

NUMBER 445
12 AUGUST 1994

CONTRIBUTIONS IN SCIENCE

A REVIEW OF THE RISSOIFORM GASTROPODS OF
SOUTHWESTERN SOUTH AMERICA
(MOLLUSCA, GASTROPODA)

W. F. PONDER AND T. M. WORSFOLD



NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

SERIAL
PUBLICATIONS
OF THE
NATURAL HISTORY
MUSEUM OF
LOS ANGELES
COUNTY

SCIENTIFIC
PUBLICATIONS
COMMITTEE

James L. Powell, Museum President
Daniel M. Cohen, Committee Chairman
Brian V. Brown
Kenneth E. Campbell
Kirk Fitzhugh
Edward C. Wilson
Robin A. Simpson, Managing Editor

The scientific publications of the Natural History Museum of Los Angeles County have been issued at irregular intervals in three major series; the issues in each series are numbered individually, and numbers run consecutively, regardless of the subject matter.

- Contributions in Science, a miscellaneous series of technical papers describing original research in the life and earth sciences.
- Science Bulletin, a miscellaneous series of monographs describing original research in the life and earth sciences. This series was discontinued in 1978 with the issue of Numbers 29 and 30; monographs are now published by the Museum in Contributions in Science.
- Science Series, long articles and collections of papers on natural history topics.

Copies of the publications in these series are sold through the Museum Book Shop. A catalog is available on request.

The Museum also publishes Technical Reports, a miscellaneous series containing information relative to scholarly inquiry and collections but not reporting the results of original research. Issue is authorized by the Museum's Scientific Publications Committee; however, manuscripts do not receive anonymous peer review. Individual Technical Reports may be obtained from the relevant Section of the Museum.

NATURAL HISTORY MUSEUM
OF LOS ANGELES COUNTY
900 EXPOSITION BOULEVARD
LOS ANGELES, CALIFORNIA 90007

Printed at Allen Press, Inc., Lawrence, Kansas
ISSN 0459-8113

A REVIEW OF THE RISSOIFORM GASTROPODS OF SOUTHWESTERN SOUTH AMERICA (MOLLUSCA, GASTROPODA)

W. F. PONDER¹ AND T. M. WORSFOLD²

CONTENTS

ABSTRACT	3
RESUMEN	3
INTRODUCTION	3
MATERIALS AND METHODS	4
ABBREVIATIONS	4
TAXONOMY	5
PART 1. Species from Peru to Tierra del Fuego, South America	5
Superfamily Cingulopsoidea	6
Family EATONIELLIDAE	6
Genus <i>Eatoniella</i> Dall, 1876	6
Subgenus <i>Eatoniella</i>	6
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>turricula</i> n. sp.	6
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>denticula</i> n. sp.	7
<i>Eatoniella</i> (<i>Eatoniella</i>) cf. <i>denticula</i>	11
<i>Eatoniella</i> (<i>Eatoniella</i>) cf. <i>cana</i> Ponder, 1983	12
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>ebenina</i> n. sp.	12
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>picea</i> n. sp.	12
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>nigra</i> (Orbigny, 1840)	14
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>castanea</i> n. sp.	15
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>glomerosa</i> n. sp.	15
Subgenus <i>Albosabula</i> Ponder, 1965	19
<i>Eatoniella</i> (<i>Albosabula</i>) <i>mcleani</i> n. sp.	19
Genus <i>Pupatonia</i> Ponder, 1965	19
<i>Pupatonia magellanica</i> n. sp.	19
Family CINGULOPSIDAE	21
Genus <i>Skenella</i> Pfeffer, 1886	21
<i>Skenella hallae</i> n. sp.	21
Genus <i>Eatonina</i> Thiele, 1912	21
Subgenus <i>Mistostigma</i> Berry, 1947	21
<i>Eatonina</i> (<i>Mistostigma</i>) <i>fusca</i> (Orbigny, 1840)	21
Superfamily Rissooidea	23
Family RISSOIDAE	23
Genus <i>Pusillina</i> Monterosato, 1884	23
Subgenus <i>Haurakia</i> Iredale, 1915	23
<i>Pusillina</i> (<i>Haurakia</i>) <i>averni</i> n. sp.	23
<i>Pusillina</i> (<i>Haurakia</i>) cf. <i>averni</i>	25
Genus <i>Manzonina</i> Brusina, 1870	25
Subgenus <i>Alvinia</i> Monterosato, 1884	25
<i>Manzonina</i> (<i>Alvinia</i>) <i>limensis</i> n. sp.	25
Genus <i>Powellisetia</i> Ponder, 1965	25
<i>Powellisetia microlirata</i> n. sp.	26

1. Australian Museum, 6-8 College Street, Sydney, New South Wales, 2000, Australia.

2. % Unicomarine, 7a, Diamond Centre, Letchworth, Hertfordshire SG61LW, U.K.

Genus <i>Onoba</i> H. and A. Adams, 1852	26
<i>Onoba protofimbriata</i> n. sp.	26
<i>Onoba subincisa</i> n. sp.	31
<i>Onoba striola</i> n. sp.	36
<i>Onoba subaedonis</i> n. sp.	36
<i>Onoba sulcula</i> n. sp.	39
<i>Onoba scythei</i> (Philippi, 1868)	39
<i>Onoba fuegoensis</i> (Strebel, 1908)	43
<i>Onoba georgiana</i> (Pfeffer, 1886)	45
<i>Onoba erugata</i> n. sp.	45
<i>Onoba amissa</i> nom. nov.	46
<i>Onoba</i> (?) <i>algida</i> n. sp.	47
<i>Onoba</i> (?) <i>lacuniformis</i> n. sp.	47
Family BARLEEIDAE	48
Genus <i>Barleeia</i> Clark, 1853	48
<i>Barleeia meridionalis</i> n. sp.	48
Family Anabathridae	49
Genus <i>Amphithalamus</i> Carpenter, 1864	49
<i>Amphithalamus</i> cf. <i>inclusus</i> Carpenter, 1864	49
Superfamily RISSOELLOIDEA	49
Family RISSOELLIDAE	49
Genus <i>Rissoella</i> J.E. Gray, 1847	49
Subgenus <i>Rissoella</i>	49
<i>Rissoella</i> (<i>Rissoella</i>) <i>peruviana</i> n. sp.	49
PART 2. Additional species and records for South Georgia and Falkland Islands	51
Family Eatoniellidae	51
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>strebelsi</i> n. sp.	51
<i>Eatoniella</i> (<i>Eatoniella</i>) cf. <i>cana</i> Ponder, 1983	52
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>occulta</i> Ponder, 1983	52
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>bennetti</i> (Preston, 1912)	52
Family Rissoidae	54
<i>Onoba georgiana</i> (Pfeffer, 1886)	54
<i>Onoba subaedonis</i> n. sp.	54
<i>Onoba scythei</i> (Philippi, 1868)	54
<i>Onoba</i> cf. <i>protofimbriata</i>	54
<i>Onoba anderssoni</i> (Strebel, 1908)	54
<i>Onoba filostria</i> (Melvill and Standen, 1912)	54
<i>Onoba turqueti</i> (Lamy, 1905)	54
<i>Onoba</i> cf. <i>gelida</i> (E.A. Smith, 1907)	54
<i>Powellisetia australis</i> (Watson, 1886)	54
Family Cingulopsidae	54
<i>Skenella georgiana</i> Pfeffer (in Martens and Pfeffer), 1886	54
<i>Skenella wareni</i> n. sp.	55
Family Rissoellidae	55
<i>Rissoella</i> (<i>Jeffreysiella</i>) cf. <i>powelli</i> Ponder, 1983	55
PART 3. Species from Juan Fernández Islands	55
Family Eatoniellidae	55
<i>Eatoniella</i> (<i>Eatoniella</i>) <i>zigzag</i> n. sp.	55
Family Rissoidae	56
<i>Onoba</i> (?) <i>isolata</i> n. sp.	56
<i>Onoba</i> (?) <i>protopustulata</i> n. sp.	56
DISCUSSION	57
ACKNOWLEDGMENTS	58
LITERATURE CITED	58
APPENDIX: LIST OF LOCALITIES	59
Natural History Museum of Los Angeles County (LACM) Localities	59
National Museum of Natural History, Washington, D.C. (USNM) Material	61
Natural History Museum (London) (BMNH) Material	62
National Museum of Wales (NMW) Material	62
Swedish Museum of Natural History (SMNH) Material	62
T. Worsfold Stations	62
Locality Numbers	62

ABSTRACT. Rissoiform gastropods from southwestern South America (Peru to Tierra del Fuego) and Juan Fernández Islands are described and additional records are given. Taxa are also described for South Georgia and the Falkland Islands and new locality records of previously described taxa are listed from those areas. The southwestern South American fauna described consists of 10 species of Eatoniellidae comprising nine species of *Eatoniella*, seven of these new and one of which is in the subgenus *Albosabula*, and one new species of *Pupatonia*, the first record of the latter genus outside New Zealand. There are two species of Cingulopsidae; one, a species of *Skenella*, is new. The 15 taxa included in the Rissoidae (subfamily Rissoinae only) comprise 1 new species each of *Pusillina* (*Haurakia*), *Powellisetia*, and *Manzonia* (*Alvinia*) and 12 species of *Onoba*, 8 of which are new. A single new species of *Barleeia* (Barleidae) and *Rissoella* (Rissoellidae) is also described and an *Amphithalamus* (Anabathridae), close to *A. inclusus* Carpenter, is recorded. Three new taxa are described from Juan Fernández Islands, one *Eatoniella* and two rissoids tentatively included in *Onoba*. New species of *Eatoniella* and *Skenella* are described from South Georgia.

