

## NOTES ON CUBAN PIMPLINAE (HYMENOPTERA: ICHNEUMONIDAE), WITH THE DESCRIPTION OF TWO NEW SPECIES

Jose L. Fernández-Triana

Department of Integrative Biology, Biodiversity Institute of Ontario, University of Guelph, Canada. Email: jftriana@uoguelph.ca

**Abstract:** Knowledge of the Cuban Pimplinae (Ichneumonidae) is updated, based on a partial revision of the country's collections. Although the information is far from complete, 15 genera and at least 38 species are recorded, which almost doubles the figures in Alayo's Cuban catalogue (1973) and renders the Pimplinae the second largest subfamily of Cuban ichneumonids. Two new species (*Zatypota bayamensis* Fernández **sp. nov.** and *Schizopyga anseli* Fernández **sp. nov.**) are described from genera found for the first time in the Caribbean islands.

**Key words:** Hymenoptera, Ichneumonidae, Pimplinae, new species, Cuba

**Notas sobre los Pimplinae de Cuba (Hymenoptera: Ichneumonidae), con descripción de dos especies nuevas.**

**Resumen:** Se actualiza el estado de conocimiento de la subfamilia Pimplinae (Ichneumonidae) en Cuba, a partir de una revisión parcial de las colecciones del país. Aunque la información es todavía preliminar, se registran 15 géneros y al menos 38 especies, lo que coloca a los pimplinos como la segunda subfamilia más grande de icneumónidos de Cuba y casi duplica las cifras del catálogo de himenópteros cubanos de Alayo (1973). Se describen dos especies nuevas (*Zatypota bayamensis* Fernández **sp. nov.** y *Schizopyga anseli* Fernández **sp. nov.**) en géneros encontrados por primera vez en el Caribe insular.

**Palabras clave:** Hymenoptera, Ichneumonidae, Pimplinae, nuevas especies, Cuba.

**Taxonomy/Taxonomía:**

*Zatypota bayamensis* **sp. n.**

*Schizopyga anseli* **sp. n.**

### Introduction

With about 1300 species the Pimplinae is a medium-size subfamily of parasitic wasps within the family Ichneumonidae (Yu & Horstman, 1997; Wahl & Gauld, 1998). The last comprehensive information for this group in Cuba is found in Alayo's Hymenoptera catalogue (1973), although there have been some recent additions to the country's species list (Portuondo & Fernández, 2004; Fernández *et al.*, 2005 and 2006) and some comments pertinent to the Caribbean islands fauna are found in the major contributions made to the Costa Rican Pimplinae (Gauld, 1991; Gauld *et al.*, 1998).

As part of the studies carried out during the last years on Cuban ichneumonids, a revision of Cuba's Pimplinae was underway. Unfortunately it has not been possible to finish that task and at present the opportunity of further access to collections housed in the country remains unpredictable. So, it seems worth publishing the information already gathered, including the description of two new species from genera first recorded for the Caribbean islands.

### Methods

All major Cuban collections were studied at least once, but the level of accomplishment was different because of insufficient funds to spend more time there. The following acronyms are used:

**BIOECO:** Centro Oriental de Ecosistemas y Biodiversidad, Santiago de Cuba. It houses about 120 pinned specimens of Pimplinae –all of them sorted to genera/species by the author– with probably twice that number stored in alcohol.

**CIEC:** Centro de Estudios en Ecosistemas Costeros, Cayo Coco, Ciego de Ávila. It holds an undetermined number of ichneu-

monids stored in alcohol and hence difficult to gather and to study. A fraction of the Pimplinae was studied, but chances are that the stored samples contain a much larger representation because of the collecting efforts there (as a matter of fact it is the only place in the country with several years of Malaise trapping available).

**IES:** Instituto de Ecología y Sistemática, Ciudad de La Habana. This is by far the largest Ichneumonidae collection in the country and certainly the most important, and it houses several hundred Pimplinae. Type specimens were studied by Gauld & Fernández-Triana (in preparation), but the rest of the collection needs further study –the author was only able to check about one third of them.

