

A new species and first rearing record of the genus *Thibetoides* Davis (Hymenoptera: Ichneumonidae, Tryphoninae) from France

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Synopsis

The genus *Thibetoides*, known from the western USA and various parts of the former USSR, Turkey and Eastern Europe, is reported from Western Europe for the first time. A single female of *Thibetoides aprosthemae* Shaw **sp. nov.** was reared from a cocoon of the argid sawfly *Aprosthemata tardum* collected in the south of France. The new species is described, figured and distinguished from its close relative *T. anatolicus* Kasparyan, known from S. E. Turkey. A figure is given of the very differently coloured *T. acerbus* Viktorov, which occurs in Ukraine and Bulgaria and is geographically the closest to the new species, and some morphological points of difference are noted.

Key words: Argidae, *Aprosthemata tardum*, parasitoid, *Thibetoides aprosthemae*, host relations

Introduction

The ichneumonid genus *Thibetoides* Davis, 1897, in the tryphonine tribe Tryphonini, was erected for a single species *Thibetoides flosamoris* Davis found in the western USA. Subsequently a further four nominal species (one now in synonymy) have been described from the Western Palaearctic part of the former USSR and Turkey, with records for the genus extending westwards to Ukraine and Bulgaria (Yu *et al.*, 2012). There are no recorded hosts.

Details of the rearing

On 11.v.2014 a cocoon was collected on that year's growth of *Knautia arvensis* at Taradeau (FRANCE: Var) by the second and third authors, from which an adult ichneumonid emerged on 29.v.2014 (Figs 1, 2) (see https://www.youtube.com/watch?v=fcQp22QV_Os). This, together with the cocoon, was sent to the first author who identified the parasitoid as an undescribed species of *Thibetoides*, which is described below. Andrew Liston (pers. comm.) determined the host cocoon as belonging to a species of *Aprosthemata* (Hymenoptera: Argidae), and further fieldwork at the site by the second and third authors has revealed that *A.*

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tardum (Klug), feeding on *Lathyrum latifolius* (Liston, Kan & Kan-van Limburg Stirum, in prep.), is well-established but that other species of *Aprosthemina* appear not to occur there. On this basis we presume *A. tardum* to be the host: unfortunately, however, two attempts to obtain a CO1 (barcode) DNA sequence of the host larval remains taken from the host cocoon both failed. About 15 larvae of *A. tardum*, four of them in the final instar, have been collected from Taradeau and reared by the second and third authors, but no further parasitoids have resulted. This population of *A. tardum* has at least two (probably with a partial third) annual generations.

Description of new species

Thibetoides aprosthemae Shaw, sp. nov.

(Figs 1–7)

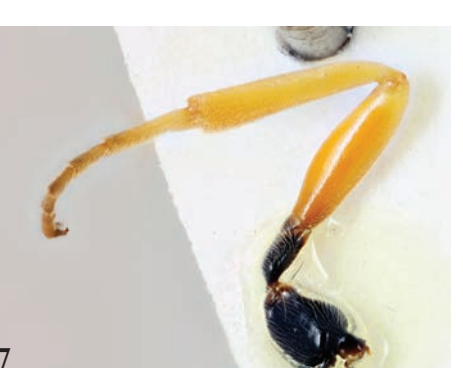
Conforming to the generic diagnosis given by Townes (1969) (most characters not repeated in the description below, especially if visible in Fig. 1), except malar space longer. Differs from *Thibetoides anatolicus* Kasparyan, known only from S. E. Turkey and the only species that at all closely resembles it (Kasparyan, 2000), by its completely black scape (yellow, only dorsally weakly infuscate, in *T. anatolicus*), entirely black mid and hind coxae (yellow-marked in *T. anatolicus*), and the greater number of flagellar segments (28 in the new species, only 24 in *T. anatolicus*); according to the descriptions there are also several differences in sculpture but it is difficult to interpret these reliably and the type of *T. anatolicus* has not been examined. *Thibetoides acerbus* Viktorov, which occurs in Bulgaria and Ukraine, has the closest geographical distribution, but the new species differs from a Turkish specimen of *T. acerbus* (Fig. 8) in the Natural History Museum, London (examined) most obviously in colour and that species also has more pronounced transverse grooves of the metasomal tergites, larger and less spaced ocelli (ratio of distance between posterior ocelli (POL) to diameter of posterior ocellus 2.0; ratio of distance between eye and posterior ocellus (OOL) to diameter of posterior ocellus 1.5), a less transverse head and a generally lighter degree of sculpture.

Holotype, ♀. 'FRANCE: Var, Taradeau, P & B Kan. Ex coc. *Aprosthemina tardum* (det. A. D. Liston) coll. 11.5.2014, em. 29.5.2014' (in National Museums of Scotland, Edinburgh).

Female. Length of body (in death) 6 mm, of fore wing 6 mm.

Head in dorsal view 2.2 times as wide as long, temple initially not contracted behind eye and 1.2 times as long as eye, face 1.7 times as wide as high and sharply separated from clypeus, malar space 0.6 times basal width of mandible. Mandible coarsely punctured, upper tooth very slightly the longer, both teeth blunt. Apex of clypeus rounded. Face, and clypeus except apically, strongly rugo-punctate, moderately shiny, sculpture of vertex similar but more shiny. POL 2.7 times and OOL 1.9 times diameter of posterior ocellus, carina from front ocellus joining grooved horn between antennal sockets. Antenna stout, blunt, a little shorter than fore wing, 30-segmented, fourth shorter than third and 1.6 times longer than wide, preapical segments about as wide as long (penultimate one a little wider than long).

