

# A new *Stegotheriini* (Mammalia, Xenarthra, Dasypodidae) from the “Notohippidian” (early Miocene) of Patagonia, Argentina

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With 3 figures

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**Abstract:** We describe a new species of *Stegotherium* (Xenarthra, Stegotheriini, Dasypodidae), *S. notohippidensis*, based on specimens from two localities in the vicinity of Lago Argentino (Santa Cruz province, Argentina). Based on the related mammalian assemblages and some stratigraphic inferences, both localities are tentatively assigned to the “*étage Notohippidien*” (Notohippidian stage) of Ameghino, part of the Santacrucian Age (early Miocene). In addition to the new species of *Stegotherium* described herein, we also present a brief comment about the current status of the “Notohippidian” within the Santacrucian Age.

**Key words:** *Stegotherium*, Stegotheriini, Dasypodidae, Santacrucian, early Miocene.

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## 1. Introduction

The armadillos *Stegotheriini* (*sensu* VIZCAÍNO 1990, unpublished Ph.D. dissertation; VIZCAÍNO 1994) (Xenarthra, Dasypodidae) are well represented in Cenozoic units of Patagonia ranging from the Eocene (Casamayoran Age) (CARLINI et al. 2004; CARLINI et al. 2005) to the Miocene of Argentina and Chile (Friasian Age) (SCILLATO-YANÉ et al. 1990; VIZCAÍNO 1990 unpublished Ph.D. dissertation; PARDIÑAS 1991). The only genus formally described for this tribe, *Stegotherium* AMEGHINO, is possibly the best adapted to strict mirmecophagy among the armadillos (VIZCAÍNO 1994). *Stegotherium* has three described species: *Stegotherium tessellatum* AMEGHINO, 1887, *Stegotherium variegatum* AMEGHINO, 1902, and *Stegotherium simplex* (AMEGHINO, 1887), in addition to

*Stegotheriini* n. gen., n. sp. “A” (VIZCAÍNO 1990, unpublished Ph.D. dissertation), and *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press). Although few species have been named, several preliminary contributions indicated a higher diversity for this tribe (VIZCAÍNO 1990 unpublished Ph.D. dissertation; CARLINI et al. 2005; GONZÁLEZ et al. 2006).

A revision of all the specimens assigned to *Stegotherium*, as well as their specific diagnoses and descriptions, showed that two groups of osteoderms previously attributed to *S. tessellatum* by VIZCAÍNO (1990 unpublished Ph.D. dissertation) represent a new species of *Stegotherium*. They were collected in two fossil localities (Fig. 1) near Lago Argentino (Santa Cruz province, Argentina), tentatively assigned to the “Notohippidian” (“*étage Notohippidien*” *sensu* AMEGHINO 1900–1902, or “Notohippidian stage”).