**MNHNCu:** Museo Nacional de Historia Natural, Ciudad de La Habana. It holds a rather small representation of Pimplinae, with about 50 % already studied and sorted.

**UCLV:** Universidad Central de Las Villas, Santa Clara. Probably the second best collection in the country, with over 200 mounted specimens. Gauld sorted to genera most of the specimens in 2003, but there are some new species to be described and the collection has not been studied further.

For the species description the morphological terminology follows that of Gauld (1991). The most recent advances and changes in pimpline phylogeny are fully adopted here (Gauld, 1991; Wahl & Gauld, 1998; Gauld & Dubois, 2006).

### Results

In the country as a whole there are at least a thousand pinned specimens available for study. Although this is still a small number and clearly more collecting efforts are neces-

sary to fully cover the island diversity, Pimplinae is one of the ichneumonid subfamilies best represented in Cuban collections –if not the best– regarding the number of specimens.

Alayo (1973) recorded 22 species in eight genera. Recently Portuondo & Fernández (2004) and Fernández *et al.* (2005; 2006) recorded seven species as new to the island. Gauld & Fernández-Triana (in preparation) analyze the Cresson types of Ichneumonidae housed in Cuba (IES), including five Pimplinae species, and make two new combinations.

Table I summarizes those recent additions and changes, and also provides an estimate of the actual number of species within each genus. It should be stated that the data are based on what the author has seen in collections, and are therefore rather conservative, but still provide an updated view of the subfamily. According to the most recently published information (Fernández-Triana, 2005; Fernández *et al.*, 2006), Pimplinae is currently the second largest group of Cuban Ichneumonidae, with at least 38 species in 15 genera, which roughly doubles Alayo's figures.

Although it only has 39 recorded species, Cryptinae is by far the largest subfamily in the country, and it will surely increase further when more research is done. The same is true for the Ichneumoninae (at present with 21 species), so it is expected that both will easily outnumber the Pimplinae. On the other hand, the Ophioninae figure (34 species) is not expected to increase too much (Fernández-Triana, 2005). Altogether these four subfamilies are the most diverse in Cuba.

Future research on the Cuban Pimplinae should mainly address the most speciose genera (*Neotheronia* and *Pimpla*), which will surely produce several new species, and it is also likely that further genera are newly recorded from the island when more collecting and a complete revision of the collections are carried out. Besides, there are other interesting genera to deal with. *Calliephialtes* has currently three recorded species, but this requires taxonomic clarification. There is a series of about 20 specimens housed at the BIOECO collection, which I collected on La Gran Piedra Mountain in the winter of 2003, which represent sympatric populations of two *Calliephialtes* species parasitizing an unidentified pyralid moth in seeds of *Crotalaria* sp. (Fabaceae). Also the genus *Apechthis* requires further study, because I have found some specimens that do not fully correspond to the current genus description (e.g. Gauld, 1991).

As for the information currently available, the genera *Clistopyga*, *Schizopyga*, *Eruga*, *Polysphincta* and *Zatypota* are significant records for the country, all of them restricted to the highest Cuban mountains (Fernández *et al.*, 2005 and 2006). The material probably represents some new species, but there are constraints to describe most of them. For *Polysphincta* the material (one male in rather poor condition) is insufficient to provide a reliable description. As for *Clistopyga*, apart from the record in Fernández *et al.* (2005) I have seen a rather different specimen, housed in the MNHNCu, that needs to be studied and compared before going forward with a formal description. *Eruga* is in the same situation, with a couple of specimens in the UCLV collection (Gauld & Dubois, 2006) that should represent a

**Table I. Summary of the pimpline genera currently recorded from Cuba, arranged in alphabetical order.** For each genus a conservative estimate of the number of species currently found in Cuban collections is provided, in brackets. Data compiled from Alayo (1973), Gauld (1991), Gauld *et al.* (1998) and Fernández *et al.* (2005; 2006), with some new data.

