

## Descriptions of larvae of the *Pristiphora thalictri* group of the Czech Republic (Hymenoptera: Symphyta: Tenthredinidae)

Jan MACEK

Department of Entomology, National Museum, Cirkusová 1740, CZ-193 00 Praha – Horní Počernice,  
Czech Republic; e-mail: [macjan@seznam.cz](mailto:macjan@seznam.cz)

**Abstract.** The larva of *Pristiphora sareptana* Kuznetsov-Ugamskij, 1924 is described and illustrated for the first time, and the larvae of *P. rufipes* Serville, 1823 and *P. thalictri* (Kriechbaumer, 1884) are redescribed. *Thalictrum foetidum* and *T. minus* (Ranunculaceae: Thalicthroideae) are the first verified host plants for *P. sareptana*. *Pristiphora sareptana* is recorded for Bohemia for the first time.

**Key words.** Hymenoptera, Symphyta, Tenthredinidae, Nematinae, *Pristiphora*, larva, host plant, Czech Republic, Palearctic Region

### Introduction

*Pristiphora* Latreille, 1810, with about 240 described species (PROUS et al. 2014, TAEGER et al. 2010), is a cosmopolitan genus with its centre of biodiversity in the Holarctic Region. The high species richness of the genus is reflected in the wide array of host plants, both herbs, and trees and shrubs, on which the larvae feed. The larvae are mostly oligophagous, and some of them are specialized in host plants that are avoided by most other herbivores. To these belong the plants in the subfamily Thalicthroideae of the family Ranunculaceae, which comprises many toxic species. Because of that, LINDQVIST (1962) assembled eight European species associated with these plants into his *Pristiphora aquilegiae* group (lately renamed by LACOURT (1999) as *P. thalictri* complex), the host plants of which, however, were known only for four species: *Aquilegia* spp. for *P. rufipes* Serville, 1823 (TAEGER et al. 1998, as *P. aquilegiae* (Snellen van Vollenhoven, 1866)); *Thalictrum aquilegifolium* for *P. thalictri* (Kriechbaumer, 1884) (TAEGER et al. 1998), *T. simplex* for *P. thalictrivora* Lindqvist, 1962 (LINDQVIST 1962, 1974, as *P. thalicticola* Lindqvist, 1974), and *T. flavum* for *P. thalictrivora* (LINDQVIST 1962) and *P. brevis* (Hartig, 1837) (CHAMBERS 1953, as *P. fuscata* Benson, 1943). Detailed descriptions of larvae were given by CHAMBERS (1953) for *P. brevis* (as *P. fuscata*) and by LORENZ & KRAUS (1957) for *P. rufipes* (as *P. alnivora* (Hartig, 1840)). The larva of *P. thalictri* was also briefly diagnosed by KRIECHBAUMER (1884) as mentioned by LORENZ & KRAUS (1957).

This article follows a series of my papers on bionomics and/or descriptions of unknown or poorly known immature stages of sawflies (e.g., MACEK 2013, 2014, 2015; MACEK & KULA 2015). Its main aim is to provide improved descriptions of larvae of three Central European *Pristiphora* species to enable their easy identification.

## Material and methods

The larvae of all studied species were collected in the field in the Czech Republic, and in captivity reared to adulthood to verify both their host plants and species identity. Larvae were photographed and all pictures saved in a digital image archive maintained by the National Museum, Prague, Czech Republic (= NMPC). The material was collected and identified by the author. The reared and collected adults, and also larvae preserved in alcohol, are deposited in NMPC. As the taxonomic identity of these species is not at all clear, the reared adults of all three species are also illustrated to help with future revision of this group.

Morphological terms are based on the comprehensive study by VIITASAARI (2002). Map field codes follow the grid mapping system of PRUNER & MIKA (1996).

Abbreviations used in the text are: NP – National Park; NNR – National Nature Reserve; PLA – Protected Landscape Area.

## Results

### Key to the larvae of *Pristiphora* associated with the Thalictroideae

- 1 Trunk cuticle smooth and lustrous, yellowish (Fig. 3); strips of fat body alongside dorsal vessel absent (Fig. 3); host plant: *Thalictrum aquilegifolium*. ..... *P. thalictri* (Kriechbaumer, 1884)
- Trunk cuticle with fine granulose texture, dull, green; strips of fat body alongside dorsal vessel distinct. .... 2
- 2 Setae on thorax and lateral trunk lobes raised from black basal rings (Figs 1, 7); host plants: *Thalictrum minus*, *T. foetidum*. .... *P. sareptana* Kuznetsov-Ugamskij, 1924
- Setae on thorax and lateral trunk lobes with no black basal rings (Figs 2, 8); host plant: *Aquilegia* spp. .... *P. rufipes* Serville, 1823

