

## NOTA PALEONTOLOGICA

# A NEW PLEISTOCENE SPECIES OF *GLYCYMERIS* (BIVALVIA, GLYCYMERIDIDAE) FROM NORTHERN PATAGONIA, ARGENTINA



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**Keywords.** *Glycymeris sanmatiensis*. Pleistocene. Golfo San Matías. Patagonia.

PLEISTOCENE marine deposits from Patagonia (Argentina) are almost entirely composed of extant mollusc species. Hence, the importance of the occurrence of extinct species, such as the new species of *Glycymeris* described here.

Glycymerididae is a cosmopolitan Cenozoic family typical of temperate to warm-water environments. Several species have been recorded previously from Cenozoic rocks in South America. *Glycymeris camaronesia* Ihering, 1907, *G. cuevensis* Ihering, 1897, *G. ibari* Philippi, 1887, *G. longioriformis* del Río, 1992, *G. minuta* Borchert, 1901, *G. patagonica* Feruglio, 1954, *G. symmetrica* Philippi, 1893, and *G. subtrigona* Ihering, 1907 have been described from Oligocene and Miocene rocks of Argentina (Feruglio, 1954; Camacho, 1966; Parodiz, 1996; del Río, 1998; Chiesa and Camacho, 2001; del Río, 2004; Casadío and Griffin, 2009). From the Miocene of Brazil, *G. acuticostata* Sowerby, 1849, *G. binemini* White, 1887, *G. eumita* Maury, 1924 and *G. pirabensis* White, 1887 have been described (Maury, 1924; Araújo Távora *et al.*, 2010). Miocene *Glycymeris* species recorded from the Chilean Pacific coast are *G. araucana* Philippi, 1887, *G. colchaguensis* Hupé, 1854, *G. cuevensis* Ihering, 1907, *G. ibariformis* Frassinetti and Covacevich, 1984, and *G. magellanica* Philippi, 1887 (Stuardo, 1960; Covacevich and Frassinetti, 1986; Frassinetti and Covacevich, 1993; Rivadeneira and Carmona, 2008).

The genus was also present on both Atlantic and Pacific coasts during the Quaternary. In Brazil, the extant species *G. longior* Sowerby, 1832 and *G. undata* Linnaeus, 1758 (Abbott and Morris, 1995; Passos and Magalhães, 2011) have been recovered from Holocene deposits (Correa Luz de Souza *et al.*, 2010). In Argentina only two species have been collected previously from Pleistocene deposits, *G. minuta* and *G. longior* (Feruglio, 1950; Richards and Craig, 1963; Camacho, 1966; del Río, 1998). Recently, a third species

was collected from Pleistocene outcrops at Golfo San Matías, Río Negro Province, and is described here as the new species *G. sanmatiensis*.

The material studied here was collected from the La Rinconada site (Fig. 1). This is an uplifted marine deposit in Golfo San Matías, containing shells derived from beach gravels dated at 107.000 years BP and 91.000 years BP (Rutter *et al.*, 1990). Recently, Fucks *et al.* (2012) interpreted these gravels as deposited during the Last Interglacial MIS 5e.

The material is deposited in the collection of the Centro de Investigaciones Paleobiológicas, Universidad Nacional de Córdoba, under the prefix CEGH-UNC (Cátedra de Estratigrafía y Geología Histórica at the Universidad Nacional de Córdoba).

