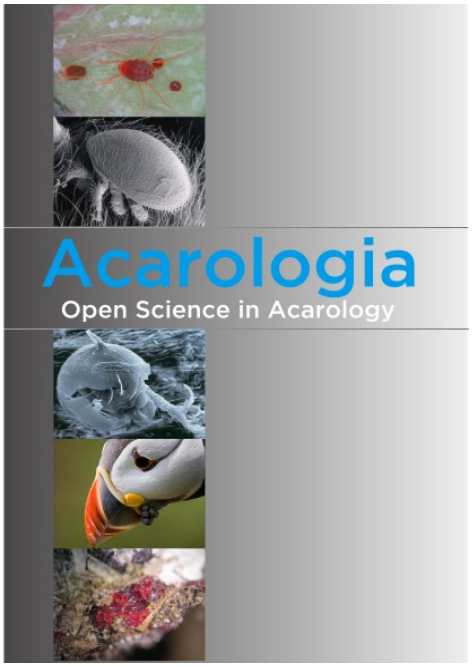

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Subscriptions: Year 2023 (Volume 63): 450 €
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Previous volumes (2010-2021): 250 € / year (4 issues)
Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France
ISSN 0044-586X (print), ISSN 2107-7207 (electronic)

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d'avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

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First checklist of the oribatid mites (Arachnida: Oribatida) of the Gran Chaco region (South America) with new records

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Original research

ABSTRACT

The South American Gran Chaco ecoregion extends through great areas of Argentina, Paraguay, Bolivia, and Brazil. The region includes vast forests that serve as an important reservoir of tropical and subtropical diversity. In spite of its extent and high biodiversity, it remains an unexplored area regarding Oribatida. We made bibliographic research about the oribatid mites previously registered. In the bibliography of Argentina and Paraguay, a total of 53 species are cited for this region. From our own works in the Argentinean provinces of Santiago del Estero and Chaco, we add some new records of Oribatida in the area. We provide a list of the species registered to date, including 48 firstly recorded in this work, as well as new localities for other 11 species previously known for the area. This paper almost doubles the number of registered species for this highly diverse but poorly known ecoregion, adding information towards the true diversity of Oribatida in the Chaco region.

Keywords Acari; diversity; forest; soil; subtropical

Introduction

Oribatid mites (Arachnida: Acari: Oribatida) are one of the most abundant and diverse groups of soil fauna, including more than 11,500 species recorded worldwide (Subías 2022). They are commonly found in soils around the world, but many species dwell on vegetation (Salavatulin 2019), including canopy soils on trees, bromeliads, mosses, or even lichens (Behan-Pelletier and Walter 2000). They are small and very abundant in almost all ecosystems and play a key role in decomposition, participating in the comminution of dead organic matter, and increasing the available surface for decomposers; they also help in bacteria and fungi proliferation, by external and internal transport of spores and other structures (Behan-Pelletier 2003).

The South American Gran Chaco ecoregion extends through great areas of Central and Northern Argentina and Western Paraguay, with small areas in Eastern Bolivia and South-Western Brazil (Bucher and Huszar 1999) (Fig. 1). The region is generally divided into a humid Eastern area and a dry Western area (Bianchi and Gibbs 2000). This region includes large areas of forests that serve as an important reservoir of tropical and subtropical diversity.

In spite of its large extent and high biodiversity, relatively few efforts have been made to explore the oribatid fauna of the Gran Chaco region. A complete catalogue of global oribatid

Received 11 April 2023
Accepted 06 July 2023
Published 12 July 2023

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Academic editor
Pfingstl, Tobias

https://doi.org/10.24349/ecdl-r2xe

ISSN 0044-586X (print)
ISSN 2107-7207 (electronic)

How to cite this article Gomez-Pamies D. F. *et al.* (2023), First checklist of the oribatid mites (Arachnida: Oribatida) of the Gran Chaco region (South America) with new records. **Acarologia 63(3): 906-918.** https://doi.org/10.24349/ecdl-r2xe

