

Two new species of *Myrmeleon* L. and new records of Myrmeleontini (Insecta, Neuroptera: Myrmeleontidae) from Australia

T. R. NEW and C. N. SMITHERS

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Myrmeleon zebidee sp. nov. and *M. mouldsorum* sp. nov. are described and illustrated from specimens collected recently in northern Australia. Significant new distribution records are given for some other myrmeleontine species.

T. R. New, Department of Zoology, La Trobe University, Bundoora, Victoria 3083, Australia and C. N. Smithers, The Australian Museum, College Street, Sydney, NSW 2000, Australia. manuscript received 26 June 1993; accepted for publication 20 October 1993.

INTRODUCTION

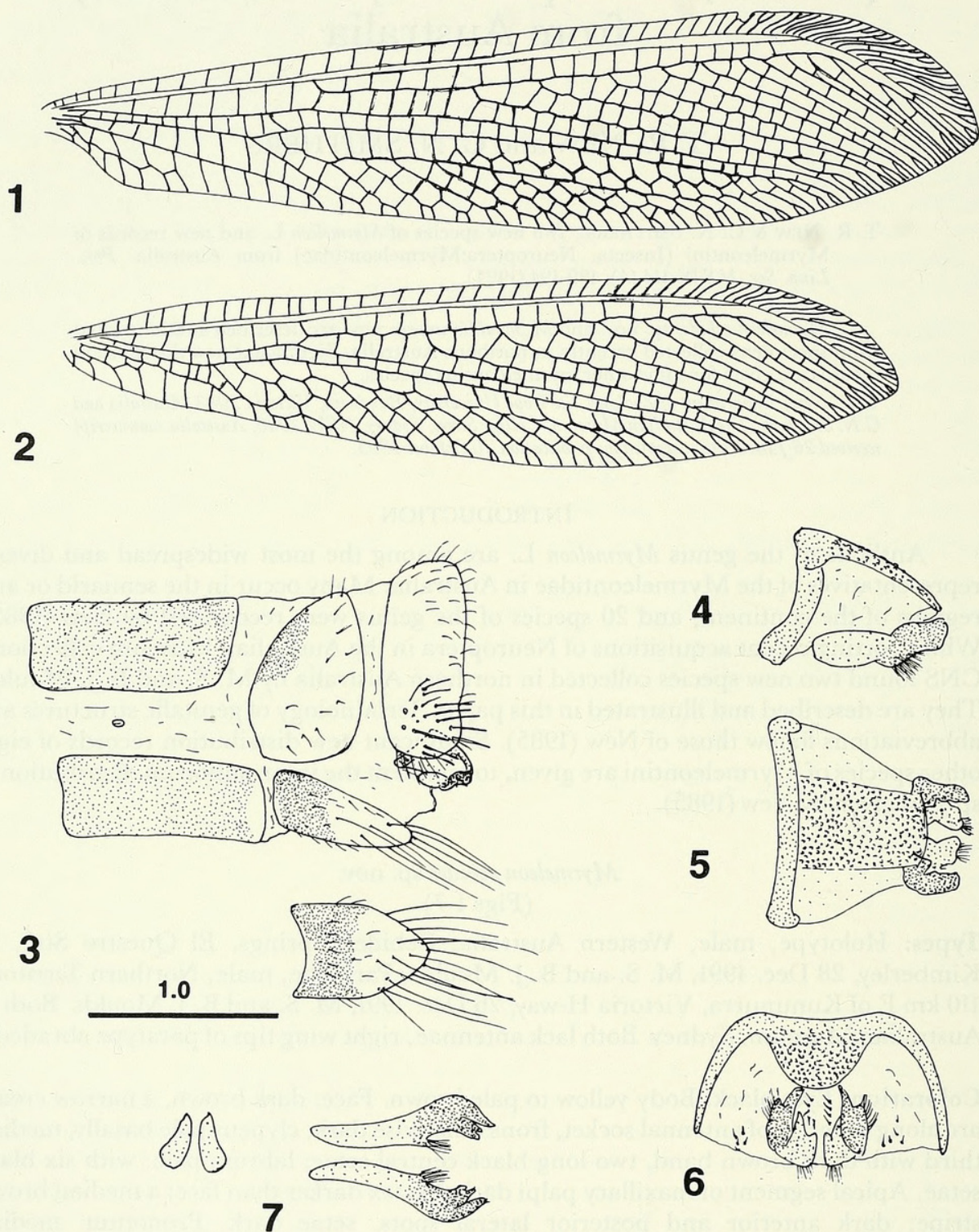
Antlions of the genus *Myrmeleon* L. are among the most widespread and diverse representatives of the Myrmeleontidae in Australia. Many occur in the semiarid or arid regions of the continent, and 20 species of the genus were recognised by New (1985). Whilst sorting recent acquisitions of Neuroptera in the Australian Museum collections, CNS found two new species collected in northern Australia by M. S. and B. J. Moulds. They are described and illustrated in this paper. Terminology of genitalic structures and abbreviations follow those of New (1985). Significant new distribution records of eight other species of Myrmeleontini are given, to augment the information on distribution of species given by New (1985).