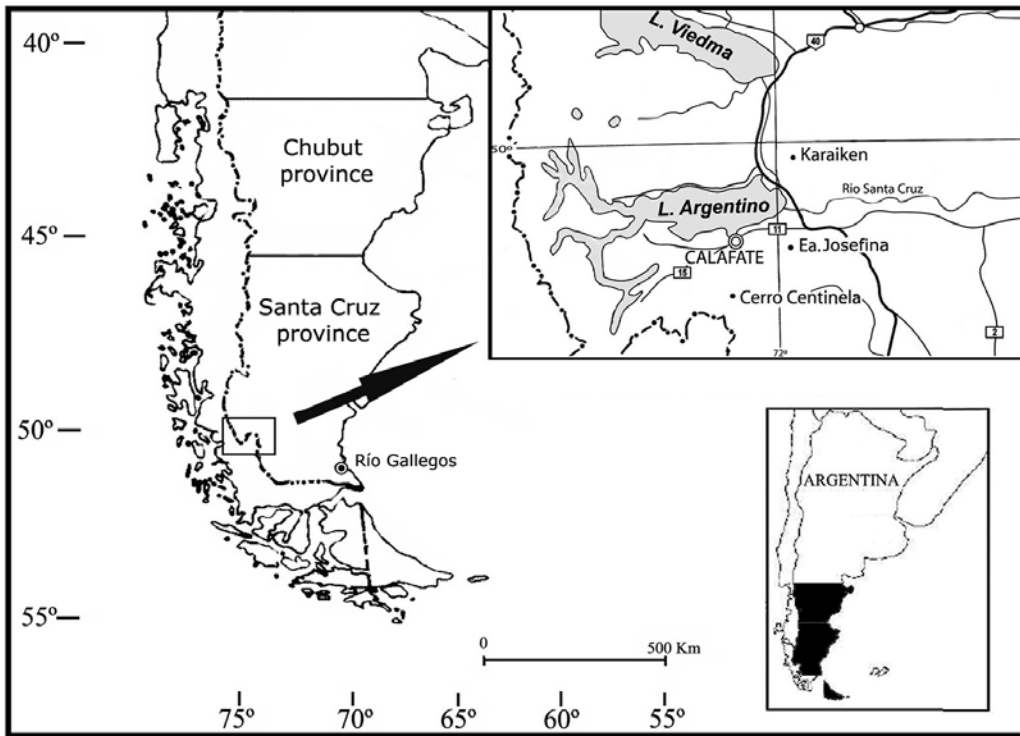


Fig. 1. Location map of the main localities assigned to the “Notohippidian” from west of Santa Cruz province.

AMEGHINO (1900-1902, 1906) reported *Stegotherium tessellatum* for the “Notohippidian” and for his “Santacrucian lower part”, although in the MACN’s AMEGHINO collection only two specimens are assigned to this species: 1) MACN A-5087-5118 (missing) from Monte Observación (coastal Santacrucian); and 2) MACN A-781-785 from “Santa Cruz” with no farther details.

The controversies on the “Notohippidian” fauna, traditionally considered as part of the Santacrucian Age, were already mentioned decades ago by SIMPSON (1940: 664): “... The *Notohippus* fauna (...) is also scarcely distinguishable from the Santa Cruz fauna of which it apparently represents an early phase. The distinction of the Karaiken formation and of a Karaikenian stage from the Santa Cruz and the Santacrucian is thus not clear-cut but may be accepted tentatively”. Also MARSHALL et al. (1983: 31) pointed out that: “... the small and fragmentary faunas (...) and from Karaiken on the eastern edge of Lago Argentino are now regarded as representing early Santacrucian local faunas”.

## 2. Material and methods

The new species of *Stegotherium* is mainly represented by osteoderms of the carapace that allowed us to make comparisons with corresponding osteoderms of *S. tessellatum* Ameghino, *S. variegatum* AMEGHINO, *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press) and *Stegotheriini* n. gen., n. sp. “A” (VIZCAÍNO 1990 unpublished Ph.D. dissertation) deposited in different institutions (see Appendix).

*S. simplex* was excluded from the analysis because it was named on the basis of a missing mandibular portion (MLP) and its osteoderms are unknown. Also, its validity is doubtful (AMEGHINO 1902; SCOTT 1903; VIZCAÍNO 1990 unpublished Ph.D. dissertation). BORDAS (1939) attributed some osteoderms (MACN A-11760) to *S. simplex* with no explanations.

For a proper identification, the osteoderm relief (i.e., sculpturing; piliferous, vascular and glandular foramina; roughness) has a high diagnostic value (SCILLATO-YANÉ 1982, unpublished Ph.D. dissertation). In a single individual, the osteoderms exhibit different morphological patterns according to the

region of the carapace they represent (pelvic buckler, scapular buckler -in modern dasypodids-, movable bands, caudal tube or cephalic shield). Thus, when possible, the osteoderms were compared between homologous regions of the carapace.

Regarding the terminology uniformly used along this work, we here employ “osteoderm” for the commonly fossilized bony component of the cingulate exoskeleton (CROFT et al. 2007 and references cited therein). The term “foramina” refers to the round indentations of the osteoderm’s surface. This term was used by CARLINI et al. (1997), VIZCAÍNO et al. (2003) and SOIBELZON et al. (2006). The terms “pit” and “perforation” are also accepted for the same purpose (SCOTT 1903; SIMPSON 1948; HILL 2006; CROFT et al. 2007). Referring to the rigid portions of the carapace (pelvic and scapular regions) we use the term “buckler” following SCOTT (1903), SIMPSON (1948) and HILL (2006), although “scute” and “shield” are also frequently used (SCOTT 1903; CARLINI et al. 1997; SOIBELZON et al. 2006).