## SYSTEMATIC PALEONTOLOGY

Class BIVALVIA Linnaeus, 1758

Order ARCOIDA Stoliczka, 1871

Superfamily ARCOIDEA Lamarck, 1809

Family GLYCYMERIDIDAE Dall, 1908

Genus ***Glycymeris*** Da Costa, 1778

**Type species.** *Arca orbicularis* Da Costa, 1778 (= *Arca glycymeris* Linnaeus, 1758), by tautonymy.

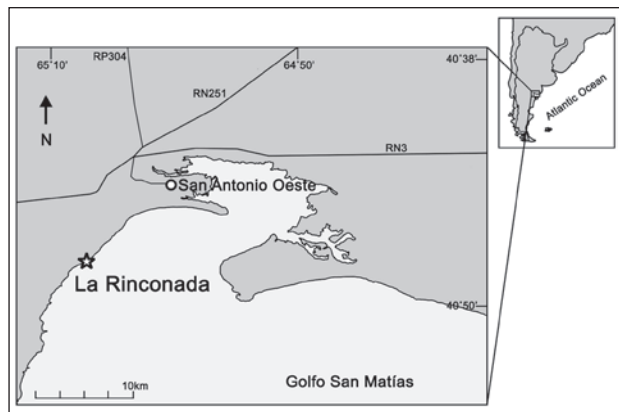
## ***Glycymeris sanmatiensis* sp. nov.**

**Figure 2.1–2.**

**Derivation of name.** From Golfo San Matías, the type locality of the new species.

**Type material.** Holotype a right valve, CEGH-UNC 15307, from La Rinconada Beach, Golfo San Matías, Río Negro; two paratypes right valves, CEGH-UNC 25308 and 25309, from the same locality.

**Additional material.** Forty-three valves, from La Rinconada Beach, Golfo San Matías, Río Negro.



**Figure 1.** Location map. Star showing La Rinconada site at Golfo San Matías, northern Patagonia/ Mapa que indica el sitio La Rinconada en el Golfo San Matías, norte de Patagonia.

**Type locality.** La Rinconada Beach ( $40^{\circ}47'46.5''\text{S}$ – $65^{\circ}03'39.78''\text{W}$ ), Golfo San Matías, Río Negro Province, northern Patagonia, Argentina (Fig. 1).

**Age.** Pleistocene, San Matías Formation, Last Interglacial MIS 5e (Fucks *et al.*, 2012).

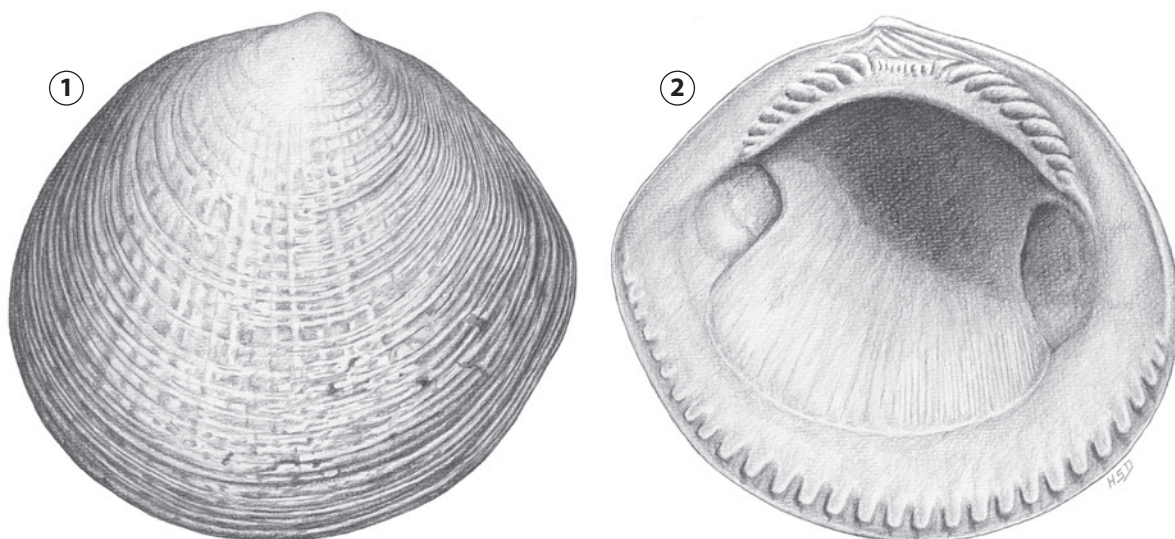
**Diagnosis.** Shell small, subcircular, valves weakly inflated. Posterior margin truncated. Ligamental area asymmetrical. Hinge plate wide. Inner ventral margin between pallial line and crenulations wide and smooth.

