Taxonomy of the species of *Eupontania crassipes*- and *aquilonis*-groups (Hymenoptera: Tenthredinidae: Nematinae)

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The earlier lectotype designation for *Nematus crassipes* Thomson, 1871 by Kopelke (1989) is invalid. A new lectotype for *Nematus crassipes* is designated from Thomson's collection; the female was collected by C. G. Thomson at the end of the 1860s in Swedish Lapland. The correct author for *Nematus betulinus* and for *Nematus helicinus* is Dahlbom, 1850. *Nematus bergmanni* Dahlbom, 1835 = *Nematus betulinus* Dahlbom, 1850, syn. nov. The species of the *Eupontania crassipes*- and *aquilonis*-groups and *E. reticulatae* (Malaise) are redescribed. Lectotypes are designated for *Nematus herbaceae* Cameron, 1876, *Pontania ora* Kincaid, 1900, *Pontania arctica* MacGillivray, 1919, *Pontania atrata* MacGillivray, 1919, *Pontania delicatula* MacGillivray, 1919, *Pontania lorata* MacGillivray, 1919, *Pontania lapponica* Malaise, 1920, *P. polaris* Malaise, 1920, *P. reticulatae* Malaise, 1920, and *Pontania aquilonis* Benson, 1941. *Eupontania crassipes* (Thomson, 1871) = *E. lapponica* (Malaise, 1920), syn. nov., = *E. enslini* (Zirngiebl, 1937), syn. nov.; *E. herbaceae* (Cameron, 1876) = *E. polaris* (Malaise, 1920), syn. nov; *Eupontania aquilonis* (Benson, 1941) = *Eupontania algida* (Benson, 1941), syn. nov. *Eupontania ora* (Kincaid) and *E. atrata* (MacGillivray) are regarded as valid species, the latter having *E. lorata* (MacGillivray) as its new synonym, syn. nov. *Eupontania borisi* sp. n. associated with *Salix rhamnifolia* Pall. in Buryatskaya Republik, Eastern Siberia, Russia, *E. aborigensis* sp. n. reared from galls on *Salix dshugdshurica* Skvortsov in Magadan oblast, NE Russia, and *E. alpinae* sp. n. reared from galls on *Salix alpina* Scop. in the Slovak Republic are described. *Eupontania herbaceae* is reported as new to Finland. Repeated observations and rearings in N. Sweden and N. Finland indicate that both *Salix herbacea* L. and *S. polaris* Wahlenb. are the food plants of the larvae of *Eupontania aquilonis*. *E. myrsiniticola* (Kopelke, 1991) is included in *E. aquilonis*-group and its presence in the fauna of Finland is confirmed. An annotated key is presented for the adults of the European species of *Eupontania crassipes*- and *aquilonis*-groups together with *E. reticulatae*.

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1. Introduction

The European species of the *Pontania herbaceae*- and *polaris*-groups were revised by Kopelke (1989b). These species induce bladder-like or large pea-shaped galls on the leaves of northern species of *Salix*. The adults have a similar unmodified left mandible as species of *Euura* Newman and thus belong to *Eupontania* Zinovjev, 1985 (type species *Nematus vesicator* Bremi), which was originally described as a subgenus of *Pontania* Costa (Zinovjev 1985) and later raised to a distinct genus by Zinovjev and Vikberg (1999). The generic level of *Eupontania* is strongly supported by recent studies on DNA sequence data from the mitochondrial cytochrome b gene (Nyman *et al*. 2000). In the Palaearctic Region *Eupontania* is represented by species of five species groups (Zinovjev 1999): *relictana*-, *vesicator*-, *herbaceae*-, *aquilonis*- (as *polaris*-group) and *viminalis*-groups. This paper deals with the taxonomy of the European species of *Eupontania crassipes* (or *herbaceae*) and *aquilonis*-groups. All available types were examined during the course of the work. Also, the types of N. American species synonymized with European species by Benson (1960a, 1960b) were studied. The *crassipes* group contains five valid species in Europe, and two new species are described from Siberia and Magadan Province, Asian Russia. The *aquilonis* group has five valid species in Europe (one of them new), and three species of it are treated from Alaska and arctic Canada. A similar set of measurements were made for all species because measurements were neglected in the previous revision of European species. Finally, a key is presented for the adults of European species of the two groups and *Eupontania reticulatae* (Malaise).

Thomson (1871) described several new species of sawflies, among them the oldest taxon of the groups treated in this paper, *Nematus crassipes* from the northern part of the Scandinavian peninsula. Subsequently, several hymenopterologists have regarded it as a member of the northern fauna or a boreo-alpine species (Benson 1941, 1958, 1960a, 1960b, Lindqvist 1954, Verzhutskij 1966, Beneš 1967, Vikberg 1970, Hellén 1977). A different opinion was expressed by Kopelke (1989a, 1989b), who wrote that it is a central European species living on *Salix purpurea* L. This raised the question of what Thomson really described: a boreal or central European species? Thomson (1871) briefly mentioned *Nematus helicinus* and cited Brischke (1850) in his original description of *N. crassipes*. These nomenclatorial questions are treated in detail at the beginning of this paper.

2. Material and methods

The holotypes, lectotypes, paratypes, syntypes, and other specimens of the species of *Eupontania* were loaned from or are deposited in the following museums and institutions:

- CNCO: Canadian National Collection, Ottawa (MacGillivray types of *Pontania*; Dr. Henri Goulet, Dr. John Huber).
- DABUH: Department of Applied Biology, University of Helsinki (Mr. Martti Koponen, Mr. Matti Viitasaari).
- DEI: Deutsches Entomologisches Institut, Eberswalde (Dr. Andreas Taeger, Mr. Stephan Blank).
- FNMS: Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main (paratypes of species of *Pontania* described by Kopelke; holotypes available for study only at the institute; Dr. Jens-Peter Kopelke).
- NHML: The Natural History Museum, London (types of P. Cameron and Robert B. Benson; Miss Christine Taylor).
- NHMW: Naturhistorisches Museum, Wien (holotype of *Pontania enslini* Zirngiebl; Dr. Stephan Schödl, Mr. Michael Maidl).
- NRMS: Naturhistoriska Riksmuseet, Stockholm (syntypes of Malaise's *Pontania* species; Mr. Bert Gustafsson).
- USNM: National Museum of Natural History, Smithsonian Institution, Washington, D. C. (syntypes of *Pontania ora* Kincaid; Dr. David R. Smith).
- ZISP: Zoological Institute of the Russian Academy of Sciences, St. Petersburg (reared specimens of *Eupontania aborigensis* sp. nov.; Dr. Alexey Zinovjev).
- ZML: Zoological Museum, Lund (coll. G. Dahlbom and C. G. Thomson; Dr. Roy Danielsson; specimens of *Nematus crassipes* and *N. Helicinus* loaned from C. G. Thomson's collection and lectotype and paralectotype of *Nematus crassipes* designated by Kopelke (1989a) loaned from coll. Dahlbom).
- ZMMSU: Zoological Museum, Moscow Lomonosov State University, Moscow (Dr. Alexander Antropov).

Larvae of *Eupontania* species in alcohol, from the High Tatra Mountains in the Slovak Republic, and reared adults were received from Dr. Karel Beneš, Prague. Specimens of *Eupontania borisi* sp. n. were received from the Baikal region, E. Siberia, from Dr. Boris Verzhutskij, Irkutsk. Larvae of boreal species of *Eupontania* in alcohol were ob-

tained from Dr. Tommi Nyman, University of Joensuu, who also gave information on further larvae he collected.

For comparison, galls of *Eupontania crassipes-, aquilonis-* and *viminalis*-groups were collected together with the leaves of the host plants in Norway, Sweden, and Finland in August (between 1966 and 2001), and adults were reared from larvae and prepupae after overwintering.

The sawfly specimens and dry prepared larvae were studied under a Leitz stereomicroscope at magnifications of 50× and 100×; the light source was a halogen lamp of 12V 20W with a light beam width of 10 degrees. The light was diffused by placing a piece of thick (0.2 mm) tracing acetate near the specimen. Measurements and drawings were made using a grid of squares (50 × 50, side 0.20 mm) in one eyepiece. Some larvae in alcohol were treated with KOH, and dissected body parts were put into polyviol 17 under a cover glass on a slide. The slide was examined with a compound microscope at magnifications up to 450×; this made it possible to see very small setae (microsetae) and glandubae. Body part nomenclature is according to Huber & Sharkey (1993). Some terms are taken from Enslin (1912–1918), Benson (1958), Wong (1963), Smith (1968, 1970) and Viitasaari (2002). A new term, paratorular area, is used for the lower lateral frons, laterad of the antennal torulus extending to the inner orbit (Fig. 1).

The length of body was measured from the anterior frons to the apex of the abdomen, including the sawsheath of the female or hypopygium of the male. The length of the fore wing was measured from the humeral plate at the margin of the tegula to the apex of the wing (the apical part of the wing was raised with an insect pin to the same plane if needed), and the length of the costa from the same origin to the apex of the costa. The head width was measured as the distance between the lateral margins of the compound eyes. The values of longer diameter (height) and shorter diameter (width) of the compound eye were measured. The length of the flagellomeres were measured along the dorsal midline (the basal neck-like constriction was not included when flagellomere 1 was measured); their total value is treated as the length of the flagellum. The maximum height of flagellomere 1 was measured in lateral view, perpendicular to the longitudinal axis of the segment. The length of the hind femur was measured on the outer or anterior side without the trochantellus. The hind tibial length was measured on the outer or anterior side as the maximum length. The lengths of the hind tarsomeres were measured along their dorsal midline, tarsomere 5 to the level of its apical lateral parts, with pretarsus omitted; their total value is treated as the length of the hind tarsus. The ovipositor sheath length was measured from the lower basal corner of the basal sheath (valvifer 2) just at the base of the joint with the lance to the apex of the sawsheath; the length of the sawsheath (apical sheath or valvula 3) from the lower basal corner to apex. The length of the lance was measured as the maximum length. The length of the lancet was measured from the lower basal angle of the radix to the apex of the lamnium, and the length of the lamnium of the lancet from the lower end of the basalmost annulus to the apex of the lamnium.