Abbreviations: AMNH: American Museum of Natural History, New York, USA.; CORD-PZ: Museo de Paleontología de la Facultad de Ciencias Exactas, Físicas y Naturales de la Universidad Nacional de Córdoba, Argentina; MACN A: Colección Nacional Ameghino, Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires, Argentina; MLP: Museo de La Plata, La Plata, Argentina; MPM-PV: Museo Regional Provincial “Padre Manuel Jesús Molina”, Río Gallegos, Argentina; YPM: Peabody Museum of Natural History, Yale University, New Haven, Connecticut, USA.

## 2. Geological background

### 2.1. The “Notohippidian”

The “Notohippidian” (“*étage Notohippidien*”) was recognized by AMEGHINO (1900-1902: 54, 179-180, 220-224) in reference to his “*couches à Notohippus*” and based on the mammalian fauna collected in the southwest of Santa Cruz province. This fauna indicated an evolutionary stage generally less advanced than those from the typical Santacrucian (“*étage Santacruzien*” of AMEGHINO 1900-1902). AMEGHINO (1900-1902) concluded that his “*étages Colpodonéen, Astrapothericuléen, Notohippidéen and Santacruzién*” were characterized by successive mammalian faunas, from oldest to youngest. PASCUAL et al. (2002) pointed out that the idea of a succession between the “Notohippidian” and the typical Santacrucian fauna from the coastal Santa Cruz province could be explained because in the western regions the subsidence period

of the “Patagonian” inland sea (= Cerro Centinela Formation in Lago Argentino area and Monte León Formation on the Atlantic coast) was shorter than on the Atlantic coast. Also, its regression gradually extended from west to east (FERUGLIO 1944, 1949). Thus, the “Notohippidian” of Lago Argentino and the Santa Cruz Formation of the Atlantic coast represent two continental facies following the “Patagonian” sea regression, explaining the scarce differences in evolutionary patterns of the faunal assemblages.

$^{40}\text{Ar}/^{39}\text{Ar}$  dates obtained from three tuff levels (MARSHALL et al. 1986) within a 210 meter thick sequence of the Santa Cruz Formation exposed at Karaiken (MARSHALL & PASCUAL 1977) give an age of  $16.7 \pm 0.2$  Ma for the middle tuff, thus late early Miocene in age; but according to MARSHALL & PASCUAL (1977: 456): “... The tuffs dated in this study are all above this “early” Santacrucian fauna, and some time must be permitted to encompass “early” Santacrucian time”. These dates approximately correlate to  $^{40}\text{Ar}/^{39}\text{Ar}$  dates from the top of the middle sequence of the Pinturas Formation exposed at Portezuelo Sumich Norte (FLEAGLE et al. 1995) with an absolute age of  $16.58 \pm 0.10$  Ma and  $16.43 \pm 0.16$  Ma. dates obtained for the Santa Cruz Formation at Killik Aike Norte, near Río Gallegos (Santa Cruz province), by TEJEDOR et al. (2006) range between  $16.45 \pm 0.14$ ,  $16.5 \pm 0.2$  and  $16.5 \pm 0.3$  Ma.

### 2.2. Main localities

According to RICCARDI & ROLLERI (1980) the continental sediments above the Centinela Formation, located in the southeast of Lago Argentino, were recognized by FURQUE & CAMACHO (1972) as part of the Santa Cruz Formation. FURQUE & CAMACHO (1972) described three transitional members; from the base to the top: Los Dos Mellizos, Bon Acord and Los Huelguistas. Although FURQUE & CAMACHO (1972) suggested that the fossiliferous levels at Karaiken – carrying the *Notohippus* fauna – could be tentatively correlated with Los Dos Mellizos Member, there is no compelling evidence for such proposal.

Karaiken. – AMEGHINO (1900-1902) pointed out that the typical levels of the “*étage Notohippidian*” were found in the locality of Karaiken, near Lago Argentino and north of the source of the Santa Cruz River, where in 1889 his brother CARLOS collected mammals apparently older than those from the coastal Santacrucian (MARSHALL & PASCUAL 1977). Even when AMEGHINO (1906) located Karaiken near Lago

Argentino, FERUGLIO (1944) concluded that the south-western part of the plateau at Estancia La Meseta, by then owned by FERNANDO FERNÁNDEZ, could be geographically near, or maybe was Karaiken. FERUGLIO (1944: 95, fig. 20) additionally provided a stratigraphic profile for that locality.