**Description.** Shell small, subcircular, equivalve, equilateral, weakly inflated, height up to 22 mm, length up to 24 mm. Umbo prosogyrous. Posterior margin truncated; ventral margin semicircular; dorsal margin rather straight. Sulp-

ture of many very fine radial riblets, crossed by many fine, irregular, commarginal growth lines; sculpture weakening on anterodorsal and posterodorsal slopes, almost smooth on some specimens. Cardinal area small to medium, bearing up to four to five asymmetrical chevron-shaped ligamental grooves and ridges inclined towards anterodorsal margin. Hinge plate wide, arched distally towards valve margins; central hinge teeth short, straight, vertical, truncated by growth of ligament; distal teeth longer, straight to slightly curved away from umbo, up to seven to nine teeth on each side. Marginal area a wide, flat band bearing coarse crenulations distally, smooth between crenulations and pallial line; crenulations weakening towards anterior and posterior ends.

## DISCUSSION

In order to provide clear comparisons between *Glycymeris sanmatiensis* n. sp. and the two extant species of *Glycymeris*, *G. longior* and *G. undata*, living along the Atlantic coast of South America, Table 1 compares the morphological characteristics of these three species. Both extant species are larger and more nearly circular than *G. sanmatiensis*, without a clearly truncated posterior margin, and *G. sanmatiensis* has a wider flat marginal band and a more asymmetrical umbo than the other two species. Muscles scars of *G. sanmatiensis* and *G. longior* are slightly deeper than those of *G. undata*. *G. sanmatiensis* has the finest radial riblets as sculpture, while in *G. longior* and *G. undata* these are conspicuous.



**Figure 2.** 1–2, Illustrations of *G. sanmatiensis* sp. nov., CEGH-UNC 25307; 1, external view; 2, internal view. Scale bar= 10 mm/ Ilustraciones de *G. sanmatiensis* sp. nov., CEGH-UNC 25307; 1, vista externa; 2, vista interna. Escala gráfica= 10 mm.

TABLE 1. Comparisons of morphological characteristics between the extinct *G. sanmatiensis* and the extant *G. longior* and *G. undata*

Species	Common size (mm)	Shell shape	Posterior margin shape	Hinge plate size	Marginal band size	Interior margin	Sculpture	Scars
<i>G. sanmatiensis</i> n. sp.	27	subcircular	truncated	wide	wide	smooth with subterminal crenulations	very fine radial riblets	deep
<i>G. longior</i> Sowerby 1832	35	orbicular	circular	medium-narrow	narrow	with terminal crenulations	conspicuous radial riblets	deep
<i>G. undata</i> Linnaeus 1758	50	subcircular	circular	narrow	narrow	with terminal soft crenulations	very conspicuous radial riblets	soft

FINAL REMARKS

This new record is added to two previous findings of extinct taxa in the Pleistocene of Patagonia as the warm-water species *Chama iudicai* (Pastorino, 1991), and *Tegula atra* (Feruglio, 1950), regionally extinct. The fact that *Glycymeris sanmatiensis*

lived together with *T. atra* in northern Patagonia during the Pleistocene but they are not living in the area today is important evidence of marked environmental changes during the Late Quaternary. Future studies will focus on identifying the factors at local and regional scales that caused these changes.