### *Pristiphora (Pristiphora) sareptana* Kuznetsov-Ugamskij, 1924

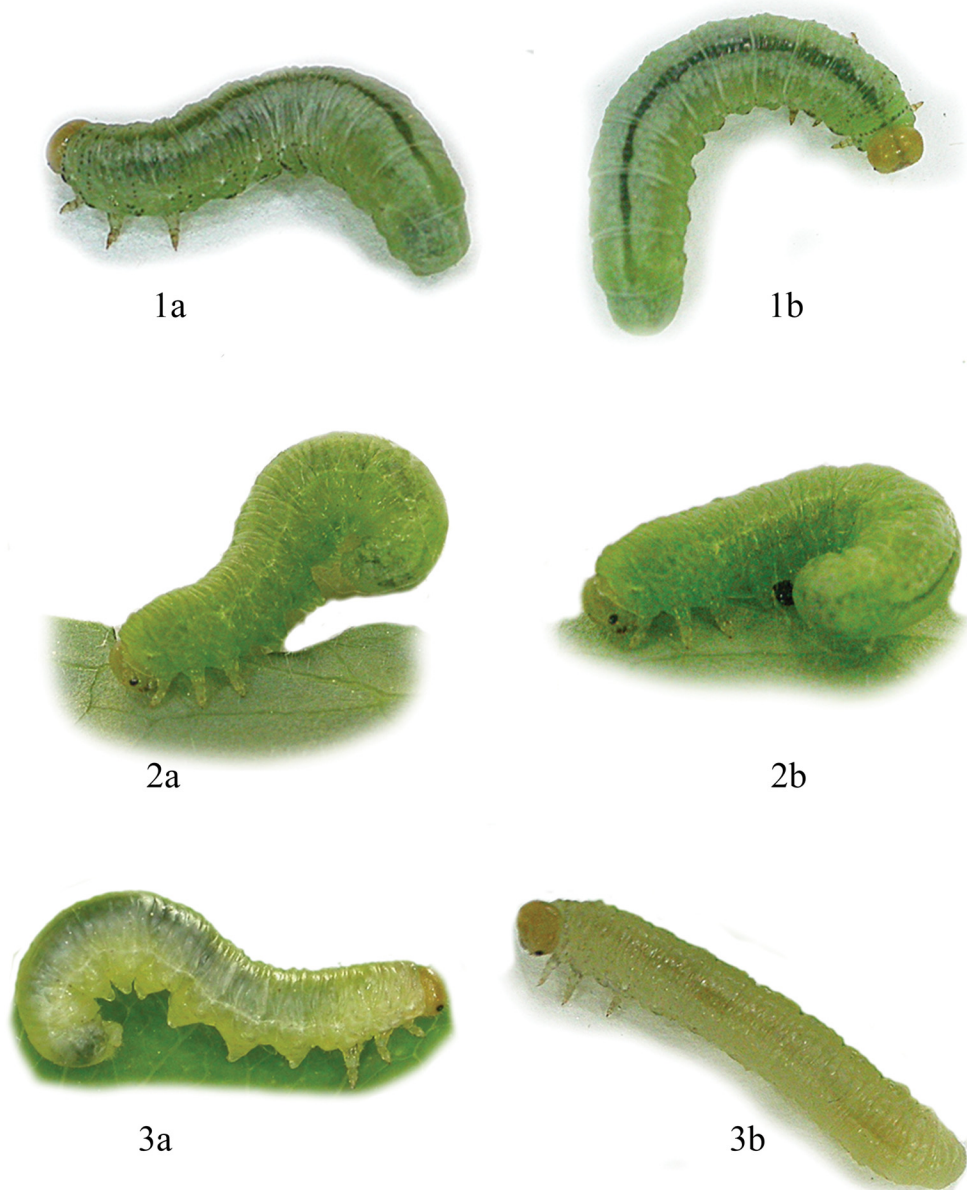
(Figs 1, 5, 7, 11)

*Pristiphora sareptana* Kuznetsov-Ugamskij, 1924: 11–12 (original description).