The biogeography of the fauna is briefly discussed. The South American taxa as far north as latitude 42°S are similar to those encountered on sub-Antarctic islands, whereas north of latitude 42°S the few species present are like those of southern California and Mexico.

A replacement name, *Eatoniella afronigra*, is provided for the South African eatoniellid *Rissoa nigra* Krauss, 1948, a secondary homonym of *Paludestrina nigra* Orbigny, 1840, also an *Eatoniella*.

RESUMEN. Se describen los gastrópodos rissoiformes del sureste de Sudamérica (Perú a Tierra del Fuego) e islas Juan Fernández y se entregan registros adicionales. Se describen además taxa para las islas Georgia del Sur y Malvinas y se entrega una lista con nuevos registros de localidades de especies descritas previamente de estas áreas. La fauna sudamericana descrita consiste de diez especies de Eatoniellidae, comprendiendo nueve especies de *Eatoniella*, siete son nuevas y una está en el subgénero *Albosabula*, y una especie de *Pupatonia*, el primer registro de este último género fuera de Nueva Zelanda. Existen dos especies de Cingulopsidae; una de ellas, del género *Skenella*, es nueva. Los 15 taxa que se incluyen en Rissoidae (solamente la subfamilia Rissoinae) comprenden una sola especie de los géneros *Pusillina* (*Haurakia*), *Powellisetia* y *Manzonia* (*Alvinia*), y 12 especies de *Onoba*, 8 de las cuales son nuevas. Se describe también una nueva especie de *Barleeia* (Barleidae) y de *Rissoella* (Rissoellidae) y se registra una de *Amphithalamus* (Anabathridae), cercana a *A. inclusus* Carpenter. Se describen tres nuevos taxa de las islas Juan Fernández, uno de *Eatoniella* y dos rissóideos, tentativamente incluidos en *Onoba*. Se describe una nueva especie de *Eatoniella* y de *Skenella* de las islas Georgia del Sur.

La biogeografía de la fauna se discute brevemente. Los taxa sudamericanos hasta la latitud 42°S son similares a aquellos encontrados en islas subantárticas, mientras que al norte de la latitud 42°S las pocas especies presentes se parecen a aquellas del sur de California y México.

Se proporciona un nombre de reemplazo, *Eatoniella afronigra*, para el eatoniéllido *Rissoa nigra* Krauss, 1948, un homónimo secundario de *Paludestrina nigra* Orbigny, 1840, también un *Eatoniella*.

INTRODUCTION

Small gastropods similar to members of the Rissoidae have proved to be difficult to classify on shell characters alone. It is only in the last three decades that studies on radulae and anatomy have provided a solidly based classification for these animals. Because many workers have difficulty in separating the families involved, they are treated together in this work. An attempt is made in this paper to describe the majority of rissoid and rissoid-like taxa occurring in southwestern South America from Peru to Tierra del Fuego. Three taxa from a sample from Juan Fernández Islands are also described.

The taxa reviewed in this work include members of three superfamilies, two of which are closely related. These are the caenogastropod Rissoidae (Rissoidae) and Cingulopsoidea (Eatoniellidae and Cingulopsidae) (see Ponder, 1988, for discussion on relationships) and the superficially similar but very different Rissoelloidea (Rissoellidae), which belongs in the subclass Heterobranchia. All of these groups closely resemble rissoids and have, in the past, been included in, or closely associated with, that family.

This paper is intended to supplement and complement a similar work on the Antarctic and sub-Antarctic fauna (Ponder, 1983a). The only family not dealt with herein that was included in Ponder (1983a) is the Orbitestellidae, of which taxa are present in the region (Ponder, 1990). The opportunity is also taken to report on some additional collections from South Georgia and the Falkland Islands.

There are very few studies on small marine gastropods from South America. Of the 30 species recognized below, only seven have been described previously, with two additional available names proving to be synonyms of earlier named taxa. A few species described from Argentina in the last 20 years (Castellanos and Fernandez, 1972a, b, 1974) have not been available for study but, as far as can be determined from their descriptions and figures, are different from any of the taxa dealt with in this report. Dell (1990), in his major review of Antarctic Mollusca, dealt with some material from South America but did not include records of rissoiform species from that area. Similarly, other faunistic

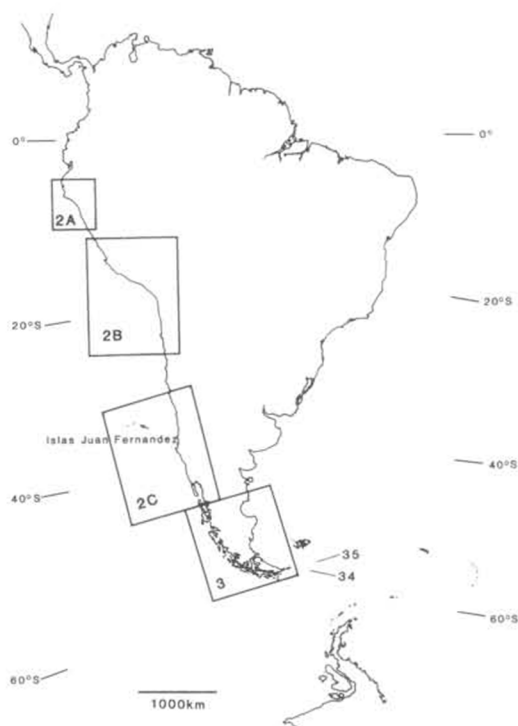


Figure 1. Map of South America showing location of outlying localities and insets indicating location of maps shown in Figures 2 and 3.

studies on the Mollusca of the Pacific Coast of South America (e.g., Dall, 1909; Dell, 1971) have mainly dealt with the larger species, the micromolluscan fauna remaining largely unknown.

Members of the genus *Rissoina* (Rissoiidae, Rissoiinae) are not discussed here, as they are being investigated by W. Sleurs.

MATERIALS AND METHODS

Shells were measured using an eyepiece micrometer in a Wild M5 stereomicroscope. The measurements presented are given as the raw data rather than means because the specimens measured were not extracted from the available material randomly, but rather well-preserved, intact adult specimens were selected.

The full locality data are given in the appendix. These data are only repeated in the material examined section for each taxon for the primary type localities of new taxa, additional material being referred to by station numbers and the institution in which it is deposited. The number of specimens in each lot that can confidently be assigned to the species is given in square brackets. Where the entire sample consists of empty shells, this is indicated by the letter "d" (=dead) in square brackets. Some juveniles, fragments, and other specimens in the lots that cannot be reliably identified are not included in the number of specimens given. The localities are listed in the appendix by institution and then numerically by station number. The location of each station is given in Figures 1-4. Because

of the large number of stations involved, these were grouped into tight geographic clusters and each cluster numbered. These numbers are given for each station in the material examined section of each species and also in the appendix. This was done to facilitate the geographic location of any particular station by reference to Figures 1-4. In addition, the locality numbers are also listed numerically with a list of all of the station numbers referable to each of these numbers.

Radulae, shells, and opercula were examined using the scanning electron microscope (SEM) after standard preparation. The orientation of the opercula (anterior and posterior ends, inner and outer edges) are given as though the operculum is retracted in the shell aperture. In each case the number of radulae examined is indicated. In the relatively few cases where ethanol-preserved material is available, the pigmentation of the head-foot and visceral coil is noted.

ABBREVIATIONS

INSTITUTIONS

- AMS—Australian Museum, Sydney
- BMNH—Natural History Museum, London
- LACM—Los Angeles County Museum of Natural History
- MCZ—Museum of Comparative Zoology, Harvard University, Cambridge
- NMNHP—Muséum National d'Histoire Naturelle, Paris
- NMNZ—National Museum of New Zealand, Wellington
- NMW—National Museum of Wales, Cardiff
- SMNH—Naturhistoriska Riksmuseet, Stockholm
- USNM—National Museum of Natural History, Smithsonian Inst., Washington, D.C.

