

## **Two new remarkable flower flies (Diptera: Syrphidae) from New Zealand.**

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### **ABSTRACT**

Two new species of the flower fly genus *Allograpta* are described (*A. hollowayae* (type-locality: New Zealand, North Island, Henderson) & *schlingeri* (type-locality: New Zealand, North Island, Lake Waikaremoana)). The males of these species are unique among flower flies as their abdomens are flattened, striate and brilliant metallic purple in life.

### **KEYWORDS**

Diptera, Syrphidae, *Allograpta*, new species

### **INTRODUCTION**

New Zealand has a small but very distinctive flower fly fauna and what makes the difference are species like the two described here. Thompson (2008) has provided a conspectus of the flower fly fauna as well as describing another distinctive species, *Anu una*. These species are unique among flower flies for the shape of the male abdomens. In *Anu una*, the terga are greatly reduced, so the male can flex the abdomen dorsally and that position is characteristic of dead specimens. In the two species described here, the male abdomen is greatly flattened, curves dorsally and has a series of transverse grooves and according to the collector of one of these flies, the abdomen in life is a brilliant metallic purple color. No other syrphid in the world has an abdomen such as this. The females of *Anu* and these two new *Allograpta* are typical of the *Allograpta*-*Sphaerophoria* clade (Mengual et al. 2009).

We are publishing these new species before our monographic treatment of the New Zealand flower fly fauna as we want to call attention to these unique flies in hopes that people will look for more of them, collecting some in alcohol for DNA character analysis, and, as well, to perhaps learn

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more about their biology. This should be easy for locals as most of the known specimens were collected in an urban garden in the Auckland area.

## **MATERIALS AND METHODS**

The characters and terminology used follow those of my recent glossary (Thompson 1999) and are largely consistent with those used in the Nearctic and Palaearctic Diptera manuals (Vockeroth & Thompson, 1987, Thompson & Rotheray 1998). The definition of the genus *Allograpta* is that of Vockeroth (1969, 1973), which was recently reviewed (Mengual et alia 2009).

### ***Allograpta hollowayae* Thompson & Thompson, sp. n.**

Figures 1,2.

#### **Description.**

Male. Face with distinct medial tubercle, with tubercle gradually sloping dorsally, abrupt ventrally, yellow with narrow well-defined medial black vitta, yellow pilose, sparsely white pollinose laterally; gena black, yellow pilose, sparsely white pollinose posteriorly; lunule black; frontal triangle black, shiny, black pilose; vertical triangle black, dull, black pilose; dichoptic; eyes separated by width of ocellar triangle; antenna black except basoflagellomere pale on basoventral one-third; occiput black, white pilose ventrally, black pilose on dorsal half.

Thorax mainly black, shiny, white pilose; postpronotum grayish-white pollinose; notopleuron yellow; scutellum black except apical margin yellow, without ventral pile fringe; pleuron grayish-white pollinose, with some black pile on katepisternum and anepimeron; metasternum long pilose; calypter brownish black, with white fringe; plumula white; halter black.

Legs: procoxa yellow except brownish basally, grayish-white pollinose; meso- and metacoxae brown, grayish-white pollinose, yellow pilose; femora yellow except brownish on apical third of metafemur, yellow pilose except with black pile intermixed apically; tibiae and tarsi brownish,

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mainly yellow pilose, with some black pile intermixed. Wing: hyaline, except stigmal cell light brownish yellow; microtrichose except bare costal cell, anterior to vein rs, cell R, cell BM except on apical fifth; cell CuP except posteroapical third; alula narrow, slightly narrower than cell BM, bare except microtrichose along margin.

Abdomen: parallel-sided, about twice (2.2) as long as thorax, flattened. Terga with indistinct transverse grooves, black in preserved specimens, metallic purple in life, shiny, mainly brown pilose; 1st-3rd sterna black except narrowly yellow apically, shiny, white pilose; 4th-5th sterna black, shiny, black pilose.

Female: similar to male except normal sexual dimorphism and as follows: frons black except narrowly yellow on basolateral third, shiny, black pilose; anepisternum yellow on posterodorsal apex; abdomen not flattened nor with grooves, shiny, black except with yellow rounded slightly oblique and widely separated maculae on 3<sup>rd</sup> and 4<sup>th</sup> terga.