Figs 1–8. *Thibetoides* species. 1–7: *Thibetoides aprosthemae* Shaw, sp. nov. 1, living adult female just emerged from cocoon of *Aprosthemina tardum*; 2, opened cocoon of *A. tardum* from which *T. aprosthemae* emerged, showing cocoon and host remains within; 3, habitus; 4, head in dorsal view; 5, face; 6, mesonotum in dorsal view; 7, hind leg. 8, *Thibetoides acerbus* Viktorov, habitus.



Mesosoma 1.3 times as long as high, steeply and sharply descending anteriorly, rather shiny, mesoscutum with large strong punctures mostly closer together than their diameter, somewhat vaguely rugose, notaulices not indicated; mesopleuron and metapleuron centrally with similar sculpture to mesoscutum, but lower third of metapleuron extremely coarsely costate-rugose. Scutellum with strongly raised curved lateral carinae extending to its rounded posterior but not joining, prescutellar groove deep but not foveolate. Propodeum with strong carinae defining a small anteriorly placed area superomedia with a long mediodorsal carina posterior to that, underlying sculpture otherwise coarsely but shallowly rugulose. Hind leg with femur 3.4 times and tibia 5.5 times as long as wide, tibia 1.2 times as long as femur, spurs rather short, inner spur slightly the longer and about 0.3 times as long as basitarsus. Hind claws with three fairly conspicuous teeth basally and some weak setae more distally, fore claws with four teeth basally (the most basal two rather short) and denser setosity distally.

Metasoma moderately shiny, first tergite 1.5 times wider than long, very coarsely longitudinally rugose, a pair of strong subdorsal carinae traceable almost to posterior margin, strong lateral indentations at about half length of tergite, behind spiracle; second tergite 2.4 times wider than long, coarsely longitudinally rugose with weak punctate element, with a strong anterior groove at sides not extending across tergite and an entire transverse groove before less strongly sculptured yellow posterior band; third tergite 2.0 times wider than long, anterior and sub-posterior grooves both extending across tergite, anterior one the stronger, sculpture coarsely punctate with only slight longitudinal rugosity; subsequent tergites with subposterior grooves progressively diminishing and the punctures becoming more distinct but smaller. Ovipositor broad at base, narrowing evenly to a sharp apex, evenly downcurved.

Colour. Black, the following yellow: pronotum dorsolaterally but not centrally, scutellum, metanotum centrally, approximately posterior third of metasomal tergites 2, 3, 4 and to a lesser extent 5 as sharply contrasting bands but not extending to laterotergites, all of metasoma ventrally, all legs largely except black coxae and trochanters, and hind trochantellus partly and fore and mid femora dorsally in basal half and hind tarsus slightly brownish. Flagellum brownish especially below and apically; apical band of clypeus, teeth, palpi and ovipositor sheath more or less yellowish brown. Wing membrane rather grey, venation blackish but yellow proximally with humeral plate strongly contrasting with black tegula, and costal venation below yellowish extending to yellowish basal third and anterior margin of the pterostigma which is otherwise dark brown. A small yellow spot on one side of the first metasomal tergite suggests that individuals with more extensive yellow metasomal markings might occur.

Male. unknown.

Host. *Aprosthemata tardum* (Klug) (Hymenoptera: Argidae)

Discussion

The type locality of the new species at Taradeau is a rather small area comprising a linear fire-break of slightly disturbed limestone grassland and scrub (half of the strip along its length being mown in alternate winters) within a moderately extensive mixed dry forest dominated by *Pinus* and *Quercus* at low altitude (200 m asl), unfortunately coming under pressure from the expanding vineyards to the south. The type, and only recorded specimen, of *Thibetoides anatolicus* was collected at 2900 m in Hakkari, S. E. Turkey (Kasparyan, 2000). In addition to the admittedly small morphological differences between it and the new species described here, the considerable distance between the two populations and the lack of other material strongly suggests that they will have been sufficiently isolated for speciation to be complete. Although in our view there are sufficient objective grounds to regard the French specimen as a representative of a different species, there is the further point that not to do so would run the substantial risk of incorrectly associating the host data given here

with the wrong species of parasitoid. However, *T. anatolicus* and *T. aprosthemae* are extremely close, and radically different from the other described species (see Viktorov, 1964).

*Aprosthem*a species, which all feed on Fabaceae, are known sometimes to wander from the food plant before making their cocoon, and finding a cocoon on *Knautia* in the present case is not significant. However, the cocoon was found attached to the fresh spring growth of that plant, which demonstrated that the cocoon had not been present through the winter (and cocoons of the overwintering generation are different in both texture and colour). The following year it was established that *Lathyrus latifolius* (a perennial plant, fully evident from mid February at the site) grows in exactly the place where the cocoon was found. At what stage the host had been attacked is unclear, but the morphological peculiarities of *Thibetoides*, including the strongly downcurved blade-like ovipositor, suggest that the biology of these species might be unusual, and the possibility that at least some *Thibetoides* might even be idiobionts attacking the cocooned stage of the host cannot be ruled out. In an inconclusive test of this possibility, four freshly formed cocoons of *A. tardum* were placed out in the field at Taradeau (two on 28.iv.2017 until 1.v.2017, and two on 9.v.2017 until 17.v.2017), but that did not result in their being parasitised, and from all four cocoons females of *A. tardum* emerged about 10–14 days after cocoon formation.

Acknowledgements

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