical land snail genera *Labyrinthus* and *Isomeria* (Pulmonata, Camaenidae). *Fieldiana: Zoology* **50**:1–226 DOI 10.5962/bhl.title.3083.

Souleyet LFA. 1842. Description de quelques coquilles terrestres appartennnnant aux genres Cyclostome, Hélicé, etc. *Revue zoologique par la Société cuvierienne* **(1842)**:101–102.

Souverbie SM. 1858. Description d'espèces novelles. *Journal de Conchyliologie* **7**:63–66.

Sowerby I GB. 1824. Descriptions accompanied by figures, of several new species of shells. *The Zoological Journal* **1**:58–60.

Sowerby I GB. 1833. New species of shells collected by Mr. Cuming on the Western coast of South America and among the Islands of the South Pacific Ocean. They were accompanied by characters from the pen of Mr. G. B. Sowerby. *Proceedings of the Zoological Society of London* **(1833)**:34–38.

Sowerby II GB. 1842–1847. *Thesaurus conchyliorum, or figures and descriptions of shells.* 1. London: Sowerby, 1–438.

Sowerby I GB, Sowerby II GB. 1832–1841. *Conchological illustrations, or coloured figures of all the hitherto unfigured recent shells, Bulinus.* London: Sowerby, [5]–8, 103 figs.

Strebel H. 1909. Revision der Unterfamilie der Orthalicinen. *Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten* **26(Beiheft 2)**:1–191.

Strebel H. 1910. Conchologische Mittheilungen aus dem Naturhistorischen Museum in Hamburg. *Abhandlungen aus den Gebiete der Naturwissenschaften, Naturwissenschaftlichen Verein in Hamburg* **19(3)**:3–35.

Swainson W. 1820–1821. *Zoological illustrations, or original figures and descriptions of new, rare, or interesting animals, selected chiefly from the classes of ornithology, entomology, and conchology, and arranged on the principles of cuvier and other modern zoologists*. 1. London: Baldwin, Cradock & Joy & Wood, i–ix, pls 1–66, [1–8].

Swainson W. 1840. *A treatise on malacology, or shells and shell-fish*. London: Longman, vii–viii, 1–419.

Thiele J. 1927. Über einige brasilianische Landschnecken. *Abhandlungen senckenbergische Naturforschende Gesellschaft* **40**:307–329.

Troschel FH. 1847. Zwei neue Peruanische Schnecken. *Zeitschrift für Malakozoologie* **4**:49–52.

Tual L, Fischer H. 1899. *Catalogue de la bibliothèque et des collections de feu Crosse*. Paris: fils d'E. Deyrolle, 1–156.

Wagner JA. 1827. *Testacea fluviatilia quae in itinere per brasiliam annis MDCCCXVII–MDCCCXX jussu et auspiciis Maximiliani Josephii Bavariae regis augustissimi*. Monachii: Wolf, i–iv +[i–ii +] 1–36.

Wenz W. 1947. Zur Taxonomie der Euthyneura. *Archiv für Molluskenkunde* **76**:36.

Weyrauch WK. 1956. The genus *Naesiotus*, with descriptions of new species and notes on other Peruvian Bulimulidae. *Proceedings of the Academy of Natural Sciences of Philadelphia* **108**:1–17.

Weyrauch WK. 1964. Nuevos gastrópodos terrestres y nuevos sinonimos de Sudamérica, II. *Acta Zoologica Lilloana* **20**:33–60.

Weyrauch WK. 1965. Neue und verkannte Endodontiden aus Südamerika. *Archiv für Molluskenkunde* **94**:121–134.

Weyrauch WK. 1967. Descripciónes y notas sobre gastrópodos terrestres de Venezuela, Colombia, Ecuador, Brasil y Perú. *Acta Zoologica Lilloana* **21**:457–499.

Wheeler HE. 1949. Polygyra hippocrepis and its author, Louis Pfeiffer. *The Nautilus* **63**: 1–9, 48–58.

Wollaston TV. 1878. *Testacea Atlantica, or the Land and freshwater shells of the Azores, Madeira, Salvages, Canaries, Cape Verdes, and Saint Helena*. London: Reeve & Co., 1–588.

Wood W. 1828. *Supplement to the Index Testaceologicus; or a catalogue of shells, British and foreign*. London: Wood, [i–v +] 1–59.

Zilch A. 1953. Landschnecken aus Peru. *Archiv für Molluskenkunde* **82**:49–61.