Myrmeleon zebidee sp. nov.
(Figs 1-7)

Types: Holotype, male, Western Australia, Zebidee Springs, El Questro Stn., E. Kimberley, 28 Dec. 1991, M. S. and B. J. Moulds. Paratype, male, Northern Territory, 110 km E of Kununurra, Victoria H-way, 26 Dec. 1991, M. S. and B. J. Moulds. Both in Australian Museum, Sydney. Both lack antennae, right wing tips of paratype abraded.

Coloration: Eyes black. Body yellow to pale brown. Face: dark brown, a narrow cream arc along anterior of antennal socket, frons otherwise dark; clypeus pale basally, median third with dark brown band, two long black central setae; labrum pale, with six black setae. Apical segment of maxillary palpi dark. Vertex darker than face; a median brown stripe, dark anterior and posterior lateral spots, setae dark. Pronotum: median brown stripe, broader posteriorly where about $\frac{1}{4}$ width of notum; long pale setae. Mesonotum: anterior scutal lobe black anteriorly, lateral scutal lobes with elongate black spots, anterior of scutellum black. Metanotum with similar but smaller lateral and scutellar markings. Pleura with black marks on most sclerites, including base of costa. Legs otherwise pale, except apices of tarsal segments slightly darker brown; femora and tibiae with sparse black bristles; tibial spurs dark brown. Abdomen: tergites yellowish brown, sternites slightly darker; ectoproct, most of tergite IX, apex of sternite IX pale.

Wings unmarked; venation pale yellow except C dark grey; setae dark on C, Sc, R1 of both wings, otherwise pale.



Figs 1-7. *Myrmeleon zebidee* sp. nov.: 1, fore wing; 2, hind wing; 3, male, apex of abdomen, lateral with inset of sternite IX, ventral; 4-6, genitalic complex (4) lateral, (5) dorsal, (6) caudal; 7, parameres, ventral, with inset of anterior aspect. Scale in mm, to Fig. 3.

Morphology: Slender. Pronotum slightly wider than long. Tibial spurs $< t1$. Wing venation as in Figs 1, 2; rather dense. Abdominal apex as in Fig. 3: ectoproct large, with ventral group of ca 12 thickened black setae; sternite IX tapered, with long black apical

and preapical setae. Genitalia (Figs 4-7): gonarcus broad, dorsal median region broadly spiculate; parameres long, convergent anteriorly, with dorsomedially curved apical process, groups of ventral medial and external hairs.

Dimensions: (mm, holotype first). Fore wing length 30, 30; hind wing length 28, 28; body length 32, 31.

Comments

The uninterrupted single pronotal stripe and the two rows of fore wing cells distally between vein CuA1 and the posterior Banksian line lead this species to the final couplet (19) of the key to species of *Myrmeleon* in New (1985). Facial pattern and numerous genitalic details differentiate it readily from the two species (*M. maculaclypeus* New, *M. sagittarius* New) treated there. The deep ectoproct suggests a closer alliance with *M. maculaclypeus*, in which the male genitalia are relatively shallower and more elongate than in *M. zebidee*. *M. maculaclypeus* is also smaller, with the type series (Queensland, Mt Norman) fore wing length being 18-21 mm.

