

Boletín de la SEA



On the biology of Argentine Hymenoptera and some parasitic Diptera

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These notes are based mainly on an insect collecting trip in Patagonia I carried out, accompanied by my wife Martha. The collection trip took place between October 10, 1997 and March 14, 1998, during a heavily rainy summer (Niño season). These resulted in unusually good collecting, especially later in the season. Many species collected then were scarce or absent earlier.

In contrast, another collection trip, with very poor results, was made between March 13 and April 14, 2005, during the end of the summer (Niña season).

Observations made during other trips are also included, together with some remarks on collecting techniques.

Depositories

Specimens of most of the insects mentioned are deposited in Natural History Museum, London (NHML), with some in Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires (MACN) and University Museum, Oxford (Hope Entomological Collections) (UMOX).

Other abbreviations: INTA = Instituto Nacional de Tecnología Agropecuaria; P.N. = Parque Nacional; MT = Malaise trap; YPT = Yellow pan trap.

Notes on Hymenoptera

Andrenidae

Arhysosage bifasciata (Friese) and *A. ochracea* (Friese). Specimens of these species were visiting flowers of *Opuntia sulphurea* G. Don and *Trichocereus (=Echinopsis) candicans* Britton & Rose (Cactaceae). The dense nature of the flowers meant that the petals had to be prised open to find the bees; this was done after a bee had been seen entering a flower. Mendoza province, 15km west Mendoza city, 1,000m. 7-8.xii.1979.

Callonychiium (Paranychiium) sp. indet. 8 specimens. After a period of "sweeping" I noticed a tiny yellowish bee on the rim of the net, and managed to secure it. Further specimens were eventually located nesting in narrow vertical faces at the rim of the adjacent sand-pit. Later some more were found on the banks of a nearby dried-up river – but again only on the vertical surfaces. They were all very sluggish, making no attempt to escape despite the very warm weather. Santiago del Estero province, 5 and 22km northeast of Los Telares, on the road to Colonia Dora., 22-25.xi.1979.

Apidae

Bombus dahlbomii Guérin. Several queens were visiting *Taraxacum* fls. despite the low temperature. Neuquén province, San Martín de los Andes., 13-17.xi.98.

Bombus dahlbomi Guérin was visiting an asteraceous flower, probably *Senecio* sp. On quite a cool day. Los Glaciares, near Perito Moreno glacier, Santa Cruz. 4-5.ii.98.

Centris (Wagenknechtia) vardyorum Roig Alsina. Several specimens were taken nesting in a sandy cliff high above the riverside path. The colony appeared to be quite large, but it was impossible to count the burrows. Rio Negro province, Paso Córdoba, 8 km west of General Roca. 6-7.xi.1997.

Centris tricolor Friese. A rather large female specimen was collected while flying very low over sparsely vegetated ground. It may have been searching for a suitable nesting hole in the ground or in the many thick,

dry, broken stems lying around. The bee hovered frequently but didn't actually settle even when it was virtually touching the ground. All the time it was emitting a loud, high-pitched whine – indeed, I heard it before I saw it. Buenos Aires province, Bernal Este near Quilmes, 25.x.97.

Doeringiella see Diptera: Sarcophagidae.

Xylocopa sp. was visiting *Spartium junceum* (Spanish broom) in the same area as the *Centris* sp. (see above).

Eumenidae

Ctenochilus ?bimaculatus Zavattari. One female visiting *Adesmia boronioides*. Santa Cruz province, P.N. Perito Moreno, Lago Belgrano. 15.ii.98.

Hypodynerus vespiformis (Haliday). Several specimens of this species were nesting on the side of a wooden building. I collected together with their mud nests (Fig.1) and contents, including eggs and lepidopterous prey larvae. Ten cells were collected in all. All the cells which I opened

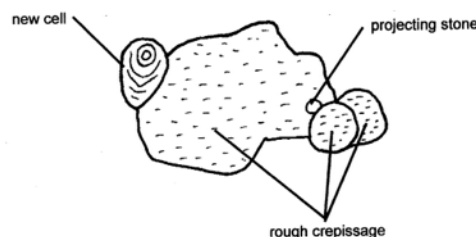


Fig. 1. Nests of *Hypodynerus vespiformis*.