However, a more precise location of Karaiken was given by MARSHALL (1976: 1138): “Departamento Lago Argentino, 50° 03’ S - 71° 47’ W; 3 Km NE of Estancia La Laurita on SW slope of Meseta Fernando Fernandez, and about 25 Km NE of the point where Santa Cruz River leaves Lago Argentino”.

MARSHALL & PASCUAL (1977: 94, fig. 1) made a profile and confirmed that the oldest mammals (“couches à *Notohippus*”) are restricted to the lower levels of the Karaiken area sequence (Estancia La Laurita, formerly part of Estancia La Meseta) followed by upper levels bearing typical Santacrucian mammals lacking the key family Notohippidae, or with doubtful evidence of it.

Cerro Centinela. – According to MARSHALL & PASCUAL (1977), this site is located 30 km south of the town of Calafate (Santa Cruz province), near the eastern slope of Cerro Centinela, in the lowermost 20 meters of continental outcrops above the “Patagonian sea” sediments. The fossil mammals of this locality appear to be more primitive compared to other relatives from the Santacrucian, and include abundant remains of *Notohippus*. Thus, MARSHALL & PASCUAL (1977) attributed this fauna to the “Notohippidian”, or at least to the lowest Santacrucian.

Estancia La Josefina. – This locality is placed west of the town of Calafate (Santa Cruz province) where ROSENDO PASCUAL (MLP) worked in 1984 adding some stratigraphic data. The holotype of the new

species described herein was collected during his trip and is mentioned in the catalog of MLP as found in the “Notohippidian” from the “Bon Acord” member. However, FURQUE & CAMACHO (1972) placed the “Notohippidian” in the lower Member “Los Dos Mellizos”. It is surprising that MARSHALL & PASCUAL (1977) did not discuss the suggestion of FURQUE & CAMACHO (1972) and FURQUE (1973). In addition, ABELLO (2007, unpublished Ph.D. dissertation) mentioned a Paucituberculata (*Titanotheres simpsoni*) collected at Estancia La Josefina; up to now, this species is only known for this locality and also from the “Notohippidian” of Cerro Centinela, as is the case for

the new species of *Stegotherium* described here. Due to the uncertain stratigraphic location of the “Notohippidian” within the three members suggested by FURQUE & CAMACHO (1972) for the Santa Cruz Formation in this region and the fact that there are two taxa only found in Estancia La Josefina and Cerro Centinela, we provisionally suggest to consider Estancia La Josefina as part of the “Notohippidian”.

### 3. Systematic paleontology

Superorder Xenarthra COPE, 1889

Order Cingulata ILLIGER, 1811

Family Dasypodidae GRAY, 1821

Subfamily Dasypodinae GRAY, 1821

Tribe Stegotheriini AMEGHINO, 1889

Genus *Stegotherium* AMEGHINO, 1887

Type species: *Stegotherium tessellatum* AMEGHINO, 1887.

*Stegotherium notohippidensis* n. sp.

Fig. 3.1-3.16

Etymology: Trivial name “*notohippidensis*” refers to the stratigraphic horizon, “*étage Notohippidien*”.