ABBREVIATIONS USED IN LOCALITY DETAILS

- DE—Discovery Expedition Station
- E—Eltanin Station
- H—Hero Cruise 712 Station
- R/V—Research Vessel
- SNAE—Scottish National Antarctic Expedition Station
- SSPE—Swedish Southpolar Expedition Station
- Sta.—Station
- TW—T. Worsfold Station
- V—Vema Station

ABBREVIATIONS USED IN SHELL MEASUREMENTS

- AL—aperture length
- BA—number of axials on last whorl
- BS—number of spirals on last whorl
- PA—number of axials on penultimate whorl
- PD—protoconch diameter
- PS—number of spirals on penultimate whorl
- PW—number of protoconch whorls
- SL—shell length
- SW—shell width
- TW—number of teleoconch whorls

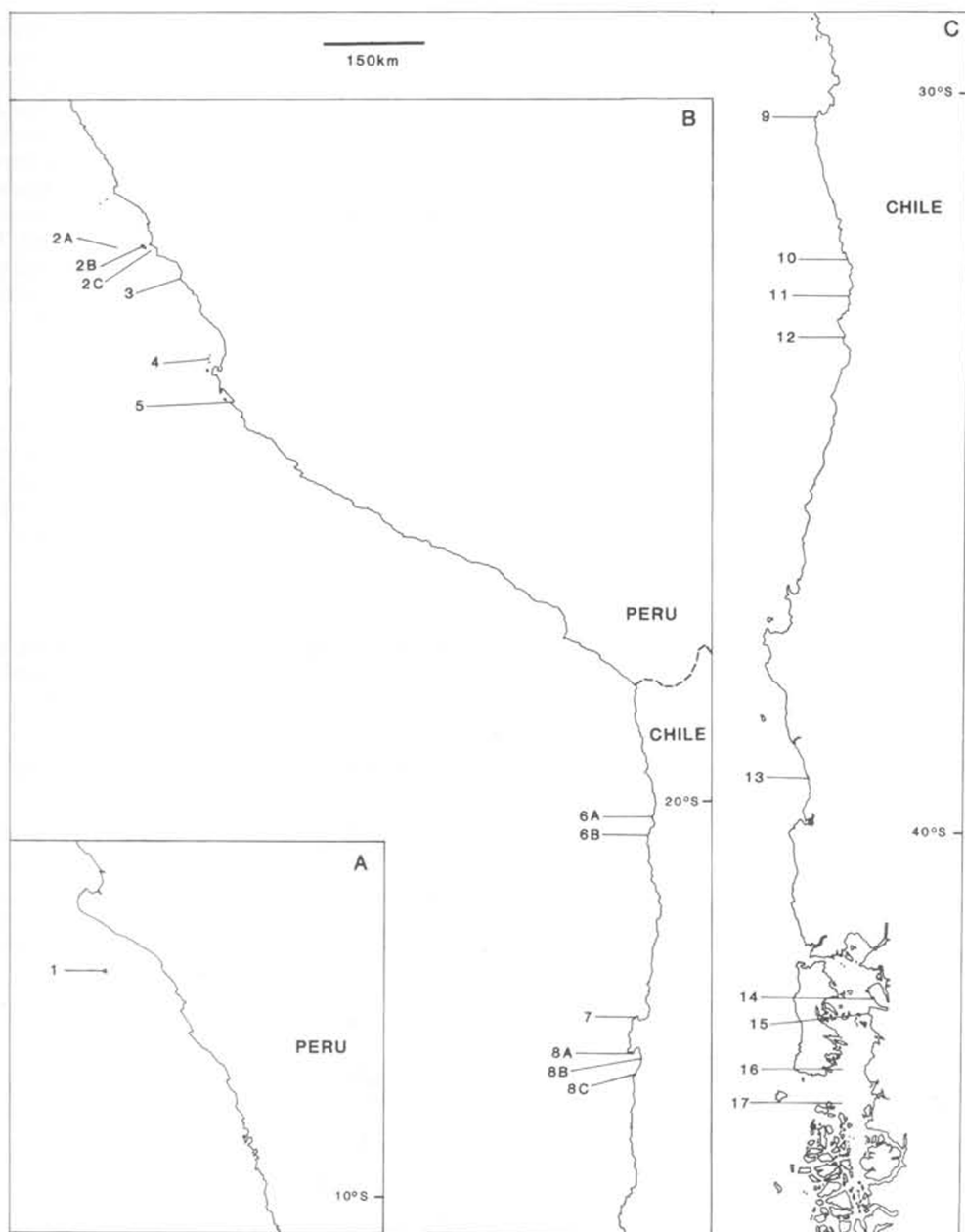


Figure 2. A, Localities in northern Peru. B, Localities in southern Peru and northern Chile. C, Localities in central Chile.

TAXONOMY

This section deals with species grouped according to three geographic areas:

1. Species from Peru to Tierra del Fuego, South America.
2. Species and records for South Georgia and the Falkland Islands additional to those recorded by Ponder (1983a).
3. Species from Juan Fernández Islands.

Part 1

Species from Peru to Tierra del Fuego, South America

Subclass PROSOBRANCHIA

This grouping is paraphyletic according to recent analyses of gastropod phylogeny (e.g., Haszprunar, 1988). It is used here in the traditional way pending an alternative ranked classification.

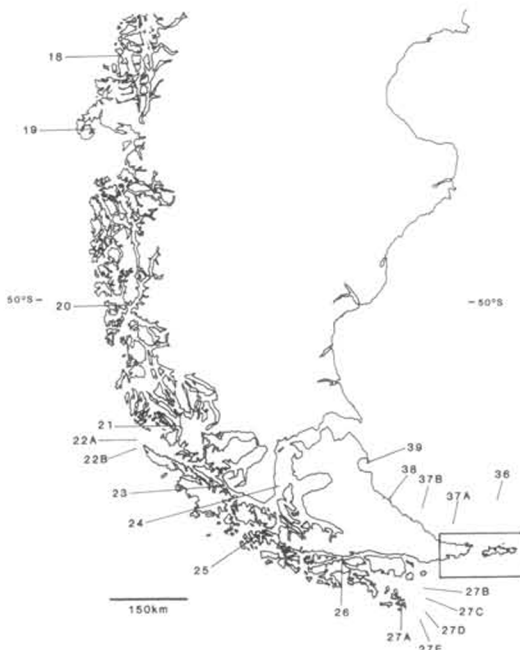


Figure 3. Localities in southern Chile and Tierra del Fuego. The inset indicates location of Figure 4.

Order Caenogastropoda

Superfamily Cingulopsoidea

Family EATONIELLIDAE

This family is distributed around the southern continents and a few taxa are found in the northern

Indo-west Pacific. None are known from northern South America, Central America, or North America where it is replaced by a family with very similar shell features, the Barleeidae. The Argentinean *Eatoniella rubrooperculata* Castellanos and Delicia, 1971, is a member of the Barleeidae. The eatoniellids of New Zealand (Ponder, 1965a), Australia (Ponder and Yoo, 1977a), and the Antarctic-sub-Antarctic (Ponder, 1983a) have been reviewed. The family is distinguished by having a well-developed peg on the operculum, a "littorinid"-like radula, no true penis, and open pallial genital ducts.

Genus *Eatoniella* Dall, 1876

Species of this genus have a depressed-ovate to conic shell with a markedly prosocline outer lip. The operculum usually has an opaque insertion area and lacks a distinct internal ridge. See Ponder and Yoo (1977a) for a formal synonymy and diagnosis.

Subgenus *Eatoniella*

The typical subgenus is differentiated from the next by having the midbasal part of the central teeth of the radula not markedly produced ventrally.

Eatoniella (Eatoniella) turricula n. sp.

Figures 5A, 6D, 7A, 8A

ETYMOLOGY. *Turricula*—Latin. A little tower. Refers to the shell shape.

MATERIAL EXAMINED. Types. Holotype, LACM 2656, 205 paratypes, LACM 2657; 8 paratypes, AMS C.167414. 33R 71-328. 6.4 km N Cabo San Juan, Isla de

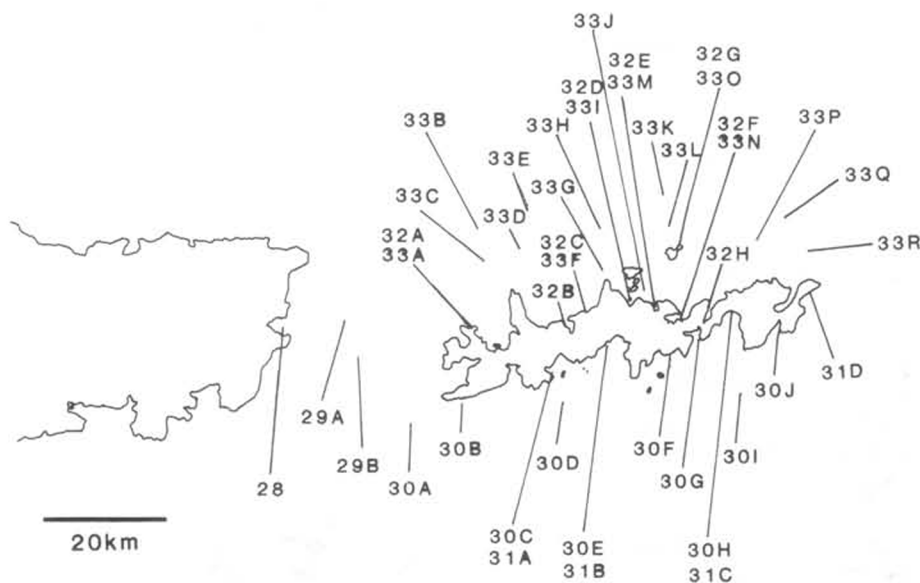


Figure 4. Map showing the localities around Isla de los Estados.

los Estados, Tierra del Fuego, Argentina. 54°39.1'S, 63°50.1'W, 135–137 m, Sta. 874, USARP-SOSC-R/V *Hero* Cr.715, 26 Oct. 1971.