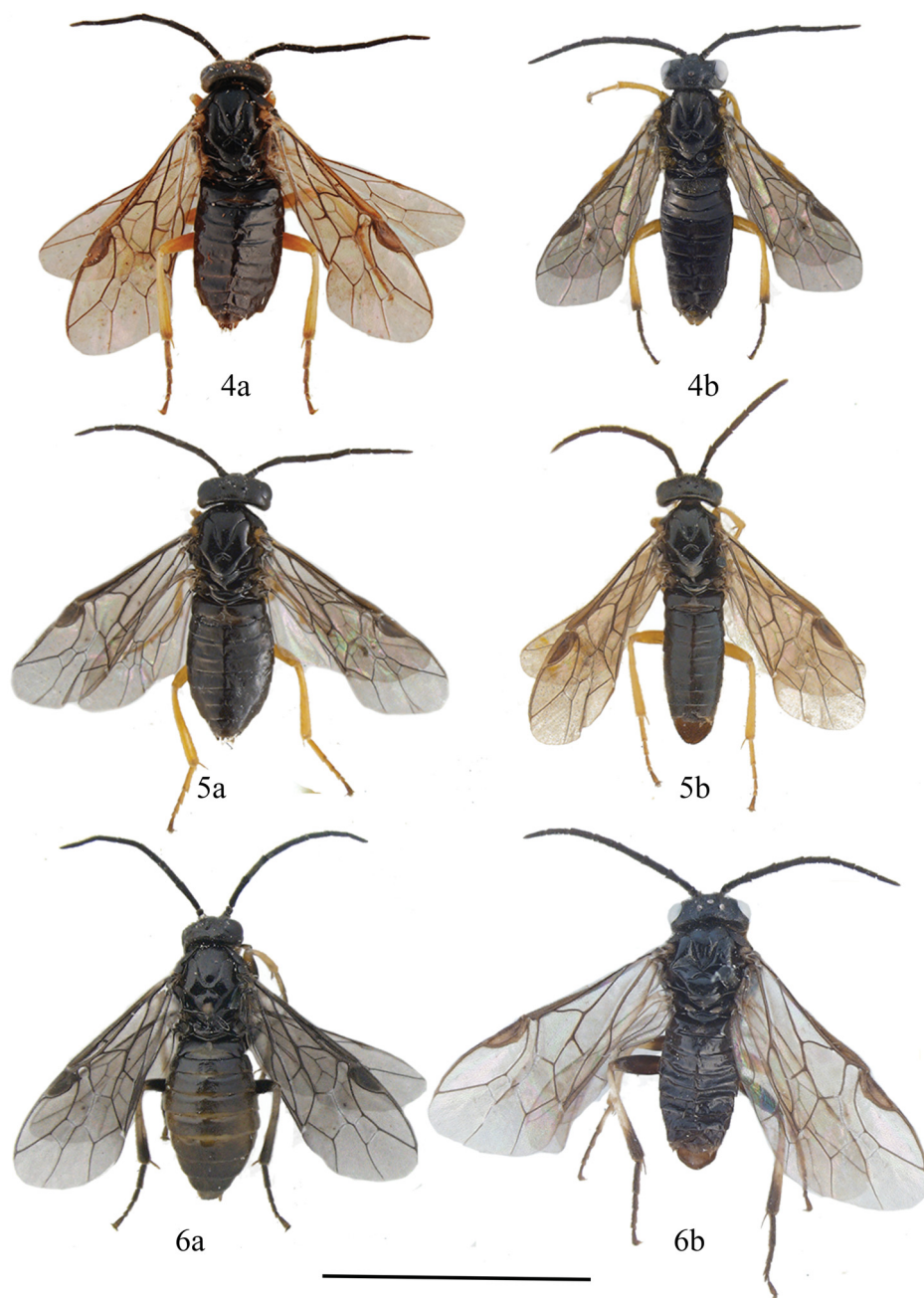
*Pristiphora moravica* Gregor, 1940: 19–20 (original description); ZHELOKHOVTSOV & ZINOVYEV (1988): 156 (synonymy).

**Material examined.** CZECH REPUBLIC: BOHEMIA centr.: Český kras PLA, Karlštejn NNR, Doutnáč (hill), (6051), 433 m a.s.l., 20.v.2012, 38 larvae on *Thalictrum foetidum*, J. Macek lgt. & det. (NMPC). MORAVIA mer.: Pouzdřany env., Pouzdřanská step NNR (7065), 13.vi.2015, 16 larvae on *Thalictrum minus*, J. Macek lgt. & det. (NMPC).

**Description of the last instar larva.** *Colour.* Head yellow green, with brownish reticulate pattern on vertex and black spot on frons; trunk green with translucent dark blood vessel



Figs 1–3. Live last instar larvae: 1 – *Pristiphora sareptana* Kuznetzov-Ugamskij, 1924; 2 – *P. rufipes* Serville, 1823; 3 – *P. thalictri* (Kriechbaumer, 1884). Scale bar: 10 mm.



Figs 4–6. Adults reared from larvae (a – female, b – male): 4 – *P. rufipes* Serville, 1823; 5 – *P. sareptana* Kuznetsov-Ugamskij, 1924; 6 – *P. thalictri* (Kriechbaumer, 1884). Scale bar: 5 mm.

margined with white strips of fat body; setae on thorax, postspiracular, subspiracular, and suprapedal lobes on dark pigmented, slightly protruding basal rings; base of thoracopods with black narrow stripe.