The large size of the present species suggests alliance with taxa such as *M. nigro-marginatus* Esben-Petersen and *M. comptus* Gerstaecker, both of which are otherwise distinct on genitalic, venational and colour pattern details. The female of *M. zebidee* should be identifiable readily on colour pattern when it is discovered.

The specific name refers to the holotype locality.

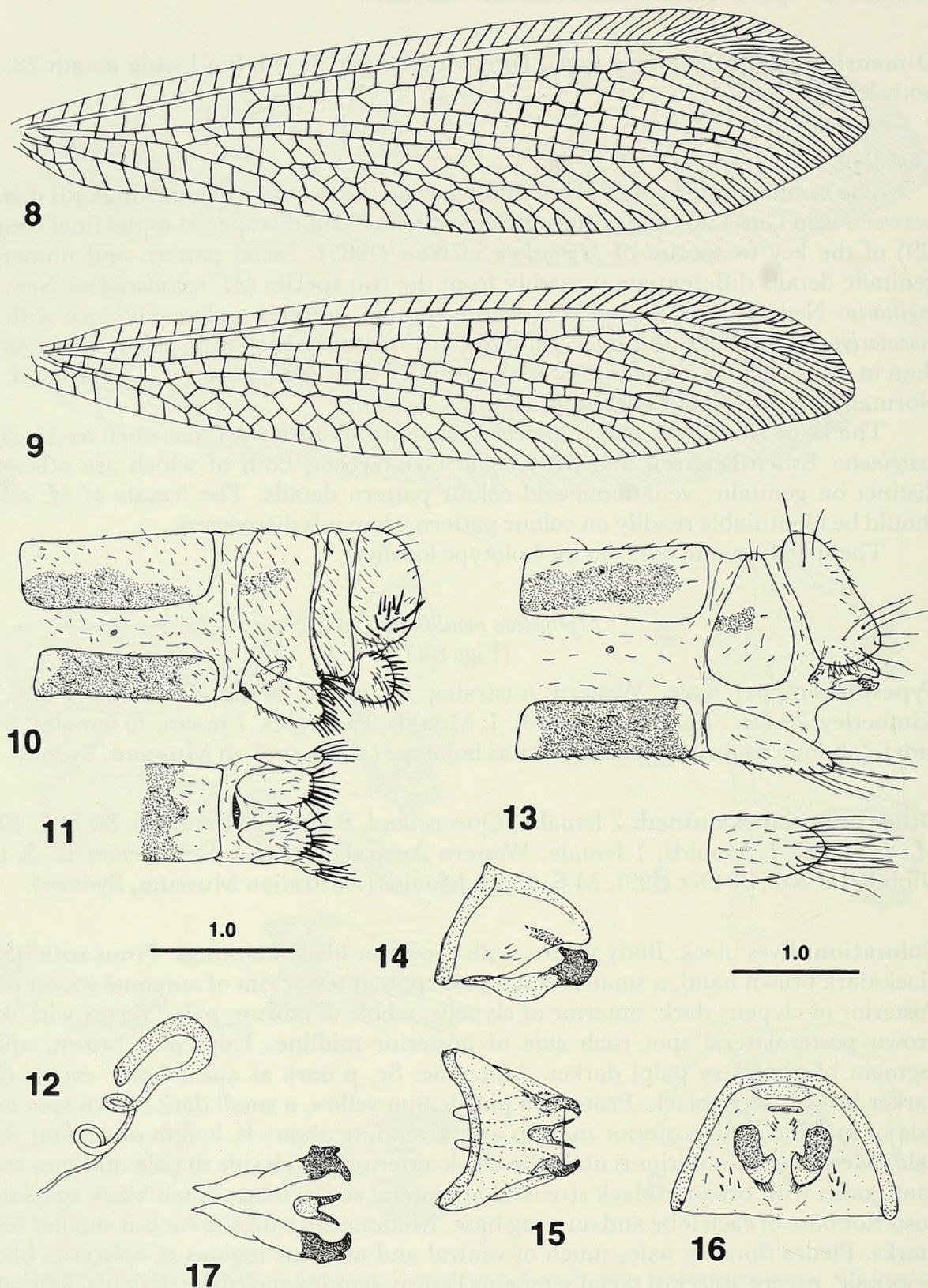
Myrmeleon mouldsorum sp. n.