**Tabla I. Resumen de los géneros de Pimplinae registrados de Cuba hasta el momento, dispuestos en orden alfabético.** Para cada género se da, entre paréntesis, una estimación a la baja del número de especies presentes actualmente en las colecciones cubanas. Datos recopilados a partir de Alayo (1973), Gauld (1991), Gauld *et al.* (1998), Fernández *et al.* (2005; 2006) y el presente trabajo.

<i>Acrotaphus</i> Townes, 1960	(3)
<i>Apechthis</i> Förster, 1868	(3)
<i>Calliephialtes</i> Ashmead, 1900	(3)
<i>Clistopyga</i> Gravenhorst 1829	(2)
<i>Dolichomitus</i> Smith 1877	(2)
<i>Eruga</i> Townes 1960	(2)
<i>Hymenoepimecis</i> Viereck 1912	(2)
<i>Neotheronia</i> Krieger 1899	(8)
<i>Pimpla</i> Fabricius 1804	(6)
<i>Polysphincta</i> Gravenhorst 1829	(1)
<i>Scambus</i> Hartig 1838	(1)
<i>Schizopyga</i> Gravenhorst 1829	(1)
<i>Tromatobia</i> Förster 1868	(1)
<i>Zaglyptus</i> Förster 1868	(2)
<i>Zatypota</i> Förster 1868	(1)
<b>TOTAL</b>	<b>38</b>

different species from the Pico La Bayamesa record given by Fernández *et al.* (2005). So, I am taking here the conservative approach of not describing any new species in those genera until more material is available.

However, the single specimens of both *Zatypota* and *Schizopyga* are quite distinct from the previously known species, so I am formally describing the new species below.

#### 1) *Zatypota bayamensis* sp. nov.

*Zatypota* is a moderately large cosmopolitan genus with almost 40 described species (Yu & Horstman, 1997). The Nearctic species were studied by Townes *et al.* (1960). As for the Neotropical region, Gauld (1991) and Gauld *et al.* (1998) dealt with the Costa Rican species. In those papers the species were accommodated into four species-groups (one exclusive to the Nearctic, one only found in the Neotropics and two common to both regions). The Cuban specimen is the first record for the Caribbean islands.

**DIAGNOSIS.** A careful revision of Cuban specimens reveals that it is a new species. It clearly belongs to the *morsei* species-group, which formerly comprised only two Costa Rican endemics. In the key provided by Gauld *et al.* (1998) *Zatypota bayamensis* will run through to couplet 3. There it can be separated from *Z. riverai* Gauld, 1991 on its strikingly different color pattern (lower face black and all coxae orange in *Z. bayamensis*; lower face with triangular whitish marks below antennal sockets, and all coxae white with the metacoxa also having a black mark outside in *Z. riverai*). As for *Zatypota morsei* Gauld, 1991, the Cuban species is much smaller, with a complete –although dorsally weak– occipital carina, shorter malar space, larger face, and far shorter fore wing, with an obliterated *2rs-m*.

**DESCRIPTION.** Female: Eyes large, bulging, almost obliterating malar space; malar space less than 0.4 times as long

as basal mandibular width; lower face elongate, about 0.8 times as broad as high (from supraclypeal suture to level of insertion of antenna), polished and with fine sparse punctures, with two parallel grooves running upward from supraclypeal suture to mid lower face; occipital carina complete although weak dorsally. Mesoscutum convex; mesopleuron and metapleuron polished, glabrous; propodeum smooth and convex, with lateromedian longitudinal carinae and lateral longitudinal carinae only discernible as vestiges on periphery of D-shaped area petiolaris; pleural carina present posteriorly, extending from margin of spiracle to hind margin of propodeum. Fore wing length 3.5 mm; cu-a distal to base of *Rs&M* by about 0.5 times its own length; base of *1m-cu* separated from *Cula* by 0.5 the length of *Culb*; *2rs-m* more or less obliterated, broader than long. Tergite 1 of metasoma granulate and weakly polished, with lateromedian longitudinal carinae only present on anterior 0.2 of segment, and with oblique posterior grooves strongly impressed; tergite 2 centrally finely granulate, polished, 1.0 times as long as posteriorly broad. Ovipositor 0.6 times as long as hind tibia.

