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Holarctic species of *Trematopygodes* Aubert

(Insecta Hymenoptera, Ichneumonidae, Ctenopelmatinae)

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The Holarctic species of *Trematopygodes* Aubert are revised. Keys to females and to males are provided for 17 species. Ten species are described as new: *T. americanator*, *T. californiae*, *T. luteator*, *T. mactator*, *T. minator*, *T. propinquator*, *T. rufipectus*, *T. similator* and *T. townesi* from U.S.A., and *T. koreator* from Korea.

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Introductory remarks by the junior author

After finishing his revision of the European species of *Trematopygodes* Aubert (Hinz 1980), Rolf Hinz started a revision of the Holarctic species of that genus. He studied the types of three described Nearctic species, borrowed material, mainly from the Townes collection (Gainesville), but also from museums in Washington (D.C.) and East Lansing, sorted it to species, determined the described and named the undescribed species, labelled the holotypes of the new species, and produced keys to females and to males. Then he stopped this project for an unknown reason. The junior author found some additional characteristics and drew up the notes on the described species and the descriptions of the new species. The authors of the new species are therefore Hinz et Horstmann.

The following colleagues kindly gave access to specimens in their care: R. W. Carlson (U. S. National Museum of Natural History, Smithsonian Institute, Washington, D.C.), R. Fischer and F. W. Stehr (Michigan State University, East Lansing), M. Fitton and L. Tarel (Natural History Museum, London), D. Otte and D. Azuma (Academy of Natural Sciences, Philadelphia), H. Townes (†) and D. B. Wahl (American Entomological Institute, Gainesville) and K. W. R. Zwart (Laboratorium voor Entomologie, Wageningen). R. W. Carlson also helped with information about the dates of publication of Davis (1897-1898) and about localities and depositories of some specimens.

Key to females

- 1. Gaster black; at most some segments with yellow or red edges. .... 2.
- Gaster with at least one segment completely red, in many species only small frontal and caudal parts of the gaster black, or gaster completely red ..... 8.
- 2. Mesosternum and mesopleura distinctly yellowish red, at most a small central part of the mesosternum and the dorsal edges of the mesopleura black. Coxae red. North America .....  
..... *rufipectus*, spec. nov.

- Mesosternum and mesopleura black, at most some parts tinged with red. Coxae black (except in *T. americanus*) ..... 3.
- 3. Antennae very short, the flagellum with 20-24 segments, the 7<sup>th</sup> flagellar segment as long as wide. North America ..... *californiae*, spec. nov.
- Antennae longer, the flagellum with more than 24 segments, the 7<sup>th</sup> flagellar segment distinctly longer than wide ..... 4.
- 4. Malar space very short, about half as wide as the distal end of the first flagellar segment ..... 5.
- Malar space about 1.5 times as wide as the distal end of the first flagellar segment ..... 6.
- 5. First segment of gaster with conspicuous subbasal dorsolateral lobes. Hind femurs red. Europe ..... *auriculatus* Hinz, 1980
- First segment of gaster with at most very indistinct subbasal dorsolateral lobes. Hind femurs black. Europe ..... *femoratus* Hinz, 1980
- 6. Temples shorter than eyes (seen from above). Frons coriaceous, a very fine punctation hardly visible. Coxae red. North America ..... *americanus*, spec. nov.
- Temples longer than eyes. Frons distinctly and densely punctate. Coxae black ..... 7.
- 7. Flagellum with 25-31 segments. Propodeum with a strong and dense punctation, without an area superomedia. First segment of gaster without dorsal carinae or a dorsal longitudinal furrow. Clypeus black. Europe ..... *aprilinus* (Giraud, 1872)
- Flagellum with 36-41 segments. Propodeum with a less dense punctation, the punctures as wide as their interspaces, the area superomedia indicated. First segment of gaster basally with short dorsal carinae and with a longitudinal furrow between them. Clypeus reddish apically. Europe ..... *rarus* Horstmann, 1990
- 8. Thorax and propodeum for the greater part black, usually the head also black ..... 9.
- Head, thorax and propodeum for the greater part red ..... 13.
- 9. Mandibular teeth equal. Face coriaceous and dull, a punctation hardly visible. Dorsal part of propodeum coriaceous and/or rugose, less punctate ..... 10.
- Lower mandibular tooth somewhat larger than the upper one. Face and dorsal part of propodeum with a distinct punctation on a rather smooth and shining background ..... 11.
- 10. Lateral flaps of the ventral edge of the clypeus much longer than the median subventral projection. Face with yellow spots below the bases of antennae or completely yellowish red. Frons with yellow spots dorsally or with the orbits yellowish red. North America ..... *osflavus* (Davis, 1897)
- Lateral flaps of the ventral edge of the clypeus not much longer than the median subapical projection. Face and frons black. North America ..... *propinquator*, spec. nov.
- 11. Head, thorax and propodeum with a dense and strong punctation, the punctures at least as wide as their interspaces. Flagellum with 39 segments. Area petiolaris distinctly bounded frontally. Korea ..... *koreator*, spec. nov.
- Head, thorax and propodeum with a less dense punctation. Flagellum with 24-30 segments. Area petiolaris not or only indistinctly bounded frontally ..... 12.
- 12. Flagellum with 28-30 segments, the 4<sup>th</sup> flagellar segment 1.8-2.0 times as long as wide. Head and pronotum black, at most two reddish spots below the antennal sockets, and the dorsal hind corners of pronotum yellow. Hind coxae for the greater part black, at most the apical 0.3 red. First segment of gaster black. North America ..... *frontosus* (Davis, 1897)
- Flagellum with 24-27 segments, the 4<sup>th</sup> flagellar segment 2.1-2.5 times as long as wide. Head, pronotum, hind coxae and first segment of gaster in many specimens with more extensive reddish markings. North America ..... *townesi*, spec. nov.
- 13. Lower mandibular tooth somewhat larger than the upper one. Mesopleura on the lower half with very fine punctures on a smooth background, the punctures about 0.3 times as wide as their