were full of larvae, except only three in a new, almost completed, cell (see figure 1). There were a total of 48 in the other nine cells which had been completed; of these, one contained five larvae, another seven. The approximate internal cell size of the two opened ones was 8 x 12mm. Each had an egg attached to the side of the inner wall of the cell. Another nest of three cells was not collected, while there were also a few other nests in deep holes around the window frames. Fresh larvae: Dorsally medium to dark green, with subdorsal and spiracular lines very narrow and whitish, and two pairs of white dots on each segment. Spiracular line whitish-yellow, tinged brown on segments 3-7 and expanded so that most of the dorsum of the penultimate segment, and all of the last segment, is red-brown. Underside and head paler green, the latter with many tiny, black dots (Geometridae). The wasps were fully active despite the low temperature (about 5-10°C.). Tierra del Fuego province, Los Castores, a sawmill 85km west of Río Grande. 27.i.98.

Two further females of this species were taken; one at water, the other searching *Nothofagus pumilio* foliage; both at Tierra del Fuego province, Ushuaia, Cañadón del Toro, c.500m. 25.i.98.

Hypodynerus sp. Vicente Perez D'Angello of Punta Arenas, Chile, showed me four nests belonging to this genus which he had found – all by accident - over many years.

Hypodynerus. A specimen (labelled "sp.B1") was collected after it had drunk water, then gathered dry earth from bank 2.5m higher. Santa Cruz province, Nibepo Aike., 6-8.ii.98.

Hypodynerus. A specimen was taken visiting *Trifolium repens* at Nibepo Aike, 6-8.ii.98 (labelled "sp.C1"); two more were taken visiting *Adesmia boronioides* at Santa Cruz province, Potrok Aike. 12.i.98 (labelled "D1" & "D2").

Hypodynerus. A specimen of this species was seen on several occasions deeply penetrating plants of *Lepidium perfoliatum* (Brassicaceae) (labelled "sp.A1"); another was seen catching a larva on *Descurania sophia* (Brassicaceae) (labelled "sp.A2"). Larvae were collected from both plants; these, as well as the prey larva, were all named as *Plutella ?xylostella* (diamond-back moth) (Plutellidae). Both at Santa Cruz province, La Oriental. 14-17.ii.98. Fresh larva: 8mm long, deep green; dark dorsal line.

Each segment with six pairs of white spots bearing short, dark bristles arranged in two transverse rows. White spots close together forming the spiracular line. Head ochre, with tiny, reddish, round spots, denser above. Segment one short, tinted reddish above, the white dots bearing slightly stronger bristles. Underside clear green, each segment with six white, bristle-bearing dots, smaller and less conspicuous than those on upper side.

Hypodynerus mimic. A mimic of the local *Hypodynerus* wasps: Sesiidae. It could not be identified further than family level. Río Negro province, Granja Larix. 11.xii.97.

Protodiscoelius merula (Haliday) Two females were taken; one was flying around a

dead tree trunk. Río Azul, 9.xii.97; another was on foliage of *Luma apiculata* (DC) Burret (Myrtaceae) (locally called "Arrayán"). Chubut province, Lago Puelo. 31.xii-7.i.98.

Ichneumonidae

Geraldus cambrensis Fitton. Three females of this species were caught in Malaise traps at c.1,000 m. One of these specimens is deposited in MACN. Mario Gentili's private estate 8km south of San Martín de los Andes, Neuquén province, 16-22.xi.87. Until now, this genus was known only from a single female taken in Puerto Blest in 1926 (see Edwards, 1927; Fitton, 1987). Fitton (1987: 33) stated, "There are indications that the Australian [*Philogalleria*] and South American [*Geraldus*] forms may be more closely related to each other than to those in the north [ern hemisphere]". However, Broad (2010), on the basis of further evidence, was unable to substantiate this, although he confirmed that both are archaic genera within the Banchini. It is also interesting that the new species of *Geraldus* (likewise collected by Edwards) described by Broad is from a Chilean locality close to the Argentine border and about 500 miles further south.

Habronyx ?albifrons Spin., was mimicked in flight in the forest by a beetle, *Platynocera* sp. (which see). Chubut province, Near Río Arrayanes, PN Los Alerces, 17.xii.97.

Netelia sp. in yellow pan trap Santa Cruz province, Estancia La Oriental, 14-17.ii.98.

Pompilidae

Ageniella argenteosignata Spin. A female was taken with a spider prey (legs cut off) *Tasata* sp. female (Anyphaenidae). Chubut province, Lago Puelo, 31.xii.97.

