WESTERN AUSTRALIAN museum

Information Sheet

Cuckoo Wasps
(family Chrysididae)

Among the most exquisite wasps to be found in Australia are the cuckoo wasps (or emerald wasps) which are almost wholly bright iridescent green, blue or purple. The body surface is deeply and densely pitted, imparting a glittery appearance. Some northern hemisphere species have gold or reddish tints and are termed 'gold wasps' and 'ruby wasps', respectively.

A cuckoo wasp (*Primeuchroeus* species). Note the apparently 3-segmented abdomen.

Cuckoo wasps belong to one subdivision (the tribe Chrysidini) of the world-wide family Chrysididae. All members of this family are parasitic on other insects. Other than the iridescent Chrysidini, though, members of this family are small, dull-coloured insects unlikely to come to one's attention.

As the name 'cuckoo wasps' suggests, females lay their eggs in the nests of other insects. Among the most common hosts for cuckoo wasps are the various mud-daubing wasps that build their nests around houses, sheds and other human constructions. This accounts for many finds, people either noticing the brightly coloured wasps hovering about walls as they search for a host nest, or finding them after they've entered a building and got trapped on the inside of a window pane.

Larvae of cuckoo wasps develop at the expense of the host's offspring, feeding either on the fully developed host larvae or on the stored food in the host nest (usually paralysed caterpillars or spiders). Either way, the host's larvae die so, strictly speaking, chrysidines are not true parasites. They are more correctly termed 'parasitoids' when they feed on and kill the host larvae or 'cleptoparasites' ("clepto" deriving from a Greek word meaning 'thief') when they feed on the host's provisions.

Because their hosts possess stings and biting mandibles, cuckoo wasps have evolved some defences, namely a thick integument and an ability to roll their body into a ball with their legs tucked in. These adaptations account for cuckoo wasps' distinctive form: the thorax often having cavities for the reception of legs and the abdomen being flat or hollow on the underside and covered above with three convex plates, the third plate commonly bearing teeth on its hind margin.

Female cuckoo wasps are widely believed to be unable to sting, the sting apparatus being reduced and supposedly non-functional, yet cases are known where people have received painful stings from larger species. A long, thin appendage may sometimes be seen extending from the tip of the female abdomen. This is not a 'stinger' but an ovipositor used for inserting eggs into a nest of a host. Observations of oviposition are few but one author noted that a female of *Stilbum cyanurum* wet the mud wall of a host nest, softening it, then inserted its ovipositor to deposit an egg.

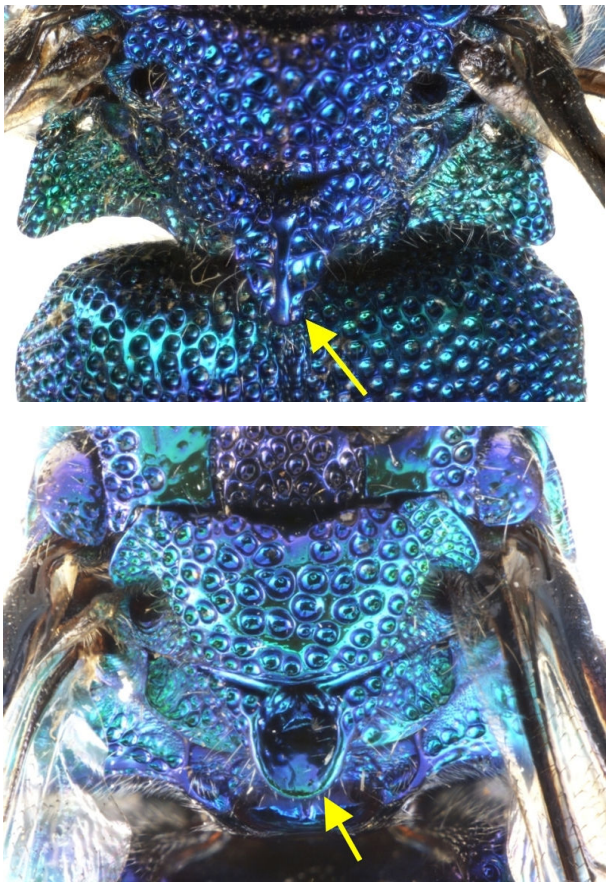
According to Kimsey & Bohart (1990), four genera of cuckoo wasps occur in Australia. *Stilbum* includes just one species, *S. cyanurum*, which is the largest and most impressive of all. It is distinguished by having a strong, concave, median projection on the rear of the thorax and four downward pointing teeth on each side of the thorax. It breeds in the nests of mud-dauber wasps (*Delta* and *Sceliphron*) which are commonly found on the walls of buildings. It may also parasitize the nests of some megachilid bees. This species is found throughout Australia and much of the Eastern Hemisphere. Its size varies markedly.