- interspaces. Area petiolaris and the hind lateral areas not bounded frontally. North America. .... *mactator*, spec. nov.
- Mandibular teeth equal. Mesopleura on the lower half either coriaceous or with a denser punctation. Area petiolaris and the hind lateral areas distinctly bounded frontally ..... 14.
14. Clypeus with a very conspicuous nose-like projection medially subventrally, which extends in ventral direction as far as the apical flaps. Flagellum with 35 segments. Body almost completely reddish, the ocellar triangle also red. North America ..... *luteator*, spec. nov.
- Clypeus with a shorter median subventral projection. Number of flagellar segments different. The ocellar triangle in most specimens darkened ..... 15.
15. Flagellum with 39 segments. Thorax and propodeum with some black spots and edges. Second tergite of gaster with a fine and dense punctation on a poorly structured background. North America ..... *simulator*, spec. nov.
- Flagellum with 27-29 segments. Thorax and propodeum with almost no black parts. Second tergite of gaster coriaceous and slightly rugose, a punctation hardly visible ..... 16.
16. Temples not constricted directly behind the eyes (seen from above). Mesopleura on the lower half with a fine and rather dense punctation on a slightly coriaceous background. Malar space broadly yellow. North America ..... *oculatus* (Davis, 1897)
- Temples constricted directly behind the eyes. Mesopleura on the lower half coriaceous, a punctation hardly visible. Malar space as reddish as other parts of the head. North America ..... *minator*, spec. nov.

### Key to males

(males of *T. americanator*, *auriculator*, *koreator*, *luteator*, *mactator*, *minator*, *oculatus* and *rufipectus* unknown)

1. Gaster black, at most some segments with yellow or red edges ..... 2.
- Gaster red medially, at least one segment completely red ..... 6.
2. Antennae short, flagellum with 20-22 segments, the 7<sup>th</sup> flagellar segment 1.4-1.7 times as long as wide. North America ..... *californiae*, spec. nov.
- Antennae longer, at least with 24 segments, the 7<sup>th</sup> flagellar segment 1.8-2.1 times as long as wide ..... 3.
3. Malar space about half as wide as the distal end of the first flagellar segment. Hind femurs black. Europe ..... *femorator* Hinz, 1980
- Malar space wider than the distal end of the first flagellar segment. Hind femurs red ..... 4.
4. Temples, ventral half of mesopleura and dorsal part of propodeum with a strong and dense punctation, in many parts the punctures wider than their interspaces. Temples for the greater part black, only the outer orbits yellow. Tergites of gaster black, at most with narrow lateral yellow edges. Europe ..... *aprilinus* (Giraud, 1872)
- Temples, mesopleura and propodeum with a less strong and dense punctation. The lower 0.6 of the temples yellow. Gaster with more extensive yellow or reddish markings ..... 5.
5. Mandibular teeth equal. Flagellum with 33 segments. Area petiolaris and the hind lateral areas distinctly bounded frontally. Frontal tergites of gaster with a strong punctation on a smooth background, in some parts the punctures not wider than their interspaces. Europe ..... *rarus* Horstmann, 1990
- Lower mandibular tooth somewhat larger than the upper one. Flagellum with 27 segments. Area petiolaris and the hind lateral areas not bounded frontally. Frontal tergites of gaster with a fine and very dense punctation on a slightly coriaceous background. North America (1♂ Potrero, San Diego Co., Cal., 15.IV.1974, H. & M. Townes; Gainesville) ..... spec. indet.



