

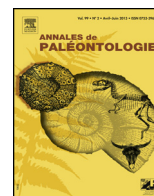


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Original article

New record of ornithopod dinosaur from the Plottier Formation (Upper Cretaceous), Patagonia, Argentina



Nouvelle occurrence de dinosaure ornithopode de la Formation Plottier (Crétacé Supérieur), Patagonie, Argentine

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ABSTRACT

Ornithopods are the least known dinosaurs within the Upper Cretaceous record of Argentina. For this reason every new record is very important to know their evolution in South America. Here, we describe a new remain of an indeterminate ornithopod recovered in the *Petrobrasaurus* quarry of the Puesto Hernández area, northeastern Neuquén province (Argentina), late Coniacian–early Santonian in age. MAU-Pv-PH-458 is the northernmost bone record of an ornithopod in Argentina. This is a fragmentary neural arch from the middle section of the dorsal series of similar size to *Macrogryphosaurus gondwanicus*. MAU-Pv-PH-458 has typical ornithopod characters such as a lateromedial narrow neural spine and transverse processes dorsoposteriorly to posteriorly oriented. It shares with *Macrogryphosaurus* the presence of a deep channel between the bases of the postzygapophysis, which is a continuation of the channel that separates the postzygapophyses in posterior view. MAU-Pv-PH-458 increases the ornithopod record from the Plottier Formation.

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R É S U M É

La présence de dinosaures ornithopodes dans le Crétacé supérieur est encore peu documentée en Argentine. Chaque nouvelle découverte est très importante pour connaître l'évolution de ce groupe en Amérique du Sud. Nous décrivons ici de nouveaux restes fossiles d'un ornithopode indéterminé trouvés dans la carrière à *Petrobrasaurus* de la localité Puesto Hernández, dans le Coniacien supérieur–Santonien inférieur de la partie Nord-Est de la province de Neuquén (Argentine). MAU-Pv-PH-458 est le matériel ostéologique d'ornithopode découvert le plus au Nord en Argentine. Il s'agit d'un arc neural fragmentaire provenant de la partie moyenne de la série vertébrale dorsale et dont la taille est similaire à celle de *Macrogryphosaurus gondwanicus*. MAU-Pv-PH-458 montre des caractères typiques d'ornithopode, tels qu'une épine neurale latéro-médialement étroite, des processus transverses orientés dorso-postérieurement à postérieurement, entre autres. Il partage avec *Macrogryphosaurus* la présence d'un profond sillon entre la base des postzygapophyses, qui est la continuité du sillon séparant les postzygapophyses en vue postérieure. MAU-Pv-PH-458 augmente la liste des découvertes d'ornithopodes de la Formation Plottier.

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1. Introduction

The fossil record of Ornithopoda from the Upper Cretaceous of Argentina *plus* Antarctica is sparse at a low taxonomic level compared with that of other dinosaurs (Coria and Cambiaso, 2007; Rozadilla et al., 2016). Seven different species are identified: *Gasparinisaura cincosaltensis* Coria and Salgado, 1996b, *Notohypsilophodon comodorensis* Martínez, 1998, *Anabisetia saldiviai* Coria and Calvo, 2002, *Talenkauen santacrucensis* Novas et al., 2004, *Macrogryphosaurus gondwanicus* Calvo et al., 2007, *Trinisaura santamartaensis* Coria et al., 2013, and *Morrosaurus antarcticus* Rozadilla et al., 2016 (see Table 1), and abundant fragmentary remains diagnosable only to high taxonomic level. The fragmentary character of these remains, the shortage of anatomic elements similar or diagnostic complicates the comparison between taxa and, therefore, studies on paleobiodiversity.

We present a fragmentary dorsal neural arch of an ornithopod (MAU-Pv-PH-458) from the Puesto Hernández fossil site (Filippi

et al., 2011; Fig. 1). In this area, there are exposed outcrops belonging to the Plottier Formation (late Coniacian–early Santonian) of the Río Neuquén Subgroup. In this quarry, the titanosaur sauropod *Petrobrasaurus puestohernandezii* Filippi et al., 2011, and two different types of theropod teeth (Canudo et al., 2009; Filippi et al., 2011) were previously described. The record of dinosaur remains from the Plottier Formation is scarce, being composed from the remains previously mentioned *plus* several remains from other localities of the Neuquén and Río Negro provinces. In the Neuquén province, dinosaur bones have been found in the Aguada del Caño locality (the huge titanosaur “*Antarctosaurus giganteus*”, undetermined titanosaur and theropod dinosaurs; Von Huene, 1929) and in the Narambuena site (an indeterminate Aeolosaurini, Filippi et al., 2013). In the Río Negro province, vestiges of dinosaurs have been localized in the El Anfiteatro area: several fragmentary remains of titanosaurs, carcharodontosaurids, unenlagiids, indeterminate coelurosaurs and theropods, and a pedal ungual phalanx of an indeterminate ornithopod, the only other bone of an

Table 1
Cretaceous ornithopod record from Argentina.
Occurrences d'ornithopodes crétacés d'Argentine.