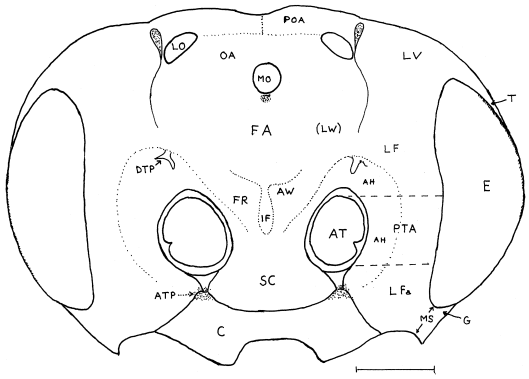


Fig. 1. Head in frontal view of *Eupontania crassipes* (Thomson), lectotype female. AH = antennal hollow; AT = antennal torulus; ATP = anterior tentorial pit; AW = anterior wall of frontal area; C = clypeus; DTP = dorsal tentorial pit or macula; E = compound eye; FA = frontal area or field; FR = frontal ridge; G = gena; IF = interantennal fovea or frontal pit; LF = lateral frons; LFa = lateral face; LO = lateral ocellus; LV= lateral vertex; LW = lateral wall of frontal area; MO = median ocellus; MS = malar space; OA = ocellar area; POA = postocellar area; PTA = paratorular area; SC = supraclypeal area; T = temple. Scale 0.2 mm.

3. Results

3.1. The original description of *Nematus crassipes* Thomson, and comments about it, *N. Helicinus* Thomson, *N. helicinus* Dahlbom in Brischke, 1850, and *N. betulinus* Dahlbom in Brischke, 1850, and the identity of *N. betulinus*: *Nematus bergmanni* Dahlbom, 1835 = *N. betulinus* Dahlbom, 1850 syn. nov.

The original description of *Nematus crassipes* (Thomson, 1871) is in Latin, except for the last paragraph which is in Swedish. Below is an English translation of the entire description.

Nematus crassipes m.: Black, slightly shining, antenna and legs strong, legs obscurely yellow, basally black, hind spurs very short; mouth, tegula, [ptero]stigma and anal area pale; ovipositor sheath (terebra) rather long, its apex blunt. Female 4–5 mm long.

Nematus helicinus Brischke l. c. [Stett. Ent. Zeitung 1850, p. 409] (ex parte).

Very similar to *N. cinereae* but differs easily (as follows); pterostigma pale (*cinereae*: dark, base whitish), legs very stout, testaceous, coxae,

trochanters and femora to mid-length black, hind tibial spurs very short, slightly curved, shorter than width of apical tibia, hind tarsus shorter than tibia; sawsheath hardly shorter than half of abdomen.

Rare; found in northern part of (Scandinavian) peninsula; according to Brischke it lives as the previous species (95. *N. Helicinus*) in bladder-formed galls on *Salix Helix*.

According to the original description, Thomson described *N. crassipes* from one or more females from the northern part of the Scandinavian peninsula. His description is rather short but contains several characters which clearly characterize the species: a rather black species with pale tegula; legs stout, with short curved hind tibial spurs; pterostigma pale; coxae, trochanters, and basal half of femora black; and sawsheath about as long as half of abdomen. The description completely fits some boreal *Eupontania* species, but best *E. lapponica* (Malaise) or *E. herbaceae* (Cameron).

Based on the characters of the female, it is clear that Thomson did not use Brischke's specimens when making the description; he merely cited Brischke (1850) because he believed that *Nematus helicinus* was composed of two species and one of them was conspecific with the northern species under the description. He mentioned that according to Brischke the food plant of *N. crassipes* is *Salix helix*. Actually Brischke (1850) named the food plant as *Salix purpurea* L. (*S. helix* Hagen). We know that this cannot be the correct food plant of *Nematus crassipes*: *S.* x *helix* auct. is the same as *S.* x *rubra* Hudson or *S. purpurea* x *viminalis* (Hämet-Ahti 1992). *Salix purpurea* L. does not belong to the native flora of N. Scandinavia; it has been cultivated for basket-making, as shelter, and as an ornamental in the southern part of Scandinavia (Karlsson 2000); *S. purpurea* x *viminalis* is of garden origin and sometimes cultivated in southern Norway or Sweden (Karlsson 2000). *Eupontania vesicator* (Bremi) whose larva lives in a bladderlike gall on *Salix purpurea* and possibly on *S. purpurea* x *viminalis* is not known from N. Scandinavia, and its female fits only partly the description of *Nematus crassipes* by Thomson. The citation of wrong species of *Salix* taken from Brischke (1850) is quite understandable because in Thomson's time not much was known about the host plant specificity of many species of gall-making Nematinae.

Similarly, when Thomson treated the previous species — which he called *N. Helicinus* according to Brischke (1850) — he described it using one (or a few) female from Sandhammaren in Skåne, S. Sweden. In his collection, only one female from Sandhammaren is present; it completely fits his description (except both antennal flagella are missing). The female belongs to the *Eupontania viminalis*-group and is characterized by testaceous legs, pale mouth, tegula and anal region, yellow pterostigma, and short, straight hind tibial spurs. *Nematus helicinus* Dahlbom in Brischke, 1850 is now considered a synonym of *Eupontania vesicator* (e.g. Kopelke 1999), belonging in the *Eupontania vesicator*-group. Thomson's *Nematus Helicinus* is not the same. The female bears Benson's determination label dated 1948: *Nematus* (*Pontania*) *collactaneus* Först. I agree that *Nematus helicinus*: Thomson, nec Dahlbom is *Eupontania collactanea* (Förster).

The correct author of *Nematus helicinus* and *N. betulinus* is G. Dahlbom, because he named and described them himself (Article 50.1.1.), not Brischke, as stated by Kopelke (1989a, 1989b, 1999) and by Blank & Taeger (1998). Brischke reared the specimens of *N. helicinus*, sent them to Dahlbom who made the long Latin descriptions of both adult sexes. Therefore, Brischke (1850) published it correctly as *Nematus helicinus* Dahlbom sp. n. However, the gall and larva of *N. helicinus* were described by Brischke; a similar division of labour occurred later in his many publications together with Zaddach and the new names are attributed solely to Zaddach.

Nematus betulinus mih. (= Dahlbom) was listed in Conspectus of Dahlbom (1835a) from Scania but without any description, so it is a nomen nudum. The description of the male of *Nematus betulinus* (entirely made by Dahlbom) was later published by Brischke (1850), but no locality was mentioned. The type locality is Scania (Dahlbom 1835a). Kopelke (1989a) selected a lectotype for *N. betulinus* Brischke [!] among 10 males in coll. G. Dahlbom; he did not identify the species but only stated that *N. betulinus* and *N. helicinus* are not synonyms. Blank & Taeger (1998) regarded the species as *Pontania betulina* (Brischke, 1850), species inquirenda. However, the specimens of *Nematus betulinus* were even captured by Dahlbom, not

by Brischke, as they supposed. I studied the lectotype male and 9 other males of *N. betulinus* from coll. Dahlbom. The specimen selected and designated as the lectotype bears the following labels: small (1 × 1 mm) bluish red label; ♂ var. b; Lectotypus Nematus betulinus Brisch. design. Kopelke III. 88. It agrees with the original description of *Nematus betulinus* Dahlbom, except the body length 4.9 mm and the antennal length 4.8 mm, and the clypeus is not truncate but slightly and broadly emarginate. Paralectotype males bear the similar small red label (two males) or dark green label with handwritten number 81 (4 males). In addition they are marked as var. a or alfa, b, c or d or corresponding Greek letters. In the original description, nothing is mentioned about varieties, so the specimen selected as the lectotype can be accepted. The lectotype and all other specimens represent the same species *Nematus bergmanni* Dahlbom, 1835. Dahlbom (1835a) listed *Nematus Bergmanni* mih. from Lapponia and Scania but without description. The species was described in Dahlbom (1835b): the adult (no sex mentioned) was described only as *Tenthredo lutescens thorace subvariegato abdomine supra nigro*; Bergman Wet. Acad. Handl. 1763.171.7. The characteristic larva on *Salix* and the cocoon were described from Lund, Scania, Sweden. Lindqvist (1956) studied the specimens of *Nematus bergmanni* in coll. Dahlbom: more than 30 out of more than 40 belonged to *Pteronidea curtispina* (Thomson, 1871). He synonymized the two species. The lectotype of *Nematus bergmanni* was not designated by Lindqvist (1956) or Koch (2000) who redescribed the species. *Nematus betulinus* is a new synonym of *N. bergmanni*, a species characterized among other things by a very short postocellar area (Benson 1958, Koch 2000).

3.2. The invalid earlier designation of the lectotype for *N. crassipes* Thomson in coll. G. Dahlbom

Because Thomson (1871) mentioned Brischke (1850) in his original descriptions of *Nematus helicinus* (No. 95) and *N. crassipes* (No. 96), Kopelke (1989a) apparently assumed that they were partly based on *Nematus helicinus* specimens reared by Brischke from bladder-like galls on the leaves of *Salix purpurea* L. (*S. helix* Hagen) and sent to Dahlbom in Lund for further study. He thus selected and designated one female as the lectotype and one female as the paralectotype of *Nematus crassipes* in coll. Dahlbom. I have now studied these specimens and give the characters of the designated lectotype and the characters of Thomson's description in parentheses. The pin of the lectotype bears a red label "Lectotypus Nematus crassipes Thoms. det. Kopelke 3.3.1988":

Antenna slender [Thomson: strong], flagellum brownish. Legs slender [strong, *crassipes* means literally thick legs!]. Legs yellow, only narrow bases of coxae infuscate [legs testaceous, coxae, trochanters and basal half of femora black]. Hind tibial spurs slender, straight, longer than apical width of hind tibia [very short, slightly curved, shorter than width of tibia]. Pterostigma dark, brown [pale]. Supraclypeal area, upper hind part of pronotum very broadly, two spots on mesoscutellum and whole underside of abdomen are yellow [Thomson did not mention these when he named yellow body parts]. Ovipositor sheath 0.42 as long as abdomen [hardly shorter than half of abdomen].