6. Flagellum with 35 segments. Head and thorax for the greater part light red, with some black markings. North America ..... ? *similator*, spec. nov.
- Flagellum at most with 30 segments. Head and thorax black and yellow, or for the greater part yellow, with some light red and black markings ..... 7.
7. Mandibular teeth equal. Face coriaceous, a punctation hardly or not at all visible. Dorsal part of propodeum coriaceous or rugose, less punctate. Area petiolaris and the hind lateral areas distinctly bounded frontally ..... 8.
- Lower mandibular tooth somewhat larger than the upper one. Face and dorsal part of propodeum with a distinct punctation on a rather smooth and shining background. Area petiolaris and the hind lateral areas not bounded frontally ..... 9.
8. Dorsal part of propodeum coriaceous. Mesoscutum with large yellow shoulder marks. Scutellum reddish frontally. North America ..... ? *osflavus* (Davis, 1897)
- Dorsal part of propodeum partly rugose. Mesoscutum and scutellum black. North America ..... *propinquator*, spec. nov.
9. Flagellum with the 4<sup>th</sup> segment 2.1-2.2 times as long as wide. Frons, vertex, temples and thorax for the greater part black, with reduced yellow markings. First segment of gaster black. North America ..... *frontosus* (Davis, 1897)
- Flagellum with the 4<sup>th</sup> segment 2.6-3.0 times as long as wide. Head and thorax for the greater part yellow, with reduced red and black markings. Postpetiolus at least caudally red. North America ..... *townesi*, spec. nov.

#### Remarks on the described species

##### *Trematopygodes aprilinus* (Giraud, 1872)

This species was revised by Hinz (1980: 91). Additional host: *Periclista pubescens* (Zaddach) (Hymenoptera, Tenthredinidae), leg. H. Weiffenbach (coll. Hinz). Additional localities: 20♂♂, New Forest, S. H., England, 8.-10.V.1960, J. F. & R. A. Perkins (London); 2♀♀, Merzifon, 3000 ft., Prov. Amasya, Turkey, 3.VI.1959, K. M. Guichard (London).

##### *Trematopygodes auriculator* Hinz, 1980

Additional locality: 1♀, Burgst/Breda, N. B., Netherlands, V.1914, C. A. L. Smits van Burgst (Wageningen).

##### *Trematopygodes femorator* Hinz, 1980

Additional locality: 1♀, Mte Caramola, Francavilla in Sinni, Prov. Potenza, Italy, 5.VI.1984, P. L. Scaramozzino (coll. Hinz).

##### *Trematopygodes frontosus* (Davis, 1897)<sup>1</sup>

This species is very similar to *T. townesi*, spec. nov. in both sexes, and differs by the characteristics given in the keys.

<sup>1</sup> The paper by Davis (1897-1898) came out in two parts, and the description of *Labrossyta frontosa* Davis is included in the part published in 1897, and not in 1898, as was indicated by Carlson (1979: 588) and Yu & Horstmann (1997: 447).

The lectotype (♀, from "W.T.", Wash.; Philadelphia) was revised by Cresson (1928: 17) and by the senior author. Additional localities: 1♀, 1♂, Lowman, 4000ft., Ida., 9.-14.VI.1978, H. & M. Townes; 1♀, Pinehurst, Ore., 29.VI.1978, H. & M. Townes; 1♂, Selma, Ore., 20.V.1978, H. & M. Townes; 2♂♂, Corvallis, Ore., 13.-14.V.1976, H. Townes; 1♂, Juntura, Ore., 19.V.1976, H. & M. Townes; 2♂♂, Tuscarora, Nev., 4.VI.1978, H. & M. Townes; 1♂, Estes Pk., Colo., 15.VI.1948, Townes family; 1♀, Parker Creek, Sierra Ancha, Ariz., 4.V.1947, H. & M. Townes; 2♀♀, Oak Creek Canyon, Ariz., 17.-18.V.1947, H. & M. Townes (all Gainesville).

### *Trematopygodes oculatus* (Davis, 1897)

This species is similar to *T. luteator*, spec. nov., and differs by the following characteristics: Subapical swelling of clypeus not much extended in ventral direction. Malar space 1.5-1.6 times as wide as distal end of first flagellar segment. Flagellum with 29 segments (but flagellum complete in one studied specimen only), the 4<sup>th</sup> flagellar segment 2.0-2.2 times as long as wide. Ocellar triangle red in the material from Texas, but black in the specimen from Michigan.

The lectotype (♀, from Texas; Philadelphia) was revised by Cresson (1928: 21). Paralectotypes, also from Texas, are in Washington, D. C. (2♀♀) and in Gainesville (1♀) and were revised by the present authors. Additional locality: 1♀, Roscommon Co., Mich., 26.V.1957, R. & K. Dreisbach (Gainesville).

### *Trematopygodes osflavus* (Davis, 1897)

This species, *T. americator*, spec. nov. and *T. rufipectus*, spec. nov. differ distinctly in colour (see key to females), but almost not in structure. They are not treated as subspecies of one species here, because they are partly sympatric. The male is only tentatively associated with the female.

The holotype (♀, from Michigan; East Lansing) was revised by the senior author. Additional localities: 1♀, Chaffey's Locks, Ont., 20.VI.1975, J. Bellwood; 1♂, Ithaca, N.Y., 8.V.1936, H. Townes; 1♀, Raleigh, N.C., 26.IV.1953, H. & A. Howden (all Gainesville); 1♀, locality unknown, H. G. Dyar (Washington, D. C.). The specimen from Raleigh was figured by Townes (1970: 241). The specimens from N. Y. and Pa. mentioned by Townes & Townes (1951: 327) are transferred to *T. rufipectus*, spec. nov. (see below).