Additional Material Examined. *Southern Chile:* 22A USNM E 960 [1]. 22B USNM E 958 [6]. *Tierra del Fuego:* 27B USNM V 17-48 [1(d)]. 27C USNM E 219 [3(d)]. 28 71-271 [3(d)]. 29B 71-305 [17(d)]. 30A 71-342 [4(d)]. 30H 71-332 [2]; 30H USNM H 664 [many(d)]. 30I 71-329 [many]. 33A USNM H 656 [9(d)]. 33B 71-347 [many]; 71-267 [1(d)]. 33C 71-348 [many]. 33D 71-352 [20(d)]. 33E 71-351 [many]. 33H 71-313 [4(d)]. 33K 71-315 [3(d)]. 33L 71-316 [10(d)]. 33P 71-319 [1(d)]. 33Q 71-327 [10 (+ many d)]. 35 37B USNM E 967 [2(d)]. 37A BMNH DE 88 [1(d)]. (All material LACM unless otherwise indicated.)

DIAGNOSIS. Shell (Figs. 5A, 6D). Small (maximum length 2.8 mm), conical, thin, translucent when fresh, with 3.2–4.1 teleoconch whorls. Spire with straight outlines, whorls very lightly convex; periphery of last whorl lightly angled. Sutures impressed, simple. Teleoconch smooth and rather glossy with faint prosocline growth lines. Protoconch (Fig. 6D) smooth except for fine spiral grooves, of 1.2–1.7 whorls. Aperture moderately large, circular, with sharp peristome, lacking external varix. Inner lip narrow, outer lip moderately to strongly prosocline. Umbilical chink minute. Periostracum very thin, transparent. Color yellowish-white, sometimes pale grey, fading to white.

Dimensions.

	SL	SW	SL/ SW	AL	SL/ AL	TW	PW	PD
Holotype	2.75	1.46	1.87	0.87	3.13	4.1	1.2	0.41
Paratypes	2.47	1.47	1.68	0.85	2.91	3.3	1.7	0.48
	2.75	1.50	1.83	0.94	2.91	3.8	1.3	0.46
	2.66	1.57	1.69	0.93	2.85	3.2	1.7	0.53
	2.75	1.53	1.80	0.92	2.99	4.1	1.5	0.41
	2.66	1.43	1.84	0.91	2.91	3.8	1.4	0.45
	2.78	1.53	1.80	0.95	2.90	3.4	1.6	0.48
	2.48	1.36	1.82	0.81	3.04	3.2	1.7	0.53
	2.62	1.52	1.72	0.93	2.80	3.4	1.6	0.48
	2.49	1.42	1.74	0.82	3.01	3.3	1.5	0.44

Operculum (Fig. 7A). Pale yellow, oval, weakly angled posteriorly and anteriorly; inner and outer edges equally convex. Peg curved, well developed.

Radula (Fig. 8A). Central teeth with cusp formula 3+1+3, median cusp moderately long, narrow. Lateral teeth with cusp formula 2+1+3, primary cusp narrow, pointed. Inner marginal teeth with cusp formula 5+1+5, primary cusp small, outermost cusps very small. Outer marginal teeth with about 6 small cusps (based on 2 radulae).

Animal. Unpigmented.

REMARKS. The shell of this species is distinguishable from the next (*E. denticula* n. sp.) by its slightly larger size and more conical shape, the whorls being flatter. The shell surface is also smoother and glossier when fresh. The two species also differ in radular details (see below) and occur at different depths.

Eatoniella turricula is similar to *E. cana* Ponder, 1983, but the shell has a broader base, is more conical, is glossier, and differs in color, *E. cana* having a dark spire and a non-pigmented last whorl. *Eatoniella turricula* is also similar in shell and radular features to *E. kerguelenensis* (E.A. Smith, 1875) but has a more evenly conical shell because of the flatter whorl outlines. The shell of *E. turricula* is about the same size as that of *E. kerguelenensis kerguelenensis*, but smaller than that of *E. kerguelenensis regularis* (E.A. Smith, 1915), these latter taxa also usually having a more darkly pigmented shell.

Most of the records of *E. turricula* are based on empty, faded shells. A shallow-water species, *E. ebenina* n. sp., has a darkly pigmented shell but faded specimens of the two species closely resemble one another and it is possible that some of our identifications based on dead shells may be incorrect. *Eatoniella turricula* and *E. ebenina* are contrasted in the remarks under the latter species.

DISTRIBUTION. Southern Chile and Tierra del Fuego in 40–900 m. Common.

***Eatoniella (Eatoniella) denticula* n. sp.**

Figures 5B, C, 6C, 7B, C, 8B, F, G

ETYMOLOGY. Denticula—Latin. A little tooth. Refers to the shell shape.

MATERIAL EXAMINED. Types. Holotype, LACM 2658, 9 paratypes, LACM 2659; 5 paratypes, AMS C.167415. 32H 71-287. Puerto Cook, Isla de los Estados, Tierra del Fuego, Argentina. 54°45.25'S, 64°2.3'W, intertidal, Sta. 71-2-37, USARP-SOSC-R/V *Hero* Cr.712, 17 May 1971.

Additional Material Examined. *Southern Chile:* 17 73-75 [8(d)]. 21 73-71 [many]. 24 75-48 [26]. *Tierra del Fuego:* 25 73-69 [21(d)]. 28 71-270 [13(+19d)]; 71-271 [4(+14d)]. 30A USNM H 654 [1(d)]. 30E 71-339 [2(d)]. 31A 71-274 [6]. 32B 71-295 [4]. 32D 71-293 [2]. 32G 71-311 [7]. 32H 71-287 [3]. 33A 71-258 [2(d)]; 71-308 [9(d)]; USNM H 656 [many(d)]. 33G 71-266 [9]; 73-66 [many(d)]. 33I 71-317 [17(d)]. 33J 71-264 [many(d)]. 33O 71-310 [many(d)]. (All material LACM unless otherwise indicated.)

DIAGNOSIS. Shell (Figs. 5B, C, 6C). Small (maximum length 2.0 mm), ovate-conical, moderately thick, translucent when fresh, with 2.5–3.5 teleoconch whorls. Spire with lightly convex to straight outlines, whorls lightly to moderately convex; periphery of last whorl rounded. Sutures impressed, simple. Teleoconch moderately smooth with faint growth lines. Protoconch (Fig. 6C) smooth, of 1.2–1.7 whorls. Aperture subcircular, weakly angled posteriorly, with moderately sharp peristome, lacking external varix. Inner lip narrow, outer lip moderately prosocline. Umbilical chink very small. Periostracum very thin, transparent. Color pale grey to pale yellowish-white, fading to white.

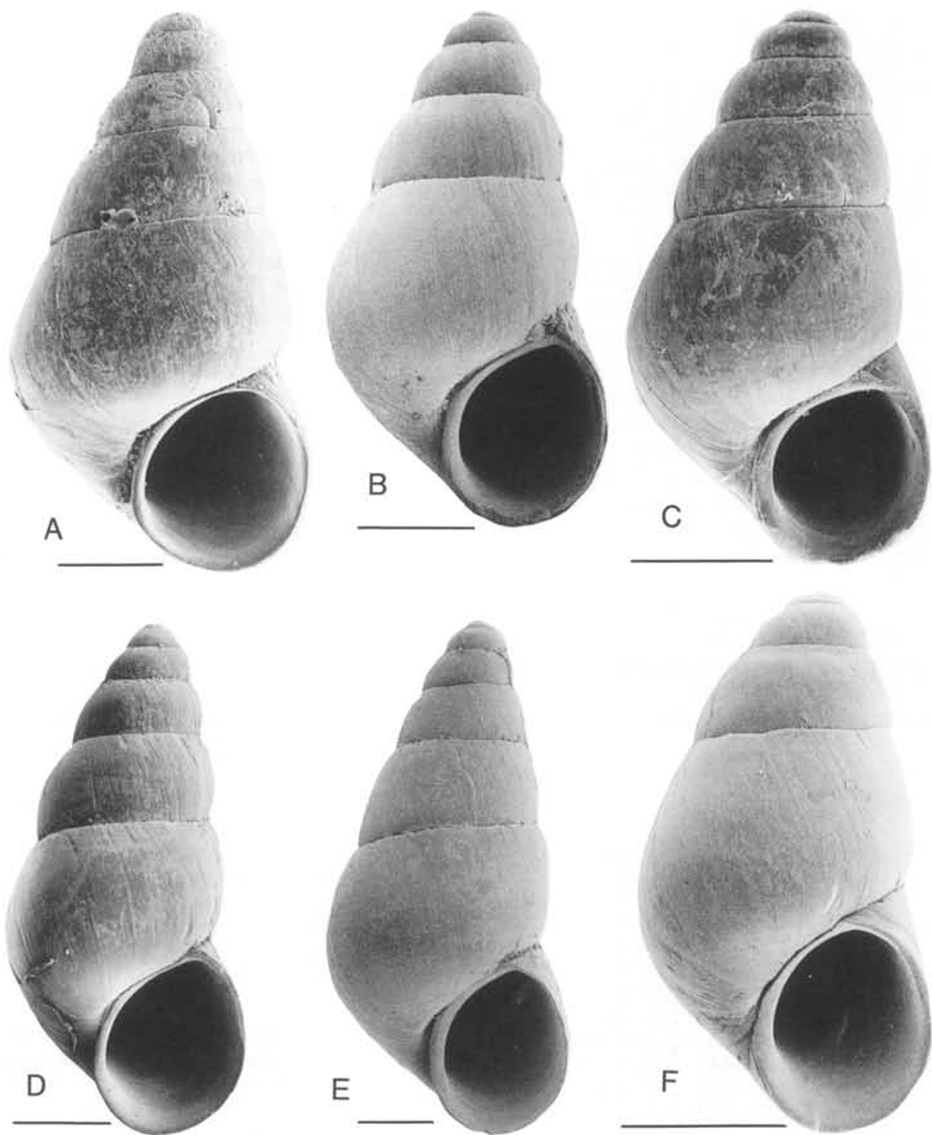


Figure 5. Shells of species of *Eatoniella*. A, *Eatoniella turricula* n. sp., holotype, length 2.75 mm. B, C, *Eatoniella denticula* n. sp.; B, holotype, length 1.87 mm; C, Sta. 71-270, shell, length 1.94 mm. D, *Eatoniella picea* n. sp., holotype, length 2.44 mm. E, *Eatoniella ebenina* n. sp., holotype, length 3.25 mm. F, *Eatoniella nigra* (Orbigny), Sta. 75-20, length 1.69 mm. Scale bars: 500 μ m.