I measured some characters of the lectotype designated by Kopelke (1989a) and the lectotype designated later in this paper, and the results are as follows. Flagellomere 1: dorsal length/ maximum width 3.9 contra 2.6; fore femur without trochantellus: length/height 4.0 contra 2.8; hind femur: length/height 4.4 contra 3.4, and ovipositor sheath/length of abdomen 0.41 contra 0.48.

Kopelke (1989a) noticed the discrepancy of the characters of his lectotype specimen and the original description of Thomson and wrote that it was unexplainable. However, this is primary evidence which proves that the specimens in coll. Dahlbom were not used when Thomson made his description. I regard the lectotype designation by Kopelke (1989a) as invalid for the following reasons:

1. The type locality of *N. crassipes* was clearly mentioned as the northern part of the peninsula in the original description.
2. The specimen designated was not a syntype (it was not used when the original description

was made because every character except body length does not fit the original description). According to Art. 73.2.1 syntypes may include specimens not seen by the author but which form the basis of previously published descriptions or illustrations upon which the author founded a new nominal species-group taxon. This does not fit the case of *N. crassipes* because citing Brischke (1850) and the food plant *Salix helix* was based on a clear mistake by Thomson, and therefore it is impossible to select a lectotype based on the description of *N. helicinus* Dahlbom in Brischke which fits the original description of Thomson. At present, it is known that two species of *Eupontania* cause galls on *Salix purpurea* in C. Europe (Kopelke 1985, 1999; as *Pontania*): *E. vesicator* (Bremi) and *E. viminalis* (Linnaeus). If we compare their characters with the original description of *Nematus crassipes*, the species having common characters with *N. crassipes* is *E. vesicator*: strong antenna, thick legs, short curved hind tibial spurs, pale pterostigma and bladderlike gall are characters mentioned in Thomson's decription which fit *E. vesicator*. If really needed, *E. crassipes* and *E. vesicator* could be treated as synonyms on better grounds than *E. crassipes* and *E. viminalis* which are totally different. However, there is no need for that because in Thomson's collection there are real syntypes from the correct type locality which completely fit the original description.

3. Kopelke (1989a) mentioned that possibly Thomson also used specimens from Scandinavia when he described *N. crassipes*. In reality, Kopelke studied the three female syntypes of *N. crassipes* from Scandinavia in Thomson's collection and determined them as *Pontania herbaceae* Cameron (see later) but he never mentioned anything about them in his papers (Kopelke 1989a, 1989b, 1999).
4. There is discrepancy between the lectotype designated and the view of all previous authors dealing with *Nematus crassipes*. Kopelke (1989a) did not mention anything about the earlier revision on Thomson's types, including *N. crassipes* by Lindqvist (1954). Lindqvist (1954) wrote about *Nematus crassipes* as follows (p. 161; translated into English): "Cameron mentioned this species as a synonym of *Pontania vesicator* Bremi, whereas Konow, Enslin and Berland united it with *P. collactanea* Förster. However, both these synonymizations are wrong, because it is a distinct *Pontania* species with a high Nordic distribution. Its antenna is strong, femora are short and thick, hind spurs very short, only about half as long as width of apical hind tibia, pterostigma is unicoloured, pale yellow and sawsheath in lateral view is high and broadly rounded". Curiously, Lindqvist did not write anything about the specimens in Thomson's collection and he did not select a lectotype.

As a result of the wrong lectotype designation, Kopelke treated *Nematus crassipes* as a synonym of *Pontania viminalis* (Linnaeus) which induces pea-shaped galls on the underside of the leaf blade of *Salix purpurea*. The description of *Pontania viminalis* made by Kopelke (1989a, 1991) differs from Thomson's description in several important characters, indicating that they cannot be treated as synonyms: the pterostigma is darker, brown; the hind spurs are slender, rather long, usually longer than the apical width of the hind tibia; the hind femur is entirely yellow, and the sawsheath is shorter.

3.3. *Eupontania crassipes*-group

Adult can be recognized in both sexes by unmodified left mandible, hairy frontal area, paratorular area medially glabrous and laterally with some rows of horizontal setae, and mesepisternum below with glabrous zone. Female with pale pterostigma and short curved hind tibial spurs. Larva with 3 dorsal annulets on abdominal segments 1–8 and feeding instars with black spots laterally on body. Gall bladderlike or large pea-shaped projecting on both surfaces of leaf blade. Distribution from Arctoalpine to boreoalpine.

Female. Frontal area poorly defined, covered with setae. Lateral frons above antennal hollow with transverse setae near posterior tentorial pit. Paratorular area with several rows of horizontal setae directed towards compound eye besides more erect orbital setae directed anteriad. Antennal

hollow medially largely glabrous. Flagellum filiform, 1.6–2.0 as long as head wide, and flagellomere 1 is 0.6–0.8 as long as eye high or 0.9–1.1 as long as eye wide. Mesepisternum with glabrous longitudinal area near lower third. Pterostigma of female pale unicolorous, yellow. Tibial spurs very short, apically curved, inner hind spur is 0.8–0.9 as long as tibia wide (in *E. maculosa* 1.0 as long as tibia wide).

Male. Head structure and distribution of hairs on head and mesepisternum similar as in female. Flagellum is longer, 2.3–3.0 as long as head wide, and flagellomere 1 0.8–1.1 as long as eye high or 1.05–1.5 as long as eye wide. Pterostigma often darker, brown. Hind tibial spurs longer and more straight: inner spur is 1.2–1.4 as long as tibia wide (in *E. maculosa* 1.5 as long as tibia wide).

Larva. Abdominal segments 1–8 with only three dorsal annulets as in *Euura* Newman. Feeding instars with part of setae on dorsal and lateral body arise from blackish dots, and cuticle covered by dark spicules (Benson 1941, Zinovjev 1993, 1995). All other larvae of *Eupontania* and *Pontania* have four annulets on the third abdominal segment, the three first annulets bear setae (Yuasa 1923, Kraus in Lorenz & Kraus [1957]), and they lack blackish dots and spiculae (but see notes below).

Gall. Bladderlike or large pea-shaped gall (figures 9 and 9a in Benson [1954]) projecting about equally on upper and lower side of leaf blade is induced on leaf of (usually only one) species of *Salix* subgenera *Chamaetia* and *Vetrix*.

Notes. The *E. crassipes*-group is very homogeneous and its species are close and difficult to distinguish. The status of some species needs further study: more rearings, ovipositing experiments, and possibly DNA studies.

The species group has an arctic-alpine to boreal distribution in the Palaearctic Region (Zinovjev 1999).

The group was first designated by Benson (1941) as the *herbaceae* group of *Pontania,* and his group included two subgroups, the *herbaceae* subgroup (larvae with lateral rows of black dots) and the *polaris* subgroup (larvae without lateral black markings). Thus, this *herbaceae* group included also the present *Eupontania aquilonis*-group. Benson (1941) keyed the species he knew, and noticed from the original description that also *Nematus crassipes* Thomson certainly belongs to this group. In his paper on British sawfly galls on *Salix*, Benson (1954) called the group *Nematus crassipes*-group. Later Benson (1960a) united the group with the *viminalis*-group and called the combined group the *Pontania viminalis-crassipes*-group. According to its oldest nominal taxon, *Nematus crassipes,* I prefer to call the group the *Eupontania crassipes*-group. The Code does not regulate the names of the species groups, so it could be called as well as *Eupontania herbaceae*-group, because Cameron (1876) reared his species and described the characteristic colouration of its larva.

Contrary to the above description of the larva of *Pontania*, Kopelke (1989a) described the third abdominal segment of *Pontania vesicator* with only three dorsal annulets, but this was a mistake. Its larva has four annulets although the female of *Eupontania vesicator* shares many characters in common with the females of *E. crassipes*-group. A similar mistake is obvious in the figure of the larva of *P. breviserratae* (Kopelke 1989b). On the other hand, the larval description of *Pontania vesicator* in Lorenz & Kraus (1957) was based on the misidentified larva of another species of the *E. vesicator*-group, namely *E. pustulator* (Forsius) from E. Finland. It also has four annulets. The four annulets of *Pontania nigricantis* Kopelke and *P. helveticae* Kopelke were misnumbered by Kopelke (1987), the fourth annulet without setae was numbered as annulet one.

Eupontania crassipes (Thomson, 1871) (Figs. 1, 2a, 3a, 4a–b, 5a–b, 6, 7)

Nematus crassipes Thomson, 1871: 162, no. 96. Lectotype ♀, Sweden: Lapland, in ZML; examined (see designation below).

Pontania lapponica Malaise, 1920: 112. Lectotype ♀, Sweden: Torne Träsk, in NRMS; examined (see designation below). Syn. nov.

Pontania enslini Zirngiebl, 1937: 337. Holotype ♀, Sweden: Nissontjokko, Torne Träsk area, in NHMW; examined (see below). Syn. nov.

Diagnosis. Adult is difficult to separate from other species of group. Female: Tegula yellow. Large specimens differ from those of *E. herbaceae* by larger head width, shorter lamnium of lancet with less teeth, and sawsheath in dorsal view with

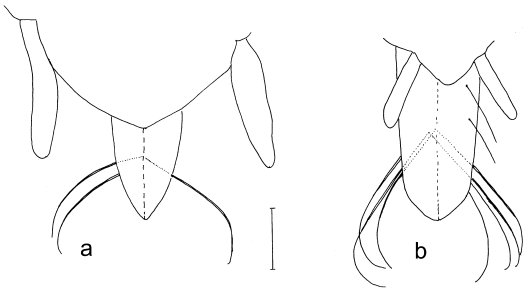


Fig. 2. Sawsheath and cerci in dorsal view. Only some long subapical setae drawn, to show the angle which setae on one side form with setae on the other side. — a. *Eupontania crassipes* (Thomson), lectotype. — b. *E. herbaceae* (Cameron), lectotype. Scale 0.1 mm.