### *Trematopygodes rarus* Horstmann, 1990

This species was revised by Hinz (1980: 91; under the name *T. blanchburgensis* Schmiedeknecht) and by Horstmann (1990: 47). Additional locality: 1♀, 1♂, Bilecik, Turkey, 1.V.1962, Guichard & Harvey (London).

## Descriptions of new species

### *Trematopygodes americator*, spec. nov.

**Types.** Holotype: ♀, "Delaware Co., O., V-21", "D.J. & J.N. Knull Collrs." (Gainesville). – Paratypes: 1♀, Greenville, S.C., 13.V.1956, L. & G. Townes (Gainesville); 1♀, Ann Arbor, Mich., 8.VI.1963, H. & M. Townes (Coll. Hinz); 1♀, Mount Pleasant, Ia., 10.V.1934 (Washington, D.C.).

### Description

♀ Holotype. Length of front wings 6.0 mm. Body length 7.5 mm.

Temples somewhat shorter than eyes, not restricted directly behind the eyes (seen from above). Mandibular teeth equal. Clypeus with the apical flaps distinctly protruding, the subapical swelling distinct, but not much extended in ventral direction. Malar space 1.5 times as wide as the distal end of the first flagellar segment. Flagellum with 34-37 segments, the 4<sup>th</sup> flagellar segment 2.0-2.1 times as long as wide. Face and frons coriaceous and dull, the former with a fine and dense, the latter with a very fine punctation. Temples shining, with a fine and rather dense punctation on a slightly coriaceous

background. Mesoscutum shining, with a fine and dense punctation on a slightly coriaceous background, the punctures about as wide as their interspaces. Mesopleura shining, smooth or very slightly coriaceous, outside of the large speculum with a fine and rather dense punctation, the punctures narrower than or as wide as their interspaces. Metapleura with a dense punctation on a smooth background. Tarsal claws strongly pectinate, the subapical teeth almost as long as the apical ones. Dorsal part of propodeum more or less distinctly coriaceous and with a fine punctation. Area superomedia indicated by a furrow, sometimes also bounded by carinae. Area petiolaris and the hind lateral areas distinctly bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes. First and second tergites of gaster coriaceous and with a very dense punctation, rather dull, the caudal tergites more shining.

Colour. Black. Mandibles (except teeth), apical part of clypeus, small parts of cheeks, dorsal hind corner of pronotum, subtegular ridge (not always) and tegulae yellow. Ventral parts of scape, pedicel and flagellum yellowish. Legs light red, the front and middle trochanters yellow, the tarsi darkened distally. Mesopleura sometimes tinged with red. Pterostigma dark brown, the proximal corner paler.

♂. Unknown.

### *Trematopygodes californiae*, spec. nov.

**Types.** Holotype: ♀, "Potrero, S. D. Co., Calif., IV.11.74, H. & M. Townes" (Gainesville). – Paratypes: 7♀, 2♂, from the same place and collectors, 11.-16.IV.1974 (Gainesville, 1♀, 1♂, coll. Hinz); 1♀, 1♂, Strawberry, Cal., 28.VI.1948, H., M., G. & D. Townes; 1♂, Camino, Cal., 30.VI.1948, same collectors; 1♀, Dardanelle, Cal., 2.VII.1948, same collectors; 2♀, Corvallis, Ore., 13.-15.V.1976, H. K. Townes (all Gainesville).

### Description

♀ Holotype. Length of front wings 3.9 mm. Body length 5.4 mm.

Temples somewhat shorter than eyes (seen from above), not restricted directly behind eyes. Mandibular teeth equal. Clypeus with the apical flaps narrow and almost not protruding, the subapical swelling distinct, but not much extended in ventral direction. Malar space as wide as the the distal end of the first flagellar segment. Flagellum with 20-24 segments, the 4<sup>th</sup> flagellar segment 1.6 times, the 7<sup>th</sup> segment about 1.0 times as long as wide. Face, frons, temples, mesoscutum, mesopleura outside of the speculum, metapleura, dorsal part of propodeum and tergites of the gaster with a strong and dense or very dense punctation on a smooth background, in most parts the punctures wider than their interspaces. Tarsal claws not strongly pectinate, the subapical teeth almost half as long as the apical ones. Area superomedia not indicated. Area petiolaris and the hind lateral areas distinctly bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes.

Colour. Black. Mandibles (except teeth), apical part of clypeus, ventral part of scape, dorsal hind corner of propodeum and tegulae yellow. In some specimens clypeus and scape black. Legs reddish, all coxae and the hind trochanters black, apices of the femurs and bases of the tibiae indistinctly yellowish. In some specimens the front trochanters yellow, in others the hind femurs tinged with brown or black. Pterostigma brown or dark brown, the proximal corner whitish.