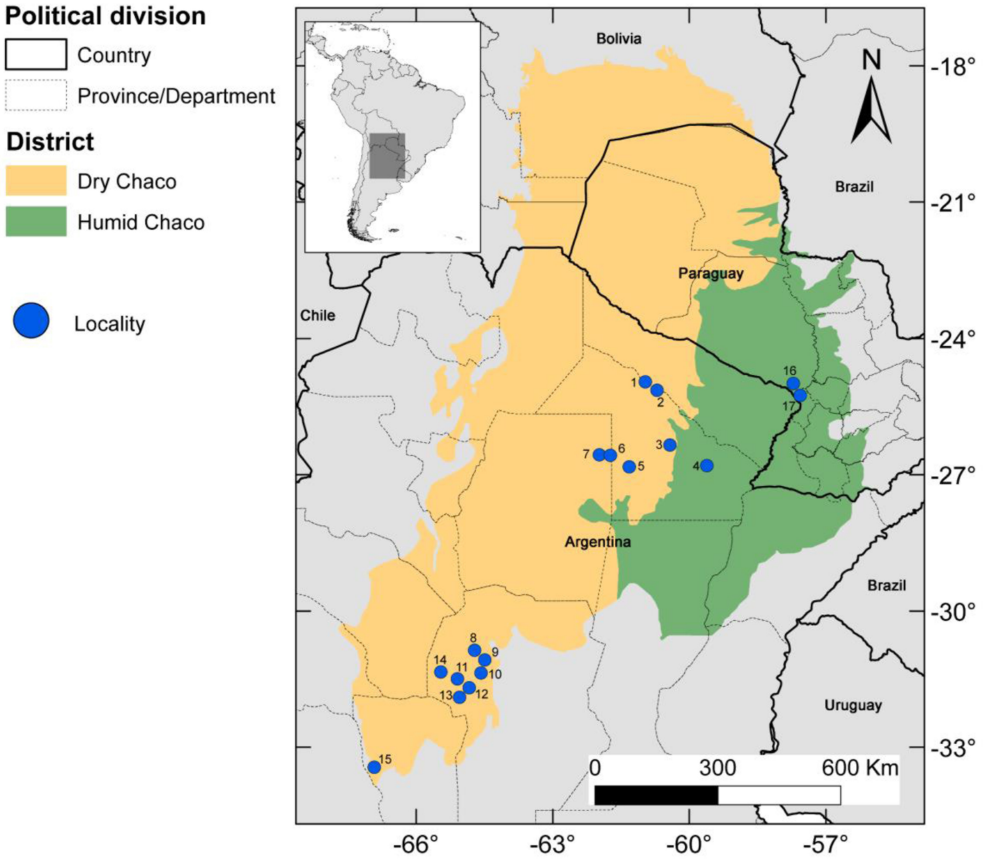

Figure 1 Map of localities, including new and previous records. For number references, see Table 1.

mites can be found in Subías (2022); although very complete and frequently updated, this list does generally provide scarce information about the distribution, such as country (e.g., Argentina) or wide region (e.g., Neotropics). A more detailed list of species and records is presented by (Fredes 2018), although only for Argentina; in her work, she includes a compilation of the species cited for the Argentinean Chaco region, mainly in the southernmost part, around the "Sierras de Córdoba" area, with two individual records for the Chaco province. A single work citing oribatid species (23 spp.) for the Paraguayan Chaco is recorded (Balogh and Mahunka 1981) and none from the Bolivian and Brazilian areas.

In the present work, we compile and provide a first checklist of Oribatida for the Gran Chaco region.

Material and methods

The collection in the new prospected sites reported in this work come from an expedition to the Santiago del Estero-Chaco border led by Dr. Matías Mastrangelo in August 2017, and another to "El Impenetrable" National Park (Chaco) led by researchers from the Universidad Nacional del Nordeste (UNNE) in November 2021.

At the first site, three fields were sampled. All fields had native forests until the late 90's but then the forests were partially cut off between 1999 and 2012 for pasture or agriculture. Soil and litter samples were taken to the laboratory and processed in Berlese funnels for 12 days. Material was deposited at the Oribatida collection of the "Universidad Nacional de Mar del Plata" (UNMP).

At "El Impenetrable" National Park, two forest sites were sampled, which differ in their conservation status, based on modified categories proposed by Roig *et al.* (2015). This public reserve was established in 2014 from previous private lands. Most of its forests were relatively untouched for decades, but illegal deforestation, hunting and livestock were frequent, leaving some degraded areas. One of the sites is a well conserved forest area and the other one corresponds to a forest with intermediate level of conservation. Litter samples were taken to the laboratory and processed in Berlese funnels for 10 days. Material was deposited at the Arthropods collection of the "Universidad Nacional del Nordeste" (CARTROUNNE).

Additional to these new data, a search of bibliography about Oribatida in the Gran Chaco ecoregion was performed. Coordinates of all localities and sources of data are shown in Table 1. Some of the coordinates of sites from bibliography are approximate due to the lack of accuracy of data provided in the papers. A map of the Gran Chaco region including localities of Oribatida species cited in this paper is shown in Figure 1.

