



Hymenoptera Type Material from the National Museum of Costa Rica II: Paratypes

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Abstract

Through the physical review of the Hymenoptera collection of the National Museum of Costa Rica and 53 articles associated with the description of species, we found a total of 4218 paratype specimens, representing 17 families, 41 subfamilies, 47 tribes and 143 genera. Some of them belonging to the genus *Heterospilus* were damaged during a return of material by mail, and others have genetic sequencing available for research. The possibility that many other paratypes are found in other collections is not ruled out, since there is a large amount of material borrowed that was never returned.

Subject Areas

Entomology

Keywords

Ants, Bees, Type Catalogue, Voucher Specimen, Wasps

1. Introduction

The National Museum of Costa Rica (MNCR) houses a patrimonial collection of Hymenoptera of more than 475,000 specimens acquired in 2015, when the MNCR received the collection from the National Institute of Biodiversity (IN-Bio).

This collection contains a significant amount of type material corresponding to species described between the years 1901 and 2021. However, many of the paratypes from these publications were deposited in the Museum, but they were not systematized when incorporating the database system, therefore that there was not a complete inventory, until now.

The objective of this research was to generate the final inventory of the para-

types of the hymenoptera collection, through an exhaustive physical and literature review, in order to know the species and volume of specimens that are kept.

2. Methodology

2.1. National Museum Insect Collection

The MNCR paratype collection is found together with the general collection, along with the regular specimens. Although some of them held a label that identifies them as paratypes, they were not included in the digital database, so we proceeded to assign a code and enter their data into the system.

2.2. Paratype Inventory

By reviewing the literature, it was possible to build an inventory of specimens that was later confirmed by means of a physical search to count and confirm their presence in the collection. It was also necessary to have the documents inherited by the National Institute of Biodiversity (INBio) on the loans made, in order to locate the missing specimens in the collection.

2.3. Literature Review

We proceeded to carry out a review of the literature in order to avoid that some paratypes without a type label were not counted and identified in the database. For this we reviewed the following articles: Arcterberg *et al.* (2002) [1], Aranguren (1999) [2], Areekul and Quicke (2006) [3], Braet and Quicke (2004) [4], Briceño (2003) [5], Campa and Wahis (2018) [6], Carpenter and Kojima (2002) [7], Engel (2009) [8], Feitosa and Brandão (2008) [9], Fortier and Nishida (2004) [10], Gauld and Janzen (2004) [11], Gauld *et al.* (1997) [12], Gauld *et al.* (2000) [13], Gauld *et al.* (2002) [14], Gauld *et al.* (1998) [15], Gates and Hanson (2009) [16], Gibson (2003) [17], Gibson (2004) [18], Hansson (2005) [19], Hansson (2010) [20], Hansson (2011) [21], Hansson (2012) [22], Hansson and LaSalle (2003) [23], Heydon and Hanson (2005) [24], Leathers *et al.* (2003) [25], Lindsay and Sharkey (2006) [26], Longino (2006) [27], Macedo (2011) [28], Marsh (2002) [29], Marsh *et al.* (2013) [30], Michener *et al.* (2003) [31], Noyes (2004) [32], Noyes (2000) [33], Noyes and Hanson (1996) [34], Noyes and Ren (1995) [35], Noyes and Shauuff (2003) [36], Roubik *et al.* (1997) [37], Sarmiento-Monroy (2006) [38], Schaufuff and Janzen (2001) [39], Sharkov and Wooley (1997) [40], Shaw *et al.* (1997) [41], Smith (2003) [42], Smith and Janzen (2003) [43], Smith (2008) [44], Smith (2012) [45], Starr (1991) [46], Twones (1992) [47], Valerio and Whitefield (2015) [48], Valerio and Whitefield (2003) [49], Valerio *et al.* (2009) [50], Vardy (2000) [51], Viereck (1920) [52], West-Eberhard *et al.* (2010) [53].

3. Results

The literature indicates that at least 4.218 paratypes are deposited in the MNCR and all of them were found (Table 1), and 65 have barcoding sequencing (Table 2). Unfortunately, some specimens returned damaged from a loan (Table 3), so

Table 1. Paratype without barcoding sequences.

FAMILY		Number of specimens in collection
Subfamily		
tribe	Species	Specimens
APIDADE		
Apinae		
Meliponini	<i>Meliwillea bivea</i> Roubik, Lobo and Camargo 1997	2 specimens
ARGIDAE		
Dielocerinae	<i>Themos mayi</i> Smith and Janzen 2003	1 specimen
Sterictiphorinae	<i>Didymia jonesi</i> Smith 2003	1 specimen
AULACIDAE		
Aulacinae		
	<i>Aulacus maculosus</i> Smith 2008	1 specimen
	<i>Pristaulacus nigricoxae</i> Smith 2008	1 specimen
BRACONIDAE		
Agatinae		
	<i>Alabagrus combos</i> Leathers and Sharkey 2003	2 specimens
	<i>Alabagrus derailersi</i> Leathers and Sharkey 2003	8 specimens
	<i>Alabagrus englishi</i> Leathers and Sharkey 2003	43 specimens
	<i>Alabagrus sarapiqui</i> Leathers and Sharkey 2003	2 specimens
	<i>Alabagrus watsoni</i> Leathers and Sharkey 2003	5 specimens
	<i>Amputoearinus niger</i> Lindsay and Sharkey 2006	1 specimen
	<i>Amputoearinus variegatus</i> Lindsay and Sharkey 2006	3 specimens
	<i>Sesioctonus acrolophus</i> Briceño 2003	2 specimens
	<i>Sesioctonus ariasi</i> Briceño 2003	1 specimen
	<i>Sesioctonus biospleres</i> Briceño 2003	2 specimens
	<i>Sesioctonus diazi</i> Briceño 2003	1 specimen
	<i>Sesioctonus dichromus</i> Briceño 2003	11 specimens
	<i>Sesioctonus miyayensis</i> Briceño 2003	2 specimens
	<i>Sesioctonus parathyridis</i> Briceño 2003	5 specimens
	<i>Zelomorpha bejaranoi</i> Sarmiento-Monroy 2006	1 specimen
	<i>Zelomorpha cherylae</i> Sarmiento-Monroy 2006	1 specimen
	<i>Zelomorpha euryterga</i> Sarmiento-Monroy 2006	2 specimen
	<i>Zelomorpha hallwachsae</i> Sarmiento-Monroy 2006	1 specimen
	<i>Zelomorpha janzeni</i> Sarmiento-Monroy 2006	1 specimen
	<i>Zelomorpha katatonus</i> Sarmiento-Monroy 2006	1 specimen