♂. Clypeus without apical flaps. Flagellum with 20-22 segments, the 4<sup>th</sup> segment 1.6-1.8 times, the 7<sup>th</sup> segment 1.4-1.7 times as long as wide. Yellow markings more extended: clypeus, face, cheeks, malar space, underside of scape and pedicel, ventral corner of pronotum (not always), shoulder marks, apices of front and middle coxae and front and middle trochanters also yellow. In some specimens the clypeal groove and a ventral line on the face black.

### *Trematopygodes koreator*, spec. nov.

**Holotype:** ♀, "Suigen Korea, 20-V-1931", "K. Sato collector" (Gainesville).

### Description

♀ Holotype. Length of front wing 6.3 mm. Body length 7.7 mm.

Temples somewhat shorter than eyes, slightly constricted directly behind the eyes (seen from above). Lower mandibular tooth somewhat larger than the upper one. Clypeus with the apical flaps rather narrow and not much protruding, the subapical swelling distinct, but not much extended in



ventral direction. Malar space about as wide as the distal end of the first flagellar segment. Flagellum with 39 segments, the 4<sup>th</sup> flagellar segment 2.1 times as long as wide. Face, frons, temples, mesoscutum, mesopleura outside of the speculum, metapleura, dorsal part of propodeum and tergites of the gaster with a rather strong and dense punctation on a smooth background, the punctures about as wide as or in most parts wider than their interspaces. Tarsal claws strongly pectinate, the subapical teeth almost as long as the apical ones. Area superomedia not indicated. Area petiolaris and the hind lateral areas distinctly bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes.

Colour. Black. Mandibles (except teeth), apical part of clypeus, small parts of cheeks, dorsal hind corner of pronotum, subtegular ridge and tegulae yellow. Ventral parts of scape, pedicel and flagellum, apices of the front and middle coxae and all trochanters yellowish, the distal part of flagellum yellowish red on the dorsal side, too. Femurs, tibiae and tarsi of the front and middle legs yellowish red, of the hind legs light red. Caudal corners of postpetiole, the second and third tergites of gaster and lateral edges of the forth tergite red. Pterostigma brown.

♂. Unknown.

*Trematopygodes luteator*, spec. nov.

**Holotype:** ♀, "Monte Sano St. Pk., Ala., IV.9.1955, H. & A. Howden" (Gainesville).

**Description**

♀ Holotype. Length of front wings 6.0 mm. Body length 7.9 mm.

Temples somewhat shorter than eyes, not restricted directly behind eyes (see from above). Mandibular teeth equal. Clypeus with the apical flaps distinctly protruding, the subbasal swelling as a conspicuous nose-like projection, which extends in ventral direction as far as the apical flaps. Malar space as wide as the distal end of the first flagellar segment. Flagellum with 35 segments, the 4<sup>th</sup> flagellar segment 1.9 times as long as wide. Face and frons coriaceous, rather dull, on the latter a fine punctation hardly visible. Temples more shining, very slightly coriaceous and with very fine punctures. Mesoscutum and mesopleura outside of the large speculum with a fine and rather dense punctation on a very slightly coriaceous background, the punctures half as wide as or as wide as their interspaces, the background in some parts smooth. Metapleura with a fine and dense punctation on a rather smooth background. Tarsal claws strongly pectinate, the subapical teeth almost as long as the apical ones. Dorsal part of propodeum coriaceous and with fine punctures. Area superomedia indicated by some wrinkles. Area petiolaris and hind lateral areas distinctly bounded frontally. Petiolus with faint dorsal carinae, without subbasal dorsolateral lobes. First and second tergites of gaster coriaceous and with a dense punctation, the caudal tergites more shining.

Colour. Light red. Mandibles (except teeth), malar space, inner orbits, dorsal hind corner of pronotum, tegulae and subtegular ridge yellow. Frontal part of mesoscutum with a black spot. Pterostigma light brown.

♂. Unknown.

*Trematopygodes mactator*, spec. nov.

**Types.** Holotype: ♀, "Potrero, S. D. Co., Calif., IV.9.1974, H. & M. Townes" (Gainesville). – Paratype: 1♀, Descanso, Cal., 11.IV.1974, H. & M. Townes (Gainesville).

**Description**

♀ Holotype. Length of front wing 4.7 mm. Body length 5.4 mm.

Temples almost as long as eyes, slightly constricted directly behind the eyes (seen from above). Lower mandibular tooth somewhat larger than the upper one. Clypeus with the apical flaps distinctly protruding, the subapical swelling distinct, but not extended in ventral direction. Malar space 1.3 times as wide as the distal end of the first flagellar segment. Flagellum with 26-27 segments, the 4<sup>th</sup> segment 2.4 times as long as wide. Face and frons slightly coriaceous, shining, the former with a rather dense, the latter with a less dense punctation. Temples almost smooth, with a very fine punctation. Mesoscutum with a fine punctation on a smooth background, the punctures about half as wide as their interspaces. Mesopleura outside of the large speculum with a very fine and sparse punctation on a

smooth background, the punctures about 0.3 times as wide as their interspaces. Metapleura with a fine and sparse punctation on a smooth background. Tarsal claws not strongly pectinate, the subapical teeth about half as long as the apical ones. Dorsal part of propodeum with a fine and sparse punctation on a smooth background, the punctures half as wide as their interspaces. Area superomedia not indicated. Area petiolaris and hind lateral areas not bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes. First and second tergites of gaster with a fine and very dense punctation on a slightly coriaceous background, the punctation on the caudal tergites less dense.