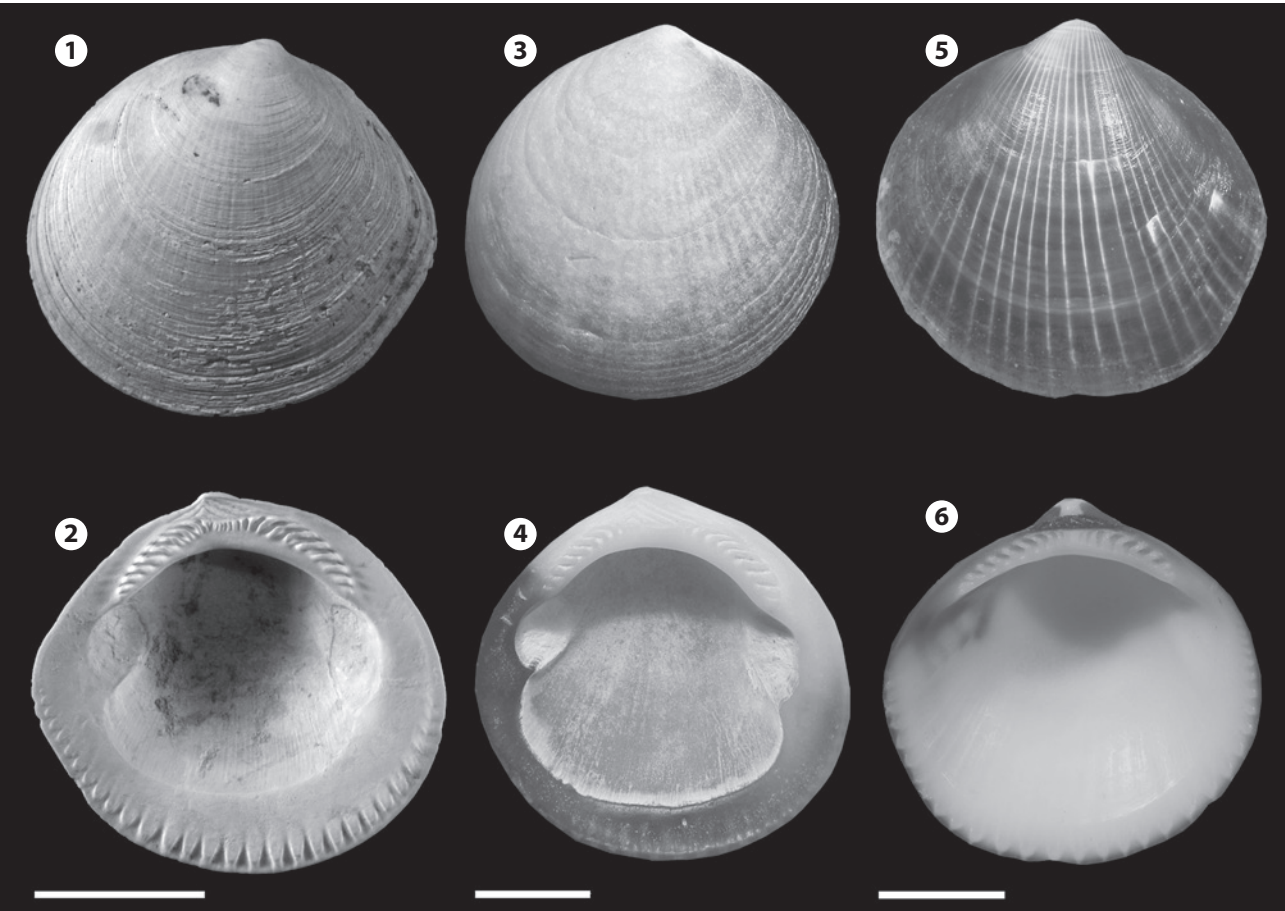


Figure 3. 1-2 *Glycymeris sanmatiensis* sp. nov., CEGH-UNC 25307 holotype/ *holotipo*; 1, external view, valve CEGH-UNC 25307/ *vista interna de valva* CEGH-UNC 25307; 2, internal view, valve CEGH-UNC 25307/ *vista interna valva* CEGH-UNC 25307. 3-4, *Glycymeris longior* Sowerby, CEGH-UNC 25321; 3- external view valve CEGH-UNC 25321/ *vista externa valva* CEGH-UNC 25321; 4, internal view valve CEGH-UNC 25321/*vista interna valva* CEGH-UNC 25321. 5-6, *Glycymeris undata* Linnaeus, CEGH-UNC 25322; 5, external view valve CEGH-UNC 25322/*vista externa valva* CEGH-UNC 25322; 6, internal view valve CEGH-UNC 25322/ *vista interna valva* CEGH-UNC 25322. Scale bar/ *escala gráfica*= 10 mm.



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