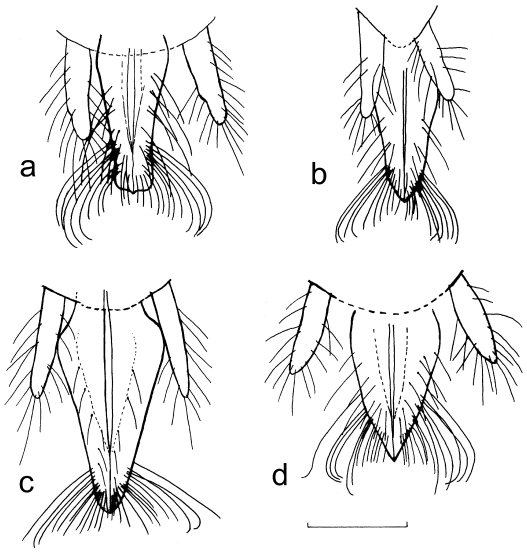


Fig. 3. Sawsheath and cerci in dorsal view. — a. *E. crassipes* (Thomson), lectotype of *Pontania lapponica* Malaise. — b. *Eupontania herbaceae* (Cameron), lectotype of *Pontania polaris* Malaise. — c. *E. retusae* (Benson), Furkota, ex *Salix retusa*. — d. *E. reticulatae* (Malaise), lectotype. Scale 0.2 mm.

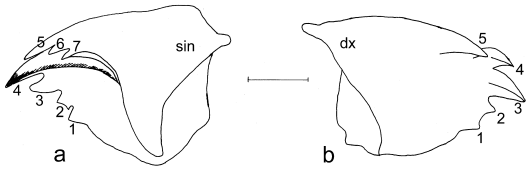


Fig. 4. Left (a) and right (b) mandible of larva of *Eupontania crassipes* (Thomson), mesal view, from Pikku-Malla, *Salix lapponum*. Scale 0.1 mm.

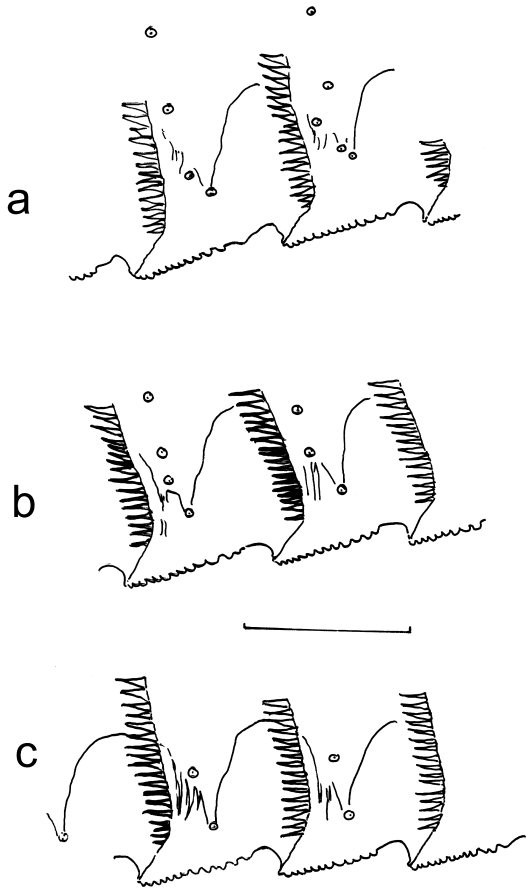


Fig. 5. Ventral part of 6th and 7th segment of lamnium of lancet from base. — a. *Eupontania crassipes* (Thomson), lectotype. — b. *E. crassipes*, lectotype of *Pontania lapponica* Malaise. — c. *E. herbaceae* (Cameron), lectotype of *P. polaris* Malaise. Scale 0.05 mm.

long subapical setae of one side forming an obtuse angle with setae on other side. Larva in gall on *Salix lapponum*.

Female. Lectotype of *N. crassipes*: Clypeus brownish yellow, basally infuscate, apically roundly emarginate. Frontal area weakly shining, with indistinct microsculpture, entirely hairy. Anterior wall of frontal area moderately formed, medially weakly notched, hairy. Paratorular area with 2–3 rows of transverse hairs besides orbital setae. Tegula yellow and upper hind margin of pronotum slightly brownish. Midlobe of mesoscutum with weak medial keel on anterior half,

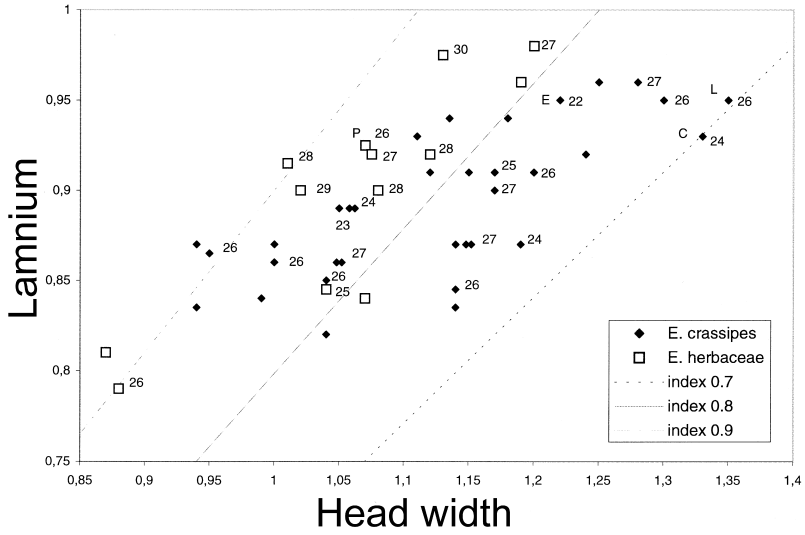


Fig. 6. Scatter diagram showing the relationship of head width (horizontal or *x*-axis) and length of lamnium of lancet in mm (vertical or *y*-axis) in reared females of *Eupontania crassipes (Salix lapponum)* and *E. herbaceae (Salix herbacea)*. Number of teeth of lamnium indicated in figure if known. C = lectotype of *Nematus crassipes* (not reared), E = holotype of *Pontania enslini* (not reared), L = lectotype of *P. lapponica*, and P = lectotype of *P. polaris (Salix herbacea* or *S. polaris*). Length of lamnium varies less than head width: in *E. crassipes* 1.17 contra 1.44 times. Largest specimens of *E. crassipes* have lamnium/head width index 0.7, smallest ca. 0.9. Characters of species according to figure: head width > 1.20 mm = *E. crassipes*, = < 1.20 either species; lamnium/head width index < 0.78 = *E. crassipes*, = > 0.78 either species; number of teeth of lamnium 22–24 = *E. crassipes*, 25–27 either species, and 28–30 = *E. herbaceae*. Small specimens cannot be identified using these characters.

anteriorly with dense alutaceous-coriaceous microsculpture and small punctures. Costa and pterostigma yellow. Femora basally blackish, fore femur most and hind femur least, on underside the blackish extends more apically. Hind tibial spurs curved, short, thick and yellow. Sawsheath in dorsal view (Fig. 2a): long subapical setae of one side form an obtuse angle with long setae on other side. Lamnium of lancet with 24 segments, ctenidia from 4th basalmost annulus on; 6th and 7th teeth from base with 13–14 fine serrulae or denticles (Fig. 5a).

Measurements (in mm unless otherwise stated): Body ca. 4.7, fore wing 5.4, costa 3.1. Head width 1.33. Compound eye 0.57 × 0.38. Flagellomeres from base on 0.35 (height 0.13), 0.37, 0.35, 0.28, 0.25, 0.23 and 0.28, total 2.11. Hind femur 1.16, height 0.34. Hind tibia 1.62, apical width 0.21, inner hind spur 0.18. Hind tarsomeres from base on 0.49, 0.24, 0.19, 0.12, and 0.26, total 1.30. Ovipositor sheath 1.28. Sawsheath 0.70. Cercus 0.23 or 0.25. Lancet 1.20. Lamnium of lancet 0.93.

Lectotype female of *P. lapponica*: same characters as lectotype of *N. crassipes*, except as follows. Clypeus yellow, lateral vertex and upper temples largely yellowish brown. Anterior wall of frontal area distinct, but deeply notched medially. Upper hind corner of pronotum brownish yellow. Midlobe of mesoscutum without keel, median suture very fine, indistinct, surface rather shiny. Tergum 1 medially with 7 rather long setae on either side. Blackish on bases of femora very scanty. Sawsheath from above (Fig. 3a). Lamnium of lancet with 26 teeth, ctenidia present from 4th basalmost annulus on; 6th and 7th teeth from base with 13 fine serrulae (Fig. 5b). Measurements: Body 5.1, fore wing 5.6, costa 3.0. Head width 1.35. Compound eye 0.60 × 0.41. Flagellomeres from base on 0.40 (height 0.14), 0.38, 0.36, 0.32, 0.30, 0.29 and 0.34, total 2.39. Hind femur 1.15, height 0.35. Hind tibia 1.62, apical width 0.25, inner hind spur 0.22. Hind tarsomeres from base on 0.53, 0.25, 0.20, 0.10, and 0.28, total 1.36. Ovipositor sheath 1.38. Sawsheath 0.75. Cercus 0.23. Lancet 1.20. Lamnium of lancet 0.95.

Fig. 7. Penis valve of *Eupontania crassipes* (Thomson), paralectotype of *Pontania lapponica* Malaise. Apical part and basal part drawn separate. Scale 0.1 mm.

Holotype female of *Pontania enslini*: similar to lectotype of *N. crassipes*, except for the following. Clypeus mostly black and supraclypeal area black. Frontal area defined, its anterior wall hardly shallowed medially. Compound eye narrow: length/width index 1.63. Midlobe of mesoscutum without keel, with fine median suture. Basal 0.5–0.6 of femora black. Lamnium of lancet with 22 teeth, ctenidia present from 3rd basalmost annulus on, 6th–7th teeth from base with 13–15 fine serrulae. Measurements: Body 4.25, fore wing 5.1, costa 2.85. Head width 1.22. Compound eye 0.52 × 0.32. Flagellomeres from base on 0.36 (height 0.13), 0.40, 0.37, 0.31, 0.28, 0.27, and 0.32, total 2.31. Hind femur 1.10, height 0.32. Hind tibia 1.47, apical width 0.21, inner hind spur 0.17. Hind tarsomeres from base on 0.50, 0.25, 0.215, 0.125, and 0.30, total 1.39. Ovipositor sheath 1.25. Sawsheath 0.73, cercus 0.22. Lance 1.30. Lancet 1.23–1.25, lamnium of lancet 0.95.