Colour. Light red. Mandibles (except teeth), malar space, dorsal hind corner of pronotum, tegulae and subtegular ridge yellow. Pterostigma medium brown, the proximal corner paler.

♂. Unknown.

*Trematopygodes minator*, spec. nov.

**Holotype:** ♀, "Takoma Pk., Md., V.6.1943, H. & M. Townes" (Gainesville).

**Description**

♀ Holotype. Length of front wings 4.2 mm. Body length 4.6 mm.

Temples shorter than eyes, distinctly constricted directly behind the eyes (seen from above). Mandibular teeth equal. Clypeus with the apical flaps distinctly protruding, the subapical swelling distinct and somewhat extended in ventral direction. Malar space about 1.5 times as wide as the distal end of the first flagellar segment. Flagellum with 27 segments, the 4<sup>th</sup> flagellar segment 1.8 times as long as wide. Face and frons coriaceous, dull. Temples shining, slightly coriaceous and with a very fine punctation hardly visible. Mesoscutum shining, slightly coriaceous, with a very fine punctation, the punctures about as wide as their interspaces. Mesopleura outside of the speculum coriaceous, with a very fine punctation hardly visible. Metapleura with a fine and dense punctation on a rather smooth background. Tarsal claws rather conspicuously pectinate, the subapical teeth about 0.7 times as long as the apical ones. Dorsal part of propodeum coriaceous. Area superomedia not indicated. Area petiolaris and hind lateral areas distinctly bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes. First and second tergites of gaster slightly coriaceous and with a very fine and rather dense punctation, the caudal tergites less punctate and more shining.

Colour. Light red. Dorsal hind corner of pronotum and tegulae yellow. Ocellar triangle and vertex blackish. Some small parts of the thorax and the base of the petiolus with black markings. Pterostigma yellowish brown.

♂. Unknown.

*Trematopygodes propinquator*, spec. nov.

**Types.** Holotype: ♀, "St. Charles, Mich., Saginaw Co., 24 May 1968, James G. Truchan, ex: Rotary Trap" (East Lansing). – Paratypes: 6♀♀, 8♂♂, from the same place and collector (East Lansing, 1♀, 1♂, Coll. Hinz); 1♀, McHenry Co., N. D., 4.-11.VI.1970, M. E. McKnight (Gainesville); 1♂, Ann Arbor, Mich., 23.V.1962, H. & M. Townes (Gainesville); 1♀, Bottineau Co., N. D., 17.VI.1971, em. 4.III.1972 ex sawfly on *Fraxinus pennsylvanica*, A. G. Tigestad (Washington, D. C.); 1♂, Shadepill Reservoir, Perkins Co., S. D., 8.VI.1971, em. IV.1972 ex *Eupareophora parca*, A. G. Tigestad (Washington, D. C.).

**Description**

♀ Holotype. Length of front wings 4.5 mm. Body length 5.4 mm.

Temples shorter than eyes, not constricted directly behind the eyes (seen from above). Mandibular teeth equal. Clypeus with the apical flaps conspicuous, but not much protruding, the subapical swelling somewhat extended in ventral direction, almost as long as the apical flaps. Malar space 1.2 times as wide as the distal end of the first flagellar segment. Flagellum with 23-25 segments, the 4<sup>th</sup> flagellar segment 2.2-2.4 times as long as wide. Face and frons coriaceous, dull, the latter with an additional fine punctation. Temples shining, with a very fine punctation on a slightly coriaceous background. Mesoscutum shining, with a rather dense punctation on a slightly coriaceous background, in most parts the punctures about as wide as their interspaces. Mesopleura much shining, smooth or very slightly coriaceous, outside of the large speculum with a very fine and sparse punctation, the



punctures about 0.3 times as wide as their interspaces. Metapleura shining, with a fine punctation on a slightly coriaceous background. Tarsal claws indistinctly pectinate, the subapical teeth short and sparse. Dorsal part of propodeum with a dense punctation on a rather smooth background, partly rugose. Area superomedia indicated by a furrow and some wrinkles. Area petiolaris and the hind lateral areas distinctly bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes. First and second tergites of gaster with a fine and dense punctation on a slightly coriaceous background, the caudal tergites more shining.

Colour. Black. Mandibles (except teeth), clypeus, small parts of the cheeks, ventral parts of scape, pedicel and base of flagellum, dorsal and ventral hind corners of pronotum, tegulae and front and middle legs yellow or yellowish red. Hind legs and greater parts of the gaster light red, base of petiolus and the caudal tergites (from the 4<sup>th</sup> to 7<sup>th</sup> tergite on) black. Mesopleura and/or mesosternum tinged with red. In some specimens the mesosternum reddish. Pterostigma dark brown.