Locality	Taxon	Current status	Age	Stratigraphic unit	References
Río Negro province Cinco saltos	<i>Gasparinisaura cincosaltensis</i>	<i>Gasparinisaura cincosaltensis</i>	Santonian–early Campanian	Anacleto Fm., Río Colorado subgroup, Neuquén Group	Coria and Salgado (1996b) Salgado et al. (1997) Coria (1999) Dingus et al. (2000) Coria and Cambiaso (2007) Salgado et al. (2009)
El Anfiteatro	Ornithopoda indet.	Ornithopoda indet.	Late Coniacian–late Santonian	Plottier Fm., Río Neuquén subgroup, Neuquén Group	Coria and Calvo (2002)
Neuquén province Cerro Bayo Mesa	<i>Anabisetia saldiviai</i>	<i>Anabisetia saldivia</i>	Turonian	Cerro Lisandro Fm., Río Neuquén subgroup, Neuquén Group	Calvo et al. (2007)
Southwestern coast of Mari Menuco lake	<i>Macrogryphosaurus gondwanicus</i>	<i>Macrogryphosaurus gondwanicus</i>	Middle–late Coniacian	Sierra Barrosa Fm., Río Neuquén subgroup, Neuquén Group	Coria and Cambiaso (2007)
Bandera Hill	Iguanodontia indet.	Iguanodontia indet.	Coniacian	Portezuelo Fm., Río Neuquén Subgroup, Neuquén Group	Coria et al. (2004) Coria et al. (2007)
Plaza Huincol	Iguanodontia indet.	Iguanodontia indet.	Cenomanian	Huincol Fm. (ACG pers. obs.), Río Limay Subgroup, Neuquén Group	Porfiri and Calvo (2002) Calvo and Porfiri (2003)
Northern coast of Los Barreales lake	Iguanodontia indet.	Iguanodontia indet.	Coniacian	Portezuelo Fm., Río Neuquén subgroup, Neuquén Group	Canudo et al. (2013)
Agrio del Medio	Ornithopoda indet.	Ornithopoda indet.	Late Cenomanian–Turonian	Huincol Fm., Río Limay subgroup, Neuquén Group	This paper
Puesto Hernández quarry, Rincón de los Sauces	Ornithopoda indet.	Ornithopoda indet.	Late Coniacian–late Santonian	Plottier Fm., Río Neuquén subgroup, Neuquén Group	
Chubut province Neighboring of Buen Pasto, Chubut province	<i>Notohypsilophodon comodorensis</i>	<i>Notohypsilophodon comodorensis</i>	Middle Cenomanian–Turonian	Bajo Barreal Fm., Chubut Group	Martínez (1998) Lamanna et al. (2003) Ibircu et al. (2014) Ibircu et al. (2010)
Southeastern of the Colhué Huapi lake	Ornithopoda indet.	Ornithopoda indet.	Middle Cenomanian–Turonian	Bajo Barreal Fm., Upper Member	
Santa Cruz province Los Hornos Hill, Argentino lake	<i>Talenkauen santacrucensis</i>	<i>Talenkauen santacrucensis</i>	Maastrichtian	Pari Aike Fm.	Novas et al. (2004)
Pair-Aike	“ <i>Loncosaurus argentinus</i> ”	Ornithopoda indet.	Cenomanian–Santonian	Mata Amarilla Fm.	Ameghino (1899) Molnar (1980) Coria and Salgado (1996a) Coria and Cambiaso (2007)
Antartica Santa Marta Cove, James Ross Island	<i>Trinisaura santamartaensis</i>	<i>Trinisaura santamartaensis</i>	Upper Campanian	Snow Hill Island Fm.	Coria et al. (2013)
El Morro Peninsula, James Ross Island	<i>Morrosaurus antarcticus</i>	<i>Morrosaurus antarcticus</i>	Maastrichtian	López de Bertodano Fm.	Rozadilla et al. (2016)
Vega Island	A basla euornithopoda indet.	A basal euornithopoda indet.	Maastrichtian	López de Bertodano Fm.	Hooker et al. (1991) Coria et al. (2013)
Santa Marta Cove, James Ross Island, Antarctica	Ornithopoda indet.	Ornithopoda indet.	Upper Campanian	Snow Hill Island Fm.	Coria et al. (2007) Coria et al. (2013)

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