Continued

	<i>Zelomorpha miza</i> Sarmiento-Monroy 2006	1 specimen
	<i>Zelomorpha petila</i> Sarmiento-Monroy 2006	1 specimen
	<i>Zelomorpha sharkeyi</i> Sarmiento-Monroy 2006	1 specimen
Braconinae	<i>Compsobraconoides cinnamomi</i> Fortier and Nishida 2004	3 specimens
Doryctinae	<i>Barbalhoa contophleba</i> Marsh 2002	2 specimens
	<i>Barbalhoa licina</i> Marsh 2002	13 specimens
	<i>Curtiselloides pilosus</i> Marsh 2002	20 specimens
	<i>Notiospathius carolinae</i> (Marsh 2002) ^a	33 specimens
	<i>Notiospathius pauli</i> (Marsh 2002)	4 specimens
	<i>Iare belokobylskiji</i> Marsh 2002	1 specimen
	<i>Iare gauldi</i> Marsh 2002	1 specimen
	<i>Pannuceus fonsecai</i> Marsh 2002	7 specimens
	<i>Rimacollus rojasi</i> Marsh 2002	1 specimen
	<i>Ptesimogaster hespenheidi</i> (Marsh 2002)	5 specimens
	<i>Tripteroides janzeni</i> Marsh 2002	2 specimens
Binareini	<i>Liobracon costaricensis</i> Marsh 2002	3 specimens
Doryctini	<i>Acanthorhogas parkeri</i> Marsh 2002	1 specimen
	<i>Gymnobracon megistus</i> Marsh 2002	31 specimens
	<i>Johnsonius costaricensis</i> Marsh 2002	4 specimens
	<i>Johnsonius perkus</i> Marsh 2002	9 specimens
	<i>Pedinotus</i> (<i>Pedinotus</i>) <i>niger</i> Marsh 2002	2 specimens
	<i>Pedinotus</i> (<i>Pedinotus</i>) <i>pardalotus</i> Marsh 2002	3 specimens
	<i>Pedinotus</i> (<i>Pedinotus</i>) <i>rojasi</i> Marsh 2002	2 specimens
	<i>Pedinotus</i> (<i>Pedinotus</i>) <i>variegatus</i> Marsh 2002	1 specimen
	<i>Rhaconotus</i> (<i>Pedinotus</i>) <i>costaricensis</i> Marsh 2002	3 specimens
	<i>Rhaconotus</i> (<i>Pedinotus</i>) <i>emarginatus</i> Marsh 2002	14 specimens
	<i>Rhaconotus</i> (<i>Pedinotus</i>) <i>rugosus</i> Marsh 2002	1 specimen
Ecphylini	<i>Bohartiellus costaricensis</i> Marsh 2002	4 specimens
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>gauldi</i> Marsh 2002	1 specimen
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>hansonii</i> Marsh 2002	1 specimen
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>hespenheidei</i> Marsh 2002	1 specimen
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>laselvus</i> Marsh 2002	1 specimen
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>leukocoxalis</i> Marsh 2002	2 specimens
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>lissoprotomus</i> Marsh 2002	1 specimen
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>propodealis</i> Marsh 2002	1 specimen
	<i>Ecphylus</i> (<i>Ecphylus</i>) <i>variabilis</i> Marsh 2002	2 specimens

Continued

Hecabolini	<i>Doryctinus costaricensis</i> (Marsh 2002)	6 specimens
	<i>Doryctinus erugatus</i> (Marsh 2002)	1 specimen
	<i>Doryctinus rubronotum</i> (Marsh 2002)	3 specimens
	<i>Allorhogas ardisia</i> Marsh 2002	1 specimen
	<i>Allorhogas costaricensis</i> Marsh 2002	2 specimens
	<i>Allorhogas gauldi</i> Marsh 2002	1 specimen
	<i>Allorhogas hansonii</i> Marsh 2002	1 specimen
	<i>Allorhogas ingavera</i> Marsh 2002	4 specimens
	<i>Allorhogas sulcatus</i> Marsh 2002	1 specimen
	<i>Pioscelus costaricensis</i> (Marsh 2002)	3 specimens
	<i>Curtisella gauldi</i> Marsh 2002	2 specimens
	<i>Hecabolus costaricensis</i> Ugalde and Gauld 2002	1 specimen
	<i>Heredius laselvus</i> Marsh 2002	1 specimen
	<i>Leluthia (Leluthia) careovena</i> Marsh 2002	2 specimens
	<i>Leluthia (Leluthia) costaricensis</i> Marsh 2002	1 specimen
	<i>Leluthia (Leluthia) flavocoxalis</i> Marsh 2002	7 specimens
	<i>Semirhytus hansonii</i> Marsh 2002	16 specimens
Heterospilini	<i>Pioscelus mesomphatus</i> Marsh 2002	3 specimens
	<i>Heterospilus (Heterospilus) alajuelus</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) aubreyae</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) barbaloae</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) carolinae</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) chaoi</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) corcovado</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) costarricensis</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) ektorincon</i> Marsh 2013	3 specimens
	<i>Heterospilus (Heterospilus) gouleti</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) granulatus</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) hansonii</i> Marsh 2013	5 specimens
	<i>Heterospilus (Heterospilus) jenniae</i> Marsh 2013	26 specimens
	<i>Heterospilus (Heterospilus) kelliiae</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) leenderti</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) leviscutum</i> Marsh 2013	3 specimens
	<i>Heterospilus (Heterospilus) masneri</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) mercury</i> Marsh 2013	1 specimen

Continued

	<i>Heterospilus (Heterospilus) miskito</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) nahua</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) nephus</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) nueve</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) nunesi</i> Marsh 2013	7 specimens
	<i>Heterospilus (Heterospilus) orbitus</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) petralbus</i> Marsh 2013	5 specimens
	<i>Heterospilus (Heterospilus) rhabdotus</i> Marsh 2013	4 specimens
	<i>Heterospilus (Heterospilus) rincovensisi</i> Marsh 2013	3 specimens
	<i>Heterospilus (Heterospilus) rojasi</i> Marsh 2013	1 specimen
	<i>Heterospilus (Heterospilus) sergeyi</i> Marsh 2013	4 specimens
	<i>Heterospilus (Heterospilus) shawi</i> Marsh 2013	3 specimens
	<i>Heterospilus (Heterospilus) spiloheterus</i> Marsh 2013	2 specimens
	<i>Heterospilus (Heterospilus) whartoni</i> Marsh 2013	1 specimen
Spathiini	<i>Notiospathius bicolor</i> Marsh 2002	1 specimen
	<i>Notiospathius rugonotum</i> Marsh 2002	1 specimen
	<i>Psenobolus triangularis</i> van Achterberg and Marsh 2002	3 specimens
	<i>Spathius (Spathius) albocoxus</i> Marsh 2002	18 specimens
	<i>Trigonophasmus costaricensis</i> Marsh 2002	4 specimens
Mendesellinae	<i>Epsilogaster antoniae</i> Valerio and Whitefield 2004	2 specimens
Microgastrinae		
Microgastrini	<i>Hypomicrogaster koino</i> Valerio 2015	3 specimens
	<i>Hypomicrogaster largus</i> Valerio 2015	1 specimen
	<i>Hypomicrogaster luisi</i> Valerio 2015	3 specimens
	<i>Hypomicrogaster plagios</i> Valerio 2015	10 specimens
	<i>Hypomicrogaster rugosus</i> Valerio 2015	3 specimens
	<i>Hypomicrogaster specialis</i> Valerio 2015	14 specimens
	<i>Hypomicrogaster zan</i> Valerio 2015	17 specimens
	<i>Parapanteles continua</i> Valerio and Whitefield 2009	11 specimens
	<i>Parapanteles em</i> Valerio and Whitefield 2009	7 specimens
	<i>Parapanteles mariae</i> Valerio and Whitefield 2009	15 specimens
	<i>Parapanteles polus</i> Valerio and Whitefield 2009	5 specimens
	<i>Parapanteles rarus</i> Valerio and Whitefield 2009	5 specimens
	<i>Parapanteles scotti</i> Valerio and Whitefield 2009	8 specimens
	<i>Parapanteles sicpolus</i> Valerio and Whitefield 2009	4 specimens