Results

Based on bibliography and new data we present an updated checklist of the Oribatida of the Gran Chaco. Supra-generic classification follows that of Schatz *et al.* (2011); these categories are presented in phylogenetical order following the same authors. Genera and species follow the nomenclature in Subías (2022) and are presented in alphabetical order. Locality number codes correspond to those in Table 1.

Infraorder PALAEOSOMATA Grandjean, 1969

Superfamily Ctenacaroidea Grandjean, 1954

Family Adelphacaridae Grandjean, 1954

• *Adelphacarus sellnicki* Grandjean, 1952

New record for the Gran Chaco. Material deposited at UNMP-Or0101. Localities: (5), (6), (7). Habitat: pasture, wheat crop, and maize stubble; litter and soil.

Table 1 Figure 1 Map of localities, including new and previous records. For number references, see Table 1.

Country	Province/ Department	Locality	Latitude	Longitude	Source
Argentina	Chaco	(1) "El Impenetrable" National Park: well conserved forest	-24.949	-60.966	This study
		(2) "El Impenetrable" National Park: intermediately conserved forest	-24.966	-60.962	This study
		(3) Tres Isletas	-26.339	-60.427	Fernandez and Cleva (2009)
		(4) "Chaco" National Park	-26.794	-59.618	Niedbała (2004)
		(5) Martín (Private field)	-26.822	-61.324	This study
	Santiago del Estero	(6) Verbeck (Private field)	-26.566	-61.735	This study
		(7) La Agustina (Private field)	-26.554	-61.977	This study
	Córdoba	(8) Huerta Grande	-31.074	-64.496	Baranek (1986)
		(9) Pampa de Olaén	-31.078	-64.601	Baranek, (1986)
		(10) Tanti	-31.361	-64.580	Balogh and Mahunka (1968); Baranek (1986)
		(11) Sierras de Córdoba	-31.662	-64.835	Balogh and Balogh (1985)
		(12) Villa Benegas	-31.641	-64.956	Fernandez (1999)
		(13) Pampa de Achala	-31.683	-64.837	Baranek (1986)
		(14) Chancaní (Park and Natural Reserve)	-31.334	-65.461	Fernandez and Cleva (1999)
	San Luis	(15) Alto Pencoso	-33.432	-66.927	Eguaras *et al*. (1990); Fernandez (1990)
Paraguay	Presidente Hayes	(16) Villa Hayes	-25.058	-57.536	Balogh and Mahunka (1981)
	Capital	(17) Asunción	-25.248	-57.569	Balogh and Mahunka (1981)

Family Aphelacaridae Grandjean, 1954

• *Aphelacarus acarinus* (Berlese, 1910)
New record for the Gran Chaco. Material deposited at UNMP-Or0100.Localities: (5), (6), (7). Habitat: dry forest and pasture; soil.

Infraorder ENARTHRONOTA Grandjean, 1947

Superfamily Brachychthonioidea Thor, 1934

Family Brachychthoniidae Thor, 1934

• *Liochthonius fimbriatissimus* Hammer, 1962
New record for the Gran Chaco. Material deposited at UNMP-Or0102.Localities: (6), (7). Habitat: pasture; soil.
• *Poecilochthonius spiciger* (Berlese, 1910)
Cited as *Brachychthonius rapoporti* in Balogh and Mahunka (1968). Locality: (10). Habitat: litter and soil.
• *Sellnickochthonius foliatus* (Hammer, 1958)
Cited as *Brachychthonius foliatus* in Balogh and Mahunka (1968). New material deposited at UNMP-Or0103.Localities: (6), (10). Habitat: dry forest; moss and soil.

Superfamily Hypochthonioidea Berlese, 1910

Family Lohmanniidae Berlese, 1916

• *Annectacarus mucronatus* Grandjean, 1950
Cited in Balogh and Mahunka (1981). Locality: (16). Habitat: marshy forest; litter.
• *Torpacarus omittens omittens* Grandjean, 1950
New record for the Gran Chaco. Deposited at UNMP-Or0107. Localities: (5), (6), (7). Habitat: dry forest, pasture, and wheat crop; soil.
• *Torpacarus omittens paraguayensis* Balogh & Mahunka, 1981
Cited in Balogh and Mahunka (1981). Locality: (16). Habitat: marshy forest; litter.

Superfamily Protoplophoroidea Ewing, 1917

Family Cosmochthoniidae Grandjean, 1947

• *Cosmochthonius foveolatus* Beck, 1962
New record for the Gran Chaco. Deposited at UNMP-Or0104. Locality: (6), (7). Habitat: dry forest; litter and soil.
• *Cosmochthonius plumatus suramericanus* Hammer, 1958
New record for the Gran Chaco. Deposited at CARTROUNNE N°9395, and UNMP-Or0105 Localities: (1), (2), (5), (6), (7). Habitat: dry forest, pasture, and maize stubble; litter and soil.