**Morphology.** Body length 12–13 mm. Head with scattered upraised setae; clypeus with four setae, labrum symmetrical and deeply emarginated anteriorly, with four setae; mandibles with one seta; stipes with no setae; palpifer with two setae; second segment of palpus with one seta.

Trunk cuticle finely granulose; prothorax (four annulets): first annulet with 3+3 setae, second annulet with 12 setae, fourth annulet with 6 setae, lateral lobe with 5 setae, suprapedal lobe with 3–4 setae; mesothorax (four annulets): first annulet with 6 setae, second annulet with 14 setae, lateral lobe with 6–7 setae, suprapedal lobe with 3–4 setae; metathorax (four annulets): first annulet with 4 setae, second annulet with 6 setae, third annulet with 12 setae, lateral lobe with 6–7 setae, suprapedal lobe with 3–4 setae; abdominal segments (III–VII) (six annulets): second annulet 10–12 setae, fourth annulet 8 setae, first postspiracular lobe with 3 setae, second postspiracular lobe with 3 setae, subspiracular lobe with 4–5 setae, suprapedal lobe with 4–6 setae, supraanal and subanal lobes with scattered long setae.

**Notes on identification.** Larvae of *Pristiphora sareptana* differ from the larvae of *P. rufipes* and *P. thalictri* in the presence of black rings surrounding the base of setae on the thorax and lateral lobes of abdominal segments (Figs 7a,b).

**Bionomics.** Habitat: xerothermophilous species, inhabiting tall and low xeric shrubs and termophile deciduous forests; bivoltine/trivoltine; flight period from April to September; larval period from May to September. Host plants: *Thalictrum minus* (first record), *Thalictrum foetidum* (first record). Mature larvae build a solid cocoon covered with soil particles, in which they also hibernate.

**Distribution.** *Pristiphora sareptana* is a West-Palaearctic species known from the Czech Republic, Finland, Kazakhstan, Poland, Russia (European part), Slovakia, and Turkey (TAEGER & BLANK 2011). In the Czech Republic it was first recoded from southern Moravia by GREGOR (1940), who described it as a new species, *Pristiphora moravica*, which was, however, later synonymized by ZHELOKHVOTSEV & ZINOVYEV (1988) with *P. sareptana*. **New record for Bohemia.**

### *Pristiphora (Pristiphora) rufipes* Serville, 1823

(Figs 2, 4, 8, 10)

*Pristiphora rufipes* Serville, 1823: 75 (original description).

*Pristiphora alnivora*: TORKA (1934): 301–304 (larval development); LORENZ & KRAUS (1957): 190 (larval description, host plant); KONTUNEMI (1960): 72 (host plant).

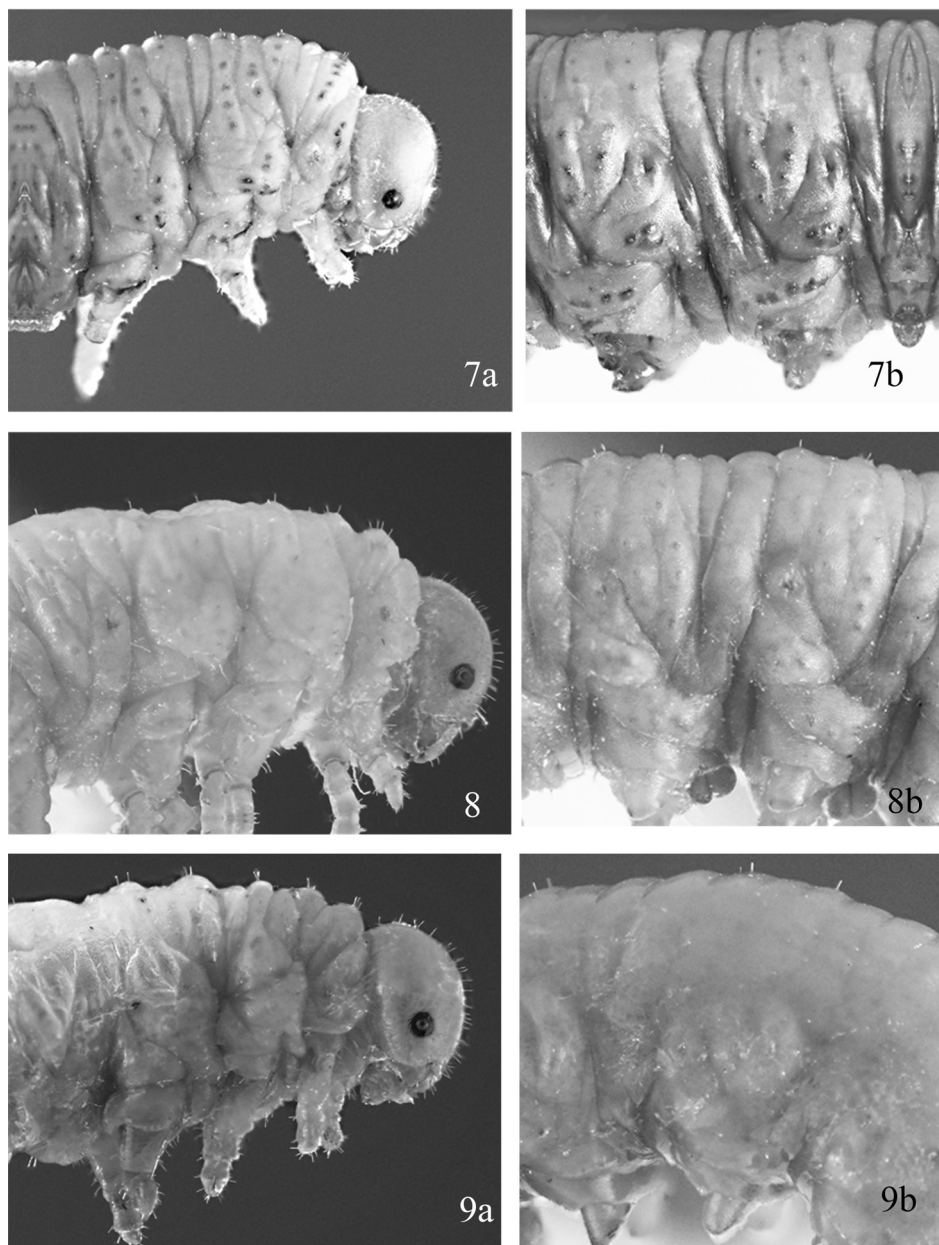
*Pristiphora rufipes*: LACOURT (1999): 219 (host plant); HELLRIGL (2007): 223 (larval development, host plant); LISTON (2011): 191 (host plant).