Continued

	<i>Parapanteles tessares</i> Valerio and Whitefield 2009	15 specimens
	<i>Parapanteles tinea</i> Valerio and Whitefield 2009	5 specimens
Orgilinae		
Mimagathidini	<i>Stantonina osa</i> Braet and Quicke 2004	5 specimens
	<i>Stantonina peninsularis</i> Braet and Quicke 2004	1 specimen
	<i>Stantonina sirena</i> Braet and Quicke 2004	14 specimens
Rogadinae		
Rogadini	<i>Aleiodes (Aleiodes) notozophus</i> Marsh and Shaw 1997	2 specimens
Yeliconini	<i>Yelicones limonensis</i> Areekul and Quicke 2006	1 specimen
	<i>Yelicones ormei</i> Areekul and Quicke 2006	3 specimens
	<i>Yelicones quarterus</i> Areekul and Quicke 2006	1 specimen
COLLETIDAE		
Diphaglossinae		
Caupolicanini		
	<i>Caupolicana inbio</i> Michener, Engel and Ayala 2003	54 specimens
	<i>Caupolicana rozenorum</i> Michener, Engel and Ayala 2003	1 specimen
ENCYRTIDAE		
Encyrtinae		
	<i>Bennettisca ganyame</i> Noyes 2004	1 specimen
	<i>Bennettisca nambue</i> Noyes 2004	1 specimen
	<i>Bennettisca xenophon</i> Noyes 2004	1 specimen
	<i>Blanchardiscus pollux</i> Noyes 2004	3 specimens
	<i>Caldencyrtus mitchelli</i> Noyes and Hanson 1996	1 specimen
	<i>Cercobelus sithon</i> Noyes and Hanson 1996	1 specimen
	<i>Cercobelus godoyae</i> Noyes and Hanson 1996	1 specimen
	<i>Cercobelus isara</i> Noyes and Hanson 1996	2 specimens
	<i>Metaphycus agylla</i> Noyes 2004	1 specimen
	<i>Metaphycus alsis</i> Noyes 2004	4 specimens
	<i>Metaphycus bostra</i> Noyes 2004	1 specimen
	<i>Metaphycus bouceki</i> Noyes 2004	19 specimens
	<i>Metaphycus carveri</i> Noyes 2004	2 specimens
	<i>Metaphycus ceros</i> Noyes 2004	1 specimen
	<i>Metaphycus chicle</i> Noyes 2004	1 specimen
	<i>Metaphycus cinna</i> Noyes 2004	1 specimen
	<i>Metaphycus codrus</i> Noyes 2004	2 specimens
	<i>Metaphycus coeus</i> Noyes 2004	1 specimen

Continued

<i>Metaphycus coronea</i> Noyes 2004	1 specimen
<i>Metaphycus cossyra</i> Noyes 2004	4 specimens
<i>Metaphycus cures</i> Noyes 2004	2 specimens
<i>Metaphycus cyrnos</i> Noyes 2004	1 specimen
<i>Metaphycus cythera</i> Noyes 2004	1 specimen
<i>Metaphycus dirce</i> Noyes 2004	10 specimens
<i>Metaphycus electra</i> Noyes 2004	1 specimen
<i>Metaphycus elisa</i> Noyes 2004	2 specimens
<i>Metaphycus ephyrus</i> Noyes 2004	2 specimens
<i>Metaphycus eruptor</i> Noyes 2004	1 specimen
<i>Metaphycus erynis</i> Noyes 2004	3 specimens
<i>Metaphycus eryx</i> Noyes 2004	1 specimen
<i>Metaphycus expero</i> Noyes 2004	1 specimen
<i>Metaphycus fasula</i> Noyes 2004	2 specimen
<i>Metaphycus fautus</i> Noyes 2004	3 specimens
<i>Metaphycus flavus</i> Noyes 2004	12 specimens
<i>Metaphycus galata</i> Noyes 2004	3 specimens
<i>Metaphycus gallicola</i> Noyes and Hanson 1996	2 specimens
<i>Metaphycus genava</i> Noyes 2004	2 specimens
<i>Metaphycus hamadra</i> Noyes 2004	1 specimen
<i>Metaphycus harveyorum</i> Noyes 2004	4 specimens
<i>Metaphycus hippo</i> Noyes 2004	2 specimens
<i>Metaphycus inachus</i> Noyes 2004	1 specimen
<i>Metaphycus lexova</i> Noyes 2004	2 specimens
<i>Metaphycus lebadus</i> Noyes 2004	1 specimen
<i>Metaphycus lucar</i> Noyes 2004	1 specimen
<i>Metaphycus manda</i> Noyes 2004	1 specimen
<i>Metaphycus masa</i> Noyes 2004	1 specimen
<i>Metaphycus machaon</i> Noyes 2004	1 specimen
<i>Metaphycus medio</i> Noyes 2004	1 specimen
<i>Metaphycus memphis</i> Noyes 2004	2 specimens
<i>Metaphycus merendo</i> Noyes 2004	10 specimens
<i>Metaphycus metor</i> Noyes 2004	15 specimens
<i>Metaphycus mellis</i> Noyes 2004	1 specimen
<i>Metaphycus murena</i> Noyes 2004	1 specimen

Continued

	<i>Metaphycus mus</i> Noyes 2004	1 specimen
	<i>Metaphycus mycene</i> Noyes 2004	2 specimens
	<i>Metaphycus naxos</i> Noyes 2004	3 specimens
	<i>Metaphycus nola</i> Noyes 2004	1 specimen
	<i>Metaphycus norahae</i> Noyes 2004	5 specimens
	<i>Metaphycus obstinus</i> Noyes 2004	1 specimen
	<i>Metaphycus omega</i> Noyes 2004	4 specimens
	<i>Metaphycus othyras</i> Noyes 2004	1 specimen
	<i>Metaphycus paramo</i> Noyes 2004	1 specimen
	<i>Metaphycus porsena</i> Noyes 2004	1 specimen
	<i>Metaphycus portoricensis</i> Noyes 2004	1 specimen
	<i>Metaphycus pydnos</i> Noyes 2004	3 specimens
	<i>Metaphycus sestus</i> Noyes 2004	1 specimen
	<i>Metaphycus xsara</i> Noyes 2004	1 specimen
	<i>Paramucrona srunua</i> Noyes 2004	1 specimen
	<i>Pseudleptomastix mexicana</i> Noyes and Schauff, 2003	2 specimens
	<i>Psyllaephagus creusa</i> Noyes and Hanson 1996	4 specimens
	<i>Psyllaephagus epulo</i> Noyes and Hanson 1996	1 specimen
	<i>Psyllaephagus gyces</i> Noyes and Hanson 1996	1 specimen
	<i>Psyllaephagus othrys</i> Noyes and Hanson 1996	2 specimens
	<i>Psyllaephagus ufens</i> Noyes and Hanson 1996	1 specimen
Tetracneminae	<i>Acerophagoides almon</i> Noyes 2000	5 specimens
	<i>Acerophagoides cypris</i> Noyes 2000	1 specimen
	<i>Aenasius dives</i> Noyes and Ren 1995	1 specimen
	<i>Aenasius quezada</i> Noyes and Ren 1995	1 specimen
	<i>Anagyrus cepio</i> Noyes 2000	1 specimen
	<i>Anagyrus matho</i> Noyes 2000	1 specimen
	<i>Anagyrus mirtesae</i> Noyes 2000	2 specimens
	<i>Anagyrus lizanorum</i> Noyes 2000	15 specimens
	<i>Anagyrus odacon</i> Noyes 2000	1 specimen
	<i>Anagyrus remotor</i> Noyes, 2000	1 specimen
	<i>Anagyrus salazari</i> Noyes 2000	1 specimen
	<i>Anagyrus sucro</i> Noyes 2000	2 specimens
	<i>Anagyrus villalobosi</i> Noyes 2000	6 specimens
	<i>Blepyrus fabius</i> Noyes 2000	4 specimens

Continued

<i>Blepyrus hansonii</i> Noyes 2000	25 specimens
<i>Blepyrus sappho</i> Noyes 2000	7 specimens
<i>Blepyrus zenonis</i> Noyes 2000	6 specimens
<i>Chrysoplatycerus ixion</i> Noyes 2000	1 specimen
<i>Clausenia senex</i> Noyes 2000	2 specimens
<i>Gyranusoidea amasis</i> Noyes 2000	9 specimens
<i>Gyranusoidea brixia</i> Noyes 2000	1 specimen
<i>Gyranusoidea sulmo</i> Noyes 2000	3 specimens
<i>Gyranusoidea janzeni</i> Noyes 2000	1 specimen
<i>Gyranusoidea lamus</i> Noyes 2000	4 specimens
<i>Gyranusoidea rhodope</i> Noyes 2000	10 specimens
<i>Hambletonia pilosifrons</i> Sharkov and Woolley 1997	2 specimens
<i>Hipponactis itea</i> Noyes 2000	9 specimens
<i>Peneax deidamia</i> Noyes 2000	2 specimens
<i>Zarhopalus zancles</i> Noyes 2000	6 specimens