**COLOUR.** Head and antenna black, apical 2/3 of clypeus yellowish orange; mouthparts yellowish. Mesosoma orange-brown. Metasomal tergites and ovipositor sheath black; sternal membranous parts light brown. Fore and mid legs entirely orange; hind leg with coxa orange, trochanter whitish and trochantellus brownish, femur white with external surface broadly brownish, tibia brownish with a broad median white band, tarsus brownish. Wings slightly infumate towards apex, pterostigma brownish.

**ETYMOLOGY.** The name refers to the type locality, probably the Cuban hot-spot for ichneumoids.

**MATERIAL EXAMINED.** Holotype: Female, **CUBA:** GRANMA, Guisa, La Bayamesa National Park, Pico La Bayamesa, 1400 m., in the rainforest, Malaise Trap, vi-2003, J. Fernández coll. [BIOECO].

## 2) *Schizopyga anseli* sp. nov.

*Schizopyga* has recently been expanded to accommodate the genera *Afrosphincta* Benoit, 1953 and *Dreisbachia* Townes, 1962, and it now comprises around 20 species worldwide (Gauld & Dubois, 2006). *S. anseli* belongs to the former genus *Dreisbachia*, which used to be a small but cosmopolitan genus with 12 described species (Yu & Horstman, 1997). Five of those species were known from the New World (Townes *et al.*, 1960; Gauld, 1991; Gauld *et al.*, 1998), the Cuban specimen being the first record for the Caribbean islands.

**DIAGNOSIS.** The glabrous eyes clearly separate *S. anseli* from most of the New World *Dreisbachia* s.s., which have hairy eyes. The exceptions are the three Costa Rican species, with whom the Cuban one seems to form a distinctive group based on this particular character. In fact within the Neotropics just *S. navajo* (Townes, 1960) has hairy eyes, but actually that is a Nearctic species described from Arizona with a single tropical record (Honduras) and apparently no distribution further south (Townes *et al.*, 1960; Gauld, 1991). *Schizopyga anseli* has a weak, rounded protuberance near the apical end of sternite 1, while in Costa Rican *S. avivae* (Gauld, 1991) and *S. dotae* (Gauld, Hanson

& Ugalde, 1998) the protuberance is very strong, acute and anteriorly directed. The different colour pattern will in turn easily separate *S. eberhardi* (Gauld, Hanson & Ugalde, 1998) from the Cuban species, although the two seem to be rather closely related.

**DESCRIPTION.** Female: Eye surface completely glabrous; malar space about 0.45; lower face 1.02, rather flat and polished, with fine sparse punctures. Head in dorsal view with genae long; ocelli 1.1. Pronotum with epomia very strong, reaching upper margin; scutellum convex, not laterally carinated; mesopleuron polished, centrally smooth and glabrous, dorsally narrowly hirsute, ventrally very slightly punctuate and hirsute; epicnemial carina very slightly raised ventrally; metapleuron weakly smooth and polished. Propodeum mediodorsally smooth and polished. Fore wing 6.5 mm; cu-a distal to base of *Rs&M* by 0.1 times its own length, almost opposite; base of *1m-cu* separated from *Cula* by much more than length of *Culb*. Tergite 1 of metasoma 1.7 as long as posteriorly broad, dorsally with lateromedian longitudinal carinae discernible on the basal 0.15 of tergite; sternite 1 with a weak and rounded protuberance near hind end; tergites 2-4 highly polished, with a narrow band of close punctures anteriorly.

**COLOUR.** Head black with palpi yellowish, scape ventrally yellowish and dorsally brown as the rest of antenna. Mesosoma bright reddish brown, with lower end of propodeum and propleuron slightly darker. Metasoma black, except for a very narrow white apical band in tergites 6 and 7. Legs bright creamy-white, with tibia and tarsus brown in fore legs and dark brown in mid legs; hind legs with spot on hind coxa, most of trochantellus, ventral base of femur, base and apical bands of tibia and tarsus dark brown or blackish.

