

Taxonomy of European *Arge* related to *nigripes* (RETZIUS) (Hymenoptera, Symphyta: Argidae)

by A. D. LISTON

Zusammenfassung Taxonomie der europäischen Arten der Gattung *Arge* in Bezug auf *nigripes* (RETZIUS) (Hymenoptera, Symphyta: Argidae). - Die schwarze Bürstenhornblattwespen-Arten der Gattung *Arge* sind morphologisch zum Teil nur sehr schwer trennbar (insbesondere *alpina* / *sorbi* / *nigripes*). Soweit möglich, wird ein Bestimmungsschlüssel für die Imagines gegeben. Eine Art ist neu für die Wissenschaft und wird als *shawi* n.sp. beschrieben (Typenfundort: Frejus, Var, Provence, Frankreich). *A. alpina* (KONOW) ist endemisch im Wallis, Schweiz.

Summary: Some of the black *Arge* species are very difficult to separate morphologically (particularly *alpina* / *sorbi* / *nigripes*). As far as is possible to construct one, a key to adults is presented. One species, *shawi* n.sp., is described as new to science (Locus typicus: Frejus, Var, Provence, France). The taxon *alpina* (KONOW) is confined to the Valais, Switzerland.

SCHEDL & PSCHORN-WALCHER (1984) described a new species of "black" *Arge* from Central Europe, the larva of which feeds on *Sorbus aucuparia* L., and commented on the Alpine endemic taxon *A.alpina* (KONOW), only known from the Valais. A few years ago I was given specimens of an undescribed *Arge* species of this species-group collected in Provence, France. They closely resemble the most widespread European taxon, *A.nigripes* (RETZIUS), but prove to have a slightly different form of ovipositor as well as small differences in external morphology and wing colouration. Particularly the first character is of great significance in view of the very high degree of similarity in ovipositor structure shown by previously described members of this species-group (see SCHEDL & PSCHORN-WALCHER).

The first Provencal specimens immediately attracted the author's interest because the data label included "reared ex *Cistus*". No Symphyta are known to use *Cistaceae* as larval hosts. However, the collector subsequently communicated that the host plant had probably grown intertwined with *Cistus*, but the real host was *Rosa* (T.FORD, personal communication). A very small element of doubt must remain, but since other known hosts of this group are mainly *Rosaceae*, *Cistus* seems far less likely.

The "black" *Arge* species are characterised as a group by the blue metallic sheen of the otherwise black body, legs without pale colouration, and the shape of the female sawsheath (Fig.1). Two other species which phylogenetically are probably rather distant from the group share similar colouration (*A.berberidis* KLUG, *A.pullata* ZAD-DACH). Although these can easily be distinguished by external morphological characters in the female (MUCHE, 1977), separation of male *berberidis* from species in the *nigripes*-group is difficult (CHEVIN, 1975).

Because the species are so often misidentified, even in the more well-worked museum collections, a new key is presented here to the group in its wider sense. Unfortunately, *A. sorbi* SCH. & P.-W., 1984 can not be distinguished externally from *nigripes*, but the ovipositor and male penis-valve of both species are well illustrated in the original description.

Checklist of *Arge* of the *enodis-nigripes* group and larval hosts in the West Palaearctic:

- *nigripes* sub-group

<i>nigripes</i> (RETZIUS, 1783)	Rosa spp. (SCHEIBELREITER, 1972)
<i>sorbi</i> SCHEDL & PSCHORN-W., 1984	Sorbus aucuparia L.
<i>shawi</i> n. sp.	Rosa sp. (?)
<i>alpina</i> (KONOW, 1884)	unknown

- *gracilicornis* sub-group

<i>gracilicornis</i> (KLUG, 1812)	Rubus spp.
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- *enodis* sub-group

<i>enodis</i> (LINNAEUS, 1767)	Salix spp. (FENILI, 1981)
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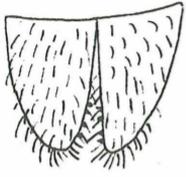
Arge shawi n. sp.

Female: Length 8mm from antennal crest to sawsheath tip.

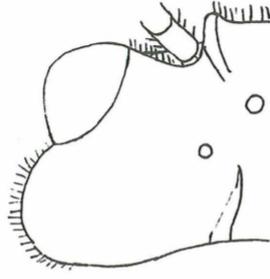
Body black with dark blue metallic reflections. Legs black with tibiae and tarsi of all legs very slightly brownish. Wings uniformly grey smoked, with base of forewing no darker than apex. A darker patch appears under the stigma and covers the extreme base of the radial cell, distal half of the first cubital cell and the basal half of the second cubital cell. Venation dark brown apart from white basal 0.25 of stigma. Cenchri pale grey.