*Pristiphora aquilegiae*: LISTON (1995): 131 (host plant); TAEGER et al. (1998): 114 (host plant).

**Material examined.** CZECH REPUBLIC: BOHEMIA centr.: Louny distr., Cikánský dolík NR (5749), 28.v.2015, 12 larvae on *Aquilegia vulgaris*, J. Macek lgt. & det. (NMPC).

**Description of the last instar larva.** Body length 12–13 mm. **Colour.** Head yellow green, with brownish reticulate texture on vertex; trunk green with translucent dark blood vessel margined by white strips of fat body.





Figs 7–9. Mounted last instar larvae from alcohol (a – , anterior part, b – 2<sup>nd</sup> and 3<sup>rd</sup> abdominal segment): 7 – *P. sareptana* Kuznetsov-Ugamskij, 1924; 8 – *P. rufipes* Serville, 1823; 9 – *P. thalictri* (Kriechbaumer, 1884). Scale bar: 3 mm.

**Morphology.** Head with scattered erect setae; clypeus with four setae, labrum symmetrical, deeply emarginated anteriorly, with four setae; mandibles with one seta; stipes with no setae; palpi with two setae; the second segment of palpus with one seta; trunk cuticle finely granulose; prothorax (four annulets): first annulet with 3+3 setae, second annulet with 9–10 setae, fourth annulet with 4 setae, lateral lobe with 3 setae, suprapedal lobe with 2–4 setae; mesothorax (four annulets): first annulet with 6 setae, second annulet with 8 setae, lateral lobe with 6–7 setae, suprapedal lobe with 3–5 setae; metathorax (four annulets): first annulet with 4 setae, second annulet with 6 setae, third annulet 10 setae, lateral lobe with 6–7 setae, suprapedal lobe with 4 setae; abdominal segments (III–VII) (six annulets): second annulet 7–8 setae; fourth annulet 8–10 setae; first postspiracular lobe with 3 setae; second postspiracular lobe with 3 setae; subspiracular lobe with 4–5 setae; suprapedal lobe with 3–6 setae; supraanal and subanal lobes with scattered long setae.

**Notes on identification.** Compared to *Pristiphora sareptana*, the larvae of *P. rufipes* differ in the absence of the black basal rings surrounding the setae on the thorax and lateral lobes of trunk segments (Figs 8a,b), as well as in oligophagy on columbines (*Aquilegia* spp.).

**Bionomics.** Habitat: mesophilous species, inhabiting deciduous and mixed forests, meadows, forest clearings, forest paths, parks, gardens; bivoltine/trivoltine; flight period from April to September; larval period from the end of April to September. Host plants: columbines (*Aquilegia* spp.) including garden cultivars (LACOURT 1999, LORENZ & KRAUS 1957); e.g., *Aquilegia atrata* (LISTON 2011), *A. coerulea* (HELLRIGL 2007), *A. chrysantha* (TORKA 1934), *A. flabellata* (HELLRIGL 2007), *A. olympica* (LISTON 2011), *A. vulgaris* (KONTUNEMI 1960, TAEGER et al. 1998, HELLRIGL 2007). Mature larvae build a solid cocoon covered with soil particles, in which they also hibernate.