Length: Body, 6.1-6.7 mm (average 6.3); wing, 4.9-5.1 mm (average 4.9 mm)

**Types.** Holotype male (NZAC), NEW ZEALAND, North Island, AK, Henderson [36° 53'S 174°38'E], 11 November 1990, J. S. Dugdale, deposited in New Zealand Arthropod Collection, Auckland. Paratypes: North Island, AK, Lynfield, 20 December 1980, B. A. Holloway (1 female, USNM ENT 00036196 USNM); 17 November 1986, B. A. Holloway (1 female, USNM ENT 00036197 NZAC); 28 November 1976, B. A. Holloway (1 male, USNM ENT 00036119 NZAC); 20 December 1980, B. A. Holloway (1 male, USNM ENT 00036120 USNM); South Island, NN, Nelson area, Maitai Valley, 22 November 1987, J. I. Townsend (1 male, USNM ENT 00036121 NZAC).

**Etymology.** We are pleased to dedicate this species to its discoverer, as well as one of New Zealand's best loved taxonomists, Beverly Holloway.

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**Distribution.** New Zealand (North & South Islands)

**Habits.** Beverly Holloway collected the majority of the type series in her garden and provided the following information: two male were associated with parsley flowers (*Petroselinum crispum*) and one female was active on *Pittosporum* foliage which was heavily infested with psyllids (*Trioziidae*, *Trioza vitreoradiata* Maskell). John Dugdale noted that the holotype was collected hovering 1.5 meters above the ground over garden plants.

***Allograpta schlingeri* Thompson & Thompson, n. sp.**

Very similar to *hollowayae* except as follows: Facial vitta is broader and more diffuse laterally; face black pilose; notopleuron and scutellum entirely black; scutum and most of pleuron black pilose; legs blackish; halter capitulum black. The male genitalia and the distribution of wing microtrichiae are the same.

Length. Body, 6.6 mm; wing, 4.7 mm

Holotype male, NEW ZEALAND, GB, Te Urewera National Park, Lake Waikaremoana [38°53'S 177°05'E], east side picnic area, 700 m, 6 November 1977, E. V. Schlinger, deposited in New Zealand Arthropod Collection, Auckland.

**Etymology.** We are pleased to dedicate this species to its discoverer, as well as one of the world's most generous dipterists, Evert I. Schlinger.

## DISCUSSION

The status of *schlingeri* is unclear, the specimen may merely represent a very dark individual. We, however, believe the specimen should be named to call attention to this question. If more specimens are collected and remain uniform in coloration, then the species rank is justified. If intermediates are found, then one can accept this as just a dark variety, but even in that case a name is useful.

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### **REFERENCES**

- Mengual, X, Ruiz, C, Rojo, S, Ståhl, G, Thompson, FC 2009. A conspectus of the flower fly genus *Allograpta* (Diptera: Syrphidae) with description of a new subgenus and species. *Zootaxa* 2214: 1-28.
- Thompson FC, Rotheray G. 1998. Family Syrphidae. Pp. 81-139. In Papp, L. & B. Darvas (eds.), *Contributions to a manual of Palaearctic Diptera (with special reference to flies of economic importance)*. Vol. 3, 880 pp. Science Herald, Budapest.
- Thompson FC. 2008. A conspectus of New Zealand flower flies (Diptera: Syrphidae) with the description of a new genus and species. *Zootaxa* 1716: 1-20.
- Vockeroth JR. 1969. A revision of the genera of the Syrphini (Diptera: Syrphidae). *Memoirs of the Entomological Society of Canada* 62, 176 p.
- Vockeroth JR. 1973. Three additional synonyms of *Allograpta* (Diptera: Syrphidae). *Canadian Entomologist* 105: 1101-1104.
- Vockeroth JR, Thompson FC. 1987. Syrphidae. Chapter 52, pp. 713-743. In McAlpine, J. F. (ed.), *Manual of Nearctic Diptera*. Vol. 2, pp. v + 675-1332. Research Branch, Agriculture Canada, Ottawa, Monograph 28.