EULOPHIDAE

Entedoninae

<i>Achrysocharoides infuscus</i> Hansson, 2012	1 specimen
<i>Aleuroctonus marki</i> Hansson and LaSalle 2003	1 specimen
<i>Apleurotropis albicaulis</i> Hansson 2010	12 specimens
<i>Apleurotropis albiscapus</i> Hansson 2010	3 specimens
<i>Apleurotropis anemia</i> Hansson 2010	24 specimens
<i>Apleurotropis assis</i> Hansson 2010	3 specimens
<i>Cabeza baeostigma</i> Hansson and LaSalle 2003	4 specimens
<i>Cabeza petiolata</i> Hansson and LaSalle 2003	2 specimens
<i>Cornugon bicornis</i> Hansson 2011	1 specimen
<i>Cornugon diabolos</i> Hansson 2011	1 specimen
<i>Cornugon diceros</i> Hansson 2011	1 specimen
<i>Cornugon gibberum</i> Hansson 2011	1 specimen
<i>Cornugon leios</i> Hansson 2011	2 specimens
<i>Cornugon reticulatum</i> Hansson 2011	5 specimens
<i>Dentalion alveum</i> Hansson 2011	1 specimen
<i>Dentalion apon</i> Hansson 2011	1 specimen
<i>Klyngon jimenezi</i> Hansson 2005	4 specimens
<i>Klyngon serjaniae</i> Hansson and LaSalle, 2010	1 specimen

Continued

Eulophinae		
	<i>Euplectrus mariae</i> Schauff 2001	8 specimens
	<i>Euplectrus xiomarae</i> Schauff 2001	5 specimens
EURYTOMIDAE		
Eurytominae		
	<i>Bephrata camacho</i> Gates and Hanson 2009	7 specimens
	<i>Bephrata flava</i> Gates and Hanson 2009	2 specimens
	<i>Bephrata lorraineae</i> Gates and Hanson 2009	7 specimens
	<i>Bephrata nublada</i> Gates and Hanson 2009	1 specimen
	<i>Bephrata stichogaster</i> Gates and Hanson 2009	6 specimens
	<i>Bephrata ticos</i> Gates and Hanson 2009	17 specimens
	<i>Isosomodes azofiefai</i> Gates and Hanson 2009	19 specimens
FORMICIDAE		
Myrmicinae		
Dacetini	<i>Nesomyrmex vargasi</i> Longino 2006	1 specimen
	<i>Pyramica oconitrilloae</i> Longino 2006	1 specimen
	<i>Pyramica paniaguae</i> Longino 2006	5 specimens
Attini	<i>Lachnomyrmex laticeps</i> Feitosa and Brandao 2008	1 specimen
	<i>Lachnomyrmex longinoi</i> Feitosa and Brandao 2008	3 specimens
	<i>Lachnomyrmex regularis</i> Feitosa and Brandao 2008	3 specimens
	<i>Strumigenys paniaguae</i> (Longino 2006)	1 specimen
GASTERUPTIIDAE		
Gasteruptiinae	<i>Gasteruption hansonii</i> Macedo 2011	4 specimens
HALICTIDAE		
Halictinae		
Augochlorini	<i>Megalopta atra</i> Engel 2006	21 specimens
ICHNEUMONIDAE		
Anomaloninae		
Anomalonini	<i>Anomalon acevedoi</i> Gauld 1997	27 specimens
	<i>Anomalon anae</i> Gauld and Bradshaw 1997	8 specimens
	<i>Anomalon avanzaoui</i> Gauld 1997	4 specimens
	<i>Anomalon canoae</i> Gauld 1997	23 specimens
	<i>Anomalon fermini</i> Gauld 1997	10 specimens
	<i>Anomalon guisellea</i> Gauld 1997	8 specimens

Continued

Gravenhorstiini	<i>Castrosion renei</i> Gauld 1997	2 specimens
	<i>Corsoncus minori</i> Gauld 1997	1 specimen
	<i>Podogaster acostai</i> Gauld and Bradshaw 1997	2 specimens
	<i>Podogaster benignoi</i> Gauld and Bradshaw 1997	1 specimen
	<i>Podogaster eldae</i> Gauld and Bradshaw 1997	12 specimens
	<i>Podogaster orozcoi</i> Gauld 1997	1 specimen
	<i>Podogaster tranae</i> Gauld and Bradshaw 1997	10 specimens
Banchinae		
Atrophini	<i>Cordeleboea nasuta</i> Ugalde and Gauld 2002	2 specimens
	<i>Cordeleboea nigrata</i> Ugalde and Gauld 2002	1 specimen
	<i>Cordeleboea ovardesi</i> Ugalde and Gauld 2002	1 specimen
	<i>Hadrostethus eberhardi</i> Ugalde and Gauld 2002	12 specimens
	<i>Hadrostethus hansonii</i> Ugalde and Gauld 2002	2 specimens
	<i>Hapsinotus albomaculatus</i> Ugalde and Gauld 2002	9 specimens
	<i>Hapsinotus bravicaudus</i> Ugalde and Gauld 2002	2 specimens
	<i>Hapsinotus carinatus</i> Ugalde and Gauld 2002	20 specimens
	<i>Hapsinotus convexus</i> Ugalde and Gauld 2002	9 specimens
	<i>Hapsinotus glissatus</i> Ugalde and Gauld 2002	9 specimens
	<i>Hapsinotus granulatus</i> Ugalde and Gauld 2002	1 specimen
	<i>Hapsinotus morenus</i> Ugalde and Gauld 2002	4 specimens
	<i>Hapsinotus nigrogena</i> Ugalde and Gauld 2002	14 specimens
	<i>Hapsinotus notaulator</i> Ugalde and Gauld 2002	7 specimens
	<i>Hapsinotus parvatus</i> Ugalde and Gauld 2002	9 specimens
	<i>Hapsinotus planifacies</i> Ugalde and Gauld 2002	1 specimen
	<i>Hapsinotus transversus</i> Ugalde and Gauld 2002	1 specimen
	<i>Lissonota begaza</i> Ugalde and Gauld 2002	4 specimens
	<i>Lissonota conulla</i> Ugalde and Gauld 2002	29 specimens
	<i>Lissonota crudeta</i> Ugalde and Gauld 2002	14 specimens
	<i>Lissonota gurna</i> Ugalde and Gauld 2002	5 specimens
	<i>Lissonota horpa</i> Ugalde and Gauld 2002	1 specimen
	<i>Lissonota justina</i> Ugalde and Gauld 2002	1 specimen
	<i>Lissonota pseudeleboea</i> Ugalde and Gauld 2002	15 specimens
	<i>Lissonota tostada</i> Ugalde and Gauld 2002	2 specimens
	<i>Lissonota vebena</i> Ugalde and Gauld 2002	2 specimens