**ETYMOLOGY.** Named in honor of my friend and colleague Ansel Fong Grillo, one of the best Cuban zoologists I have ever met, and who was in the expedition on which the specimen was collected.

**MATERIAL EXAMINED.** Holotype: Female, **CUBA:** SANTIAGO DE CUBA, Guamá, Turquino National Park, Aguada del Joaquín, 1400 m., in the rainforest, iv-2005, J. Fernández coll. [BIOECO].

## Acknowledgements

The following curators of Cuban collections kindly provided access and support: Elba Reyes, Luis de Armas, and Rayner Núñez (IES), Julio A. Genaro and Esteban Gutiérrez (MNHNCu), Horacio Grillo (UCLV), Mabel López (CIEC), and Eduardo Portuondo (BIOECO). The author is also grateful to a reviewer for improving the manuscript with some helpful suggestions.

## References

- ALAYO, P. 1973. *Catálogo de los Himenópteros de Cuba*. Instituto Cubano del Libro, La Habana, 218 pp.
- FERNÁNDEZ-TRIANA, J. 2005. The taxonomy and biogeography of Cuban Ophioninae (Hymenoptera: Ichneumonidae). *Zootaxa*, **1007**: 1-60.
- FERNÁNDEZ, J., J. FONTENLA, E. PORTUONDO & J. GENARO 2005. Terrestrial insects, Hymenopterans. Pp. 136-139 In: Fong, A., Maceiras, D. & Alverson, W. (Eds.), *Rapid Biological Inventories, Report No. 13, Cuba La Bayamesa National Park*. The Field Museum, Chicago.

- FERNÁNDEZ, J., H. GRILLO & M. LÓPEZ 2006. The state of the art of Ichneumonidae (Hymenoptera) in Cuba, and new records to the country. *Revista de Biología Tropical*, **54**(3): 821-827.
- GAULD, I. 1991. The Ichneumonidae of Costa Rica, 1. *Memoirs of the American Entomological Institute*, **47**: 1-589.
- GAULD, I., J. UGALDE & P. HANSON 1998. Guía de los Pimplinae de Costa Rica (Hymenoptera: Ichneumonidae). *Revista de Biología Tropical*, **46**(1): 1-189.
- GAULD, I. & J. DUBOIS 2006. Phylogeny of the *Polysphincta* group of genera (Hymenoptera: Ichneumonidae; Pimplinae): a taxonomic revision of spider ectoparasitoids. *Systematic Entomology*, **31**(3): 529-564.
- PORTUONDO, E. & J. FERNÁNDEZ 2004. Biodiversidad del Orden Hymenoptera en los macizos montañosos de Cuba oriental. *Boletín de la Sociedad Entomológica Aragonesa*, **35**: 121-136.
- TOWNES, H., M. TOWNES, G. WALLEY & G. TOWNES 1960. Ichneumon-flies of American north of Mexico: 2. Subfamily Ephialtinae, Xoridinae, Acaenitinae. *United States National Museum Bulletin*, **216**(2): 1-676.
- WAHL, D. & I. GAULD 1998. The cladistics and higher classification of the Pimpliformes (Hymenoptera: Ichneumonidae). *Systematic Entomology*, **23**: 265-298.
- YU, D. & K. HORSTMANN 1997. Catalogue of world Ichneumonidae (Hymenoptera). *Memoirs of the American Entomological Institute*, **58**: 1-1558.

## HACIA UN PROYECTO CYTED PARA EL INVENTARIO Y ESTIMACIÓN DE LA DIVERSIDAD ENTOMOLÓGICA EN IBEROAMÉRICA: PRIBES 2000

Fermín Martín Piera, Juan José Morrone & Antonio Melic (Eds.)

### m3m MONOGRAFÍAS TERCER MILENIO

Vol.1, Zaragoza, septiembre 2000. 326 pp., folio. ISBN: 84-922495-1-X

PVP.: 3000 pta. Solicitudes: S.E.A. Avda. Radio Juventud, 37; 50012 Zaragoza (España). Fax: 976 535697. Email: amelic@telefonica.net

PVP: 18 euros / 18 \$.