Family Haplochthoniidae van der Hammen, 1959

• *Haplochthonius clavatus* (Hammer, 1958)
New record for the Gran Chaco. Deposited at UNMP-Or0106. Localities: (5), (6), (7). Habitat: dry forest and pasture; litter and soil.

Infraorder MIXONOMATA Grandjean, 1969

Superfamily Epilohmannioidea Oudemans, 1923

Family Epilohmanniidae Oudemans, 1923

• *Epilohmannia minuta minuta* Berlese, 1920

Cited as *Epilohmannia pallida americana* in Balogh and Mahunka (1981). New material deposited at UNMP-Or0108. Localities: (5), (6), (7), (16), (17). Habitat: dry forest, marshy forest, pasture, wheat crop, and botanical garden; litter and soil.

Superfamily Euphthiracaroidea Jacot, 1930

Family Euphthiracaridae Jacot, 1930

• *Acrotritia curticephala* (Jacot, 1938)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9390. Localities: (1), (2). Habitat: dry forest; litter.
• *Acrotritia peruensis* (Hammer, 1961)
New record for the Gran Chaco. Deposited at UNMP-Or0109. Localities: (6), (7). Habitat: dry forest, pasture, wheat crop, and maize stubble; litter and soil.

Superfamily Phthiracaroidea Perty, 1841

Family Phthiracaridae Perty, 1841

• *Hoplophorella hamata* (Ewing, 1909)
New record for the Gran Chaco. Deposited at UNMP-Or0110. Localities: (6), (7). Habitat: dry forest and pasture; litter and soil.
• *Hoplophorella lanceoseta* (Balogh & Mahunka, 1981)
Cited as *Steganacarus lanceosetus* in Balogh and Mahunka (1981). New material deposited at CARTROUNNE N°9476. Localities: (2), (16). Habitat: dry forest and marshy forest; litter.
• *Hoplophthiracarus eparmatos* (Niedbała, 2004)
Cited as *Arphthiracarus eparmatos* in Niedbała (2004). Locality: (4). Habitat: humid forest; rotted logs and sticks with fungus.

Infraorder DESMONOMATA Woolley, 1973

Hyporder NOTHRINA van der Hammen, 1982

Superfamily Crotonioidea Thorell, 1876

Family Malaconothridae Berlese, 1916

• *Tyrphonothrus translamellatus* (Hammer, 1958)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9477. Locality: (2). Habitat: dry forest; litter.

Family Nothridae Berlese, 1896

• *Nothrus becki* Balogh & Mahunka, 1981
Cited in Balogh and Mahunka (1981). Locality: (16). Habitat: marshy forest; litter.

Family Trhypochthoniidae Willmann, 1931

• *Allonothrus neotropicus* Balogh & Mahunka, 1969
Cited in Balogh and Mahunka (1981). Locality: (16). Habitat: marshy forest; litter.

Hyporder BRACHYPYLINA Hull, 1918

Superfamily Plateremaeoidea Trägårdh, 1926

Family Aleurodamaeidae Paschoal & Johnston, 1985

• *Austrodamaeus elegantulus* (Hammer, 1958)
Cited as *Austrodamaeus rimosus* in Balogh and Mahunka (1981). New material deposited at CARTROUNNE N°9387. Localities: (1), (2), (16). Habitat: dry forest, marshy forest; litter.

Family Gymnodamaeidae Grandjean, 1954

• *Jacotella ornata* (Balogh & Csiszár, 1963)
New record for the Gran Chaco. Deposited at UNMP-Or0111. Localities: (5), (6), (7). Habitat: forest; litter and soil.

Family Licnodamaeidae Grandjean, 1954

• *Licnodamaeus granulatus* Balogh & Csiszár, 1963
New record for the Gran Chaco. Deposited at CARTROUNNE N°9389. Localities: (1), (2). Habitat: dry forest; litter.

Family Pedrocortesellidae Paschoal, 1987

• *Pedrocortesella monicai* Eguaras, Martínez & Fernández, 1990
Cited in Eguaras *et al.* (1990). Locality: (15). Habitat: litter of *Aspidosperma quebracho-blanco* Schltdl.
• *Pedrocortesella montis* Fernández, 1990
Cited in Fernández (1990). Locality: (15). Habitat: litter of *Aspidosperma quebracho-blanco*.
• *Pedrocortesella pulchra* Hammer, 1961
New record for the Gran Chaco. Deposited at CARTROUNNE N°9388. Localities: (1), (2). Habitat: dry forest; litter.