The genus *Chrysis* contains many Australian species. One of the most common, *C. lincea* (illustrated below), is a moderately large species that, like *Stilbum cyanurum*, possesses a median projection on the rear of the thorax.

The genus *Primeuchroeus* with 17 Australian species is characterised by small size (3-9 mm long), the apical margin of abdominal segment 3 smooth and lacking teeth, the sculpture of the

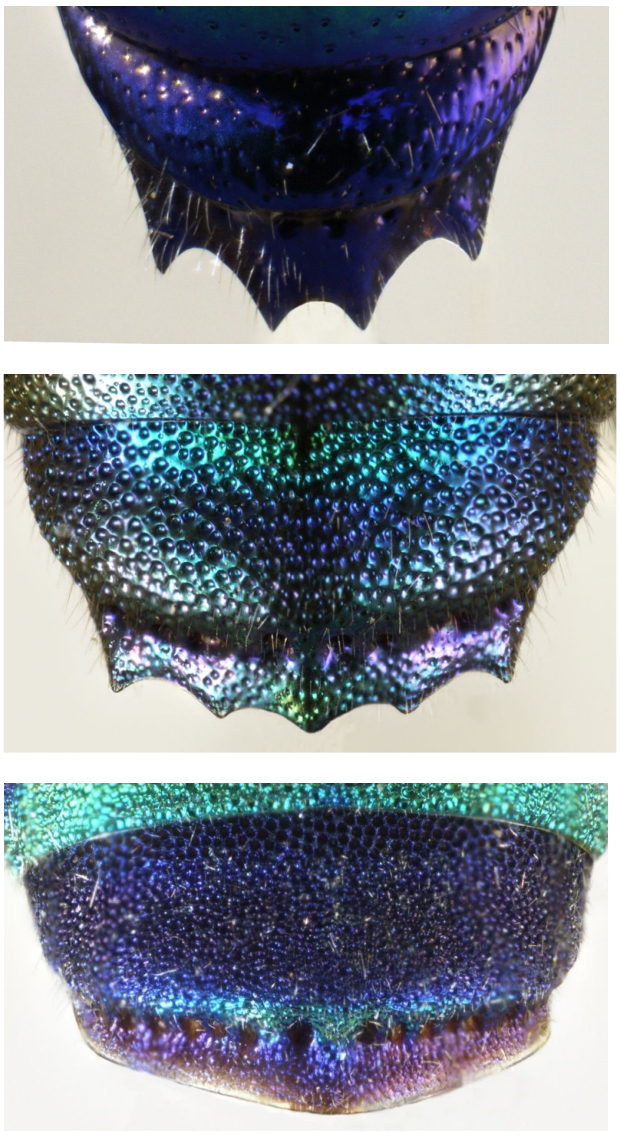
abdomen dorsally being very fine (shagreened) and the wing veins reduced (see photograph previous page). Their hosts are poorly known though mud-wasps of the genus *Pison* are included. One WA species has been observed by the writer hovering over sandy ground and presumably seeks out nests of ground-nesting wasps or bees.

Chrysis lincea: arrows indicate median dorsal and paired lateral processes of thorax.



Top view of thorax of *Chrysis lincea* (above) and *Stilbum cyanurum* (below) showing median processes (arrowed). In *C. lincea* the process is convex with a raised median ridge whereas in *S. cyanurum* it is concave with a U-shaped rim.

Praestochrysis contains a single Australian species, *P. australasiae*, and one introduced species. The genus characteristically has five teeth on the apical margin of the third abdominal segment. While some species are parasitoids of mud-daubing wasps, Kimsey and Bohart (1990) state that the majority of species are parasitoids of cup-moth caterpillars (Limacodidae). The genus is not known from Western Australia.



Apex of abdomen of *Stilbum cyanurum* (above), *Praestochrysis lusca* (middle) and *Primeuchroeus* sp. (below) showing characteristic apical margins.

Reference:

Kimsey, L.S. & Bohart, R.M. (1990): *The Chrysidid Wasps of the World* (Oxford University Press; Oxford, New York, Toronto).

Author: Terry Houston - May 2011
Images: Ka Ming Tong