Male. Paralectotype of *P. lapponica* (labelled earlier as Allotypus): Much darker than female. Clypeus brownish black, its emargination not rounded but with bottom straight and laterally angled. Flagellum long, apically slender, basally laterally compressed. Frontal area shiny, entirely hairy, anterior wall of frontal area weak, deeply notched medially, hairy. Paratorular area with 4–5 rows of transverse setae. Pronotum black, tegula blackish brown. Midlobe of mesoscutum thickly punctured and with dense microsculpture, median suture impressed. Costa and pterostigma pale brownish. Femora mostly black. Hind tibial spurs longer than in female, straight. Penis valve, see Fig. 7. Measurements: Body 4.5, fore wing 4.4, costa 2.55. Head width 1.24. Compound eye 0.53 × 0.40. Flagellomeres from base on 0.47 (height 0.17), 0.56, 0.57, 0.48, 0.45, 0.45 and 0.45, total 3.43. Hind femur 1.10, height 0.28. Hind tibia 1.50, apical width 0.20, inner hind spur 0.26. Hind tarsomeres from base on 0.60, 0.28, 0.20, 0.13, and 0.26, total 1.47. Hypopygium 1.01. Penis valve 1.01–1.02.

Variation. Female of *E. crassipes*: The body length of 66 reared females varies from 3.4–5.4 mm (one dwarfish only 2.9) and head width from 0.92–1.35 (one dwarfish only 0.75). The length of lamnium of lancet (n = 33) is 0.82–0.96 mm, and the number of segments (teeth) of lamnium varies from 22 to 27. The head width and lamnium values of the lectotypes of *E. crassipes* and *E. lapponica* are very close to each other and the head width value of the lectotype of *E. crassipes* do not fit the range of variation observed in *E. herbaceae* females (see Fig. 6). Male: The body length of 22 reared males varies from 3.2–4.8 mm and head width 0.87–1.26 mm.

Larva. Described as *Pontania lapponica* by Malaise (1920) and Kopelke (1989b; figures 6a–f). I studied four larvae from Snöheim which were dry prepared by E. O. Peltonen in an oven by blowing air into an empty larval skin. Three of the larvae are full grown (fifth instar?), with diameter of head capsule 1.07, 1.11 and 1.18 mm and extended

length of body 12.6–14.4 mm. The fourth has head width of 0.92 mm (fourth instar?). One larva from Pikku-Malla (preserved in alcohol; head width 1.18 mm) was treated with KOH.

Frons with 9–12 setae, clypeus with 2 setae on either side, labrum with 2 setae on either side, in one larva with additional small one on right and two small setae on left half of labrum. Mandible with one seta, in one larva with two setae on right side. Stipes with 2–3 setae, palpifer with 2–3 setae, maxillary palpus 2 with one seta. Left mandible (Fig. 4a) with four apical teeth, the 4th tooth with strong keel on inner side, and on lower margin with 3 teeth turned inside. Right mandible (Fig. 4b) with 4 apical teeth and on lower, inner margin one tooth. Antenna four-segmented, all segments incomplete, flat or fourth slightly convex. Thoracic leg 3; dorsal lengths of segments of the larva with head width 1.07 mm: coxa 0.45, trochanter 0.15, femur 0.18, tibia 0.22 and tarsus with claw 0.15 mm. Tibia 3 with 9–10 setae, two on inner side, others visible in lateral view.

Body covered with dark spiculae and long setae singly or 2–3 together on dark raised area. Third abdominal segment with 3 dorsal annulets. Annulet 1 with 3 setae, and near anterior margin subdorsally 2 microsetae and at level of spiracle 2 microsetae. Annulet 2 with 2–3 setae, medially dorsocaudally area lacking dark spiculae. Annulet 3 with 2–5 setae and one microglanduba subdorsally, one of lower setae sometimes replaced by a glanduba. Anterodorsad of spiracle one microseta. Postspiracular lobe with 2–3 setae and one microglanduba. Subspiracular lobe with 3–6 setae and anteroventrad of it 2 microsetae. Surpedal lobe with 4 (3–6) long setae and caudally 2 microsetae. Proleg with 4 setae and one microglanduba visible in lateral view and 5 setae on inner side near base. One seta present anteromedially of proleg and one microseta anteriad of it. One microseta present on ventral annulet 1 on both sides.

Suranal cerci small, close to each other, with shallow emargination between. In full grown larvae, distance between apex of cerci is 0.12–0.17 mm or 0.112–0.144 of head width.

Using the key of Lorenz & Kraus (1957), the larva would fit best *Pontania pustulator* (as *P. vesicator*), but it has only 3 annulets which does not fit to the generic description of *Pontania sensu lato* in that work and also the chaetotaxy is different.

Host plant. *Salix lapponum* L. (Malaise 1920). The gall is situated near the base of the leaf. It is ca. 7 mm long, green or often with one side red, hairy, matt, with thin walls, projecting equally on both sides of the leaf (Malaise 1920: figure 12, figure 7 in Kopelke [1989b]).

Material examined. Adults: reared from galls on *Salix lapponum*: Finland, Lks: Sodankylä, Torvinen, 11 ♀ 9 ♂, galls collected in August 1966. Le: Leutsuvaara, 3 ♀ 3 ♂, galls collected in August 1966 (V. Vikberg leg.). Norway, Dovre fjell, Snöheim, 52 ♀ 10 ♂, galls collected in August 1968 (E. O. Peltonen and V. Vikberg leg.). Larvae: Norway, Dovre-fjell, Snöheim, galls on *Salix lapponum*, August–September 1968, 4 dry prepared larvae, E. O. Peltonen leg. Sweden, Torne Träsk area, Björkliden, galls on *Salix lapponum*, 15.VIII.1998, 3 small larvae in alcohol, T. Nyman leg. Finland, the Kilpisjärvi area, Laassavaara, 30.7.1997, galls on *Salix lapponum*, 4 larvae in alcohol, T. Nyman leg., Pikku-Malla, galls on *Salix lapponum*, 14.VIII.1997, 4 larvae in alcohol, T. Nyman leg.

Type material. — *Nematus crassipes*: Three pinned female specimens and one male together with an ichneumonid male are in Thomson's collection under *Nematus crassipes*: (1) One female labelled "Norv" [= Norvegica or Norway] and bearing a large hand written collection label "crassipes". Lacks flagellomeres, except right flagellomere 1, right fore leg beyond coxa, left hind leg beyond trochanter, and right hind tarsus, except basitarsus. (2) One female labelled "Norv." and "Nematus crassipes Ths." [hand-written, not an old label]. Left flagellum, left fore leg beyond trochanter, and left fore wing missing, and right wings partly damaged and partly glued on abdomen. Saw mounted on a slide by Kopelke in March 1988 [not sent to me with the specimen]. (3) One female labelled "Lpl." [= Lappland or Lapland] and "Ths" [Thomson]. Left fore leg and left hind tarsus missing, otherwise in good condition. (4) One male and below it a male ichneumonid, the pin bears labels "Lpl." and "Thms".

The three females agree well with the original description of *Nematus crassipes* and they can be regarded as syntypes. The females from Norway agree better with the original description in the

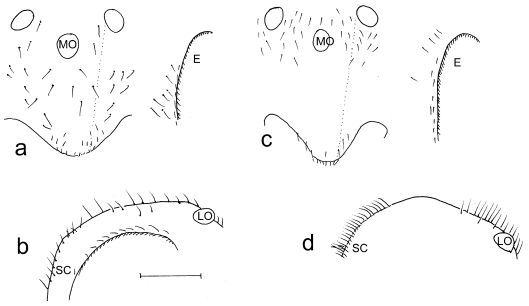


Fig. 8. Distribution of setae on frons. Frontal view (a, c), lateral view (b, d), focused on the spotted line shown in frontal view. E = compound eye, LO = lateral ocellus, MO = median ocellus, SC = supraclypeal area. — a–b. *Eupontania herbaceae* (Cameron), lectotype female. — c–d. *E. aquilonis* (Benson), holotype female of *Pontania algida* Benson. Scale 0.2 mm.

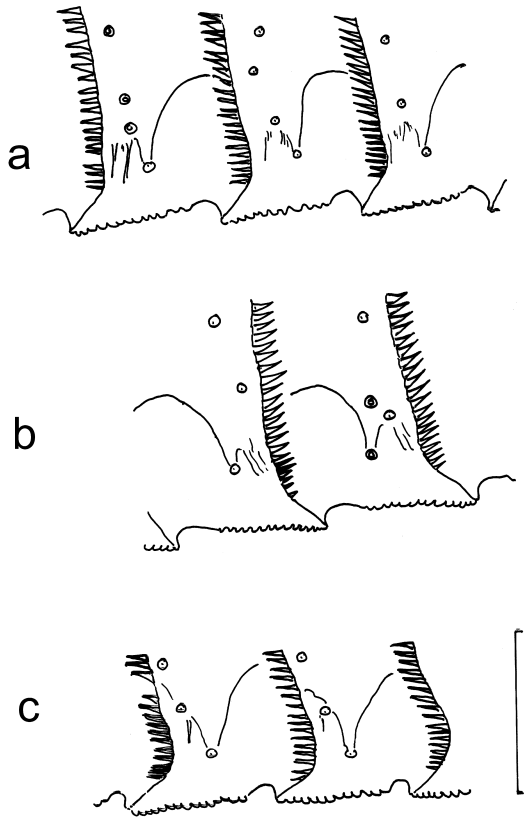


Fig. 9. Ventral part of 6th and 7th segment (and 8th; a) of lamnium of lancet from base. — a. *Eupontania herbaceae* (Cameron), Snöheim, ex *Salix herbacea*. — b. *E. arbusculae* (Benson), paratype. — c. *E. borisi* sp. n., paratype. Scale 0.05 mm.

colour of the legs. The female from Lapland has less black on coxae, trochanters, and femora. All represent the same species and all were determined as *Pontania herbaceae* Cam. by Kopelke in March 1988, because they are so labelled. The male is not a syntype because the original description contained nothing about this sex. It was determined as belonging to the *Pontania herbaceae*-group by Kopelke in March 1988. However, the left mandible shows that it is not an *Eupontania* species; it belongs to the *Pontania dolichura*-group. The ichneumonid is a male of the tribe Phygadeuontini, Cryptinae, and has nothing to do with the sawfly, except obviously they were captured at the same time; Thomson pinned specimens often when they were still alive.

