A NEW SPECIES OF *CHRYSOPOGON* FROM SOUTH AUSTRALIA (DIPTERA: ASILIDAE: DASYPOGONINAE)

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Summary

A new species of Asilidae: Dasypogoninae, *Chrysopogon gammonensis*, from the Gammon Ranges National Park of South Australia is described. It is one of a group of small species of dark appearance with abdominal tergites shining and often with pollinose spots in the posterior corners of the abdominal tergites; it differs from all other members of the group by having paired bare spots on sternites 3-5.

KEY WORDS: Insecta, Diptera, Asilidae, Dasypogoninae, *Chrysopogon gammonensis* sp. nov., South Australia

Introduction

Robber flies (Asilidae) are a widely distributed group of predatory flies which largely inhabit semi-arid and arid regions of the world. Adult robber flies are noted primarily for their predacious feeding habits. The majority of robber flies prey upon insects, although some capture spiders and various larvae. Each species of robber fly has attributes which, in addition to specific characteristics of the prey, determine the types of prey it can successfully capture. These characteristics include the robber fly's size, level of hunger, speed and manner of flight, powers of vision, structure of mouthparts (in particular the strength of the hypopharynx), place and time of hunting, and skill in capturing prey.

The tribe Chrysopogonini (Diptera: Asilidae: Dasypogoninae), was erected by Hardy (1934) after keys to genera and species had been published by Ricardo (1912a,b) and Hardy (1929). Members of the tribe are confined to mainland Australia, with the exception of *Chrysopogon papuensis* Clements (1985), from Rouku, West Papua, New Guinea. In Australia, the tribe is easily distinguished from all other asilid groups by the presence of a notopleural spine dorsolaterally on the thorax replacing the normal array of thoracic setae. In the first modern treatment of the tribe Clements (1985) completely revised the genus *Chrysopogon*, providing an extensive key to 42 species, describing 29 species as new and providing detailed descriptions of all previously described species.

A new species of *Chrysopogon* from the north Flinders Range, not seen by Clements, is described below in anticipation of conducting the first behavioural study of a species belonging to the tribe Chrysopogonini. As pointed out by Clements (1985), the only behavioural observation published for a member of this tribe was that of Hardy (1928) who described the female holotype of *Chryseutria nigrinus* as “flying backwards and forwards from a termite’s mound to a spray of tall grass in seed.” Many species bear a strong resemblance to wasps and this apparent mimicry has been noted primarily by Nicholson (1927) and Clements (1985).

*Chrysopogon gammonensis* sp. nov.
A NEW SPECIES OF ROBBER FLY (CHRYSOPOGON) FROM SOUTH AUSTRALIA

Diagnosis: One of a group of small species belonging to the Chrysopogon rufulus group provisionally established by Clements (1985), the flies being “small to medium sized”, and “mostly of dark appearance” with abdominal tergites shining and often with pollinose spots in the posterior corners of the abdominal tergites. It is distinguished from closely related species by the minute naked spot on the face below the antennae, posterior antepronotum yellow tomentose laterally with medial shining brown cuticle with central tomentose spot; tomentose spots dorsolaterally on abdominal tergites 1-6 and the tomentose ornamentation of the thoracic pleurites being bisected by two narrow bands of shining naked cuticle. Additionally, paired bare spots occur on sternites 3-5, which have not been recorded for any other species of Chrysopogon. It superficially resembles C. castaneus Clements 1985, except that the pleura of C. castaneus are completely tomentose as are the sternites, whereas the antepronotum is completely bare.

Types.
Holotype male: AUSTRALIA: SA: Gammon / Ranges NP Lake Frome / 30º37’36”S 139º37’22”E / 13 x 1997; dunes; S. Winterton / J. Skevington C. Lambkin / UQIC Reg. / #44590. Allotype female - Same data as holotype, except UQIC Reg. #44594. Paratypes: male - same data as holotype, except UQIC Reg. #44592; male - same data as holotype, except UQIC Reg. #44587; female - same data as holotype, except UQIC Reg. #44588; female - same data as holotype, except UQIC Reg. #44595; female - same data as holotype, except UQIC Reg. #44589; female - same data as holotype, except UQIC Reg. #44591.

Description - Dimensions: Body length: 10 mm. Male.

Head: Face in profile almost flat, bulging slightly at oral margin; covered with yellow tomentum except for minute naked spot 1/3rd distance from oral margin; without hairs or bristles except on lower facial margin. Frons white tomentose apart from area in front of occellarium which extends in a narrow tongue to base of antennae; occellarium of shining black cuticle, hairs short, sparse, white. Occiput white tomentose over black cuticle, with patch of white hairs on ventral corners and scattered white bristles dorsally. Antennae brown darkening towards apex; segment one with white hairs, segment two with black hairs and 1-2 black setae ventrally, microsegment at apex of 3rd segment not clearly delineated, with dorsal excavation and sensillum; basal segments subequal, distal segment almost twice the length of two basal segments combined. Mystax of 15-16 yellowish white bristles of similar thickness in single irregular row. Palpi dark brown, with whitish hairs. Proboscis black above, brown below, with sparse, white hairs below. Lateral cervical sclerite yellowish white tomentose over black cuticle with white hairs.