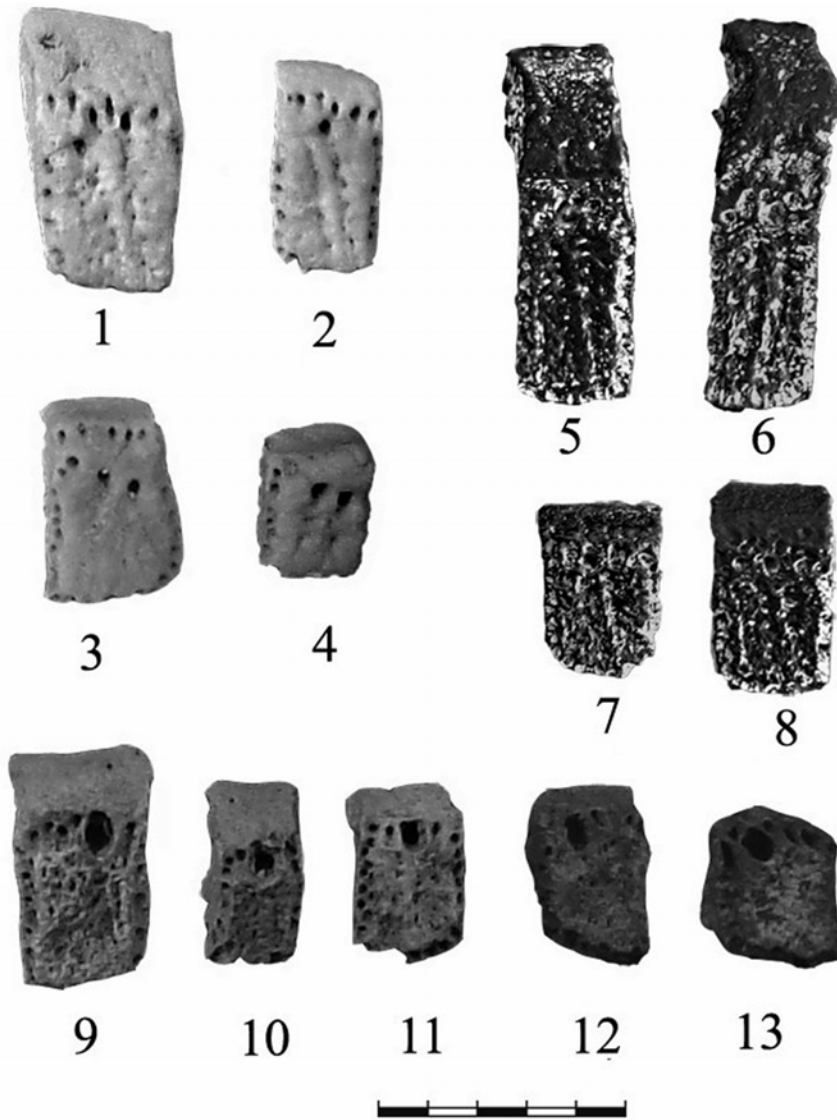
Holotype: MLP 84-III-5-10, 105 complete and 25 fragmentary osteoderms.

Referred material: MLP 68-I-17-172, 25 complete and several fragmentary osteoderms.

Type locality: Estancia La Josefina (50° 20’ S - 71° 57’ W) Calafate, Santa Cruz province, Argentina.

Type horizon and age: MLP 84-III-5-10, Estancia La Josefina (50° 20’ S - 71° 57’ W), Calafate (Santa Cruz Province), Bon Acord Member, “Notohippidian”; MLP 68-I-17-172, lowermost 20 meters of continental exposures above the “Patagonian” sea sediments, in the eastern part of Cerro Centinela (50° 33’ S - 72° 19’ W), 30 km south of Lago Argentino, Santa Cruz province. This material was collected by R. PASCUAL and O. RIVAS in 1968 (MARSHALL & PASCUAL 1977).

Diagnosis: *Stegotherium notohippidensis* n. sp. differs from *S. tessellatum* in having more than one large foramen in the anterior region of the osteoderms. These anterior foramina are larger than those of *S. variegatum*, *Stegotheriini* n. gen., n. sp. “A”, and *Stegotherium* n. sp., *S. notohippidensis* n. sp. lacks the antero-lateral peripheral figures seen in *Stegotheriini* n. gen. n. sp. “A”, and does not present a longitudinal ridge in the exposed surface of the osteoderms, as shown by *S. variegatum*, *Stegotherium* n. sp. and *Stegotheriini* n. gen. n. sp. “A”.



**Fig. 2.** 1-4 – *Stegotherium variegatum*, MACN A-12680. (part of the holotype); 5-8 – *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press). MPM-PV 1811; 9-13 – *Stegotherium tessellatum*. MACN A-781-785. Scale bar 1 cm.

Description and comments: In contrast to other Santacrucian armadillos such as *Stenotatus* (Eutatini), *Proeutatus* (Eutatini) or *Prozaedyus* (Euphractini), all with nearly complete carapaces already known, the Stegotheriini are mostly known by isolated osteoderms. One exception is the discovery of three relatively big portions of the middle region of carapaces from Santa Cruz Formation exposed at the southeastern coast of Santa Cruz province (SCOTT 1903; TAUBER 1994 unpublished Ph.D. dissertation; GONZÁLEZ & SCILLATO-YANÉ, in press). SCOTT (1903) pointed out that the carapace of *Stegotherium* does not exhibit a scapular buckler, and has a gradual transition from the movable bands of the middle region to the anterior region. In

addition, SCOTT (1903) could not confirm the presence of a pelvic buckler in *Stegotherium*.