Figures 1-10

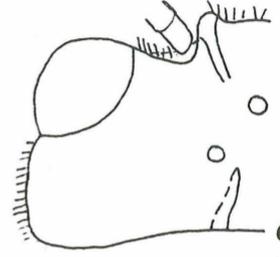
- 1: Sawsheath in dorsal view: *Arge shawi* sp.n.
- 2: Shape of head viewed dorsally: *A. shawi*.
- 3: As above: *A. nigripes* (RETZIUS).
- 4: Tarsus of rear leg to show length of pulvilli: *A. shawi*.
- 5: As above: *A. nigripes*.
- 6: Lancet: *A. shawi*.
- 7: Basal serrulae of lancet: *A. nigripes*.
- 8: Cubital cross vein 3 in forewing: *A. shawi*.
- 9: As above: *A. gracilicornis* (KLUG).
- 10: As above: *A. enodis* (LINNAEUS).



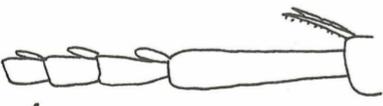
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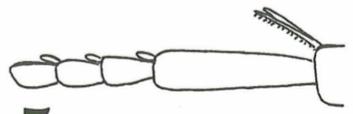
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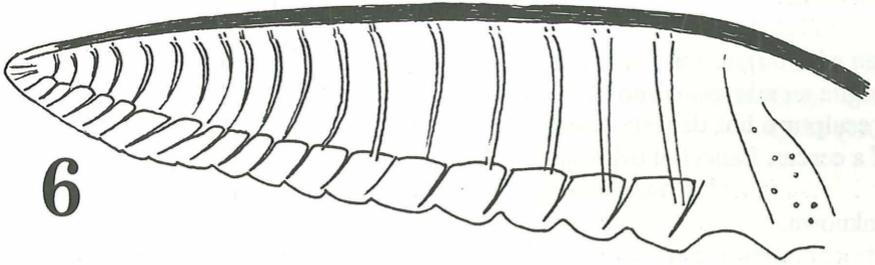
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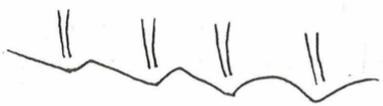
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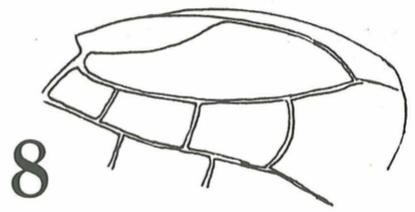
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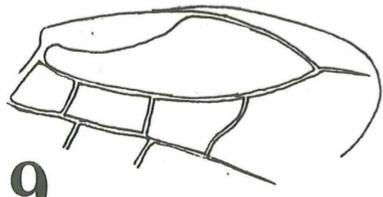
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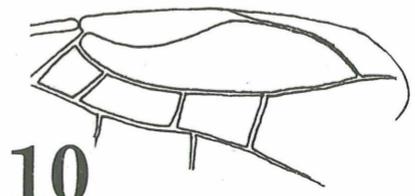
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Head clearly widened behind eyes (Fig.2). Pubescence dark: on inner orbits and post-ocellar area about as long as the diameter of an ocellus, otherwise approximately 0.6 as long. Clypeus and labrum both slightly emarginate. Two clearly formed carinae form the outer edges of the interantennal area, converging evenly at first and then more sharply below the lower margin of the antennal sockets, meeting finally in a V-shape. Below the apex of this junction, the upper half of the supraclypeal field is divided by a fold. Interantennal area wider than distance between hind ocelli. Distance between hind ocelli equal to distance between hind ocellus and hind margin of head. Third antennal segment slightly longer than width of head behind the eyes (1.2 : 1.0). Longest setae on basal 2 antennal segments no longer than half width of second segment apically.

Thorax shining without surface sculpture. Pubescence on all parts less than half as long as the diameter of an ocellus, only on the upper pronotum about as long as an ocellus. Cenchri as far apart as the maximum width of one cenchrus. Segments 2-4 of rear tarsi shorter together than basitarsus (3.4 : 3.7). Pulvillus 2 of rear tarsus reaches at least the middle of tarsal segment 3 (Fig.4). Cubital cross vein 3 in forewing bowed evenly outwards.