Dimensions.

	SL	SW	SL/ SW	AL	SL/ AL	TW	PW	PD
Holotype	1.87	1.13	1.65	0.68	2.73	3.1	1.4	0.40
Paratypes	1.83	1.14	1.60	0.68	2.67	2.7	1.6	0.43
	1.74	1.08	1.61	0.65	2.67	2.8	1.5	0.42
	1.67	1.04	1.61	0.64	2.60	2.9	1.4	0.38
	1.71	0.98	1.74	0.63	2.71	2.8	1.5	0.43
	1.64	0.98	1.66	0.62	2.64	2.6	1.6	0.42
	1.74	1.03	1.70	0.63	2.76	2.7	1.6	0.43
	1.72	1.06	1.63	0.66	2.60	2.6	1.7	0.43
	1.67	0.98	1.70	0.63	2.64	2.5	1.7	0.42
	1.69	0.96	1.76	0.62	2.72	2.6	1.6	0.43

Sta. 71-270

Fig. 5C	1.94	1.08	1.79	0.63	3.07	3.4	1.3	0.36
	1.63	0.98	1.65	0.61	2.67	3.1	1.2	0.32
	1.62	0.98	1.64	0.56	2.90	3.2	1.2	0.33
	1.77	1.03	1.72	0.64	2.75	3.4	1.3	0.32
	1.71	1.02	1.68	0.63	2.71	3.2	1.2	0.33
Sta. 71-311	1.90	1.16	1.65	0.63	3.02	3.4	1.3	0.32
	2.04	1.21	1.69	0.63	2.77	3.5	1.2	0.33
	1.99	1.17	1.71	0.66	3.00	3.2	1.3	0.36
	1.81	1.07	1.69	0.64	2.82	3.0	1.4	0.41
	1.71	1.04	1.65	0.57	3.02	3.1	1.2	0.34

Operculum (Fig. 7B, C). Pale yellow, oval, more strongly angled posteriorly than anteriorly, inner

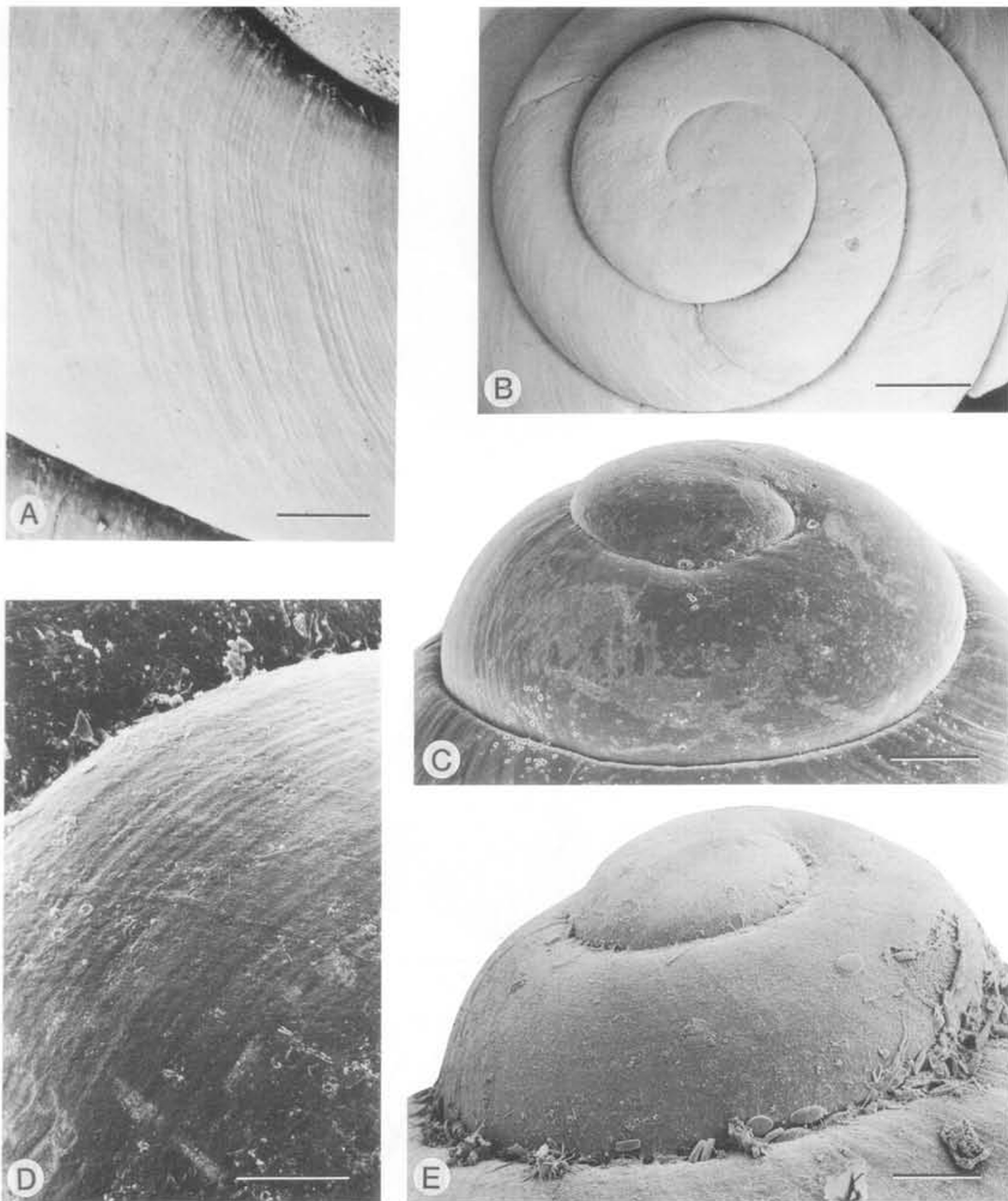


Figure 6. Protoconchs of species of *Eatoniella*. A, B, *Eatoniella castanea* n. sp., paratype, apical view (B) and teleoconch microsculpture (A). C, *Eatoniella denticula* n. sp., Sta. 71-270, lateral view. D, *Eatoniella turricula* n. sp., paratype, protoconch microsculpture. E, *Eatoniella glomerosa* n. sp., Sta. 71-283, lateral view of protoconch. Scale bars: A, D, 20 μ m; B, 100 μ m; C, E, 50 μ m.

and outer edges approximately equally convex. Peg curved, well developed.

Radula (Fig. 8B, F, G). Central teeth with cusp formula 2-3+1+2-3 median cusp moderately long, narrow. Lateral teeth with cusp formula 2+1+2 (+1 outer denticle in some), primary cusp narrow, pointed. Inner marginals apparently with cusp formula 3+1+2 (somewhat obscured in mounts).

Outer marginals also obscured but with at least 7-8 small cusps (based on 4 radulae).

Animal. Unpigmented or with a slight grey tinge on visceral coil.

