Identification of *Mordellistena neuwaldeggiana*, *humeralis* and *variegata*

by Mark G. Telfer, 11th February 2012

These notes were initially based on specimens examined at BMNH on 16th July 2009, most of which were determined by Brian Levey. My original aim with these notes was to provide a better means to accurately identify species in this trio than any other available document. But they were superseded within 6 months by Brian Levey’s excellent paper in *The Coleopterist* (Levey, 2011). This third version is intended as a useful back-up to Levey (2011). As ever, all comments, corrections and improvements welcome.

This trio of species differs from other *Mordellistena* species in having two spurs at the apex of the hind tibia (not one) and the fourth antennal segment as long and as broad as the fifth and following segments (not shorter and narrower). The key by Batten (1986) (a Dutchman) doesn’t work well for British specimens because most British *humeralis* are pale (similar to *neuwaldeggiana*) whereas continental *humeralis* are patterned pale and dark (similar to *variegata*). It was A.A. Allen in a 1995 paper who sorted most of this out.

All are basically woodland species though only *humeralis* and *neuwaldeggiana* are considered to be saproxylic. They can be found by beating trees and shrubs but are perhaps best looked for on umbels of Hogweed, Angelica, etc. They are all active as adults in summer\(^1\) and it is possible to find all three together on the same umbel.

**neuwaldeggiana**

- **Colour.** Colour of whole insect uniformly yellowish-brown (except for black eyes and black spines on hind legs).
- **Colour of antennae.** Antennae uniformly yellowish-brown throughout their length.
- **Length of antennae.** Antennae longer than *humeralis* and *variegata*. Segment 3 at least as long as 2.
- **♂ secondary sexual characters.** Basal segment of maxillary palp strongly dilated (see photo). Second segment clearly elongate, only slightly dilated compared to female.
- **Temples.** ‘Temples’ behind eye are extremely narrow, just a sharp ridge marking hind margin of head. The ridge is only visible for a very short distance along the outside margin of the eye (in *humeralis*, the ridge is visible for a longer distance on the outside of the eye).
- **Pronotum shape.** Side-margins of pronotum converge in straight lines towards the hind-angles.
- **Dark ridges on outer face of hind tibiae.**
  
  Same as in *humeralis* (see below). Illustrated by Levey (2011).

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\(^1\) My dates: *neuwaldeggiana* 24th June to 14th August; *humeralis*: 9th July to 5th August; *variegata*: 14th July to 17th September. Probably they all have very similar adult seasons.
**humeralis**

- **Colour.** Colouration much more variable than in *neuwaldeggiana* or *variegata*. Usually colour of whole insect yellowish-brown (except for black eyes and black spines on hind legs) with some darker areas. Most individuals show some darkening to the elytral apices and abdominal apex. Palest individuals resemble *neuwaldeggiana* but have darker antennae (see below). In darker individuals, the head and most of the underside of thorax and abdomen are brown, with variable extent of brown on elytra, sometimes covering most of elytra and isolating a small pale patch at shoulder.

- **Colour of antennae.** Antennae with segments 1-3 pale, and segments 4-11 mid-brown, sometimes darkening towards apex. Perplexingly, some of the darkest *humeralis* at BMNH have uniformly yellow-brown antennae.

- **Length of antennae.** Antennae shorter than in *neuwaldeggiana* (with rare exceptions in some male *humeralis* (Levey, 2011)). Segment 3 shorter and often much smaller than 2.

- **♂ secondary sexual characters.** Difficult to sex on external characters. Male with maxillary palpi very similar to female, though the apical segment is a little more slender and with a more acute apex. Male *humeralis* are thus distinct from *neuwaldeggiana* and *variegata* on their maxillary palps but probably have to be dissected initially to be sure that they are males.

- **Temples.** The ‘temples’ behind the eye are extremely narrow as in *neuwaldeggiana*: just a sharp ridge marking hind margin of head. But unlike *neuwaldeggiana*, the sharp ridge is visible for a longer distance on the outside of the eye.

- **Pronotum shape.** Allen (1995) notes that the curvature of the pronotal side-margins is variable; either slightly concave before the hind-angles, or more commonly straight before the hind-angles. All my specimens have the side-margins of pronotum slightly concave just before the hind-angles.