Family Pheroliodidae Paschoal, 1987

• *Pheroliodes achalensis* Baranek, 1986
Cited in Baranek (1986). Locality: (13). Habitat: moss in crevices of rocks.
• *Pheroliodes bolivianus* Ermilov & Starý, 2021
New record for the Gran Chaco. Deposited at CARTROUNNE N°9393. Localities: (1), (2). Habitat: dry forest; litter.
• *Pheroliodes cordobensis* Baranek, 1986
Cited in Baranek (1986). Localities: (9), (10). Habitat: moss and liverwort on rocks.
• *Pheroliodes longisetus* Baranek, 1986
Cited in Baranek (1986). Locality: (13). Habitat: moss in crevices of rocks.
• *Pheroliodes vulgaris* Baranek, 1984
Cited in Baranek (1986). Localities: (8), (10). Habitat: moss in crevices of rocks.

Family Plateremaeidae Trägårdh, 1926

• *Plateremaeus yurtaevi* Ermilov & Starý, 2021
New record for the Gran Chaco. Deposited at CARTROUNNE N°9392. Localities: (1), (2). Habitat: dry forest; litter.

Superfamily Microzetoidea Grandjean, 1936

Family Microzetidae Grandjean, 1936

• *Berlesezetes brazilozetoides* Balogh & Mahunka, 1981
Cited in Balogh and Mahunka (1981). New material deposited at UNMP-Or0123. Localities: (5), (6), (7), (17). Habitat: dry forest, pasture, wheat crop, maize stubble, and botanical garden; litter and soil.
• *Fusozetes plumifer* (Balogh & Mahunka, 1968)
Cited as *Rhopalozetes plumifer* in Balogh and Mahunka (1968). Locality: (10). Habitat: litter and soil.

Superfamily Ameroidea Bulanova-Zachvatkina, 1957

Family Damaeolidae Grandjean, 1965

• *Fosseremus laciniatus* (Berlese, 1905)
Cited as *Fosseremus saltaensis* in Balogh and Mahunka. New material deposited at UNMP-Or0113. Localities: (5), (6), (7), (17). Habitat: dry forest, pasture, wheat crop, maize stubble, and botanical garden; litter and soil.

Family Eremobelbidae Balogh, 1961

• *Eremobelba foliata* Hammer, 1958
Cited in Balogh and Mahunka (1981). Locality: (17). Habitat: botanical garden; litter.
• *Eremobelba zicsii* Balogh & Mahunka, 1969
Cited in Balogh and Mahunka (1981). Locality: (17). Habitat: botanical garden; litter.

Family Eremulidae Grandjean, 1965

• *Eremulus crispus* Hammer, 1958
Cited in Balogh and Mahunka (1981). New material deposited at CARTROUNNE N°9457, and UNMP-Or0112. Localities: (2), (5), (6), (7), (16), (17). Habitat: dry forest, marshy forest, wheat crop, and botanical garden; litter and soil.
• *Eremulus nigrisetosus* Hammer, 1958
Cited in Balogh and Mahunka (1981). Locality: (17). Habitat: botanical garden; litter.
• *Pseuderemulus gladiator* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: litter and soil.

Family Staurobatidae Grandjean, 1966

• *Staurobates schusteri cordobensis* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: soil.

Superfamily Gustavioidea Oudemans, 1900

Family Astegistidae Balogh, 1961

• *Cultroribula bicuspidata* Mahunka, 1978
Cited as *Cultroribula zicsii* in Balogh and Mahunka (1981). Locality: (17). Habitat: botanical garden; litter.

Family Liacaridae Sellnick, 1928

• *Xenillus argentinensis* Balogh & Balogh (1985)
Cited in Balogh and Balogh (1985). Locality: (11). Habitat: litter.
• *Xenillus lawrencei* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). New material deposited at CARTROUNNE N°9456. Localities: (2), (10). Habitat: dry forest; litter and soil.

Superfamily Carabodoidea Koch, 1837

Family Carabodidae Koch, 1837

• *Gymnobodes atrichosus* (Mahunka, 1984)
New record for the Gran Chaco. Deposited at UNMP-Or0120. Localities: (5), (6), (7). Habitat: dry forest and pasture; soil.

Superfamily Oppioidea Grandjean, 1951

Family Oppiidae Grandjean, 1951

• *Brachioppia cuscensis* Hammer, 1961

Cited as *Oppia guarani* in Balogh and Mahunka (1981). Locality: (16). Habitat: marshy forest; litter.