Continued

<i>Loxodocus luteator</i> Ugalde and Gauld 2002	3 specimens
<i>Loxodocus nigratus</i> Ugalde and Gauld 2002	7 specimens
<i>Loxodocus vulgator</i> Ugalde and Gauld 2002	2 specimens
<i>Meniscomorpha alhambra</i> Ugalde and Gauld 2002	3 specimens
<i>Meniscomorpha astrema</i> Ugalde and Gauld 2002	28 specimens
<i>Meniscomorpha bullata</i> Ugalde and Gauld 2002	3 specimens
<i>Meniscomorpha castroi</i> Ugalde and Gauld 2002	2 specimens
<i>Meniscomorpha devisa</i> Ugalde and Gauld 2002	10 specimens
<i>Meniscomorpha enura</i> Ugalde and Gauld 2002	2 specimens
<i>Meniscomorpha gomezi</i> Ugalde and Gauld 2002	2 specimens
<i>Meniscomorpha helpina</i> Ugalde and Gauld 2002	2 specimens
<i>Meniscomorpha hembrata</i> Ugalde and Gauld 2002	10 specimens
<i>Meniscomorpha implaza</i> Ugalde and Gauld 2002	1 specimen
<i>Meniscomorpha leva</i> Ugalde and Gauld 2002	1 specimen
<i>Meniscomorpha lizanoi</i> Ugalde and Gauld 2002	1 specimen
<i>Meniscomorpha mitica</i> Ugalde and Gauld 2002	5 specimens
<i>Meniscomorpha nerda</i> Ugalde and Gauld 2002	2 specimens
<i>Meniscomorpha ocala</i> Ugalde and Gauld 2002	6 specimens
<i>Meniscomorpha pensita</i> Ugalde and Gauld 2002	3 specimens
<i>Meniscomorpha quava</i> Ugalde and Gauld 2002	6 specimens
<i>Meniscomorpha romata</i> Ugalde and Gauld 2002	9 specimens
<i>Meniscomorpha salasi</i> Ugalde and Gauld 2002	1 specimen
<i>Meniscomorpha sotoi</i> Ugalde and Gauld 2002	19 specimens
<i>Meniscomorpha tamaska</i> Ugalde and Gauld 2002	2 specimens
<i>Meniscomorpha xeresha</i> Ugalde and Gauld 2002	6 specimens
<i>Meniscomorpha zacasta</i> Ugalde and Gauld 2002	4 specimens
<i>Mnioes arves</i> Ugalde and Gauld 2002	2 specimens
<i>Mnioes cerves</i> Ugalde and Gauld 2002	1 specimen
<i>Mnioes dormes</i> Ugalde and Gauld 2002	2 specimens
<i>Mnioes flomes</i> Ugalde and Gauld 2002	1 specimen
<i>Mnioes garnes</i> Ugalde and Gauld 2002	14 specimens
<i>Mnioes kebes</i> Ugalde and Gauld 2002	3 specimens
<i>Mnioes mores</i> Ugalde and Gauld 2002	6 specimens
<i>Mnioes nalbes</i> Ugalde and Gauld 2002	14 specimens
<i>Mnioes teves</i> Ugalde and Gauld 2002	13 specimens

Continued

<i>Occia jereza</i> Ugalde and Gauld 2002	9 specimens
<i>Podeleboea altissima</i> Ugalde and Gauld 2002	7 specimens
<i>Podeleboea bifenestralis</i> Ugalde and Gauld 2002	2 specimens
<i>Podeleboea bricenoi</i> Ugalde and Gauld 2002	2 specimens
<i>Podeleboea cacaoi</i> Ugalde and Gauld 2002	7 specimens
<i>Podeleboea morena</i> Ugalde and Gauld 2002	1 specimen
<i>Podeleboea perplexa</i> Ugalde and Gauld 2002	6 specimens
<i>Podeleboea pitillae</i> Ugalde and Gauld 2002	1 specimen
<i>Podeleboea punctiblanca</i> Ugalde and Gauld 2002	1 specimen
<i>Podeleboea vitoi</i> Ugalde and Gauld 2002	4 specimens
<i>Procestus pammae</i> Ugalde and Gauld 2002	3 specimens
<i>Ptychopsis glabrata</i> Ugalde and Gauld 2002	1 specimen
<i>Ptychopsis sanchoi</i> Ugalde and Gauld 2002	2 specimens
<i>Quillonota petronae</i> Ugalde and Gauld 2002	1 specimen
<i>Quillonota zurqui</i> Ugalde and Gauld 2002	1 specimen
<i>Syzeuctus abonis</i> Ugalde and Gauld 2002	1 specimen
<i>Syzeuctus besamis</i> Ugalde and Gauld 2002	11 specimens
<i>Syzeuctus cenitus</i> Ugalde and Gauld 2002	2 specimens
<i>Syzeuctus clovis</i> Ugalde and Gauld 2002	1 specimen
<i>Syzeuctus dorcus</i> Ugalde and Gauld 2002	1 specimen
<i>Syzeuctus forpis</i> Ugalde and Gauld 2002	1 specimen
<i>Syzeuctus hezonicus</i> Ugalde and Gauld 2002	47 specimens
<i>Syzeuctus judtitus</i> Ugalde and Gauld 2002	4 specimens
<i>Syzeuctus kespis</i> Ugalde and Gauld 2002	1 specimen
<i>Syzeuctus lurinus</i> Ugalde and Gauld 2002	2 specimens
<i>Syzeuctus possitus</i> Ugalde and Gauld 2002	9 specimens
<i>Syzeuctus vedoris</i> Ugalde and Gauld 2002	4 specimens
<i>Wahlamia anasiphaga</i> Ugalde and Gauld 2002	1 specimen
<i>Wahlamia brevigena</i> Ugalde and Gauld 2002	1 specimen
<i>Wahlamia illuminata</i> Ugalde and Gauld 2002	2 specimens
<i>Wahlamia incognita</i> Ugalde and Gauld 2002	5 specimens
<i>Wahlamia incompleta</i> Ugalde and Gauld 2002	1 specimen
<i>Wahlamia phloridiphobia</i> Ugalde and Gauld 2002	3 specimens
<i>Wahlamia taliskiphila</i> Ugalde and Gauld 2002	11 specimens

Continued

Banchini	<i>Exetastes amancoi</i> Ugalde and Gauld 2002	1 specimen
	<i>Exetastes eithus</i> Ugalde and Gauld 2002	3 specimens
	<i>Exetastes lorinus</i> Ugalde and Gauld 2002	1 specimen
	<i>Exetastes navetus</i> Ugalde and Gauld 2002	1 specimen
	<i>Exetastes niblus</i> Ugalde and Gauld 2002	1 specimen
	<i>Exetastes ometus</i> Ugalde and Gauld 2002	10 specimens
	<i>Exetastes pivai</i> Ugalde and Gauld 2002	8 specimens
	<i>Exetastes quarus</i> Ugalde and Gauld 2002	20 specimens
Glyptini	<i>Glypta eberhardi</i> Ugalde and Gauld 2002	1 specimen
	<i>Glypta metadecoris</i> Ugalde and Gauld 2002	1 specimen
	<i>Glypta vittata</i> Ugalde and Gauld 2002	1 specimen
	<i>Glypta wahlí</i> Ugalde and Gauld 2002	1 specimen
	<i>Glypta zurquiensis</i> Ugalde and Gauld 2002	1 specimen
	<i>Sphelodon ugaldei</i> Ugalde and Gauld 2002	1 specimen
	<i>Sphelodon wardae</i> Ugalde and Gauld 2002	3 specimens
	<i>Zaglytomorpha auxiliadora</i> Ugalde and Gauld 2002	2 specimens
	<i>Zaglytomorpha bella</i> Ugalde and Gauld 2002	1 specimen
	<i>Zaglytomorpha cornuta</i> Ugalde and Gauld 2002	1 specimen
	<i>Zaglytomorpha daschi</i> Ugalde and Gauld 2002	1 specimen
	<i>Zaglytomorpha flaquís</i> Ugalde and Gauld 2002	4 specimens
	<i>Zaglytomorpha mitchellae</i> Ugalde and Gauld 2002	5 specimens
Cremastinae	<i>Eiphosoma gollum</i> Gauld 2000	3 specimens
	<i>Eiphosoma porrax</i> Gauld 2000	1 specimen
	<i>Eiphosoma rudelium</i> Gauld 1991	3 specimens
	<i>Eiphosoma tantaliúm</i> Gauld 1991	8 specimens
	<i>Eiphosoma terrax</i> Gauld 2000	2 specimens
	<i>Eiphosoma urgulium</i> Gauld 1991	4 specimens
	<i>Pristomerus chicliphilus</i> Gauld 2000	2 specimens
	<i>Pristomerus grendor</i> Gauld 2000	1 specimen
	<i>Pristomerus haptinus</i> Gauld 2000	1 specimen
	<i>Pristomerus jugulator</i> Gauld 2000	5 specimens
	<i>Pristomerus kirinus</i> Gauld 2000	2 specimens
	<i>Ptilobaptus solaniphilus</i> Gauld 2000	1 specimen
	<i>Temelucha dannix</i> Gauld 2000	37 specimens
	<i>Trathala abraxa</i> Gauld 2000	4 specimens