Abdomen with tergite 1 incised medially in an inverted V-shape: this and hind margin of the tergite membranous and white. Sawsheath fairly narrow (Fig.1), surface shining without sculpture but densely covered with setae which are shorter than the widest width of a cercus. Lancet of ovipositor (Fig.6).

Male: unknown.

Larva: unknown, but host probably *Rosa*.

HOLOTYPE: 1 female "France: 8km N. of Frejus, Var. Ex larva on *Cistus*, coll. 31.5.89, em. 1990, T.H.FORD". Deposited National Museum of Scotland, Edinburgh (NMS).

PARATYPES: 2 females same data as holotype. 1 female "France: Valderoure, Castellane, Alpes de H.P., 26.7.84, M.R.SHAW". All deposited NMS.

General Remarks:

A. shawi might have a wider distribution in S. Europe than indicated here: material from southern regions was very scarce in the collections available to the author. The precise host-relationship (which species of *Rosa*?) also requires investigation.

Interestingly, the differences between the new species and *nigripes*, both feeding on the same host genus, are apparently greater than between *sorbi* and *nigripes*.

The female ovipositor shows that *sorbi*, *nigripes* and *alpina* are extremely closely related (see SCHEDL & PSCHORN-WALCHER). Only *shawi*, with its more rounded serrulae, shows a clear difference from these taxa without the use of special microscopical techniques.

A specimen of *A.alpina* (KONOW) was found during this study which extends the known range of the taxon slightly: 1 male, "Lötschental, Faldumalp, 14.6.59. V.H.CHAMBERS" (NMS). This species (subspecies according to BENSON, 1939) occurs therefore also north of the Rhône, as well as previously recorded in side valleys to the South of the river (BENSON). It has still not been recorded outside of the Valais, Switzerland, and might be truly endemic in that area. SCHEDL & PSCHORN-WALCHER could not decide whether the hyaline wings of the old specimens which they examined were the result of fading, or natural, but BENSON had already noted that his fresh series all had hyaline wings, and the male from Lötschental also.

Key to adults of *Arge enodis* - *nigripes* group in the West Palaearctic

- 1 Wings completely hyaline, without dark substigmal patch in forewing. Cubital cross vein 3 bowed evenly outwards (Fig. 8). Lancet as in SCHEDL & PSCHORN-WALCHER, 1984. Switzerland, Valais (1300-1600m).
alpina (KONOW)
- Forewing brown, black or grey suffused, at least basally. 2
- 2 (1) Forewing with cubital cross vein 3 either curved very strongly outwards above (Fig.9) or straight (Fig.10). Cenchri suffused with black and as far apart as 2X the width of one cenchrus. 5
- Forewing with cubital cross vein 3 curved evenly and gently outwards (Fig.8.). Cenchri white or pale grey and no further apart than the width of one cenchrus. 3
- 3 (2) Forewing with basal two-thirds more strongly suffused than tip, and this ground colour brown. Rear tarsal pulvillus 2 reaches only a third of the distance along tarsal segment 3. Head nearly subparallel behind eyes (Fig.3). Teeth of saw acute (Fig.7). 4
- Forewing no darker basally than apically, and this ground colour grey. Rear tarsal pulvillus 2 reaches at least half way along tarsal segment 3. Head expanded behind eyes (Fig.2). Teeth of saw rounded (Fig.6). France, Provence.
shawi sp.n.

- 4 (3) **Lancet of female with rows of soft hairs between individual segments. Austria and S. Germany (800-1250m). *sorbi* SCHEDL & P.-W.**
- **Lancet of female without rows of soft hairs between the individual segments. Most of Europe, except for Ireland. Also Asia Minor and Siberia (according to the literature). *nigripes* (RETZIUS)**
- 5 (2) **Cubital cross vein 3 curved very strongly outwards above (Fig.9). Smaller species: length 5-7mm. Forewing with tip almost as dark as base. Flagellum 1.75x as long as width of head behind eyes in female. Head contracted behind eyes, without shining area free of pubescence behind eyes. Most of Europe, including Ireland, and through Siberia to Japan. *gracilicornis* (KLUG)**
- **Cubital cross vein 3 straight (Fig.10). Larger species: length 8-10mm. Forewing with basal two thirds strongly infuscate, but tip subhyaline. Length of flagellum at most 1.5x as long as head behind eyes in female. Head widened behind eyes and shining very strongly (This last character is the safest and quickest way of distinguishing this species from all others in the group). Most of Europe, through Siberia to Japan. In British Isles only very rarely in S.England. *enodis* (L.)**

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