• *Microppia minus* (Paoli, 1908)

New record for the Gran Chaco. Deposited at UNMP-Or0137. Locality: (7). Habitat: pasture; soil.

• *Oppiella nova* (Oudemans, 1902)

Cited in Balogh and Mahunka (1981). New material deposited at UNMP-Or0115 Localities: (5), (6), (16). Habitat: marshy forest, pasture, and wheat crop; litter and soil.

• *Oxyoppia suramericana* (Hammer, 1958)

New record. Deposited at UNMP-Or0116. Localities: (5), (6), (7). Habitat: dry forest, pasture, and wheat crop; litter and soil.

• *Ramusella cordobensis* (Balogh & Mahunka, 1968)

Cited as *Oppia cordobensis* in Balogh and Mahunka (1968). Locality: (10). Habitat: soil.

• *Sacculoppia singularis* Balogh & Mahunka, 1968

Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: moss, soil, and *Stipa* branches.

• *Stratioppia tribuliformis* Balogh & Mahunka, 1981

Cited in Balogh and Mahunka (1981). Locality: (16). Habitat: marshy forest; litter.

• *Taiwanoppia trichotos* (Balogh & Mahunka, 1977)

New record for the Gran Chaco. Deposited at UNMP-Or0117. Localities: (5), (6), (7). Habitat: dry forest and pasture; litter and soil.

Family Sternoppiidae Balogh & Mahunka, 1969

• *Sternoppia mirabilis* Balogh & Mahunka, 1968

Cited in Balogh and Mahunk (1968). Locality: (10). Habitat: soil.

Family Thyrisomidae Grandjean, 1953

• *Banksinoma monoceros* (Balogh & Mahunka, 1968)

Cited as *Oribella spinifera monoceros* in Balogh and Mahunka (1968). New material deposited at UNMP-Or0114. Localities: (5), (10). Habitat: wheat crop; litter and soil.

Superfamily Trizetoidea Ewing, 1917

Family Suctobelbidae Jacot, 1938

• *Coartobelba campestris* (Balogh & Mahunka, 1981)

New record for the Gran Chaco. Deposited at UNMP-Or0118. Locality: (6). Habitat: dry forest; litter.

• *Novosuctobelba baculifera* (Balogh & Mahunka, 1981)

Cited as *Suctobelba perdentata baculifer* in Balogh and Mahunka (1981). Locality: (17). Habitat: botanical garden; litter.

• *Parasuctobelba complexa* (Hammer, 1958)

Cited as *Suctobelbella complexa* in Balogh and Mahunka (1968). Locality: (10). Habitat: litter and soil.

• *Parasuctobelba subcomplexa* (Balogh & Mahunka, 1968)

Cited as *Suctobelbella subcomplexa* in Balogh and Mahunka (1968). Locality: (10). Habitat: litter and soil.

• *Suctobelbella peracuta* (Balogh & Mahunka, 1980)

New record for the Gran Chaco. Deposited at UNMP-Or0119. Localities: (6), (7). Habitat: pasture and wheat crop; litter and soil.

• *Suctobelbella scrofa* (Balogh & Mahunka, 1968)

Cited as *Suctobelba scrofa* in Balogh and Mahunka (1968). Locality: (10). Habitat: litter and soil.

Superfamily Tectocepheoidea Grandjean, 1954

Family Tectocepheidae Grandjean, 1954

• *Tectocepheus velatus* (Michael, 1980)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9396 and UNMP-Or0121. Localities: (1), (2), (5), (6), (7). Habitat: dry forest, pasture, wheat crop, and maize stubble; litter and soil.

Superfamily Limnozetoidea Thor, 1937

Family Limnozetidae Thor, 1937

• *Ceratobates spathulatus* Balogh & Mahunka, 1981
New record for the Gran Chaco. Deposited at CARTROUNNE N°9401. Locality: (1). Habitat: dry forest; litter.

Superfamily Cymbaeremaeoidea Sellnick, 1928

Family Cymbaeremaeidae Sellnick, 1928

• *Scapheremaeus chaquensis* Fernández & Cleva, 2009
Cited in Fernánez and Cleva (2009). Locality: (3). Habitat: litter of *Schinopsis lorenzii* (Griseb.) Engl. and *Libidibia* (=*Caesalpinia*) *paraguariensis* (D. Parodi) G. P. Lewis.
• *Scapheremaeus longicuspis* Mahunka, 1984
New record for the Gran Chaco. Deposited at CARTROUNNE N°9394. Locality: (1). Habitat: dry forest; litter.
• *Scapheremaeus ornatus* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: epiphyton of bushes.