Continued

	<i>Trathala celena</i> Gauld 2000	8 specimens
	<i>Trathala diva</i> Gauld 2000	35 specimens
	<i>Trathala gifa</i> Gauld 2000	2 specimens
	<i>Trathala kula</i> Gauld 2000	3 specimens
	<i>Xiphosomella belinda</i> Gauld 2000	1 specimen
	<i>Xiphosomella bonera</i> Gauld 2000	51 specimens
	<i>Xiphosomella cinctata</i> Gauld 2000	28 specimens
	<i>Xiphosomella ctenator</i> Gauld 2000	10 specimens
	<i>Xiphosomella daphne</i> Gauld 2000	3 specimens
	<i>Xiphosomella denticulella</i> Gauld 2000	2 specimens
	<i>Xiphosomella folicana</i> Gauld 2000	1 specimen
	<i>Xiphosomella forgana</i> Gauld 2000	1 specimen
	<i>Xiphosomella gethne</i> Gauld 2000	1 specimen
	<i>Xiphosomella hippolita</i> Gauld 2000	6 specimens
	<i>Xiphosomella jacusme</i> Gauld 2000	12 specimens
	<i>Xiphosomella kismeta</i> Gauld 2000	33 specimens
	<i>Xiphosomella merida</i> Gauld 2000	1 specimen
	<i>Xiphosomella ozne</i> Gauld 2000	8 specimens
	<i>Xiphosomella pesada</i> Gauld 2000	1 specimen
	<i>Xiphosomella pirena</i> Gauld 2000	1 specimen
	<i>Xiphosomella quinta</i> Gauld 2000	1 specimen
	<i>Xiphosomella roxana</i> Gauld 2000	6 specimens
	<i>Xiphosomella rufina</i> Gauld 2000	1 specimen
	<i>Xiphosomella slenda</i> Gauld 2000	4 specimens
	<i>Xiphosomella wirra</i> Gauld 2000	3 specimens
	<i>Xiphosomella zilla</i> Gauld 2000	6 specimens
Ctenopelmatinae		
Scolobatini	<i>Physotarsus bonillai</i> Gauld 1997	2 specimens
Cylloceriinae		
	<i>Cylloceria alvaradoi</i> Gauld 1991	5 specimens
	<i>Cylloceria barbouraki</i> Gauld 1991	1 specimen
	<i>Cylloceria trishae</i> Gauld 1991	1 specimen
	<i>Cylloceria ugaldevi</i> Gauld 1991	1 specimen
Labeninae		
Labenini	<i>Apechoneura compacta</i> Gauld 2000	1 specimen
	<i>Apechoneura mariae</i> Gauld 2000	1 specimen

Continued

	<i>Apechoneura pelucida</i> Gauld 2000	1 specimen
	<i>Apechoneura salablancae</i> Gauld 2000	1 specimen
	<i>Apechoneura valerieae</i> Gauld 2000	4 specimens
	<i>Labena eremica</i> Gauld 2000	3 specimens
	<i>Labena espinita</i> Gauld 2000	1 specimen
	<i>Labena humida</i> Gauld 2000	1 specimen
	<i>Labena ogra</i> Gauld 2000	1 specimen
	<i>Labena osai</i> Gauld 2000	1 specimen
Metopiinae	<i>Colpotrochia beluga</i> Gauld and Sithole 2002	106 specimens
	<i>Colpotrochia diabella</i> Gauld and Sithole 2002	50 specimens
	<i>Colpotrochia feroza</i> Gauld and Sithole 2002	11 specimens
	<i>Colpotrochia neblina</i> Gauld and Sithole 2002	6 specimens
	<i>Colpotrochia orinella</i> Gauld and Sithole 2002	5 specimens
	<i>Colpotrochia pesada</i> Gauld and Sithole 2002	1 specimens
	<i>Colpotrochia watanka</i> Gauld and Sithole 2002	3 specimens
	<i>Colpotrochia xenia</i> Gauld and Sithole 2002	1 specimens
	<i>Colpotrochia zembla</i> Gauld and Sithole 2002	2 specimens
	<i>Exochus boxatus</i> Gauld and Ugalde 2002	2 specimens
	<i>Exochus curvinus</i> Gauld and Ugalde 2002	2 specimens
	<i>Exochus delopius</i> Gauld and Ugalde 2002	5 specimens
	<i>Exochus evitus</i> Gauld and Ugalde 2002	1 specimens
	<i>Exochus farmellus</i> Gauld and Ugalde 2002	6 specimens
	<i>Exochus flubinus</i> Gauld and Ugalde 2002	23 specimens
	<i>Exochus gascus</i> Gauld and Ugalde 2002	4 specimens
	<i>Exochus hormus</i> Gauld and Ugalde 2002	6 specimens
	<i>Exochus izbus</i> Gauld and Ugalde 2002	416 specimens
	<i>Exochus jacintus</i> Gauld and Ugalde 2002	14 specimens
	<i>Exochus krellus</i> Gauld and Ugalde 2002	1 specimen
	<i>Exochus nativus</i> Gauld and Ugalde 2002	19 specimens
	<i>Exochus nubosus</i> Gauld and Ugalde 2002	1 specimen
	<i>Exochus ozanus</i> Gauld and Ugalde 2002	1 specimen
	<i>Exochus pubitus</i> Gauld and Ugalde 2002	3 specimens
	<i>Exochus ravetus</i> Gauld and Sithole 2002	13 specimens
	<i>Exochus rubellus</i> Gauld and Ugalde 2002	1 specimen
	<i>Exochus serozus</i> Gauld and Ugalde 2002	11 specimens