- **Dark ridges on outer face of hind tibiae.** Three ridges, each longer than in *variegata*. The apical ridge is nearly transverse, the middle more oblique and the basal more oblique still. Illustrated by Allen (1995) who also discusses the variability of this character. Well described by Levey (2011).

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2 Note that Allen (1995) stated “I have not seen British *humeralis* with mainly dark elytra or any dark colour on the pronotum, but it is too early to assert that they do not occur”. Levey (2011) has studied this issue in detail and has shown that the dark form of *humeralis* certainly does occur in Britain, albeit rarely.

3 Levey (2011) misread version 2 of this document and reported that there was no useful difference in temple width between *neuwaldeggiana* and *humeralis*. Version 3 has been written to make it clearer that the difference is in the extent to which the ridge extends on to the outer margin of the head.
variegata

- **Colour.** Fairly consistent in colour and pattern. Resembling the darkest *humeralis* though darker and more contrasting. Allen (1995) also notes that *variegata* exhibits little variation in colour in Britain (though noted on the continent as a very variable species). Allen (1995) comments: “The well-marked humeral yellow patches and mostly dark pronotum distinguish at a glance all *variegata* I have seen”.

- **Colour of antennae.** Varying from uniformly yellowish-brown throughout their length to as dark as *humeralis*. Some of my *variegata* specimens have particularly dark antennae (e.g., see photo).

- **Length of antennae.** Antennae shorter than *neuwaldeggiana* and longer than *variegata*. Segment 3 as long as 2.

- **♂ secondary sexual characters.** Basal segment of maxillary palp strongly dilated. Second segment of maxillary palp dilated, almost circular or only slightly elongate. The photo is of a female.

- **Pronotum shape.** Side-margins of pronotum slightly convex or nearly straight as they approach the hind-angles.

- **Dark ridges on outer face of hind tibiae.** Three short ridges, all parallel. Illustrated by Allen (1995) who also discusses the variability of this character. Well described and illustrated by Levey (2011).

- **Elytral pubescence.** Batten (1986) distinguishes *humeralis* and *variegata* on (amongst other things) elytral pubescence rough (i.e. a little raised) in *variegata* or smooth in *humeralis*. Allen (1995) described the pubescence of *variegata* as “more shining and conspicuous and more obviously yellow” than *humeralis*. Levey (2011) also described the pubescence of *variegata* as a useful distinguishing character from *neuwaldeggiana* and *humeralis*: grey or yellow and non-iridescent in *variegata*, never appearing black (whereas *neuwaldeggiana* and *humeralis* have purple iridescence and the pubescence appears black in some lights).

**Genitalia.** Levey (2011) reports that the male genitalia (specifically the parameres) of *neuwaldeggiana* (illustrated) and *variegata* are similar, and that, despite a degree of variability, *humeralis* (illustrated) shows some consistent differences from the other two. The parameres of *humeralis* are also illustrated by Ermisch (1969).
Acknowledgements

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Postscript: **Mordellistena rufifrons**

Martin Collier wrote the following on 22nd July 2011: “Just to muddy the water a little further, we MAY have another similar species in this group. When I sent my small collection of mordellids to Batten in 1988 for checking he returned one Norfolk specimen as a female *Mordellistena rufifrons* Schilsky, albeit with an accompanying note indicating that it would be good to get a male, to be "absolutely safe". The specimen was collected by Tony Irwin at Foulden Common on 14th July 1985. ... To me it looks just like *variegata* except that the antennae and palps are darker than my two specimens of this species.”

Ermisch (1969) distinguishes *rufifrons* from *variegata* as having dark antennae with the basal segments paler yellowish-red, whereas *variegata* should have uniformly yellowish-red antennae. British ‘*variegata*’ with dark antennae certainly occur (e.g. my specimen photographed above) so either these are *rufifrons* or British *variegata* are just more variable in antennal colouration. Specimens of *rufifrons* could also be standing in collections as *humeralis* amongst specimens with darker body colouration. Ermisch (1969) illustrates the parameres of males of *humeralis* and *rufifrons* which show slight differences, and amongst other distinguishing characters states that male *humeralis* has the front tibia weakly curved apically whereas male *rufifrons* has the front tibia completely straight.

Until this is resolved one way or the other, it would be wise to keep specimens and to dissect males.

References


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