♂. Clypeus with very short apical flaps. Flagellum with 21-25 segments, the 4<sup>th</sup> flagellar segment 2.1-2.2 times as long as wide. Yellow markings more extended: Face, malar space, cheeks, ventral parts of temples, frontal orbits (sometimes interrupted in the middle) and ventral part of the mesopleura also yellow. In some specimens the mesosternum reddish.

Host. *Eupareophora parca* (Cresson) (Hymenoptera, Tenthredinidae).

### *Trematopygodes rufipectus*, spec. nov.

**Types.** Holotype: ♀, "Haywood Co., N. C.", "H. V. Weems, Jr. Coll. 17.VI.55", "*Aruncus aruncus*" (Gainesville). – Paratypes: 1♀, Cleveland, S. C., 24.V.1961, G. F. Townes (Gainesville), 1♀, Spring Br., Pa., 7.VI.1945, H. K. Townes (Gainesville); 2♀♀, Ithaca, N. Y., 2.VI.1936, H. K. Townes (1♀, Gainesville, 1♀, coll. Hinz); 1♀, Brownswood, Tex., 5.V.1928, H. S. Aldair (Washington, D. C.).

### Description

♀ Holotype: Length of front wing 5.9 mm. Body length 6.5 mm.

Temples somewhat shorter than eyes, not restricted directly behind eyes (seen from above). Mandibular teeth equal. Clypeus with the apical flaps distinctly protruding, the subapical swelling distinct, but not much extended in ventral direction. Malar space 1.7 times as wide as the distal end of the first flagellar segment. Flagellum with 29-35 segments, the 4<sup>th</sup> flagellar segment 2.0-2.2 times as long as wide. Face and frons coriaceous and dull, the former with a fine and dense, the latter with a very fine punctation. Temples shining, with a fine and rather dense punctation on a slightly coriaceous background. Mesoscutum shining, with a fine and dense punctation on a slightly coriaceous background, the punctures about as wide as their interspaces. Mesopleura shining, smooth or very slightly coriaceous, outside of the large speculum with a fine or very fine punctation, the punctures about half as wide as their interspaces (variable). Metapleura with a fine and rather dense punctation on a smooth background. Tarsal claws strongly pectinate, the subapical teeth almost as long as the apical ones. Dorsal part of propodeum coriaceous and with a fine or very fine punctation. Area superomedia indicated by a furrow, sometimes also bounded by carinae. Area petiolaris and the hind lateral areas distinctly bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes. First and second tergites of gaster coriaceous and with a dense punctation, rather dull, the caudal tergites more shining.

Colour. Black. Mandibles (except teeth), apical part of clypeus, parts of the malar space and the cheeks, dorsal and ventral hind corners of pronotum, subtegular ridge and tegulae yellow. Ventral half of scape, pedicel and flagellum yellowish. In some specimens small parts of the face (below the antennal sockets) and of the vertex (next to the eyes) tinged with red. Front and middle legs yellow or yellowish red, hind legs light red, the tarsi darkened distally. Mesopleura, mesosternum and metapleura light red, in some specimens the shoulder marks also light red, in most specimens the dorsal edges of the mesopleura black. Pterostigma dark brown, the proximal corner paler.

♂. Unknown.

*Trematopygodes simulator*, spec. nov.

**Types.** Holotype: ♀, "Clifton, O., V.22.42.", "D. J. & J. N. Knull Collrs." (Gainesville). – Paratype: 1♀, Linville Falls, about 4000 ft., N. C., 20.VI., F. Sherman (Gainesville).

**Additional Material** (not included in the type series). 1♂, Ithaca, N. Y., 24.V.1940, H. & M. Townes (Gainesville).

**Description**

♀ Holotype: Length of front wings 7.0 mm. Body length 8.7 mm.

Temples somewhat shorter than eyes, not restricted directly behind eyes (seen from above). Mandibular teeth equal. Clypeus with the apical flaps distinctly protruding, the subapical swelling distinct, but not much extended in ventral direction. Malar space 1.3 times as wide as the distal end of the first flagellar segment. Flagellum with 39 segments, the 4<sup>th</sup> flagellar segment 1.9–2.1 times as long as wide. Face and frons coriaceous, the former with an additional fine and dense punctation. Temples shining, with a very fine punctation on a slightly coriaceous background. Mesoscutum shining, with a fine punctation on a slightly coriaceous background, the punctures 0.5–1.0 times as wide as their interspaces. Mesopleura shining, slightly coriaceous, outside of the large speculum with a fine and dense punctation, the punctures as wide as or wider than their interspaces. Metapleura with a dense punctation on a smooth background. Tarsal claws strongly pectinate, the subapical teeth almost as long as the apical ones. Dorsal part of propodeum coriaceous, a very fine punctation hardly visible. Area superomedia indicated by a furrow, which is partly bounded by fine carinae. Area petiolaris and the lateral areas distinctly bounded frontally. Petiolus without dorsal carinae or subbasal dorsolateral lobes. First and second tergites of gaster in most parts with a fine and dense punctation on a slightly coriaceous background, the punctures wider than or as wide as their interspaces, the caudal tergites less punctate.

