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**THE IDENTITY OF *IRIDOMYRMEX PURPUREUS* FORM *VIRIDIAENEUS*  
VIEHMEYER (HYMENOPTERA: FORMICIDAE)**

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## NOTE

THE IDENTITY OF *IRIDOMYRMEX PURPUREUS* FORM *VIRIDIAENEUS* VIEHMEYER (HYMENOPTERA: FORMICIDAE)

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## Abstract

In the past 2 dark-coloured forms of the meat ant, *Iridomyrmex purpureus* (F. Smith), occurring in arid and semi-arid areas of Australia have been confused under the name *viridiaeneus* Viehmeier. This name properly applies only to a form in which the workers are dark brown to black with green and pinkish violet iridescence. The other form, distinguished by blue iridescence, is undescribed.

Meat ants, *Iridomyrmex purpureus* (F. Smith, 1858) (= *detectus* (F. Smith, 1858)) and allies are peculiar to Australia, excluding Tasmania. Four forms have been described of which 3 are currently recognised. They have been referred to as subspecies (Forel 1910; Emery 1912) or varieties (Viehmeier 1913; Wheeler 1915; Clark 1938; Greenslade 1970). As their taxonomic status has yet to be formally resolved, the non-committal 'form' is to be preferred for the present (Greaves 1971). The forms, distinguished by colour of the workers, are *purpureus* sens. strict., *sanguineus* Forel, 1910, *viridiaeneus* Viehmeier, 1913 and *castrae* Viehmeier, 1924. The last form has not been reported since it was first described. The name *viridiaeneus* has been applied to dark coloured meat ants from arid, central regions (Greaves 1971). Surveys of the distribution of meat ants in South Australia show that there are 2 dark coloured forms in the arid zone. Previously they have been referred to jointly under the name *viridiaeneus*, or this name has been applied to the wrong form.

According to Viehmeier's (1913) description the name *viridiaeneus* applies to meat ants with black gaster, brown to black foreparts and green and pinkish-violet iridescence. A syntype in the Australian National Insect Collection, Canberra (ANIC) has been examined. It is labelled "Cotyplus, Killalpanino Sud-Australien, *I. detectus* v. *viridiaeneus*." It is near the pale end of the range of body colour usually seen in this form and is rather feebly iridescent. *Viridiaeneus* differs from the other dark coloured form inhabiting dry inland parts of Australia in colour of iridescence. In workers of the latter the foreparts are reddish brown to black with a uniform blue iridescence. It cannot be named until the question of its status vis à vis other forms has been resolved and it is referred to now as the 'blue form.' According to T. Greaves, quoted by Nel (1965), an undescribed form of the meat ant occurs on the Nullarbor Plain. This seems to refer to specimens of the blue form in ANIC placed under the label 'Nullarbor form'.

An additional difference between *viridiaeneus* and the blue form lies in the type of nest occupied. *Viridiaeneus* constructs mound or disc nests, with numerous entrance holes, typically with a gravel cover as described for *purpureus* sens. strict. by Greaves (1971) and others. The blue form is found in nests with a solitary entrance or in dispersed systems of nests with single entrances.

Wheeler (1915) seems to have correctly determined *viridiaeneus* from the Everard and Musgrave Ranges, noting the metallic green of the foreparts, but there appear to have been errors in the use of this name by all subsequent authors.

Clark (1938) identified forms *purpureus* and *viridiaeneus* from Reevesby Island in Spencer Gulf off Port Lincoln, but his description of the latter as having deep metallic blue foreparts and coming from single-entrance nests most probably indicates the blue form.

Crozier (1968) compared karyotypes of *purpureus* from Beaumaris, Victoria, of *viridiaeneus* from Euston, New South Wales, and of a 'morphologically intermediate' sample from Peebinga, South Australia. The workers of *viridiaeneus* were described as concolorous metallic blue with a single-entrance nest. This refers to the blue form. Crozier's voucher specimens in ANIC have purplish foreparts with blue iridescence and are within the range of colour variation seen in this form in South Australia. He recorded the intermediate, Peebinga ants as having a multi-entrance disc nest. His voucher specimens appear to be true *viridiaeneus* and closely resemble the ANIC syntype, the foreparts being concolorous brown with weak green iridescence. This case emphasises how important it is when working with meat ants to retain voucher material which should be deposited in an institutional collection, preferably the ANIC.

In an account of the geographical distribution of *viridiaeneus*, Greaves (1971) describes it as uniformly metallic bluish, to purplish-black, sometimes with a greenish metallic sheen. Both *viridiaeneus* and the blue form would be covered by this diagnosis. Metallic bluish refers to the blue form. Purplish-black is applicable to either form and the greenish metallic sheen can only refer to *viridiaeneus*. Greaves acknowledged as-

sistance from Dr G. Ettershank in identifying meat ants to provide data for his distribution map (Greaves 1971, Fig. 1). This included material from the principal Australian museums. Among meat ants carrying Ettershank determination labels in the South Australian Museum, Adelaide, examples of both *viridiaeneus* and the blue form are identified as *viridiaeneus*.

Observations on colony structure and foraging activity by '*viridiaeneus*' at Coober Pedy (Greenslade 1970), almost certainly include both forms. Voucher specimens were collected (in my collection and ANIC) and all belong to the blue form, but the nest type and also, in retrospect, the appearance and behaviour of ants from colony G in Fig. 1 (Greenslade 1970), show that true *viridiaeneus* was present as well. The moral here is that, in addition to collecting voucher specimens, one must ensure that they are representative of the populations being studied. In subsequent work on meat ants in South Australia the name *viridiaeneus* has been used sens. Clark and Crozier for the blue form (Greenslade and Greenslade 1973; Greenslade 1974). When true *viridiaeneus* was recognised in the Flinders Ranges and Western Murray Basin it was treated as an un-named 'black form' (Greenslade 1973). This usage was followed also by Halliday (1972).

Further investigations of differences between these and other forms in South Australia, including occasional examples that appear to be intergrades, are in progress. The work covers observations on colour, morphometry, ecological properties and geographical distributions (Greenslade in preparation and unpublished results), and electrophoretic studies of enzyme polymorphism (Halliday in preparation and unpublished results).

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