(Figs 8-17)

Types: Holotype, male, Western Australia, Durak R. X-ing, Gibb River Rd., E. Kimberley, 29 Dec. 1991, M. S. and B. J. Moulds. Paratypes, 7 males, 15 females, 2 sex indet. (abdomens missing), same data as holotype (all Australian Museum, Sydney).

Other material examined: 2 females, Queensland, 8 km E of Emuford, 30 Dec. 1989, M. S. and B. J. Moulds; 1 female, Western Australia, 21 km W Pentecost R. X-ing, Gibb River Rd., 30 Dec. 1991, M.S. & B.J. Moulds (Australian Museum, Sydney).

Coloration: Eyes black. Body yellow, with brown or black markings. Frons with broad black/dark brown band, a small median pale spot, anterior rim of antennal socket pale. Posterior of clypeus dark; anterior of clypeus, whole of labrum pale. Vertex with dark brown posterolateral spot each side of posterior midline. Palpi pale brown, apical segment of maxillary palpi darker. Antennae: Sc, p dark at apex; f pale except club darker brown, setae black. Pronotum pale lemon yellow, a small dark brown spot each side of midline near posterior margin and extending about $\frac{1}{3}$ length of notum; setae pale. Mesonotum: anterior scutal lobe black anteriorly each side of pale midline, mark contiguous with broader black streak along lateral scutal lobes; small black spots near posterior base of each lobe and on wing base. Metanotum with similar but smaller black marks. Pleura dorsally pale, much of ventral and anterior regions of episterna black. Legs pale, except apices of tarsal segments brown; femora and tibiae with black bristles, tibial spurs dark brown. Abdomen: tergites brown laterally, sternites (except, male, IX) brown except at extremities of posterior segments; ectoproct and tergite IX (female) pale, tergite VIII (female) or IX (male) with small brown streak. Wing venation mostly very pale yellow; Sc junctions with costal crossveins dark grey; C grey; setae on C (dense), Sc, R1 grey, otherwise pale; wings unmarked.



Figs 8-17. *Myrmeleon mouldsorum* sp. nov.: 8, fore wing; 9, hind wing; 10, female, apex of abdomen, lateral; 11, same, ventral; 12, spermatheca, lateral; 13, male, apex of abdomen, lateral, with inset of sternite IX, ventral; 14-16, genitalic complex (14) lateral, (15) dorsal, (16) caudal; 17, parameres and median dorsal sclerite, ventral. Scale in mm to Figs 10, 13.

Morphology: Slender. Antennae with short incipient club. Pronotum about as wide as long. Tibial spurs equal or slightly $> t1$. Wing venation as in Figs 8, 9.

Female (Figs 10-12). Apex of abdomen as in Figs 10, 11; ectoproct broad, with ventral group of ca 10 thickened black setae; tergite IX short and deep; tergite VIII with short tapered posteroventral projection with long black unthickened setae; lateral gonapophyses rounded, with ca 20 thickened black posterior setae; anterior gonapophyses large, with 8-10 thickened black apical setae; pregenital plate small, transverse. Spermatheca (Fig. 12) simple, duct coiled.

Male (Figs 13-17). Apex of abdomen as in Fig. 13: ectoproct large, with ventral group of long black setae and few long black dorsal setae; tergite IX broad; sternite IX long, tapered, with long black setae on apical third. Genitalia (Figs 14-17): gonarcus rounded, apex transverse; parameres with dorsally reflexed apical process, anteriorly strongly convergent; a small U-shaped sclerite dorsal to parameres.

Dimensions: (mm, range of type series given). Fore wing length: male 20-25, female 22-24; hind wing length: male 19-23, female 20-23; antenna length $4\frac{1}{2}$ - $5\frac{1}{2}$; body length: male 23-27, female 21-24.

Comments

The two Emuford females, excluded from the type series, are slightly larger than the other specimens, with fore wing length of around 27 mm. In other respects they tally closely with Western Australian individuals, and appear to be conspecific with them.

The reduced pronotal markings of this species are distinctive. In *M. bifasciatus* New (to which this species keys in New 1985), the anterior gonapophyses are scarcely developed; they are unusually large in the present species, relatively larger than in any other Australian *Myrmeleon*. *M. bifasciatus* also has long lateral gonapophyses. The pronotal markings of the two species differ clearly.