Ageniella sp. A female was taken with spider prey (legs cut off) *Tasata* sp. male. in a yellow pan trap. The spider was upside down and pointing backwards, its spinnerets held by the wasp's mandibles. Río Negro province, General Roca, INTA, 24-27.ii.98.

Sphecidae

Ammophila (sp. nr. *suavis* Burmeister). A specimen was collected while it was dragging a caterpillar (Noctuidae). Fresh larva: 22mm long, dull green; a distinct narrow, white dorsal line. Broken, white, very narrow spiracular line. A subdorsal line slightly closer to dorsal line than to spiracular. Rest of body with indistinct, broken, irregular, off-white, longitudinal lines. All lines less distinct on the slightly polished segment one. Head dull green with many tiny brown dots, fewer anteriorly. Mandibles marked with brownish colour. Santa Cruz province, Gobernador Gregores, 12-13.ii.98.

Sphex permagnum Willink. Two males of this unmistakable species were observed but not caught. Río Negro province, Near General Roca, INTA station and Paso Córdoba, 24-28.ii.98.

Crabronidae

Astata see Diptera: Sarcophagidae.

Cerceris see Diptera: Sarcophagidae.

Ochleroptera sp. Three specimens were collected nesting in holes in old mortar in Buenos Aires province, Lomas de Zamora, 23-24.xii.97.

Passaloecus pictus Ribaut. Nesting in holes in old mortar in Lomas de Zamora, 27.xii.1979, 19-27.x.97 and 24.xii.97; the last-mentioned was carrying an immature aphid prey, *?Uroleucon* sp. Specimens of *P. pictus* were first

collected in Buenos Aires province, Moreno, in January 1973, and subsequently in 1974, 77, 79, 81 and 84 during the months of November to January, all by the late Manfredo Fritz; all were female except two males in December 81, and the total number taken was 27. Another specimen was collected in Buenos Aires province, Bellavista on xi.1984 by L. Gallardo. It is also recorded from Brazil, São Paulo (Amarante, 2002). This species is evidently introduced from Europe; it has been recorded only from southern Europe and Cyprus (Bohart & Menke, 1976). It is not recorded from North America (Krombein *et al.* 1979). The only European specimen in NHML is from Portugal.

Podagritus neuqueni Leclercq see Diptera: Tachinidae.

Rubrica graoidea (Handlirsch). In a cemetery I observed a recently-backfilled grave which was the home of a colony of these large wasps, comprising perhaps 30 or more burrows. The wasps were carrying dipterous prey including *Hermetia illucens* L. (Stratiomyiidae) and *?Eristalis* sp. (Syrphidae). Many specimens of the former species were lying dead on the ground within the colony. Evans *et al.* (1974) recorded both of these species (in addition to others) as prey of *Rubrica surinamensis* (Degeer). A large bombylid fly was seen patrolling a nearby path, but may not have been connected with the *Rubrica* colony. Lomas de Zamora, 17km south of Buenos Aires city, Buenos Aires. 8.i.1980. A pair of the *Rubrica* was collected in copula. While I was observing the colony, a prey-carrying female was pounced on by another wasp (which I assumed was a male attempting to copulate). However, after I caught them, both proved to be conspecific females, so that this was evidently an attempt at prey-robbing. This subject was treated by Field (1989) in *Ammophila sabulosa* (L.) where robbery from provisioned nests (open or closed) was mainly involved, but in a minority of cases, violent robbery of prey occurred between two females. Evans (1966) reports violent prey stealing in several species of *Bembix* and *Microbembex monodonta* (Say), and also comments that [surprisingly] most [intraspecific] aggression occurs in the higher Bembecini [i.e. the most gregariously-nesting ones]. However, it appears that such behaviour has not so far been reported in *Rubrica*, although it could be expected in view of Evans' comments. Kurczewski & Kurczewski (1984) twice refer to prey-stealing (as "brigandage") among conspecific females of *Tachytes intermedius* (Viereck) but do not state whether this was violent or not. For further discussion and references to prey-robbing see Field (1989).

Trachypus patagonensis (Saussure). A female (the only specimen of this species taken during this trip) was carrying a honey bee. Both sexes of *T. spegazzini* Brèthes and of *T. petiolatus* (Spinola) were collected in numbers. Río Negro province, Paso Córdoba, 26-28.ii.98.