The sculpturing of the exposed surface of the osteoderms is rather similar in *Stegotherium notohippidensis*, despite their size and morphology. The osteoderm body has a smooth exposed surface with no raised ridge, as seen in *S. variegatum* (Fig. 2.1-2.4), *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press) (Fig. 2.5-2.8) or Stegotheriini n. gen. n. sp “A”. The exposed surface is limited in its lateral, anterior and posterior edges by a row of foramina. These foramina are larger and generally there are two to five in the anterior row (Fig. 3.1-3.16), in contrast to *S. tessellatum* which has only one large foramen (Fig. 2.9-2.13). *S.*

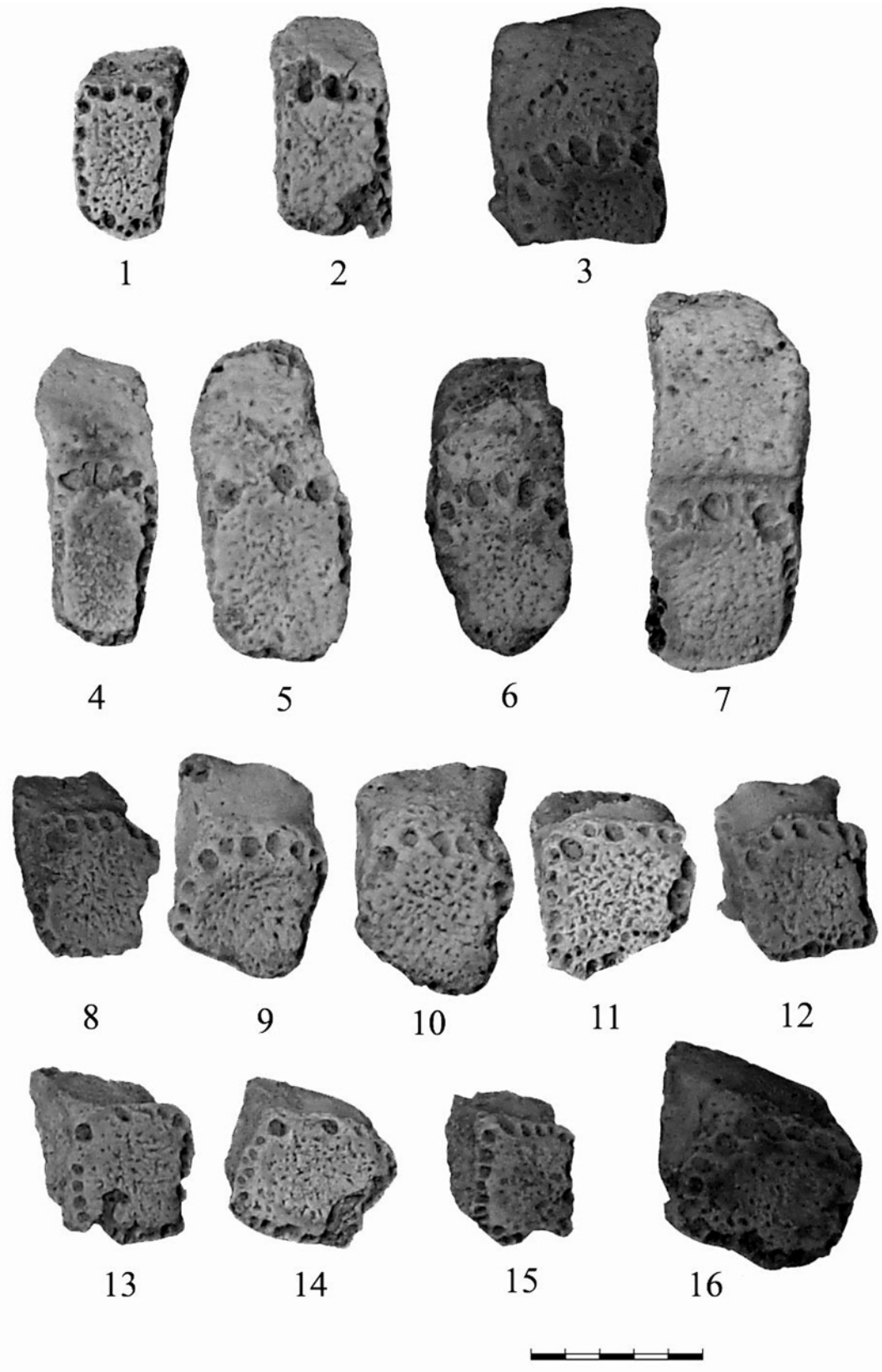


Fig. 3 (Legend see p. 87)

*notohippidensis* presents the large foramen intercalated with smaller ones in some osteoderms; some large foramina can be found also in the lateral edges. However, in general, the foramina of the lateral and posterior edges are smaller.