**Discussion.** The larva was described in detail by LORENZ & KRAUS (1957), the larval development by TORKA (1934) and HELLRIGL (2007). A redescription of the larva is provided here to facilitate comparison with the other *Pristiphora* larvae treated here.

**Distribution.** Palaearctic: Austria, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Great Britain, Hungary, Italy, Latvia, Luxembourg, Macedonia, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Spain, Switzerland. Introduced to Canada (TAEGER & BLANK 2011).

### *Pristiphora (Pristiphora) thalictri* (Kriechbaumer, 1884)

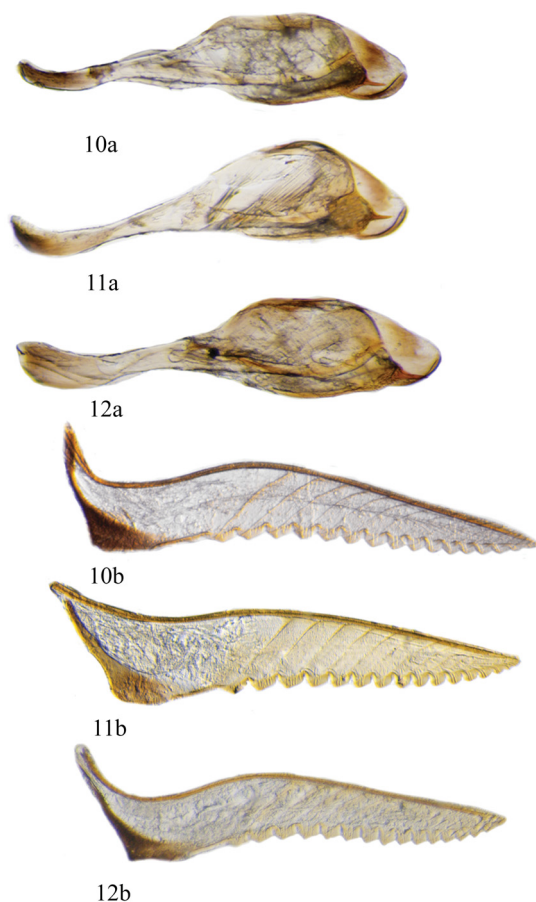
(Figs 3, 6, 9, 12)

*Nematus thalictri* Kriechbaumer, 1884: 105–106 (original description).

*Pristiphora thalictri*: KONTUNEMI (1960): 90 (host plant); TAKEUCHI (1949): 49 (host plant); OKUTANI (1967): 92 (host plant); LISTON (1995): 131 (host plant); TAEGER et al. (1998): 115 (host plant); PSCHORN-WALCHER & ALTENHOFFER (2006): 1624 (host plant).

**Material examined.** CZECH REPUBLIC: BOHEMIA mer.: Šumava NP, Černý Kříž (7149), 7.vi.2014, 6 larvae on *Thalictrum aquilegifolium*; 19.vi.2015, 18 larvae on *Thalictrum aquilegifolium*, all J. Macek lgt. & det. (NMPC).

**Description of the last instar larva.** Body length 12–13 mm. **Colour.** Head yellow brown, with brownish reticulate pattern on vertex; trunk yellow green with narrow translucent dark blood vessel.



Figs. 10–12. Genitalia of reared adults (a – penis valve, b – lancet of ovipositor): 10 – *P. rufipes* Serville, 1823, 1924; 11 – *P. sareptana* Kuznetsov-Ugamskij, 1924; 12 – *P. thalictri* (Kriechbaumer, 1884). Scale bar: 1 mm (penis valve), 1.5 mm (lancet of ovipositor).

**Bionomics.** Habitat: mesophilous species, occurring from colline to montane zone, inhabiting deciduous and mixed forests, forest clearings, alongside forest paths, riverine scrubs; bivoltine/trivoltine; flight period from April to September; larval period from the end of May to August. Host plants: *Thalictrum aquilegifolium* (KRIECHBAUMER 1884, KONTUNIEMI 1960, TAEGER et al. 1998, PSCHORN-WALCHER & ALTENHOFER 2006), *T. thunbergii* (OKUTANI 1967), *T. minus* (TAKEUCHI 1949), *T. flavum* (LISTON 1995). Mature larvae build a solid cocoon covered with soil particles, in which they also hibernate.