Trypoxylon sp. near *transversistriatum* Strand. (Although the species runs to this name in Richards' key (Richards 1934), its clypeus differs from that of specimens he named in NHML.) A male was seen trying to oust another from its perch on the top of an isolated stick about 0.5m above the ground. After I had taken both of these, another one appeared. This continued until I had taken six specimens in all. Later, a few metres away, a female believed to be conspecific with the males was taken while it was investigating a hollow twig projecting a few centimetres from an earth bank. The male behaviour, sometimes called "hill-topping" or "lek behaviour" [as in the bird, black grouse] may be comparable to that described by Alcock (1981, 1983) in *Hemipepsis ustulata* Dahlbom, except that in this case only one perch was seen being competed for.

On a tree trunk beside the male perch a specimen of a small, very elusive fly was captured (see Diptera: Rhinophoridae); however, it is unlikely to be a parasitoid of the *Trypoxylon*, as all members of this small family whose biology is known are parasitic on Isopoda (woodlice). Río Negro province, Paso Córdoba, 26-28.ii.98.

Stephanidae

See under "Notes on collecting Hymenoptera" below.

Thynnidae

Elaphroptera scoliaeformis Haliday. Many males of this species and three specimens of *Lycomya germainii* Bigot (Diptera: Asilidae) were taken in a large Malaise trap. The two species strongly resembled each other in size and colour. Chubut province, Lago Puelo, 31.xii-6.i.98.

Notes on collecting Hymenoptera

Types of trap: Malaise traps vs. yellow pan traps. Firstly, the two kinds of trap catch mainly different species - there is little overlap; however, the pan traps collect mostly small creatures which fly near the ground and are normally not seen. There is no doubt that YPTs attract by their yellow colour - the exact shade is important. There was a remarkable instance of a nocturnal ichneumonid being captured in a YPT in Patagonia (see Ichneumonidae: *Netelia* above and "Why are most Patagonian flowers yellow?" below). Aguiar & Sharkov (1997) used blue pan traps to catch the usually rarely-collected Stephanidae (Hymenoptera); these were not attracted to any other colour, nor were any other insects attracted to the blue traps (see their paper for references about using other colours).

Malaise traps. Whether these actually attract is less certain; one theory is that the conspicuous white roof causes insects to investigate; when they find it is not very interesting they take the line of least resistance by flying under it, when they are often trapped. However, some fly out again, especially large bees and wasps with very good vision. Jean Leclercq told me (pers. comm.) that a red sheet placed on the ground inside the entrance to Malaise traps is good for attracting crabronine wasps (Crabronidae). There is clearly a lot of interesting research remaining to be done in this field.

Flight lines. Both yellow pan and Malaise traps must be placed perpendicular to flight-lines, i.e. where the insects are forced to fly because of the topography. It seems that the higher the barrier alongside the flight-line, the better. The traps must be placed in the sun (MTs with the roof centre-line pointing up towards it). For YPTs one of the best places is along the edge of a path bordered by vegetation (but see under *Adesmia boronioides*, below). YPTs set in the middle of a colony of various aculeate Hymenoptera nesting in bare earth will catch almost nothing. Branches of flowers seen to attract insects can be cut and placed on the ground in MT entrances; this technique is especially useful where the flowers are surrounded by spines, making it impossible to collect with a hand net. *Beware of the sun moving round and putting traps in the shade while you are collecting elsewhere!*

Notes on associated Diptera

Asilidae

Lycomyia see Hymenoptera: Thynnidae

Rhinophoridae

Melanophora roralis L. A specimen of this small, very elusive fly was collected when it settled on a tree trunk about a foot above a twig perch being competed for by several male *Trypoxylon* wasps (*which see*), on which it was possibly parasitic (although as far as is known, members of this family are parasites of Isopoda (woodlice)). Río Negro province, Paso Córdoba, 26-28.ii.98.

Sarcophagidae

Opsidia intonsa Aldr. Five specimens were collected; entering holes in path parallel to the main road with the sphecids wasps *Astata* and *Cerceris* and the apid bee *Doeringiella* sp. Chubut province, Lago Puelo, 31.xii-7.i.98.

Tachinidae

Admontia antarctica Thomson. Three specimens were reared from the larva of an unidentified arctiid moth. Tafi del Valle, 2,000m, Tucumán. 6-8.i.70.

Wagneria? One specimen was collected near the nesting holes of the sphecids wasp *Podagritys neuqueni* Leclercq and an unidentified halictid bee in a shady forest track beside Chubut province, Lago Futalaufquen, P. N. Los Alerces, 14.xii.97.

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