In order to fix the nominal taxon I designate the third female from Lapland collected by Thomson as the lectotype of *Nematus crassipes* Thomson because it was clearly collected from the type locality, the northern part of the peninsula mentioned in the original description, and it is in good condition. Thomson made two trips to Norrland which is the northern part of Sweden and included also Lapland at the end of 1860s (Bengtsson 1900, Fitton 1982). Thus, there is no uncertainty that the lectotype was collected after 1871. The type locality is now restricted to Swedish Lapland (ICZN 1999 Article 73.2.3). Two other syntype females from Norway became now paralectotypes (ICZN 1999 Article 73.2.2).

Pontania lapponica. Malaise (1920) described female, male, larva, and gall. Adult syntypes (2 males 3 females) reared by R. Malaise from bladderlike galls on *Salix lapponum* L. in Abisko, Torne Träsk in Swedish Lapland. Lectotype female hereby designated (in order to fix the use of nominal taxon) in NRMS labelled: Torne Tr., Malaise; 72 [rearing number]; Type; Pontania lapponica sp. n. [in Malaise's handwriting]; Nematus herbaceae Cam. ♀ O. Conde det. 1937; Typus [red label]; PR. 179 (VV); Prep. 7035; 471/87; Riksmuseum Stockholm; Naturhistoriska Riksmuseet Stockholm Loan no 480/01; Lectotype ♀ Pontania lapponica Malaise, 1920: V. Vikberg 2001; *Eupontania crassipes* (Thomson), det. V. Vikberg 2001. One female and two male

syntypes bearing the same rearing no. 72 were labelled as paralectotypes by me. One further male (labelled earlier paratype) bears the rearing no. 70a which means that it was reared from *Salix herbacea* or *S. polaris* and thus belongs to *E. herbaceae*.

Pontania enslini. Zirngiebl (1937) described one female. Holotype female ("Typus") in 1920 from Nissontjokko, Torne Träsk in Swedish Lapland (O. Wettstein leg., coll. NHMW). Pinned specimen labelled Lappl. Wettstein 1920. Torne Träsk Nissontjokko (9.VII. on underside); hochalpin auf Schnee ca. 1750 m.; Pontania n. sp. ♀ Dr. Enslin det.; Pontania Enslini n. sp. det. Zirngiebl; Nematus crassipes Thoms. ♀ O. Conde det. 1939; Holotype ♀ Pontania enslini Zirngiebl, 1937: V. Vikberg 2001; Eupontania crassipes (Thomson) V. Vikberg det. 2001. Left hind leg beyond trochanter missing, otherwise in good condition.

Distribution. Finland, Norway, Russia (Kola peninsula), Sweden, United Kingdom (Scotland).

Notes. *E. crassipes* was described as *Pontania lapponica* by Kopelke (1989b: figure 1b, head in anterior and in dorsal view; figure 2, sawsheath and cerci in lateral and in dorsal view; figure 3, lamnium of lancet; and figure 4, penis valve).

The species reported as *Pontania crassipes* from Northern Slovakia, the High Tatra Mts. (Beneš 1967, 1968) on *Salix herbacea* was misidentified and belongs to *Eupontania aquilonis*. The specimens of *P. crassipes* from Belanské Tatry Mts. from *Salix alpina* Scop. (Beneš 1967, 1968) belong to a different species, which is described here as a new species, *E. alpinae*.

The species reported as *Pontania crassipes* from the Kilpisjärvi district, Finland (Vikberg 1970) was a misidentification. The specimens from *Salix herbacea* and *S. polaris* belong to *Eupontania aquilonis*, and those from *S. myrsinites* to *E. myrsiniticola*. In the same paper, the real *E. crassipes* was treated from Finland under the synonym name *Pontania lapponica*. Malaise, who worked in Stockholm, did not study the specimens of *Nematus crassipes* Thomson in Lund but described the species on *Salix lapponum* as new and did not even compare it with much older species of Thomson.

Fig. 10. Penis valve of *Eupontania herbaceae* (Cameron), paralectotype of *Pontania polaris* Malaise. Apical part and basal part drawn separate. Scale 0.1 mm.

Eupontania herbaceae (Cameron, 1876) (Figs. 2b, 3b, 5c, 6, 8a–b, 9a, 10)

Nematus herbaceae Cameron, 1876: 304. Lectotype ♀, Scotland: Rannoch, in NHML; examined (see designation below).

Pontania polaris Malaise, 1920: 112. Lectotype ¥, Sweden: Torne Träsk, in NRMS; examined (see designation below). Syn. nov.

Diagnosis. Adult is difficult to separate from other species of the group. Female: Tegula yellow. Large specimens differ from those of *E. crassipes* by longer lamnium of lancet with more teeth, and sawsheath in dorsal view with long subapical setae of one side forming an acute angle with setae on other side. Larva in gall on *Salix herbacea,* and less often on *S. polaris*.

Female. Lectotype of *N. herbaceae*: Clypeus brownish yellow, medially blackish, anterior margin with rounded emargination. Frontal area rather smooth, covered with setae (Fig. 8a–b). Anterior wall of frontal area hardly developed, furrowlike area connected with median fovea, frontal ridge smooth, hairy. Supraclypeal area with rather sparse hairs directed mediad and a little upwards. Paratorular area with 2–3 rows of horizontal hairs and with 1–2 rows of orbital setae. Upper hind margin of pronotum brownish, tegula yellow. Midlobe of mesoscutum rather smooth, midline with weak medial keel. Costa and pterostigma yellow. Basal 0.7 of fore, 0.6 of mid, and 0.3 of hind femur blackish. Hind tibial spurs short, apically curved, yellow. Tergum 1 medially with 0–1 seta on either side. Sawheath in dorsal view: long subapical setae on one side form an acute angle with long setae on other side (Fig. 2b). Measurements: Body 3.9 mm, fore wing 4.0, costa 2.3. Head width 1.08. Compound eye 0.44 × 0.31. Flagellomeres from base on 0.33 (height 0.12), 0.34, 0.31, 0.25, 0.24, 0.20 and apical one missing. Hind femur 0.92, height 0.27. Hind tibia 1.34, apical width 0.18, inner hind spur 0.16. Hind tarsomeres from base on 0.45, 0.21, 0.17, 0.09 and 0.24, total 1.16. Ovipositor sheath 1.20, sawsheath 0.68. Cercus 0.20.

Lectotype of *P. polaris:* Similar to lectotype of *N. herbaceae*, except frontal area shiny, hairy. Anterior wall of frontal area clearly formed, medially weakly notched. Tegula brownish yellow. Midlobe of mesoscutum slightly shining, with denser microsculpture and punctures, median suture furrowlike, no keel. Basal 0.7 of femora blackish. Sawsheath in dorsal view (Fig. 3b). Lamnium of lancet with 25(26) or 26 teeth, ctenidia present from 3rd basalmost annulus on; 6th and 7th teeth from base with 12–13 fine serrulae (Fig. 5c). Measurements: Body 4.3 mm, fore wing 4.3, costa 2.45. Head width 1.07. Compound eye 0.43 × 0.32. Flagellomeres from base on 0.35 (height 0.11), 0.37, 0.34, 0.29, 0.28, 0.24 and 0.32, total 2.19. Hind femur 0.87, height 0.25. Hind tibia 1.26, apical width 0.17, inner hind spur 0.15. Hind tarsomeres from base on 0.49, 0.23, 0.18, 0.07, and 0.27, total 1.24. Sawsheath 0.65. Cercus 0.23. Lancet 1.15, lamnium of lancet 0.925.

Male. Paralectotype of *Pontania polaris*: Clypeus black, with rounded emargination arteriorly. Frontal area rather shining, hairy, with a deep pit anterior to median ocellus. Anterior wall of frontal area distinct but deeply notched medially. Paratorular area with 2–3 rows of transverse setae besides orbital setae. Flagellum almost as long as 3 times head width. Pronotum black, tegula brownish black. Midlobe of mesoscutum with very fine medial keel. Costa and pterostigma pale brownish. Basal 0.7–0.8 of femora black. Tergum 1 medially with 4 distinct setae on either side. Penis valve, see Fig. 10. Measurements: Body 4.2 mm, fore wing 4.4, costa 2.65. Head width 1.13. Compound eye 0.48 × 0.35. Flagellomeres from base on 0.49 (height 0.15), 0.55, 0.55, 0.48, 0.42, 0.40 and 0.48, total 3.37. Hind femur 1.05, height 0.26. Hind tibia 1.34, apical width 0.18, inner hind spur 0.25. Hind tarsomeres from base on 0.55, 0.29, 0.23, 0.13, and 0.27, total 1.47. Hypopygium 0.96. Penis valve 0.95.

Variation. Female of *E. herbaceae*: Body length of 22 reared females is 2.8–4.4 mm, and head width 0.87–1.20 mm. Length of lamnium of lancet (n = 13) is 0.79–0.98 mm, number of segments (teeth) of lamnium varies from 26–30. Comparison of the values of females of *E. crassipes* and *E. herbaceae* (see also Fig. 6) shows that *E. crassipes* is larger (maximum head width 1.35 contra 1.20) but the lamnium of the lancet of *E. herbaceae* has more segments (26–30 contra 22–27) and can be slightly longer. The 6th to 8th teeth from base of a female reared from gall on *Salix herbacea* in Dovre-fjell each have 13 fine serrulae (Fig. 9a). Male: Body length of 12 reared specimens 3.2–4.6 mm, and head width 0.95–1.22 mm. The male is very similar to the male of *E. crassipes*. The male of *E. herbaceae* appears to have a longer hind tarsus in relation to hind tibia: index in 3 males of *E. herbaceae* 1.03, 1.05 and 1.09 and in 3 males of *E. crassipes* 0.96, 0.98 and 0.99.

Larva. Described by Cameron (1876) and Kopelke (1989b). I examined three dry prepared larvae from Snöheim, two of them full grown with head width of 1.05 mm and extended body length 12.6 mm, and one smaller larva with head width of 0.90 mm. One full grown larva (head width 1.15 mm) from Björkliden, preserved in alcohol, was treated with KOH.