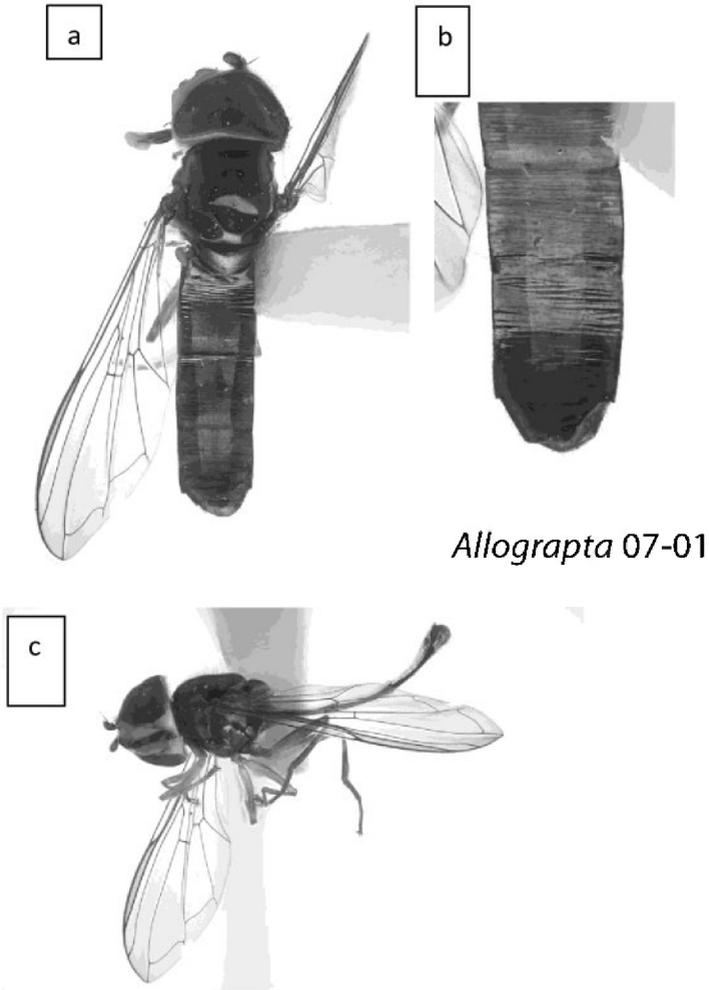


Figure 1. *Allograpta hollowayae* sp. nov.: a, habitus, dorsal except head turned to lateral; b, abdomen, dorsal; c, habitus, lateral except head turned to ventral;

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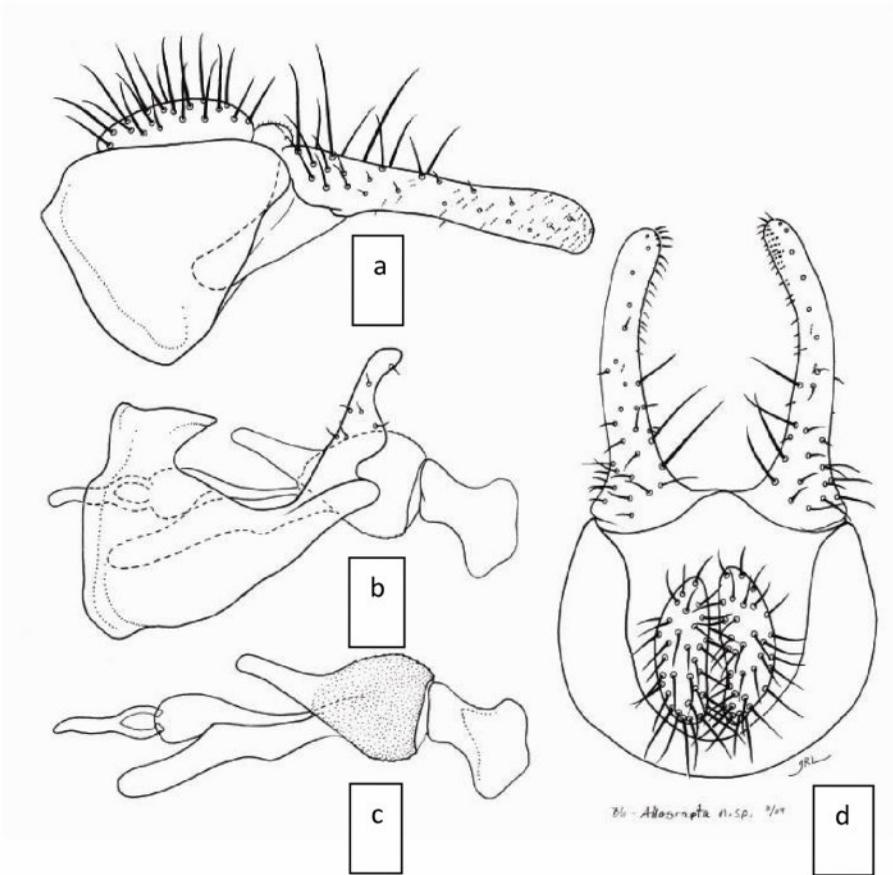


Figure 2, male genitalia, a, epansium, lateral, b, hypandium, lateral, c, aedeagus and associated structures, lateral, d, epandium, dorsal.