REMARKS. The shell of this species is contrasted with *E. turricula* above and differs from that species in its smaller shell, which has more convex

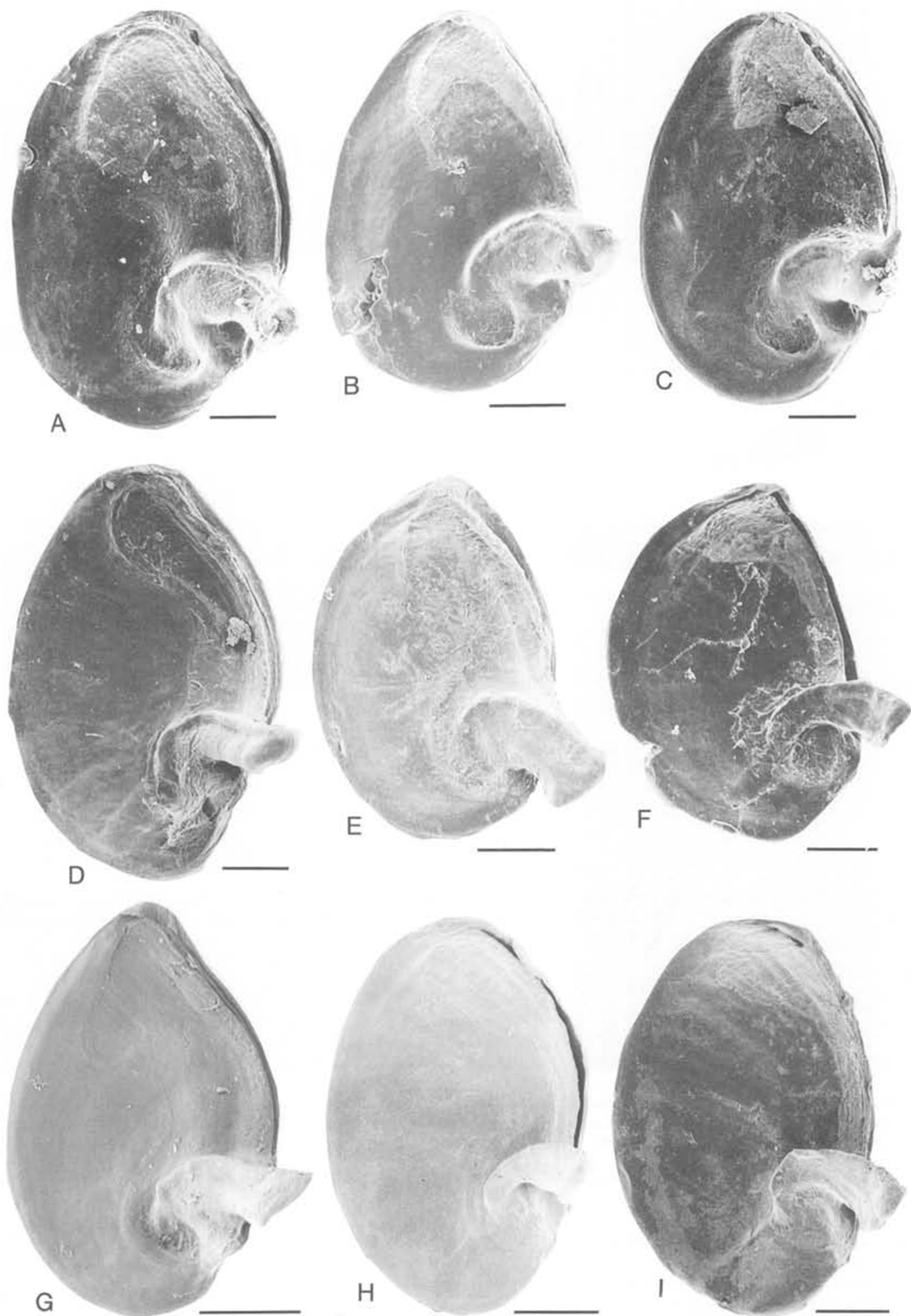


Figure 7. Opercula of species of *Eatoniella*. All views inner side. A, *Eatoniella turricula* n. sp., paratype. B, C, *Eatoniella denticula* n. sp.; B, Sta. 71-270; C, paratype. D, *Eatoniella picea* n. sp., paratype. E, *Eatoniella nigra* (Orbigny), Sta. 75-20. F, H, I, *Eatoniella glomerosa* n. sp.; F, Sta. 71-270; H, paratype; I, Sta. 71-283. G, *Eatoniella ebenina* n. sp., Sta. 73-69. Scale bars: A-F, H, I, 100 µm; G, 200 µm.

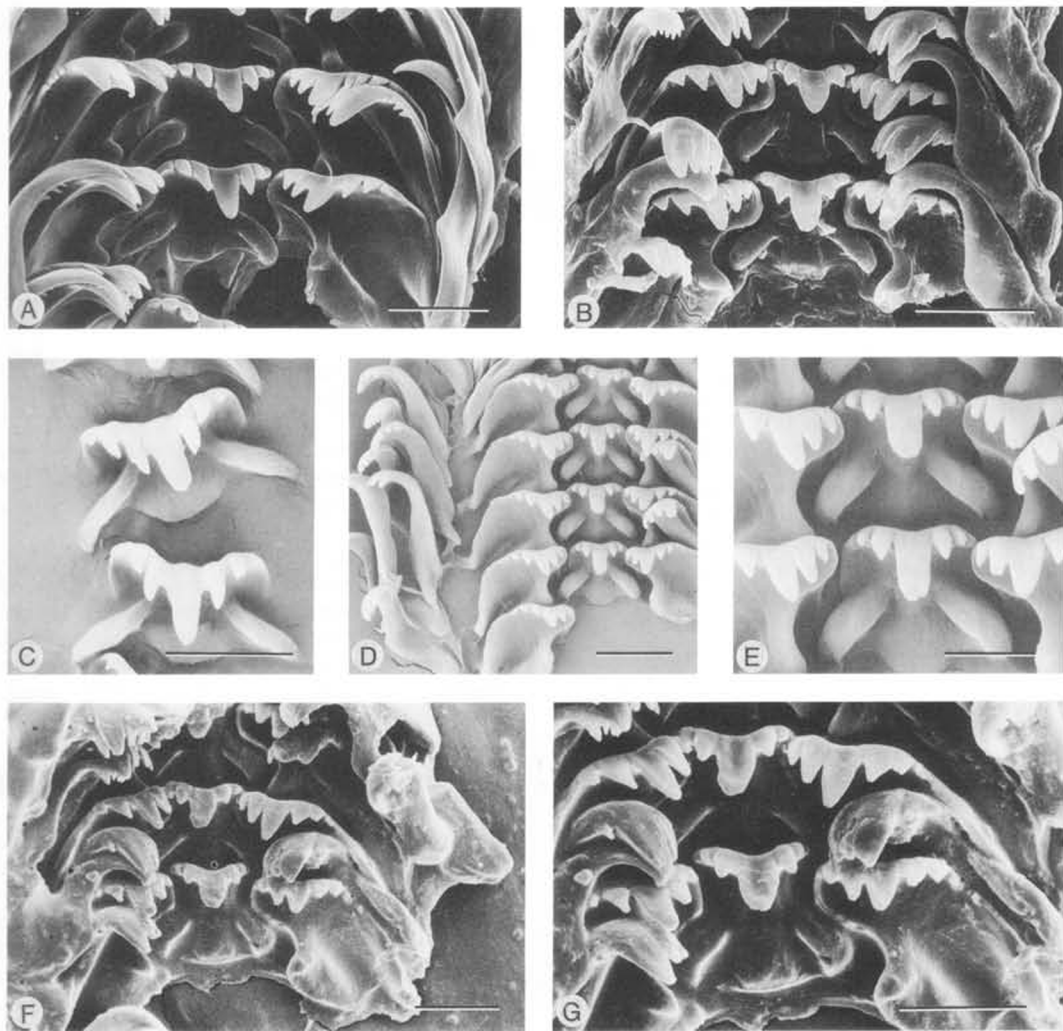


Figure 8. Radulae of *Eatoniella* species. A, *Eatoniella turricula* n. sp., paratype. B, F, G, *Eatoniella denticula* n. sp.; B, Sta. 71-270; F, G, paratypes. C-E, *Eatoniella ebenina* n. sp., Sta. 73-69; C, E, detail of central teeth. Scale bars: A-C, E-G, 10 μ m; D, 20 μ m.

whorls. The radula in the two species are similar but in *E. denticula* the primary cusps of the inner marginal, lateral, and central teeth are blunter and the number of cusps on the inner marginal teeth apparently smaller. *Eatoniella denticula* is rather similar to the Antarctic *E. demissa* (E.A. Smith, 1915), but the shell of the latter species is broader and the radula has more cusps on the central teeth. The shell of *E. denticula* is somewhat similar to the southern Australian *E. victoriae* Ponder and Yoo, 1978, but the shell of that species is thinner, slightly broader, and smaller.

DISTRIBUTION. Southern Chile and Tierra del Fuego in algae and among rocks; mainly intertidal with occasional specimens to 15 m. Empty shells have been found down to about 30 m. Common.

Empty shells and a few live specimens found down to 124 m may be a different species and are listed separately; see below.

Eatoniella (*Eatoniella*) cf. *denticula*

MATERIAL EXAMINED. *Southern Chile:* 22B USNM E 958 [6(d)]. *Tierra del Fuego:* 27B USNM V 17-48 [2(d)]. 27C USNM E 219 [1(d)]. 27E BMNH DE 388 [many(d)]. 30H USNM H 664 [28(d)]. 33A USNM H 656 [1(d)]. 33B 71-267 [1(d)]. 33C 71-348 [4(d)]. 33E 71-351 [6(d)]. 33L 71-316 [5(d)]. 33O 71-310 [2(d)]. 33Q 71-327 [10]. 33R 71-328 [2(d)]. 37B USNM E 967 [3]. (All material LACM unless otherwise indicated.)

REMARKS. Some lots of empty shells from deeper water, often occurring together with *E. turricula*, are generally similar to *E. denticula* but are

larger and more elongate and mostly (bleached?) white. Although some intermediate shell forms are seen, it is quite possible that this material represents another taxon, and we do not feel confident in unreservedly assigning it to *E. denticula*.

DISTRIBUTION. Southern Chile and Tierra del Fuego in 18–124 m.