Continued

<i>Exochus teborus</i> Gauld and Ugalde 2002	1 specimen
<i>Exochus urzus</i> Gauld and Ugalde 2002	1 specimen
<i>Exochus vanitus</i> Gauld and Ugalde 2002	2 specimens
<i>Exochus vlops</i> Gauld and Ugalde 2002	1 specimen
<i>Exochus voxanus</i> Gauld and Ugalde 2002	3 specimens
<i>Exochus wabitus</i> Gauld and Ugalde 2002	1 specimen
<i>Exochus womus</i> Gauld and Ugalde 2002	20 specimens
<i>Exochus xarus</i> Gauld and Ugalde 2002	23 specimens
<i>Exochus xetus</i> Gauld and Ugalde 2002	6 specimens
<i>Exochus yorizus</i> Gauld and Sithole 2002	6 specimens
<i>Forrestopius pamela</i> Gauld and Sithole 2002	2 specimens
<i>Hypsicera chena</i> Gauld and Sithole 2002	11 specimens
<i>Hypsicera msana</i> Gauld and Sithole 2002	1 specimen
<i>Hypsicera mukanwa</i> Gauld and Sithole 2002	25 specimens
<i>Hypsicera nhema</i> Gauld and Sithole 2002	1 specimen
<i>Hypsicera pfumbua</i> Gauld and Sithole 2002	2 specimens
<i>Hypsicera ruokoa</i> Gauld and Sithole 2002	9 specimens
<i>Leurus discus</i> Gauld and Sithole 2002	6 specimens
<i>Leurus eraticus</i> Gauld and Sithole 2002	5 specimens
<i>Leurus fascialis</i> Gauld and Sithole 2002	5 specimens
<i>Leurus sylvaticus</i> Gauld and Sithole 2002	1 specimen
<i>Metopius amenus</i> Gauld and Sithole 2002	3 specimens
<i>Metopius buscus</i> Gauld and Sithole 2002	6 specimens
<i>Metopius geophagus</i> Gauld and Sithole 2002	8 specimens
<i>Metopius halorus</i> Gauld and Sithole 2002	97 specimens
<i>Metopius pelus</i> Gauld and Sithole 2002	6 specimens
<i>Seticornuta altamirae</i> Gauld and Sithole 2002	1 specimen
<i>Stethoncus auberti</i> Gauld and Sithole 2002	1 specimen
<i>Triclistus pailas</i> Gauld and Sithole 2002	2 specimens
<i>Triclistus slimellus</i> Gauld and Sithole 2002	7 specimens
<i>Triclistus tabetus</i> Gauld and Sithole 2002	3 specimens
<i>Triclistus vaxinus</i> Gauld and Sithole 2002	2 specimens
<i>Triclistus xodius</i> Gauld and Sithole 2002	47 specimens
<i>Triece azipas</i> Gauld and Sithole 2002	3 specimens
<i>Triece horisme</i> Gauld and Sithole 2002	3 specimens

Continued

	<i>Triece riordinis</i> Gauld and Sithole 2002	71 specimens
	<i>Triece tuvule</i> Gauld and Sithole 2002	3 specimens
	<i>Triece wascia</i> Gauld and Sithole 2002	51 specimens
Ophioninae		
Thyreodonini	<i>Thyreodon darlingi</i> Gauld 2004	1 specimen
	<i>Thyreodon deansi</i> Gauld 2004	1 specimen
	<i>Thyreodon delvarei</i> Gauld 2004	1 specimen
	<i>Thyreodon papei</i> Gauld 2004	1 specimen
	<i>Thyreodon whitfieldi</i> Gauld 2004	3 specimens
	<i>Thyreodon zitaniae</i> Gauld 2004	1 specimen
Oxytorinae	<i>Oxytorus knappa</i> Gauld and Mallet 2000	8 specimens
Pimplinae		
Atrophini	<i>Anastelgis alturas</i> Gates and Hanson 2009	1 specimen
	<i>Anastelgis barvae</i> Gauld, Ugalde and Hanson 1998	1 specimen
	<i>Anastelgis garciai</i> Gauld 1991	14 specimens
	<i>Anastelgis jaramilloi</i> Gauld 1991	3 specimens
	<i>Anastelgis marini</i> Gauld 1991	1 specimens
Ephialtini	<i>Acrotaphus franklini</i> Gauld 1991	3 specimens
	<i>Calliephialtes sittenfeldae</i> Gauld, Ugalde and Hanson 1998	1 specimen
	<i>Clistopyga calixtoi</i> Gauld 1991	11 specimens
	<i>Clistopyga eldae</i> Gauld 1991	9 specimens
	<i>Clistopyga fernandezi</i> Gauld 1991	8 specimens
	<i>Clistopyga henryi</i> Gauld 1991	10 specimens
	<i>Dolichomitus cantillanoi</i> Gauld 1991	3 specimens
	<i>Dolichomitus flacissimus</i> Gauld, Ugalde and Hanson 1998	1 specimen
	<i>Dreisbachia dotae</i> Hanson 1998	1 specimen
	<i>Eruga guttfreundi</i> Gauld 1991	2 specimens
	<i>Eruga kauli</i> Gauld 1991	1 specimens
	<i>Eruga yehi</i> Gauld 1991	2 specimens
	<i>Hymenoepimecis robertsae</i> Gauld 1991	1 specimen
	<i>Iseropus barqueroi</i> Gauld 1991	5 specimens
	<i>Polysphincta dizardi</i> Gauld 1991	1 specimen
	<i>Polysphincta purcelli</i> Gauld 1991	28 specimens
	<i>Polysphincta shabui</i> Gauld 1991	1 specimen
	<i>Scambus basseyi</i> Gauld 1991	3 specimens

Continued

	<i>Tromatobia blancoi</i> Gauld 1991	20 specimens
	<i>Zatypota petronae</i> Gauld 1991	7 specimens
	<i>Zatypota solanoi</i> Gauld 1991	1 specimen
	<i>Zaglyptus chavesi</i> Gauld 1991	28 specimens
	<i>Zonopimpla barbosai</i> Gauld 1991	3 specimens
	<i>Zonopimpla duviliae</i> Gauld 1991	1 specimen
	<i>Zonopimpla hebeae</i> Gauld 1991	1 specimen
	<i>Zonopimpla lilae</i> Gauld 1991	1 specimen
	<i>Zonopimpla mirandai</i> Gauld 1991	7 specimens
	<i>Zonopimpla tenorioi</i> Gauld 1991	1 specimen
	<i>Zonopimpla zamorae</i> Gauld 1991	1 specimen
Pimplini	<i>Neotheronia abramsae</i> Gauld 1991	38 specimens
	<i>Neotheronia bostrandae</i> Gauld 1991	5 specimens
	<i>Neotheronia charli</i> Gauld 1991	20 specimens
	<i>Neotheronia donovani</i> Gauld 1991	1 specimen
	<i>Neotheronia holmae</i> Gauld 1991	3 specimens
	<i>Neotheronia jugaldei</i> Gauld 1991	17 specimens
	<i>Neotheronia kompassi</i> Gauld 1991	1 specimen
	<i>Neotheronia lizae</i> Gauld 1991	11 specimens
	<i>Neotheronia lloydi</i> Gauld 1991	3 specimens
	<i>Neotheronia matamorosi</i> Gauld 1991	39 specimens
	<i>Neotheronia rosai</i> Gauld 1991	42 specimens
	<i>Nomosphacia godoyae</i> Gauld, Ugalde and Hanson 1998	8 specimens
	<i>Nomosphacia solisi</i> Gauld 1991	24 specimens
	<i>Pimpla rojasi</i> Gauld 1991	16 specimens
Poemeniinae		
Poemeniini	<i>Ganodes matai</i> Gauld 1991	26 specimens
Rhyssinae		
	<i>Epirhyssa corralesii</i> Gauld 1991	3 specimens
	<i>Epirhyssa curtisi</i> Gauld 1991	1 specimen
	<i>Epirhyssa zurquiae</i> Gauld 1997	1 specimen
Tryphoninae		
Oedemopsini	<i>Neliopisthus ocellatus</i> Townes 1992	24 specimens
	<i>Oedemopsis guemadoi</i> Gauld 1997	2 specimens
	<i>Zagryphus zulaya</i> Gauld 1997	267 specimens

Continued

Phytodietini	<i>Phytodietus penai</i> Gauld 1997	8 specimens
	<i>Phytodietus sylviae</i> Gauld 1997	4 specimens
	<i>Phytodietus valverdei</i> Gauld 1997	2 specimens
Sphinctini	<i>Sphinctus gastoni</i> Gauld 1997	1 specimen
Xoridinae	<i>Xoridess humos</i> Gauld 1997	5 specimens
	<i>Xorides secos</i> Gauld 1997	6 specimens
	<i>Xorides armidae</i> Gauld 1997	2 specimens
POMPILIDAE		
Pepsinae		
Pepsini	<i>Cryptocheilus neotropicalis</i> Cambra and Wahis 2005	2 specimens
	<i>Cryptocheilus santosi</i> Cambra and Wahis 2005	10 specimens
	<i>Pepsis inbio</i> Vardy 2000	4 specimens
PTEROMALIDAE		
Cleonyminae		
Lyciscini	<i>Shedoepistenia noyesi</i> Gibson 2003	1 specimen
Coelocybinae	<i>Cecidellis nigriseta</i> Hanson 2005	12 specimens
Spalangiinae	<i>Spalangia imitator</i> Gibson 2009	2 specimens
TENTHREDINIDAE		
Nematinae		
	<i>Pristiphora auricauda</i> Smith 2003	1 specimen
	<i>Pristiphora fuscalae</i> Smith 2003	3 specimens
TRIGONALYDAE	<i>Taeniogonalos woodorum</i> Smith 2012	4 specimens
VESPIDAE		
Polistinae		
Epiponini	<i>Chartergellus golfitensis</i> West-Eberhard 2010	11 specimens
	<i>Polybia bribri</i> Carpenter 2002	30 specimens
	<i>Polybia selvana</i> Carpenter 2002	2 specimens

a. According to zoological nomenclature, when a species changes gender, the author's reference is placed in parentheses.