The species is named in honour of the collectors in appreciation of their efforts in adding so substantially to the Neuroptera holdings of the Australian Museum.

ADDITIONAL DISTRIBUTION RECORDS

Callistoleon erythrocephalum (Leach)

Queensland. Agnes Water, 40 km. E. Miriam Vale. Lower Beechmont.

Myrmeleon acer Walker

Queensland. 55 km NNE Injune. Bald Hills Station, near Laura. Coomingleh Range, 24 km N Monto. Fraser Is. New Islet, Capricorn Group. Capella. Burra Range. Rolleston Creek. Nine mile Creek, 14 km NNW Miles. Bee Creek, 25 km SW Nebo. 70 km S Blackwater. Carnarvon Range, 80 km N Injune. Blackdown Tablelands, Expedition Range. Leo Creek, McIlwraith Range. Coen. Moorhead River crossing, NW Laura. 40 km WNW Goondiwindi. 80 km NNE St George. Amby, W Roma. Bungil Creek, 16 km N Roma. 45 km E Cloncurry. Forty Mile scrub, 65 km NW Mt Garnet. **New South Wales.** Lansdowne. Pearl Beach. Mt Tomah. Gibraltar National Park. Grose Vale, near Richmond. Kandos. Wheeney Creek, near Kurmond. Glenorie, near Sydney. 28 km SE Tambo. Huonbrook. Bonnet Bay. Inverell. 65 km W Cobar. Brunswick Heads. Junction Barradine Rd. and Newell Highway. Maccullochs Range, Barrier Highway. **Victoria.** McKillopp's ridge, Snowy River. **South Australia.** Stuart Highway, 56 km S Northern Territory border. Pichi Richi Pass, near Port Augusta. **Western Australia.** Gardner River crossing, Chesapeake Road. Israelite Bay. 160 km E Kalgoorlie. Warren Road, 6 km SE Pemberton. 6 km S Mayoreth. Arthur River, 9 km E

Darken. Kalgarin. Glen Gerald Gorge, Rawlinson Range. Rebecca Creek. Chapman Pool, Blackwood River. Kalgoorlie, 25 km E Sandstone. 18 km SE Leinster. 85 km N Agnew. Lake Douglas, 12 km SW Kalgoorlie. 12 km E Denmark. Donnelly River, 23 km W Manjimup. **Northern Territory.** Reedy Rockhole, near King's Canyon. Taylor's Creek, N Barron Creek. Trephina Gorge, 70 km ENE Alice Springs.

Myrmeleon diminutus Esben-Petersen

South Australia. Mt. Illbillee, Everard Range.

Myrmeleon houstoni New

New South Wales. 30 km NNW Wentworth. Bogan River. **Victoria.** Wyperfeld National Park. **Western Australia.** Wongan Hills, N Northerm. 5 km W Moorine Rock, near Southern Cross. Kalgoorlie area. Arthur River, Darkan.

Myrmeleon maculaclypeus New

Queensland. 8 km S Clermont.

Myrmeleon pictifrons Gerstaecker

New South Wales. Clarence, Blue Mts. Mt Tomah. Iluka. Terania Creek. Tamworth.

Myrmeleon regularis Esben-Petersen

Queensland. Clermont. Heathland HS, Cape York Penin. Iron Range. Lockhard River Mission. Claudie River, near Mt Lamond. Drummond Range, E Alpha. Cairns. Jardine River, 11.75S 142.35E. Dulhunty crossing, Cape York Penin. **South Australia.** Innamincka. **Western Australia.** Marble Bar. Karratha. Tunnel Creek, Derby. Winjara Gorge, 140 km E Derby. Fitzroy crossing. Broome. Kalbarrie. **Northern Territory.** Reedy Rockhole, George Gill Range.

Myrmeleon uptoni New

Queensland. Forty Mile scrub, 65 km NW Mt Garnet. 30 km N Cooktown.

ACKNOWLEDGEMENTS

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Reference

- NEW, T. R., 1985. — A revision of the Australian Myrmeleontidae (Insecta: Neuroptera). 1. Introduction, Myrmeleontini, Protoplectrini. *Aust. J. Zool., Suppl. ser.* 104: 1-90.



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