The anterolateral figures of *S. variegatum* and Stegotheriini n. gen. n. sp. “A” are absent in *S. notohippidensis*. The osteoderm morphology within the Stegotheriini varies gradually depending on the region of the carapace (SCOTT 1903). Among the isolated osteoderms, we have been able to identify three morphs, two of them certainly attributable to specific regions of the carapace by comparison with the osteoderms found in the three known partial carapaces (CORD-PZ 1352, YPM PU 15565, YPM PU 15566):

1) Movable osteoderms of the anterior region. Osteoderms with the anterior articular surface reduced relative to the osteoderm body and placed in an oblique position downward. The step separating the articular face from the body is progressively reduced towards the anterior part of the carapace (Fig. 3.1-3.2).

2) Movable osteoderms of the middle region. They have a well developed anterior articular surface, clearly separated from the osteoderm body by a step (Fig. 3.7); or the articular surface may run obliquely downward without step. (Fig. 3.4-3.6). The osteoderms are wide between the articular region and the body, where the rows of foramina are placed.

3) Osteoderms of the posterior region. Until now, there is no evidence of the posterior region of the carapace in Stegotheriini; therefore, we cannot demonstrate the presence of a pelvic buckler. However, a group of osteoderms with different morphology compared to those of the anterior and middle regions of the best known carapace, could be tentatively assigned to the posterior region. These osteoderms are anteriorly projecting thus resembling an articular surface, but differ from those already described in having a concavity in fronto-lateral view (Fig. 3.8-3.12). There is another group of osteoderms that differ in having two oblique articular surfaces oriented downward (Fig. 3.13-3.16); both groups of osteoderms may be part of a possible pelvic buckler of a single individual.

Several isolated osteoderms of the new species, especially those assigned to the posterior region of the carapace, resemble some osteoderms of *S. tessellatum* figure by F. AMEGHINO (1889: 878-879, pl. 69, fig. 11, 11a), as well as others assigned by AMEGHINO and figured in this work (Fig. 2.12-2.13). However, there are major differences in other osteoderms of the new species that led us to separate them from *S. tessellatum*. In addition, the degree of association among AMEGHINO’s material and its stratigraphic provenance are doubtful.

#### 4. Comments on the “Notohippidian” fauna

MARSHALL & PASCUAL (1977) mentioned that the most complete list of “Notohippidian” mammals was given by AMEGHINO (1900-1902). AMEGHINO (1906) provided an additional list but only at a generic level. MARSHALL & PASCUAL (1977) added important comments about the use of “Karaiken” and “Notohippidian” by F. AMEGHINO. Karaiken was probably a geographic area while “Notohippidian” has been used as a specific fossiliferous horizon (restricted to Karaiken in the time of AMEGHINO). Therefore, these terms may be not necessarily synonymous, even when AMEGHINO made his faunal list based on both as a unit. There are extensive exposures near Lago Argentino correlated with the lower (“Notohippidian” *sensu stricto* of AMEGHINO) and upper levels (“étage Santacruzéen” of AMEGHINO) of his “*Formacion Santacruzëña*” (MARSHALL & PASCUAL 1977), and also the levels with *Notohippus* or “Notohippidian” are similarly covered by the Santacruzian (FERUGLO 1949). It is possible that all the specimens collected by C. AMEGHINO in Karaiken were included by F. AMEGHINO in his “Notohippidian” faunal list. For that reason, there could be a composite list with taxa from the lower (“Notohippidian”) and upper levels (Santacruzian). For the materials collected in the Santacruzian levels of this critical area, MARSHALL & PASCUAL (1977) recommended considering as “Notohippidian”, only those taxa specifically referred as “Notohippidian” in the literature after AMEGHINO (1900-1902) and AMEGHINO (1906).