Colour. Light red. Mandibles (except teeth), clypeus, cheeks and malar space, inner and ventral parts of the outer orbits, ventral parts of the scape, pedicel and base of flagellum, dorsal hind corner of pronotum, tegulae and trochanters of the front legs yellowish. Black spots and edges on several parts of the body: eg dorsal parts of the scape, pedicel and base of flagellum, frons and ocellar triangle, frontal parts of pronotum and mesoscutum, edges of mesoscutum, scutellum and propodeum, base of hind coxae, frontal end of petiolus. Pterostigma dark brown, the proximal corner paler.

? ♂: Clypeus without apical flaps. Flagellum with 35 segments, the 4<sup>th</sup> flagellar segment 2.1 times as long as wide. Mesopleura smooth, outside of the large speculum with a very fine punctation, the punctures about 0.5 times as wide as their interspaces. Punctuation of the first and second tergites of gaster less dense. Black and light red markings on head and thorax much contrasted. Central part of frons, ocellar triangle, vertex, dorsal parts of the scape, pedicel and base of flagellum, dorsal part of pronotum, frontal, central and sublateral parts of mesoscutum, dorsal edges of mesopleura and two sublateral spots on mesosternum black. Propodeum completely black. Gaster for the greater part black, postpetiolus, second tergite and the base of the third tergite reddish brown. The association of the male is tentatively.

*Trematopygodes townesi*, spec. nov.

**Types.** Holotype: ♀, "Lake Wohlford, Cal., IV.27.74, H. & M. Townes" (Gainesville). – Paratypes: 2♀♀, 1♂, from the same place and collectors (Gainesville); 5♀♀, 11♂♂, Potrero, San Diego Co., Cal., 9.–17.IV.1974, same collectors (Gainesville, 1♀, 1♂, coll. Hinz); 1♀, Julian, Cal., 24.V.1974, same collectors; 1♀, Selma, Ore., 20.V.1978, same collectors; 1♀, Hyatt Reservoir, Ore., 30.VI.1978, same collectors (all Gainesville); 2♂♂, St. Charles, Saginaw Co., Mich., 31.V.1968 and 13.VI.1969, J. G. Truchan (East Lansing).

**Description**

♀ Holotype: Length of front wing 5.4 mm. Body length 5.6 mm.

Temples almost as long as eyes, not restricted directly behind eyes (seen from above). Lower mandibular tooth somewhat larger than the upper one. Clypeus with the apical flaps distinctly protruding, the subapical swelling distinct, but not much extended in ventral direction. Malar space about as wide as the distal end of the first flagellar segment. Flagellum with 24–27 segments, the 4<sup>th</sup> segment 2.1–2.5 times as long as wide. Face and frons with a fine and dense punctation, the punctures often wider than their interspaces, the background of the face almost smooth, that of the frons

coriaceous. Temples shining, with a very fine and rather sparse punctation on an almost smooth background. Mesoscutum shining, with a fine punctation on a smooth background, the punctures almost half as wide as their interspaces. Mesopleura smooth, outside of the large speculum with a fine punctation, the punctures 0.3-0.5 times as wide as their interspaces. Metapleura with a fine and rather dense punctation on a smooth background. Tarsal claws not strongly pectinate, the subapical teeth about half as long as the apical ones. Dorsal part of propodeum with a rather dense punctation on a smooth background, partly rugose. Area superomedia indicated by a shallow furrow (variable). Area petiolaris and lateral areas not bounded frontally. Petiolus without dorsal carinae or subbasal dorso-lateral lobes. First and second tergites of gaster with a fine and dense punctation on a almost smooth background, the punctures wider than their interspaces, the caudal tergites less punctate.

Colour. Black. Mandibles (except teeth), apical part of clypeus, ventral half of scape, dorsal and ventral hind corners of pronotum, tegulae and subtegular ridge (not always) yellow. In some specimens parts of the face below the antennal sockets reddish or tinged with red. Ventral half of flagellum yellowish. Front and middle legs yellowish red, hind legs light red, hind coxae black basally (to a variable extent). Gaster red, petiolus and base of postpetiolus (to a variable extent) black. Pterostigma dark brown, the proximal corner paler.

♂. Clypeus without apical flaps. Flagellum with 26-31 segments, the 4<sup>th</sup> flagellar segment 2.6-3.0 times as long as wide. Head and thorax for the greater part yellow. Central part of frons, ocellar triangle, vertex and the dorsal edges of mesopleura black, the vertex in some specimens partly reddish. Pedicel, flagellum and legs yellowish red, the coxae and trochanters of front and middle legs yellow. Mesoscutum reddish, the edges and two longitudinal lines yellow. Propodeum reddish or black. Gaster red, petiolus and base of postpetiolus (to a variable extent) black.

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