**Morphology.** Head with scattered erect setae; clypeus with four setae; labrum symmetrical, deeply emarginated anteriorly, with four setae; mandibles with one seta; stipes with no setae; palpifer with two setae; second segment of palpus with one seta; cuticle smooth and lustrous; prothorax (four annulets): first annulet with 3+3 setae; second annulet with 9–10 setae; fourth annulet with 4 setae; lateral lobe with 3–4 setae; suprapedal lobe with 2–4 setae; mesothorax (four annulets): first annulet with 6 setae; second annulet with 8 setae; lateral lobe with 6–7 setae; suprapedal lobe with 3–5 setae; metathorax (four annulets): first annulet with 4 setae; second annulet with 6 setae; third annulet with 10 setae; lateral lobe with 6–7 setae; suprapedal lobe with four setae; abdominal segments (III–VII) (six annulets): second annulet 8–10 setae; fourth annulet 8–10 setae; first postspiracular lobe with 3 setae; second postspiracular lobe with 3 setae; subspiracular lobe with 4–6 setae; suprapedal lobe with 4–5 setae; supraanal and subanal lobes with scattered long setae.

**Notes on identification.** Larvae of *Pristiphora thalictri* differ from the larvae of *P. sareptana* and *P. rufipes* in smooth, lustrous cuticle, absence of translucent white strips of fat body alongside the dorsal vessel, and the preference for *Thalictrum aquilegifolium* as host plant in Central Europe.



**Discussion.** The larva was shortly described and its host plant, *Thalictrum aquilegifolium*, recorded by KRIECHBAUMER (1884, as *Nematus thalictri*). Subsequently this host species was also mentioned by KONTUNIEMI (1960), TAEGER et al. (1998), LACOURT (1999), and PSCHORN-WALCHER (2006). Additionally, TAEGER et al. (1998) noticed larvae of an unrecognized species feeding on *Thalictrum minus* on a xerothermic site in Kyffhäuser (Fränkischer Jura, Germany), which might refer to *P. sareptana*. Additional food plants from Japan, *Thalictrum thunbergii* (OKUTANI 1956) and *T. minus* (TAKEUCHI 1949), are not evaluated here, and need confirmation.

**Distribution.** Palaearctic: Albania, Austria, Belgium, Croatia, Czech Republic, France, Germany, Great Britain, Italy, Japan, Latvia, Romania, Russia, Slovakia, Switzerland, Ukraine (TAEGER & BLANK 2011).

### Acknowledgments

This work was financially supported by the Ministry of Culture of the Czech Republic (DKRVO 2015/13 and 2016/13, National Museum, 00023272).

### References

- CHAMBERS V. H. 1953: The larva of *Pristiphora fuscata* Benson (Hym., Tenthredinidae). *Entomologist's Monthly Magazine* **89**: 231–232.
- GREGOR F. 1940: Nová pilatka *Pristiphora moravica*, sp. n. [fem. mas]. (*Pristiphora moravica*, sp. n. [fem. mas] (Hym., Tenthredinidae)). *Časopis Československé Společnosti Entomologické* **37**: 19–20 (in Czech, with Latin description).
- HELLRIGL K. 2007: Erhebungen und Untersuchungen über Pflanzenwespen (Hymenoptera: Symphyta) in Südtirol-Trentino. *Forest Observer* **2/3**: 205–250.
- KONTUNIEMI T. 1960: Suomen sahapistiäistoukkien ravintokasvit. (Die Futterpflanzen der Sägewespenlarven (Hymenoptera, Symphyta) Finnlands). *Animalia Fennica* **9**: 1–104 (in Finnish and German).
- KRIECHBAUMER J. 1884: Blattwespenstudien. *Correspondenzblatt des Naturwissenschaftlichen Vereines in Regensburg* **38**: 104–112.
- KUZNETZOV-UGAMSKIJ N. N. 1924: Neue Tenthrediniden aus Russland. *Entomologische Mitteilungen* **13**: 11–12.
- LACOURT J. 1999: Répertoire des Tenthredinidae ouest-paléarctiques (Hymenoptera, Symphyta). *Mémoires de la Société Entomologique de France* **3**: 1–432.
- LINDQVIST E. 1962: Bemerkungen über paläarktische Blattwespen (Hym. Symph.). *Notulae Entomologicae* **42**: 105–127.
- LINDQVIST E. 1974: Fünf neue Nematinen-Arten aus Finnland (Hymenoptera, Tenthredinidae). *Notulae Entomologicae* **54**: 117–120.
- LISTON A. D. 1995: *Compendium of European Sawflies. List of species, modern nomenclature, distribution, food-plants, identification, literature*. Chalastos Forestry, Gottfrieding, 190 pp.
- LISTON A. D. 2011: New hostplant records for European sawflies (Hymenoptera, Tenthredinidae). *Entomologist's Monthly Magazine* **146**: 189–193.
- LORENZ H. & KRAUS M. 1957: Die Larvalsystematik der Blattwespen (Tenthredinoidea und Megalodontoidea). *Abhandlungen zur Larvalsystematik der Insekten* **1**: 1–389.
- MACEK J. 2013: Descriptions of larvae of *Birka annulitarsis* and *B. cinereipes* (Hymenoptera: Symphyta: Tenthredinidae). *Acta Entomologica Musei Nationalis Pragae* **53**: 815–819.
- MACEK J. 2014: Descriptions of larvae of the Central European *Eutomostethus* species (Hymenoptera: Symphyta: Tenthredinidae). *Acta Entomologica Musei Nationalis Pragae* **54**: 685–692.
- MACEK J. 2015: Descriptions and key to larvae of Central European *Dineura* (Hymenoptera: Symphyta: Tenthredinidae). *Acta Entomologica Musei Nationalis Pragae* **55**: 787–796.