Superfamily Eremaeozetoidea Piffl, 1972

Family Eremaeozetidae Piffl, 1972

• *Eremaeozetes bilunatifer* Balogh & Mahunka, 1981
Cited in Balogh and Mahunka (1981). Localities: (16), (17). Habitat: marshy forest and botanical garden; litter and soil.
• *Eremaeozetes chancanii* Fernández & Cleva, 2000
Cited in Fernández and Cleva (2000). Locality: (14). Habitat: litter of *Prosopis flexuosa* DC. and *Aspidosperma quebracho-blanco*.

Superfamily Licneremaeoidea Grandjean, 1954

Family Charassobatidae Grandjean, 1958

• *Charassobates minimus* Balogh & Mahunka, 1981
Cited in Balogh and Mahunka (1981) Locality: (16). Habitat: marshy forest; litter.

Family Eremellidae Balogh, 1961

• *Eremella ensifera* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: litter and soil.

Family Licneremaeidae Grandjean, 1954

• *Huilicheremaeus atypicus* (Mahunka, 1984)
New record for the Gran Chaco. Deposited at UNMP-Or0122. Locality: (5). Habitat: dry forest; litter and soil.
• *Licneremaeus altiplanicus* Covarrubias, 2005
New record for the Gran Chaco. Deposited at CARTROUNNE N°9417. Locality: (2). Habitat: dry forest; litter.

Family Passalozetidae Grandjean, 1954

• *Passalozetes prominens* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: epiphyton of bushes.

Superfamily Oribatelloidea Jacot, 1925

Family Oribatellidae Jacot, 1925

• *Lamellobates molecula molecula* (Berlese, 1916)
New record for the Gran Chaco. Deposited at UNMP-Or0124. Localities: (5), (6), (7). Habitat: dry forest, pasture, wheat crop, and maize stubble; litter.

Superfamily Oripodoidea Jacot, 1925

Family Haplozetidae Grandjean, 1936

• *Indoribates rostropilosus* (Hammer, 1961)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9399. Localities: (1), (2). Habitat: dry forest; litter.
• *Peloribates longicoma* Hammer, 1958
Cited in Balogh and Mahunka (1968). New material deposited at CARTROUNNE N°9398, and UNMP-Or0132. Localities: (1), (2), (7), (10). Habitat: dry forest, pasture, and maize stubble; litter, soil, and stems of *Stipa*.
• *Peloribates paraguayensis* Balogh & Mahunka, 1981
New record for the Gran Chaco. Deposited at UNMP-Or0133. Localities: (6), (7). Habitat: dry forest and pasture; litter and soil.
• *Peloribates porosus* Beck, 1964
New record for the Gran Chaco. Deposited at CARTROUNNE N°9410. Locality: (1). Habitat: dry forest; litter.
• *Rostrozetes ovulum ovulum* (Berlese, 1908)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9431, and UNMP-Or0134. Localities: (1), (2), (5), (6), (7). Habitat: dry forest and pasture; litter and soil.
• *Rostrozetes pseudofurcatus* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: soil.

Family Nasobatidae Balogh, 1972

• *Nasobates mirabilis* Balogh & Mahunka, 1969
New record for the Gran Chaco. Deposited at CARTROUNNE N°9391, and UNMP-Or0131. Localities: (1), (2), (7). Habitat: dry forest; litter.

Family Oribatulidae Thor, 1929

• *Jornadia dactyloscopica* (Balogh & Mahunka, 1968)
Cited as *Oribatula dactyloscopica* in Balogh and Mahunka (1968). Locality: (10). Habitat: epiphyton of bushes.
• *Oribatula lata* (Hammer, 1961)
New record for the Gran Chaco. Deposited at UNMP-Or0125. Localities: (5), (7). Habitat: dry forest, pasture, and maize stubble; litter and soil.
• *Oribatula translineata* Mahunka, 1985
New record for the Gran Chaco. Deposited at UNMP-Or0126. Locality: (5). Habitat: pasture and wheat crop; soil.
• *Paraphauloppia fraenzlei* (Balogh & Mahunka, 1968)
Cited as *Oribatula fraenzlei* in Balogh and Mahunka (1968). Locality: (10). Habitat: epiphyton of bushes.
• *Senoribula africana* Mahunka, 1975

New record for the Gran Chaco. Deposited at UNMP-Or0127. Localities: (5), (6), (7). Habitat: dry forest, pasture, and wheat crop; litter and soil.