Most of the faunal elements of the rich “Notohippidian” have not been revised in depth since AMEGHINO’s original works, and the validity and provenance of the species are usually uncertain. However, several publications with comments on the “Notohippidian” fauna and their correlation with other Santacruzian localities appeared after F. AMEGHINO.

MARSHALL & PASCUAL (1977) revised the “Notohippidian” Caenolestidae and concluded that they differ from those of both the Colhuehuapian and the upper part of the Santacruzian age. Recently, ABELLO (2007 unpublished Ph.D. dissertation) provided an update of the Paucituberculata concluding that the association of

**Fig. 3. 1-16** – *Stegotherium notohippidensis* n. sp., MLP 84-III-5-101 (part of the holotype). 1-2: osteoderms from the anterior region of the carapace; 3-7: osteoderms from the middle region of the carapace; 8-16: osteoderms from posterior region of the carapace. Scale bar 1 cm.

the “Notohippidian” Paucituberculata are clearly distinct from those of the Santacrucian *sensu stricto* and, in a lesser degree, from those of the slightly older “Pinturan” (lower part of the Pinturas Formation; see KRAMARZ & BELLOSI 2005).

MARSHALL & PASCUAL (1977) and RIBEIRO & BOND (1999) reported the presence of Notohippidae (Notoungulata) in several “Notohippidian” localities. The Notohippidae – well represented during the Colhuehuapian age – have the youngest records in the “Notohippidian” (BOND 1986).

KRAMARZ & BELLOSI (2005) based on the analysis of protohypsodont eocardiids and *Spaniomys modestus*, suggested that the upper sequence of Pinturas Formation could be correlated with the lower levels of Santa Cruz Formation exposed at Monte Observación and Monte León, and with the sediments carrying the “Notohippidian” fauna at Karaiken.

## 5. Conclusions

*Stegotherium notohippidensis* n. sp. is recorded from two localities tentatively assigned to the “Notohippidian”, Cerro Centinela and Estancia La Josefina. Although AMEGHINO (1900-1902, 1906) reported *Stegotherium* for the “Notohippidian” of Karaiken, no material with such location remained in his collection.

This work also reports the first evidences of osteoderms referred to the posterior region of the Stegotheriini carapace.

While it is generally accepted that the “Notohippidian” fauna is slightly older with differences in the mammalian assemblages compared to the coastal Santa Cruz Formation, a holistic analysis of the fauna is still needed. Additionally, a careful revision of the mammals collected at Karaiken by C. AMEGHINO (on which F. AMEGHINO based his “Notohippidian” faunal list) is also needed before accepting or rejecting its identity as Santacrucian “local fauna”.

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### Appendix – List of specimens used as comparative material

- AMNH 29683. *Stegotherium variegatum*. 24 osteoderms.
- AMNH 96272. *Stegotherium variegatum*. 5 osteoderms.
- CORD-PZ 1352. *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press) partial carapace and isolated osteoderms.
- MACN A 781-785. *Stegotherium tessellatum*. 7 osteoderms.
- MACN A 12680. *Stegotherium variegatum*. Holotype; 42 osteoderms.
- MACN A 10443. *Stegotherium variegatum*. 4 osteoderms and portion of a carapace.
- MACN A 11760. *Stegotherium* sp. 4 osteoderms.
- MLP 68-VI-25-438. *Stegotherium tessellatum*. 10 osteoderms.
- MLP 85-VII-3-80. *Stegotherium* cf. *variegatum*. 6 osteoderms.
- MLP 85-VII-3-12. *Stegotherium*. 2 osteoderms.
- MPM-PV 1811. *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press). 4 complete and 2 fragmentary osteoderms.
- YPM PU 15565. *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press). Holotype; anterior portion of the carapace; complete skull; cervical vertebrae except 6<sup>th</sup> and 7<sup>th</sup>; two dorsal vertebrae; right foot.
- YPM PU 15566. *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press); anterior portion of the carapace; right half of the skull; left mandibular ramus; atlas; cervical vertebrae; 7 dorsal vertebrae; 4 lumbar vertebrae; sacrum; caudal vertebrae excepting the last 3 or 4; 2 reeves; left scapula; left humerus; pelvic girdle; right and left femora; right and left tibiae and fibulae.
- YPM PU 15611. *Stegotherium* n. sp. (GONZÁLEZ & SCILLATO-YANÉ, in press); 4 osteoderms and 2 metapodial bones.