- MACEK J. & KULA E. 2015: Revisionary study on European species of the *Empria candidata* complex (Hymenoptera, Symphyta, Tenthredinidae). *Zootaxa* **3946**(2): 251–260.
- OKUTANI T. 1967: Food-plants of Japanese Symphyta (II). *Japanese Journal of Applied Entomology and Zoology* **11**: 90–99.
- PROUS M., BLANK S. M., GOULET H., HEIBO E., LISTON A., MALM T., NYMAN T., SCHMIDT S., SMITH D. R., VÅRDAL H., VIITASAARI M., VIKBERG V. & TAEGER A. 2014: The genera of Nematinae (Hymenoptera, Tenthredinidae). *Journal of Hymenoptera Research* **40**: 1–69.
- PRUNER L. & MÍKA P. 1996: Seznam obcí a jejich částí v České republice s čísly mapových polí pro síťové mapování fauny. (List of settlements in the Czech Republic with associated map field codes for mapping system). *Klapalekiana* **32** (Supplementum): 1–175 (in Czech, English summary).
- PSCHORN-WALCHER H. & ALTENHOFER E. 2006: Neuere Larvenaufsammlungen und Zuchten von mitteleuropäischen Pflanzenwespen (Hymenoptera, Symphyta). *Linzer Biologische Beiträge* **38**: 1609–1636.
- SERVILLE A. J. G. 1823: Hyménoptères. Pp. 1–96. In: VIEILLOT P., DESMAREST A. G. DE BLAINVILLE, PRÉVOST C., SERVILLE A. & LEPELLETIER DE SAINT-FARGEAU (eds): *Faune Française, ou histoire naturelle, générale et particulière, des animaux qui se trouvent en France*. Livraison 7 & 8, Paris, 96 pp.
- TAEGER A., ALTENHOFER E., BLANK S. M., JANSEN E., KRAUS M., PSCHORN-WALCHER H. & RITZAU C. 1998: Kommentare zur Biologie, Verbreitung und Gefährdung der Pflanzenwespen Deutschlands (Hymenoptera, Symphyta). Pp. 49–135. In: TAEGER A. & BLANK S. M. (eds): *Pflanzenwespen Deutschlands (Hymenoptera, Symphyta). Kommentierte Bestandsaufnahme*. Goecke & Evers, Keltern, 364 pp.
- TAEGER A. & BLANK S. M. 2011: *ECatSym—Electronic World Catalog of Symphyta (Insecta, Hymenoptera)*. Program version 3.9, data version 38 (07.12.2011). Digital Entomological Information, Müncheberg. <http://www.sdei.de/ecatsym/index.html>. (accessed 20. October 2015)
- TAEGER A., BLANK S. M. & LISTON A. D. 2010: World Catalog of Symphyta (Hymenoptera). *Zootaxa* **2580**: 1–1064.
- TAKEUCHI K. 1949: A list of the food-plants of Japanese sawflies. *Transactions of the Kansai Entomological Society* **14**: 47–50.
- TORKA V. 1934: *Pristiphora alnivora* Htg. *Arbeiten über Physiologische und Angewandte Entomologie aus Berlin-Dahlem* **1**: 301–304.
- VIITASAARI M. 2002: *Sawflies I*. Tremex Press Ltd., Helsinki, 516 pp.
- ZHELOKHOVTSEV A. N. & ZINOVYEV A. G. 1988: 27. Otryad Hymenoptera – Pereponchatokrylye. Podotryad Symphyta (Chalastogastra) – sidyachebryukhie. [27. Order Hymenoptera – Wasps. Suborder Symphyta (Chalastogastra) – sawflies and woodwasps]. Pp. 7–267. In: MEDVEDEV G. S. (ed.): *Opredelitel' nasekomykh evropeyskoy chasti SSSR. Tom III. Pereponchatokrylye. Shestaya chast'*. [Key to the insects of the European part of the USSR. Vol. III. Hymenoptera. Sixth part]. Nauka, Leningrad, 268 pp (in Russian).