Family Oripodidae Jacot, 1925

• *Oripoda benegasi* Fernández, 1999
Cited in Fernández (1999). Locality: (12). Habitat: rocks covered by *Tillandsia* spp.
• *Oripoda cordobensis* Balogh & Balogh, 1990
Cited as *Truncopes australis* in Balogh and Mahunka (1968). Locality: (10). Habitat: epiphyton in bushes.
• *Oripoda maxensis* Mahunka, 1984
New record for the Gran Chaco. Deposited at CARTROUNNE N°9451. Locality: (1). Habitat: dry forest; litter.
• *Parapirnodus longus* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: epiphyton in bushes.
• *Pirnodus imitans* Balogh & Mahunka, 1968
Cited in Balogh and Mahunka (1968). Locality: (10). Habitat: epiphyton in bushes.

Family Scheloribatidae Grandjean, 1933

• *Exoribatula chavinensis* (Hammer, 1961)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9469. Locality: (2). Habitat: dry forest; litter.
• *Hemileius suramericanus* (Hammer, 1958)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9411, and UNMP-Or0129. Localities: (1), (2), (5), (6), (7). Habitat: dry forest, pasture, wheat crop, and maize stubble; litter and soil.
• *Hemileius trichosus* (Hammer, 1958)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9409. Locality: (1). Habitat: dry forest; litter.
• *Scheloribates curvialatus* Hammer, 1961
New record for the Gran Chaco. Deposited at UNMP-Or0130. Localities: (5), (6), (7). Habitat: dry forest, pasture, wheat crop, and maize stubble; litter and soil.
• *Scheloribates laticlava* Hammer, 1961
New record for the Gran Chaco. Deposited at CARTROUNNE N°9400. Locality: (1). Habitat: dry forest; litter.
• *Scheloribates praeincisus interruptus* (Berlese, 1916)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9468. Locality: (2). Habitat: dry forest; litter.
• *Urubambates paraguayensis* Balogh & Mahunka, 1981
Cited in Balogh and Mahunka (1981). New material deposited at UNMP-Or0128. Localities: (6), (7), (16). Habitat: dry forest, marshy forest, and pasture; litter and soil.

Superfamily Ceratozetoidea Jacot, 1925

Family Ceratozetidae Jacot, 1925

• *Ceratozetella processus* (Hammer, 1962)
New record for the Gran Chaco. Deposited at CARTROUNNE N°9397. Localities: (1), (2). Habitat: dry forest; litter.

Superfamily Galumnoidea Jacot, 1925

Family Galumnidae Jacot, 1925

• *Galumna flabellifera* Hammer, 1958

New record for the Gran Chaco. Deposited at UNMP-Or0135. Localities: (5), (6), (7). Habitat: dry forest, pasture, and wheat crop; litter and soil.

• *Galumna innexa* Pérez-Íñigo & Baggio, 1986

New record for the Gran Chaco. Deposited at UNMP-Or0136. Localities: (5), (6), (7). Habitat: dry forest, pasture, and maize stubble; litter and soil.

Final remarks

Though large and diverse in habitats and species, the Gran Chaco remains a poorly prospected area. Few previous data registered 53 species of Oribatida from the region, concentrated in the southernmost and eastern areas (Balogh and Mahunka 1981; Fredes 2018). Our data from the central part of the Dry Chaco (West) add 48 species newly recorded for the ecoregion and new localities for 11 species previously recorded in other areas. This constitutes a big step forward in the knowledge of soil biodiversity in the region, and Oribatida in particular, a group of the fauna that is important in food webs but whose actual diversity remains unknown. Still, there is a huge gap in knowledge of Oribatid mites of the Gran Chaco, with many large areas not prospected, such as the diverse Iberá wetlands in the East and the rich forests in the North, and many species still to be described, including some found in the works presented here, which could not be assigned to any known species.

Acknowledgements

We thank to those who participated in the sampling campaigns. To Dr. Enrique R. Laffont, Dr. Juan M. Coronel, B.S. Guillermo Ávalos, and Mr. Nicolás Infrán, from the lab "Biología de Invertebrados y Protistas" (Universidad Nacional del Nordeste-UNNE), and Dr. Miryam P. Damborski, Dr. Gilberto Ávalos, Dr. Mario Ibarra-Polesel, Dr. Darío D. Larrea, and Dr. Matías I. Dufek, from the lab "Biología de los Artrópodos" (UNNE), who took samples from "El Impenetrable" National Park. To Matías Mastrangelo (Universidad Nacional de Mar del Plata), who took samples from the following sites: La Agustina, Martín, and Verbeck.

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