Frons with 9–13 setae. Clypeus with 2 and labrum with 2 setae on either side, one-half of

clypeus with 3 setae. Mandible with 1 seta. Stipes with 2–3 setae and palpifer with 2 setae, maxillary palpus 2 with 1 seta. Antenna as in *E. crassipes*. Thoracic leg 3 with dorsal length of segments: coxa 0.41, trochanter 0.13, femur, 0.19, tibia 0.19 and tarsus with claw 0.15 mm. Tibia 3 with 8–10 setae (of which two on underside).

Third abdominal segment with 3 dorsal annulets: annulet 1 with 3 setae and near anterior margin ventrally with 2 microsetae and subdorsally with 2 microsetae, annulet 2 with 2–3 setae and annulet 3 with 3 setae and subdorsally one microglanduba. Postspiracular lobe with 2–3 setae and one microglanduba. Subspiracular lobe with 3–4 setae and anteroventrad with 2 microsetae. Surpedal lobe with 3 setae and caudally 2 microsetae. Proleg with 3–4 setae and one microglanduba visible in lateral view and 2 setae on inner side near base. One seta and 2 microsetae anteromediad of proleg, and one microseta on ventral annulet 1.

Suranal cerci very small, close to each other with shallow interspace. Distance between tips of cerci of full grown larvae 0.10 mm or 0.095 of head width.

The larva is thus very similar to the larva of *E. crassipes*. It appears to be a little smaller, with fewer setae and with the suranal cerci closer to each other.

Host plant. *Salix herbacea* L., *S. polaris* Wahlenb., and their hybrid (Malaise 1920). Pea-shaped gall is on one side of the leaf-blade, which transects it, and adjoining or including the midvein (figure 10 in Malaise [1920]).

Material examined. Adults: reared from galls on *Salix herbacea*: Norway, Dovre-fjell, Snöheim, 20 ♀ 12 ♂, galls collected in August 1968 (E. O. Peltonen and V. Vikberg leg.). Scotland, Broad Law Peebles, 2700´, 2 ♀, galls collected 30.VII.1983 (Liston leg., DEI). Larvae: Norway, Dovre-fjell, Hjerkinn, galls on *Salix herbacea*, August–September 1968, 3 dry prepared larvae, leg. E. O. Peltonen. Norway, Berlevåg, galls on *S. herbacea*, 17.VII.2000, 2 small larvae in alcohol, T. Nyman leg. Sandfjord, gall on *S. herbacea*, 17.VII.2000, 1 small larva in alcohol, T. Nyman leg. Vardö, Domen, galls on *S. herbacea*, 18.VII.2000, 2 small larva in alcohol, T. Nyman leg. Sweden, Abisko, Njulla, 12.VIII.1998, gall on *S. herbacea*, 1 larva in alcohol; galls on *S. polaris*, 2 small larvae (only one examined by me) in alcohol, T. Nyman leg. Abisko, Björkliden, galls on *S. herbacea*, 16.VIII.1998, 2 larvae in alcohol, T. Nyman leg. Finland, Li: Harremastsohkka, galls on *S. herbacea*, 16.VII.2000, 2 rather small larva in alcohol, T. Nyman leg. and det. The species is new to the fauna of Finland.

Type material. — *Nematus herbaceae*. Cameron (1876) described female, male, larva, and gall. Syntypes (females and males) reared from galls on *Salix herbacea* L. on Ben Lawers and on "Garyvel", Rannoch by P. Cameron. Lectotype female hereby designated (to fix the use of the nominal taxon) labelled: Cameron, 96 76, herbaceae (specific name handwritten on underside of the printed label); Type (round label with red margin); B. M. TYPE HYM. 1.614; B. M. TYPE HYM Nematus herbaceae Cameron 1875; Lectotype ♀ Eupontania herbaceae (Cameron, 1876) V. Vikberg 2001 (coll. NHML). The specimen is micropinned (0.38 mm thick pin), both apical flagellomeres are missing, left fore tarsomeres 3–5, right mid-tarsus, and left hind tarsomeres 3–5 are missing. Left fore and both hind wings are partly broken. Type locality: Rannoch in Scotland.

Pontania polaris. Malaise (1920) described female, and male. Syntypes (4 males, 10 females) were reared from galls on *Salix herbacea, S. polaris* and *S.* x *herbacea* x *polaris* in Torne Träsk area and Riksgränsen by R. Malaise. Lectotype female hereby designated (in order to fix the nominal taxon *Pontania polaris*) in coll. NRMS labelled: 5 [rearing number]; Torne Tr., Malaise; Type; Pontania polaris n. sp. (ex gall) [in Malaise's handwriting]; Typus [red label]; Nematus herbaceae Cam. ♀, O.Conde det. 1937; PR. 180 (VV); Prep. 7037; Riksmuseum Stockholm; 465/87; Lectotype ♀ Pontania polaris Malaise, 1920. V. Vikberg 2001; Eupontania herbaceae (Cameron) ♀, det. V. Vikberg 2001. Five female syntypes and one male syntype bearing the same rearing no. 5 were labelled as paralectotypes by me; they are conspecific with the lectotype. There is no food plant mentioned for any specimen.

Distribution. Finland, Norway, Sweden, United Kingdom (England, Scotland, Wales).

Notes. The female and the male of the species were described and figured by Kopelke (1989b; figure 1a, head in dorsal and anterior view; figure

Fig. 11. Penis valve of *Eupontania arbusculae* (Benson), paratype. Apical part and basal part drawn separately. Scale 0.1 mm.

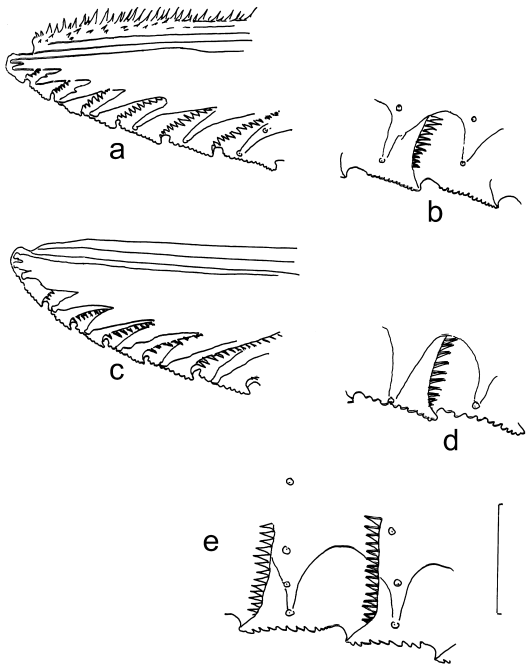


Fig. 12. Apex (a, c) and ventral part (b, d) of 10th and 11th segment, from base of lamnium of lancet. — a–b. *Eupontania arbusculae*. — c. *Eupontania arbusculae* (Benson), paratype. — d. *E. retusae* (Benson), paratype. — e. Ventral part of 6th and 7th segment of lamnium of lancet from base of *Eupontania reticulatae* (Malaise), Furkota, ex *Salix reticulata*. Scale 0.05 mm.

2, sawsheath and cerci in lateral and in dorsal view; figure 3, lamnium of lancet; figure 4, penis valve) and its synonym *P. polaris* was described and figured by Kopelke (1989b; figure 14, sawsheath and cerci in lateral and in dorsal view; figure 15, lamnium of lancet; and figure 16, penis valve).

Malaise (1920) reared this species from galls both on *Salix herbacea* and *S. polaris* from Torne Träsk area. His observation is now confirmed. It is much more frequent on *Salix herbacea* than on *S. polaris*. The species is so far unknown in the Kilpisjärvi area, Finland, where both species of *Salix* are present. Malaise (1920) reared two different species from galls on *Salix herbacea* and *S. polaris* but misidentified them. Kopelke (1989b) had some doubts about the synonymy of *Pontania herbaceae* with *P. aquilonis*. Kopelke (1999) could not distinguish between the two species and regarded them synonyms. Thus, besides *Eupontania herbaceae,* his *Pontania herbaceae* contains *E. aquilonis,* and he (Kopelke 1989b, 1999) treated *E. herbaceae* also as *Pontania polaris* and united incorrectly the larva described by Malaise (1920) under *Pontania herbaceae* with it and placed it in incorrect species group.

Eupontania arbusculae (Benson, 1941) (Figs. 9b, 11, 12a–b)

Pontania arbusculae Benson, 1941: 134. Holotype ♀, Scotland: Perthshire, in NHML; examined (see below).

Diagnosis. Adult with frontal area concave and anterior wall well developed. Larva in gall on *Salix arbuscula*.

Female. Holotype: Small, very similar to small females of *E. herbaceae* except frontal area

slightly concave, rather dull with surface sculpture and anterior wall of frontal area well developed, medially weakly and narrowly notched. Clypeus emarginate to 0.50 of its medial length. Measurements: Body 3.4, fore wing 3.6, costa 2.15. Head width 0.99. Compound eye 0.41 × 0.28. Flagellomeres from base on 0.31 (height 0.10), 0.30, 0.29, 0.27, apical ones missing. Hind femur 0.85, height 0.27. Hind tibia 1.17, apical width 0.17, inner hind spur 0.15. Hind tarsomeres missing. Ovipositor sheath 1.00, sawsheath 0.65. Cercus 0.20.

One female paratype of *P. arbusculae* with head width of 1.18 mm in bad condition; hind femur yellow, 1.03 mm long and 0.325 mm high. Lances and lancets mounted on a slide: lance ca. 1.26 mm, lancet 1.23 mm, lamnium of lancet 0.95 mm, lamnium with 25 segments or teeth, distinct ctenidia present from 4th basalmost annulus on, traces of ctenidia already on 3rd annulus. 6th and 7th teeth from base with 14–15 fine serrulae (Fig. 9b); apex of lancet (Fig. 12a), and 10th and 11th teeth from base with 13 serrulae (Fig. 12b).

Male. Two male paratypes, reared from galls on *Salix arbuscula*, in better condition; they have concave frontal area and their anterior wall of frontal area is entire.