Eatoniella (Eatoniella) cf. cana
Ponder, 1983

Eatoniella cana Ponder, 1983a: 6 (in part).

MATERIAL EXAMINED. *Southern Chile:* 17 LACM 73-75 [12(d)]. *Tierra del Fuego:* 27A NMNHP "Baie Orange," Mission du Cap Horn [11]. BMNH 37A DE 88 [1(d)]. *Falkland Islands:* SNMH SPSE 48 [10].

REMARKS. A few empty shells from LACM and *Discovery* stations and a single lot found among the old "spirit" collections in the National Museum, Paris, are very similar to *E. cana* but differ in having a slightly smaller shell and more convex whorls. They agree closely with specimens from the Falkland Islands, and it is possible that the material from these two areas is referable to a separate species-group taxon. The opportunity is taken to list an additional locality for this species from the Falkland Islands.

DISTRIBUTION. Falkland Islands, southern Chile, and Tierra del Fuego. Typical form from South Georgia and South Orkney Islands.

Eatoniella (Eatoniella) ebenina n. sp.
Figures 5E, 7G, 8C–E

ETYMOLOGY. *Ebenina*—Latin. Black. Refers to the shell color.

MATERIAL EXAMINED. *Types.* Holotype, LACM 2660, 12 paratypes, LACM 2661; 3 paratypes, AMS C.167416. 20 73-72. Bahía Tom, Magallanes Prov., Chile. 50°11.3'S, 74°47.9'W, 14 m, P. Dayton (R/V *Hero*), 21 May 1973.

Additional material examined. *Southern Chile:* 21 73-71 [15(d)]. 23 73-70 [28(d)]. 24 75-49 [13(d)]. *Tierra del Fuego:* 25 73-69 [10(+21d)]. 26 73-68 [1(d)]. 28 71-296 [4(d)]. 32F 71-326 [1(d)]. 33G 73-66 [21(d)]. 33O 71-310 [12(d)]. (All material LACM.)

DIAGNOSIS. *Shell* (Fig. 5E). Small (maximum length 3.3 mm), elongate-conic, moderately thin, opaque, with 3.5–4.1 teleoconch whorls. Spire with straight outlines, whorls very lightly convex; periphery of last whorl sometimes slightly angled. Sutures impressed, simple. Teleoconch smooth with faint growth lines and rather dull surface. Protoconch smooth, of 1.5–1.8 whorls. Aperture ovoid, weakly angled posteriorly, with sharp peristome, lacking external varix. Inner lip narrow, outer lip moderately prosocline. Umbilical chink very small or absent. Periostracum very thin, transparent. Col-

or uniform dark grey to black except for yellow-white to white patch on lower base.

Dimensions.

	SL	SW	SL/ SW	AL	SL/ AL	TW	PW	PD
Holotype	3.25	1.65	1.97	1.05	3.10	4.0	1.8	0.54
Paratypes	3.19	1.66	1.92	1.10	2.89	4.1	1.7	0.56
	3.05	1.60	1.90	1.03	2.97	4.0	1.8	0.49
	2.86	1.55	1.84	0.86	3.10	3.9	1.8	0.46
	3.03	1.73	1.75	1.07	2.83	3.8	1.5	0.49
	3.14	1.71	1.83	1.06	2.96	4.4	1.7	0.42
	2.95	1.63	1.82	1.07	2.76	3.5	1.8	0.53
	2.83	1.59	1.78	0.98	2.88	3.5	1.7	0.50
	3.04	1.62	1.88	1.00	3.05	3.8	1.8	0.52
	3.16	1.64	1.93	1.05	3.01	3.7	1.8	0.54

Operculum (Fig. 7G). Yellow, oval, with posterior end more strongly angled than anterior. Inner and outer edges of equal convexity. Peg curved, well developed.

Radula (Fig. 8C–E). Central teeth with cusp formula 3+1+3, median cusp long, bluntly pointed to spatulate, outermost cusps very small. Lateral teeth with cusp formula 2+1+3. Inner marginal teeth with cusp formula 4–5+1+3–5, outermost cusps minute. Outer marginal teeth with 10+ small, sharp cusps (based on 3 radulae).

Animal. Unknown.

REMARKS. This species can be distinguished from the other dark-colored South American species by its larger size and relatively flatter whorls. *Eatoniella turricula* is similar in shell shape but can be separated on shell color and its larger size, glossier surface, and flatter whorls. The radulae are also similar, but the primary cusps of the central and lateral teeth are blunt in *E. ebenina* and sharp in *E. turricula*. As noted under *E. turricula*, empty, faded shells of these two species are difficult to distinguish, and it is possible that some records are incorrectly assigned.

There is also some similarity with *E. cana*, but *E. ebenina* has a thinner, larger shell and uniform dark grey or black color. Other somewhat similar dark-colored eatoniellids include the thicker-shelled, broader sub-Antarctic *E. kerguelenensis*, which has more convex whorls, and the smaller and less angled New Zealand *E. olivacea* (Hutton, 1882).

DISTRIBUTION. Southern Chile and Tierra del Fuego from intertidal to 15 m. Live-collected specimens all subtidal. Not common.

Eatoniella (Eatoniella) picea n. sp.
Figures 5D, 7D, 9A, B

ETYMOLOGY. *Picea*—Latin. Pitch black. Refers to the shell color.

MATERIAL EXAMINED. *Types.* Holotype, LACM 2662, 100 paratypes, LACM 2663; 8 paratypes, AMS

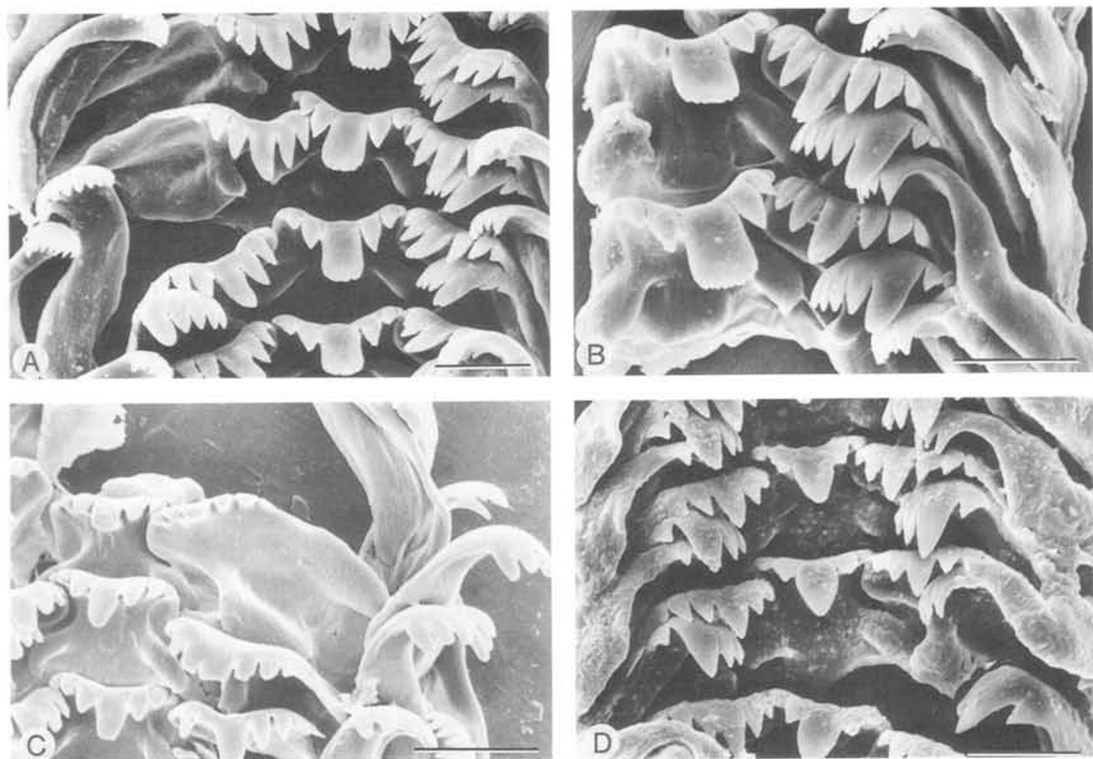


Figure 9. Radulae of *Eatonella* species. A, B, *Eatonella picea* n. sp., paratypes. C, *Eatonella nigra*, Sta. 75-20, D, *Eatonella castanea* n. sp., paratype. Scale bars: 10 μ m.

C.167417. 32G 71-311. Observatorio, Isla de los Estados, Tierra del Fuego, Argentina. 54°39.5'S, 64°08'W, intertidal rocks. Sta. 699, USARP-SOSC-R/V *Hero* Cr.715, 19 Oct. 1971.

Additional Material Examined. *Southern Chile*: 24 75-48 [1]. *Tierra del Fuego*: 28 71-270 [many]; 71-271 [many]. 31A 71-274 [1(d)]. 31B 71-276 [1(d)]. 31D 71-283 [13]. 32A 71-273 [many]. 32A 71-309 [16]. 32C 71-294 [1(d)]. 32D 71-291 [2(d)]; 71-293 [1(d)]. 32E 71-289 [many]; 71-290 [4(d)]. 32F 71-326 [2]. 33G 73-66 [21(d)]. 32H 71-287 [many]. 33F 71-265 [1(d)]. 33O 71-310 [1(d)]. 38 75-51 [1]. 39 71-268 [11(d)]. (All material LACM.)