Thorax: Antepronotum: anterior ridge shining black, posterior antepronotum yellow tomentose laterally with medial shining brown cuticle with central tomentose spot, with yellowish-white hairs on anterior ridge and laterally. Postpronotum mostly yellow tomentose over shining brown cuticle, ventrolateral corners bare, shining. Scutum of black cuticle, extensively but thinly tomentose, the tomentum mainly yellowish, with longitudinal black stripe divided by a medial tomentose line, with 2 black areas on each side, each pair divided by the transverse suture; with fine white hairs in patch behind humeral calli extending posteriorly to notopleural spine. Notopleural spine black, arising from extremely short black tubercle. Scutellum extensively yellow tomentose over brown cuticle, margin bare, shining brown cuticle. Medium postnotum bare, callosities yellow tomentose; katatergite yellow tomentose with whitish hairs. Pleural sclerites yellow tomentose bisected by narrow bare band of shining brown cuticle on anterior 1/3rd of anepisternum and a 2nd band at posterior margin of meron; whitish hairs present on ventral half of anepisternum and front half of anepimeron.

Legs: Coxae yellow tomentose over brown cuticle, with white hair, hairs less dense on hind coxae. Femora brown with dark brown dorsal streak. Tibia brown, tarsi brown. Bristles of femora, tibia and tarsi black. Hind femora largely bare of hair. Hairs of femora and tibia white, those on hind tibia dense ventrally, pad of short hairs ventrally on apical 1/3rd of hind tibia of same density as pad ventrally on basitarsi. Fore tibial spur present.
Wings: Veins brown. Membrane suffused with brown due to presence of dense microtrichia. Double row of dark brown microsetae on costa reaching apex of R4. 1st posterior cell wide open. Vein r-m 3/5th distance from base of discal cell. Knob of halteres yellow, stem darker.

Abdomen: Parallel sided, tapering suddenly on 6th segment. Tergites of shining brown cuticle with very short, white hair. Tergites 1-5 with yellow pollinose spots on posterior corners, pollinosity becoming more extensive on tergite 6. Tergite 1 with single black spinose bristle on each side. Sternites yellow tomentose over brown cuticle, with paired bare spots on sternites 3-5.

Genitalia (Fig. 1): Shining brown. Epandrium a curved plate with short white hairs apically on each side. Cerci elongate, extending beyond apex of epandrium, with short white hairs. Gonocoxite triangular, extending to middle of epandrium, with 9-10 strong brown setae reaching almost to apex of epandrium. Gonostylus dark brown, bifed, pointed, almost reaching apex of shining brown, strongly curved aedeagus. Parameres shining brown, narrow, elongate, as long as gonostylus. Hypandrium very small, triangular, with brown hair, posteriorly directed.

Figure 1. Genitalia of male holotype, Chrysopogon gammonensis, ventral view: aed = aedeagus, cerc = cerci, epand = epandrium, gonst = gonostylus, hypd = hypandrium, parem = paramere, st8 = sternite 8, st7 = sternite 7

Allotype female: Body length: 10 mm.

Similar to holotype, except that base colour of cuticle is dark brown to black. 7th sternite with weak marginal bristles. 8th sternite and tergite shining brown, 8th tergite with elongate apical brownish-white bristles. 9th and 10th segments laterally compressed, appearing punctate under low magnification, with short whitish hairs, those on tergite 10 more extensive.
The differences cited between the holotype male and the allotype female are consistent in the paratype series.

Linear dimensions of paratypes: males: range 8 – 11 mm. females: range 8 – 11 mm.

*Etymology*: The specific epithet relates to the Gammon Ranges National Park in South Australia where the type series was collected.

*Habitat notes* (provided by one of the collectors, Dr. Chris Lambkin, CSIRO, Canberra – Pers. Comm. 2005): “Western side of Lake Frome, mostly sandy stretches, dry, flat, scattered short green bushes max 1 m high, Spinifex clumps, on the way to the Lake, beside the road.”

*Depository*: The holotype male is deposited in the South Australian Museum (SAMA) Entomology Collection in Adelaide, SA. The allotype female and the 5 paratypes are deposited in the University of Queensland Insect Collection (UQIC), Brisbane, QLD. Since the series of specimens technically belong to the University of Queensland Insect collection, I received permission to retain the holotype male in the South Australian Museum Insect Collection (Pers. Comm. M. Schneider 2 Dec 2004) as the specimen is from a South Australian national park.

![Figure 2. Side view of pinned male holotype, *Chrysopogon gammonensis*.](image)

**Discussion**

The new species runs to *Chrysopogon melas* Clements (which also belongs to the *rufulus* group) in couplet 13 of the key in Clements (1985), but differs from that species in that the cuticle of the 6th abdominal tergite is brown in *C. gammonensis*, rather than black as in *C. melas*. Additionally, *C. gammonensis* lacks minute hairs on the scutellar disk and rim, the pleural selerites are golden pollinose as opposed to grey, the pleural narrow shining band is brown rather than black, the prongs
of both gonostyli are pointed rather than one being broad as in *melas*, the hairs of the 1st antennal segment are white, not white and black, the hind femora has a faint faceted area which is lacking in *C. melas*. The general overall aspect of the new species is shown in Fig. 2.

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