Table 2. Paratypes with barcoding sequences.

FAMILY		
Subfamily	Species	Catalog number
Tribe		
BRACONIDAE		
Agathidinae		
Agathidini	<i>Alabagrus combos</i> Leathers and Sharkey 2003	MNCR-A 348712
		MNCR-A 2261305

Continued

	<i>Alabagrus derailersi</i> Leathers and Sharkey 2003	MNCR-A 2300765
		MNCR-A 1639618
		MNCR-A 1699530
		MNCR-A 2290033
		MNCR-A 2304176
		MNCR-A 2304986
	<i>Alabagrus donnai</i> Leathers and Sharkey 2003	MNCR-A 2277297
		MNCR-A 2300718
		MNCR-A 389982
	<i>Alabagrus englishi</i> Leathers and Sharkey 2003	MNCR-A 1307300
		MNCR-A 3765189
		MNCR-A 1342847
		MNCR-A 1885418
		MNCR-A 2203214
	<i>Alabagrus watsoni</i> Leathers and Sharkey 2003	MNCR-A 1825836
		MNCR-A 935859
		MNCR-A 2292129
		MNCR-A 2292483
		MNCR-A 2262003
	<i>Alabagrus sarapiquí</i> Leathers and Sharkey 2003	MNCR-A 1931971
		MNCR-A 2300549
		MNCR-A 906881
	<i>Sesioctonus acrolophus</i> Briceño 2003	MNCR-A 1932278
		MNCR-A 2285593
		MNCR-A 1365502
	<i>Sesioctonus biosperes</i> Briceño 2003	MNCR-A 1994462
		MNCR-A 741888
Disophrini	<i>Sesioctonus dichromus</i> Briceño 2003	MNCR-A 741888
		MNCR-A 2283286
		MNCR-A 480536
	<i>Sesioctonus miyayensis</i> Briceño 2003	MNCR-A 2304296
		MNCR-A 500998
		MNCR-A 742341
	<i>Sesioctonus parathyridis</i> Viereck 1912	MNCR-A 703512
		MNCR-A 759608
		MNCR-A 1405202
		MNCR-A 417306
	<i>Zelomorpha bajaranoi</i> Sarmiento-Monroy 2006	MNCR-A 841695
	<i>Zelomorpha euryterga</i> Sarmiento-Monroy 2006	

Continued

	<i>Zelomorpha hallwachsae</i> Sarmiento-Monroy 2006	MNCR-A 1774105
	<i>Zelomorpha janzeni</i> Sarmiento-Monroy 2006	MNCR-A 1994460
	<i>Zelomorpha miza</i> Sarmiento-Monroy 2006	MNCR-A 1176632
	<i>Zelomorpha petita</i> Sarmiento-Monroy 2006	MNCR-A 1646448
Doryctinae		
Doryctini	<i>Acanthorhogas parkeri</i> Marsh 2002	MNCR-A 999118
Hecabolini	<i>Doryctinus costaricensis</i> Marsh 2002	MNCR-A 1401846
		MNCR-A 1401784
	<i>Doryctinus erugatus</i> Marsh 2002	MNCR-A 549799
	<i>Doryctinus rubronotum</i> Marsh 2002	MNCR-A 1140006
		MNCR-A 1978202
COLLETIDAE		
Diphaglossinae		MNCR-A 1215233
Caupolicanini	<i>Caupolicana (Zikanapis) rozenorum</i> Michener, Engel and Ayala 2003	
ICHNEUMONIDAE		
Ophioninae	<i>Thyreodon whitfeldi</i> Gauld 2004	MNCR-A 2318224
POMPIDIDAE		
Pepsinae		
Pepsini	<i>Cryptocheilus neotropicalis</i> Cambra and Wahis 2005	MNCR-A 1323571
	<i>Cryptocheilus santosi</i> Campra and Wahis 2005	MNCR-A 1393070
		MNCR-A 1979905
	<i>Pepsis inbio</i> Vardy 2000	MNCR-A 4307064
		MNCR-A 486379
		MNCR-A 697112
		MNCR-A 1812911
VESPIDAE		
Polistinae		
Epiponini	<i>Polybia bribri</i> Starr 1991	MNCR-A 1109211
	<i>Polybia selvana</i> Carpenter 2002	MNCR-A 3978915

Table 3. Damaged specimens with only labels present.

FAMILY		
Subfamily	Species	Catalog number
Tribe		
BRACONIDAE		
Doryctinae		
Heterospilini	<i>Heterospilus (Heterospilus) barbalhoae</i> Marsh 2013	MNCR-A 2284213

Continued

<i>Heterospilus (Heterospilus) jenniae</i> Marsh 2013	MNCR-A 2284226
	MNCR-A 2283527
<i>Heterospilus (Heterospilus) kelliae</i> Marsh 2013	MNCR-A 2284246
<i>Heterospilus (Heterospilus) nahua</i> Marsh 2013	MNCR-A 2302916
<i>Heterospilus (Heterospilus) orbitus</i> Marsh 2013	MNCR-A 2303075
<i>Heterospilus (Heterospilus) sergeyi</i> Marsh 2013	MNCR-A 2302642
	MNCR-A 2291906
<i>Heterospilus (Heterospilus) veinte</i> Marsh 2013	MNCR-A 2289166

that only the pin with the labels remained, both specimens were glued directly to the pin. The paratypes represent 17 families, 41 subfamilies, 47 tribes and 143 genera.

4. Discussion

The paratype collection presents a significant loss of specimens, mostly due to old loans that were never returned, as well that 10 specimens of *Heterospilus* were lost during a loan process, only the empty pins with the labels arriving.

In the same way, some specimens were subjected to barcoding that were initially stored with the general collection, but because they now represent an additional resource, they are stored in a special collection of specimens with the same condition.

Museums usually represent a very important edge in scientific research, which not only has a merely taxonomic character of only naming new animal or plant species, but this knowledge impacts all other areas such as education [54], economy [55] and health [56]. This is why the maintenance of standard collections is vital, since technologies such as genome-wide sequencing require correctly identified specimens based on which to generate new information using their genetic material [57], and thus improve identification methods, and are the type specimens are those that will precisely be in the first row because they are the specimens from which a species is described.

Hence the need to improve the specimen loan processes, and the application of the laws on the deposit of duplicates and type specimens.

5. Conclusion

We conclude that all the specimens in the paratype collection are in perfect condition, with the exception of the *Heterospilus* specimens that were damaged during the return of material by mail. Likewise, the possibility of other paratypes re-entering loans that were never repaid remains on the table.

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formation to make this work possible. Likewise, thanks in advance to the research community, we are requesting their collaboration with the MNCR to locate the lost specimens, emphasizing that the collection that previously belonged to INBio is now in the MNCR, and the return of everything is required. The material is on loan, as many of the paratypes are found within that material and other colleagues need it for their research.

Conflicts of Interest

The authors declare no conflicts of interest.

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