DIAGNOSIS. **Shell** (Fig. 5D). Small (maximum length 2.4 mm), elongate-conic, moderately thin, with 3.5–4.0 teleoconch whorls. Spire with very lightly convex outlines, whorls moderately convex; periphery of last whorl rounded. Sutures impressed, simple. Teleoconch smooth and rather glossy, with moderately prominent prosocline growth lines. Protoconch smooth, of 1.1–1.3 whorls. Aperture oval, weakly angled posteriorly, with sharp peristome, lacking external varix. Inner lip narrow, outer lip slightly to moderately prosocline. Umbilical chink very small or absent. Periostracum very thin, transparent. Color black or grey, often with reddish tinge, occasionally yellowish, paler near growing edge.

Dimensions.

	SL	SW	SL/ SW	AL	SL/ AL	TW	PW	PD
Holotype	2.44	1.23	1.98	0.85	2.89	3.9	1.3	0.35
Paratypes	2.44	1.25	1.95	0.82	2.96	—	—	—
	2.22	1.16	1.92	0.79	2.81	3.8	1.3	0.36
	2.21	1.14	1.93	0.75	2.96	3.6	1.2	0.33
	2.25	1.26	1.78	0.83	2.69	4.0	1.2	0.30
	2.40	1.25	1.91	0.80	2.99	4.0	1.2	0.35
	2.14	1.19	1.80	0.76	2.82	—	—	—
	2.30	1.28	1.79	0.85	2.83	3.5	1.3	0.38
	2.10	1.11	1.88	0.73	2.88	—	—	—
	2.28	1.22	1.87	0.83	2.73	3.8	1.1	0.35

Operculum (Fig. 7D). Pale yellow with brown markings to yellow-brown or almost black, oval with almost equally angled anterior and posterior ends, inner edge slightly angled. Peg rather narrow, curved.

Radula (Fig. 9A, B). Central teeth with cusp formula 3+1+3, median cusp large, spatulate, with finely denticulate end. Lateral teeth with cusp formula 3+1+3, primary cusp narrow, sharp. Inner marginal teeth with cusp formula 5–6+1+2, primary cusp large and rather blunt. Outer marginal teeth with about 7 small cusps, outermost largest (based on 2 radulae).

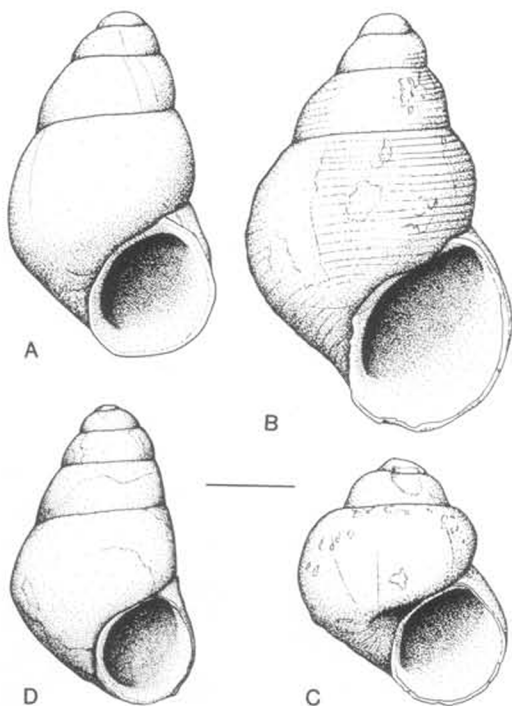


Figure 10. A, *Eatoniella nigra* (Orbigny), syntype, length 1.77 mm. B, *Onoba amissa* nom. nov. pro *Paludestrina striata* (Orbigny), lectotype, length 2.18 mm. C, *Eatonina fusca* (Orbigny), syntype, length 1.28 mm. D, *Eatoniella bennetti* (Preston), lectotype, length 1.67 mm. Scale bar: 500 μ m.

Animal. Head and foot grey, mantle and viscera mottled dark grey.

REMARKS. The shell of this species is similar in color to that of *E. ebenina* and *E. nigra* but is much smaller with more convex whorls than the former and has a higher spire and thinner, more conical shell than *E. nigra*. It also has a shell similar to the New Zealand species *E. stewartiana* Ponder, 1965, but is darker and slightly larger. The sympatric *E. denticula* has a smaller, broader shell that is, at most, pale grey in color. *Eatoniella picea* differs from other similar taxa, except *E. nigra*, in having a brown operculum and the radula is also unusual in having a blunt median cusp on the central teeth, whereas the equivalent cusp on the lateral teeth is sharp. It also shares this latter character with *E. glomerata* n. sp., but that species differs markedly in shell characters.

DISTRIBUTION. Southern Chile and Tierra del Fuego in algae and among rocks. Mainly intertidal with occasional specimens to 15 m. Empty shells to 50 m. Common.

Eatoniella (Eatoniella) nigra
(Orbigny, 1840)

Figures 5F, 7E, 9C, 10A

Paludestrina nigra Orbigny, 1840: 387, pl. 75, figs. 16–18 (36 syntypes, BMNH 1854.12.4.351, in-

cluding one very worn specimen of “*Potamolithus*” sp.; Arica, Tarapacá Prov., Chile). Orbigny, 1854: 31.

Eatoniella (Eatoniella) latina Marincovich, 1973: 26, figs. 51, 57, 58 (Holotype, Iquique, Tarapacá Prov., Chile, intertidal; LACM 1587, see Marincovich (1973) for details of paratypes).

MATERIAL EXAMINED. Types. Syntypes of *P. nigra*. 6 paratypes of *E. latina*, AMS C.167464. Iquique, Tarapacá Prov., Chile.

Additional Material Examined. Northern Chile: 6A 64–16 [many(d)]; 70–66 [1(d)]; 75–12 [many(d)]; AMS C.167467 [20(d)]. 6B 75–10 [many]; AMS C.167461 [17]; 75–21 [2(d)]. 8A 75–17 [many]; AMS C.167463 [1(+many d)]. 8B 75–19 [many]; AMS C.167465 [20]. 8C 75–15 [many]; 75–20 [many]; AMS C.167460 [19]. 9 75–25 [1]. 10 75–28 [6]; AMS C.167466 [1]. 12 75–33 [4(d)]; AMS C.167462 [5(d)]. 13 75–37 [7]. Southern Chile: 15 75–41 [7(d)]. 17 73–75 [many(d)]. 18 73–74 [1(d)]. 19 73–73 [many]. 20 73–72 [many(d)]. 23 73–70 [5]. 24 75–48 [many]; 75–49 [many]. Tierra del Fuego: 25 73–69 [many(d)]. USNM 30A H 654 [1(d)]. 31A 71–274 [1(d)]. 33G 73–66 [many(d)]. 33O 71–310 [20(d)]. (All material LACM unless otherwise indicated.)

DIAGNOSIS. Shell (Figs. 5F, 10A). Minute (maximum length 1.8 mm), ovoid, solid, with about 3.3–3.5 teleoconch whorls. Spire and whorls with very lightly convex outlines; periphery of last whorl rounded. Sutures impressed, simple. Teleoconch smooth with faint prosocline growth lines. Protoconch smooth of 1.2–1.4 whorls. Aperture oval, very weakly angled posteriorly, with sharp peristome, lacking external varix. Inner lip moderately narrow, outer lip strongly prosocline. Umbilical chink absent. Periostracum very thin, transparent. Color black or grey, often with reddish tinge, paler near growing edge.

Dimensions.

	SL	SW	SL/ SW	AL	SL/ AL	TW	PW	PD
Figured syntype (Fig. 10A)	1.77	1.04	1.70	—	—	—	—	—
Paratypes of <i>E. latina</i>	1.78	1.11	1.61	0.65	2.74	3.3	1.3	0.28
	1.58	0.96	1.65	0.56	2.58	3.4	1.2	0.26
	1.58	0.99	1.60	0.61	2.56	3.5	1.3	0.26
	1.71	1.10	1.61	0.67	2.57	3.4	1.3	0.29
	1.76	1.10	1.66	0.65	2.72	3.4	1.2	0.27
Sta. 75-20 Fig. 5F	1.69	0.99	1.70	0.63	2.68	3.5	1.3	0.25
	1.71	1.04	1.65	0.66	2.58	—	—	—
	1.59	0.94	1.69	0.60	2.66	3.4	1.3	0.27
	1.77	1.06	1.67	0.68	2.58	3.5	1.2	0.24
	1.79	1.05	1.70	0.66	2.69	3.3	1.3	0.27
	1.81	1.05	1.72	0.68	2.64	3.5	1.4	0.25
	1.62	0.96	1.68	0.62	2.60	3.5	1.2	0.20
	1.72	1.03	1.64	0.62	2.77	3.4	1.2	0.26
	1.69	1.03	1.64	0.62	2.72	3.4	1.2	0.21
	1.66	1.02	1.63	0.59	2.82	3.5	1.2	0.24

Operculum (Fig. 7E). Color yellow with brown markings or brown; oval, angled posteriorly, outer edge more strongly convex than inner edge. Peg very stout, curved.

Radula (Fig. 9C). Central teeth with cusp formula