#### ÍNDICE DE LA OBRA:

##### I. INTRODUCCIÓN:

Presentación: Medir la Biodiversidad. GONZALO HALFFTER • Introducción/ *Introduction*. FERMÍN MARTÍN PIERA.

##### II. PARTE GENERAL.

Estimaciones prácticas de biodiversidad utilizando táxones de alto rango en insectos. FERMÍN MARTÍN PIERA • ¿Es posible predecir la distribución geográfica de las especies basándonos en variables ambientales? JORGE M. LOBO • La importancia de los Atlas Biogeográficos para la conservación de la biodiversidad. JUAN J. MORRONE • El concepto de Área de Distribución: Algunas reflexiones teóricas. MARIO ZUNINO. • El concepto de especie y sus implicaciones para el desarrollo de inventarios y estimaciones en biodiversidad. JORGE LLORENTE BOUSQUETS Y LAYLA MICHÁN AGUIRRE.

##### III. ESTADO DE LA CUESTIÓN: DIAGNÓSTICOS SISTEMÁTICO-GEOGRÁFICOS.

Estado de conocimiento de los Coleoptera neotropicales. CLEIDE COSTA • Diagnóstico del conocimiento de las principales colecciones brasileñas de Coleoptera. CLEIDE COSTA, SERGIO IDE, GERMANO HENRIQUE ROSADO-NETO, MARIA HELENA MAINIERI GALILEO, CLAUDIO RUY VASCONCELOS DA FONSECA, ROBERTA MELO VALENTE Y MIGUEL ANGEL MONNÉ • Capacidad nacional de investigación en sistemática biológica en Colombia y breve reseña del estado actual del conocimiento taxonómico del orden Coleoptera. GERMÁN AMAT Y FEDERICO ESCOBAR • Coleoptera de Chile. MARIO ELGUETA • Estado do conhecimento dos Coleópteros (Insecta) em Portugal. ARTUR SERRANO • Coleoptera Passalidae de México. PEDRO REYES-CASTILLO • Estado atual de conhecimento dos Scarabaeidae s. str. (Coleoptera: Scarabaeoidea) do Brasil. FERNANDO Z. VAZ-DE-MELLO • Diversidad y distribución de los escarabajos del estiércol (Coleoptera: Scarabaeidae: Scarabaeinae) de Colombia. FEDERICO ESCOBAR • Sistemática y filogenia de los himenópteros de la región Neotropical: Estado del conocimiento y perspectivas. FERNANDO FERNÁNDEZ C. • Sistemática de los himenópteros de Colombia: Estado del conocimiento y perspectivas. FERNANDO FERNÁNDEZ C. • Hymenoptera de Chile. MARIO ELGUETA Y FRESIA ROJAS • Estado actual del conocimiento de la sistemática de los lepidópteros, con especial referencia a la región Neotropical. GERARDO LAMAS • Estado actual del conocimiento taxonómico de las mariposas (Lepidoptera: Rhopalocera) de Venezuela. ÁNGEL L. VILORIA • Síntesis preliminar del conocimiento de los Papilionoidea (Lepidoptera: Insecta) de México. ARMANDO LUIS MARTÍNEZ, JORGE LLORENTE BOUSQUETS, ISABEL VARGAS FERNÁNDEZ Y ANA LILIA GUTIÉRREZ • Diagnóstico sobre el conocimiento sistemático y biogeográfico de tres órdenes de insectos hiperdiversos en España: Coleoptera, Hymenoptera y Lepidoptera. FERMÍN MARTÍN PIERA Y JORGE MIGUEL LOBO.

##### IV. BALANCE Y PERSPECTIVAS

Conclusiones del 1º Taller Iberoamericano de Entomología Sistemática. Villa de Leyva (Colombia), 28 de junio al 5 de julio de 1999. FERMÍN MARTÍN PIERA • PriBES *on line*. Antonio Melic, Juan José De Haro y Diego Campos.