Measurements of the paratype male 1: Body 3.9, fore wing 4.1, costa 2.4. Head width 1.19. Eye 0.50 × 0.37. Flagellomeres from base on 0.40 (height 0.15), 0.51, 0.52, 0.45, 0.42, 0.38 and 0.44, total 3.12. Hind femur 1.01, height 0.28. Hind tibia 1.40, apical width 0.19, inner hind spur 0.23. Hind tarsi missing. Hypopygium ca. 1.00. Penis valve 0.97.

Measurements of the paratype male 2: Body 4.9, fore wing 4.6, costa 2.55. Head width 1.18. Eye 0.51 × 0.38. Flagellomeres from base on 0.46 (height 0.16), 0.55, 0.55, 0.48, 0.43, two apical missing. Hind femur 1.00, height 0.255. Hind tibia 1.46, apical width 0.185, inner hind spur 0.24. Hind tarsomeres from base on 0.57, 0.30, 0.22, 0.13 and 0.23, total 1.45. Hypopygium 1.00. Penis valve 1.00.

Larva. Described by Benson (1941; figures 3–4); rather similar to larvae of *E. crassipes* and *E. herbaceae*. Further observations are needed to clarify the taxonomic status of the species.

Host plant. *Salix arbuscula* L. Gall irregularly pea-shaped from about 1 cm (♀) to 0.5 cm (♂) in diameter, situated one side of the leaf-blade, which transects it, and adjoining or including the midvein (Benson 1941).

Material examined. Holotype and one female and two male paratypes from the type locality.

Type material. — Pontania arbusculae. Benson (1941) described female, male, and larva. Holotype female bred V.1933 from galls on *Salix arbuscula* L., collected in VIII.1932 on crags above Lochan à Lairige near Killin, ca. 2000 ft. in Perthshire, Scotland (G. Taylor leg.) in NHML. The holotype bears labels "Pontania arbusculae Bens. 1941 ♀ HOLOTYPE" and "B. M. TYPE HYM. 1.1691". Genitalia mounted on a slide. This slide could not be found in February 2002.

Distribution. United Kingdom (Scotland). This species is known only from the type locality in Scotland (Benson 1941).

Notes. The female and the male of the species were redescribed and figured by Kopelke (1989b; figure 2, sawsheath in lateral and dorsal view; figure 3, lamnium of lancet; and figure 4, penis valve). The penis valve of the other male is shown in Fig. 11: in this specimen the basal part is strong.

In August 1989 I found two bean-shaped galls on *Salix arbuscula* in the Torne Träsk area, Sweden but no larvae were found inside galls or they had been killed when small. It is possible that some other species of the group had tried this species of *Salix* without success. Galls on *Salix arbuscula* have been found in Kolguyev Island, Russia (Zinovjev 1999).

Eupontania foetidae (Kopelke, 1989)

Pontania foetidae Kopelke, 1989b: 54. Holotype ♀, Austria, Tirol, Zillertal, Hintertux/Weitental 1700 m, reared from galls on *Salix foetida* collected on 22.VIII.1983 by J.-P. Kopelke; in FNMS, SMF H 2123a, not examined.

Diagnosis. Adult difficult to separate from other species of group. Female: Tegula brown. Sawsheath in dorsal view with subapical long setae on one side forming an acute angle with long setae on other side. Metanotum medially with ca. 10 setae. Body dark. Larva in gall on *Salix foetida*.

Female. Paratype: Head black. Mandible yellowish brown, apically amber red. Palpi piceous. Labrum yellowish brown. Clypeus dark brown, basally infuscate. Supraclypeal area with brown-

ish tint. Lateral vertex slightly reddish brown. Apical flagellomeres slightly brownish black. Thorax black, tegula brown. Costa pale brownish, pterostigma pale, yellowish, venation brown. Coxae black, trochanters and trochantelli brown to blackish, bases of femora broadly black, on lower margin of femora black reaches apical emargination. Hind femur in lateral view mostly yellowish brown but on upper and lower margins black colour extends almost to apex. Femora apically and tibiae yellowish brown, apex of hind tibia slightly infuscate, hind tarsus brownish infuscate. Abdomen black to brownish black, tergum 10 brown, cercus brownish yellow, basal sheath yellowish brown. Anterior wall of frontal area developed, slightly shallowed medially. Midlobe of mesoscutum smooth, shining, densely hairy, with slight furrow on anterior third. Tergum 1 medially with 2 setae on either side. Measurements: Body 3.9 mm, fore wing 4.6, costa 2.6. Head width 1.18. Compound eye 0.47 × 0.32. Flagellomeres from base on 0.36 (height 0.115), 0.37, 0.35, 0.30, 0.29, 0.29 and 0.32, total 2.28. Hind femur 0.99, height 0.25. Hind tibia 1.38, apical width 0.195, inner hind spur 0.17. Hind tarsomeres from base on 0.52, 0.26, 0.20, 0.10, and 0.28, total 1.36. Ovipositor sheath 1.15. Sawsheath 0.70. Cercus 0.22.

Male. Paratype: Clypeus black. Tegula blackish. Costa, pterostigma and venation dark, brownish. Femora almost entirely black. Measurements: Body 4.4, forewing 4.6, costa 2.7. Head width 1.205. Eye 0.50 × 0.37. Flagellomeres from base on 0.55 (height 0.15), 0.60, 0.58, 0.50, 0.51, 0.46 and 0.47, total 3.67. Hind femur 1.05, height 0.25. Hind tibia 1.49, apical width 0.18, inner hind spur 0.22. Hind tarsomeres from base on 0.57, 0.27, 0.21, 0.11 and 0.25, total 1.41. Hypopygium 1.02.

Material examined. One female (SMF H 2124b) and one male paratype (SMF H 2124f) reared from galls on *Salix foetida* in the type locality.

Host plant. *Salix foetida* Schleich. ex Lam. et DC. Gall emerging on both surfaces of leaf, bladderlike, upperside completely smooth and often shining, colour green to reddish (Kopelke 1989b; figure 11).

Distribution. Austria and Switzerland.

Notes. The female, male and larva of the species were described and figured by Kopelke (1989b; figure 8b, head in anterior and dorsal view; figure 9, sawsheath and cerci in lateral and dorsal view; figure 3, lamnium of lancet; figure 4, penis valve; and figure 10a–e, larva). Both mandibles of the figured larva bear 3 setae which is very unusual in *Eupontania* or the figure is inaccurate.

Eupontania maculosa (Kopelke, 1989)

Pontania maculosa Kopelke, 1989b: 58. Holotype ♀, Austria, Ötztal, Venter Tal/Am Spiegel 1800 m a.s.l., reared from galls on *Salix helvetica* collected on 17.VIII.1983 by J.-P. Kopelke; in FNMS, SMF H 2125a, not examined.

Diagnosis. Adult is difficult to separate from other species of the group. Female: Sawsheath in dorsal view with long subapical setae forming an obtuse angle with long setae on other side. Tegula dark brown to black. Larva in gall on *Salix helvetica*.

Female. Paratype: Head black. Antenna apically brownish black. Upper temple and lateral vertex reddish brown. Mandible yellowish brown, apically amber red. Labrum yellowish brown. Clypeus dark brown, infuscate. Thorax black, tegula dark brown. Costa brown, pterostigma pale, yellowish brown, venation dark brown. Basal 0.5 of femora blackish in lateral view, with lower margins entirely blackish. Tibiae yellowish brown, hind tiba apically brownish, spurs brown and hind tarsus brownish infuscate. Abdomen black, tergum 10 dark brown, cercus brown and basal sheath partly yellowish brown. Tergum 1 medially with 2–3 setae on each side. Measurements: Body 4.2 mm, fore wing 5.2, costa 3.1. Head width 1.34. Compound eye 0.52 × 0.37. Flagellomeres from base on 0.40 (height 0.135), 0.40, 0.39, 0.35, 0.32, 0.30 and 0.35, total 2.51. Hind femur 1.14, height 0.30. Hind tibia 1.67, apical width 0.20, inner hind spur 0.20. Hind tarsomeres from base on 0.55, 0.28, 0.22, 0.11, and 0.30, total 1.46. Ovipositor sheath 1.27. Sawsheath 0.72. Cercus 0.23. Lamnium of lancet 0.97, with 26 teeth.

Male. Paratype: Clypeus black. Tegula blackish. Costa and pterostigma dark, brownish. Basal 0.8 of hind femur black. Measurements. Body 4.2, forewing 4.2, costa 2.4. Head width 1.10. Eye 0.43 × 0.31. Flagellomeres from base on 0.47 (height 0.13), 0.51, 0.51, 0.43, apical 3 missing. Hind fe-

mur 0.93, height 0.225. Hind tibia 1.33, apical width 0.15, inner hind spur 0.22. Hind tarsomeres from base on 0.54, 0.25, 0.20, 0.10 and 0.22, total 1.31. Hypopygium 1.03.

Material examined. I examined one female paratype (SMF H 2126a) and one male paratype (SMF H 2126f) reared from galls on *Salix helvetica* in the type locality.

Host plant. *Salix helvetica* Vill. Gall on both upper and lower surface, bladderlike, hairy (on lower side more), matt to slightly shining, pale green, sometimes reddish (Kopelke 1989b; figure 13).

Distribution. Austria and Switzerland.

Notes. The female, male and larva of the species were described and figured by Kopelke (1989b; figure 8a, head in dorsal and anterior view; figure 9, sawsheath and cerci in lateral and in dorsal view; figure 3, lamnium of lancet; figure 4, penis valve, and figure 12a–f, larva).

Eupontania borisi sp. n. (Figs. 9c, 13)

Holotype female: Russia, Buryatskaya Republic, Tunka valley, Tibelti, 24.VI.1963, B. Verzhutskij leg. (coll. DABUH). Paratypes: the same data, 12.VI.1963 4 ♂, 19.VI.1963 2 ♀ and 28.VI.1963 1 ♀ (coll. DABUH and coll. V. Vikberg, Turenki). Type locality: the co-ordinates of Tunka village are 51°46´N 102°31´E.

Fig. 13. Penis valve of *Eupontania borisi* sp. n., paratype. Apical part and basal part drawn separately. Scale 0.1 mm.

Diagnosis. Female: Clypeus and supraclypeal area entirely brownish yellow and tegula yellow. Sawsheath in dorsal view with long subapical setae of one side forming an obtuse angle with long setae on other side. Male: Head anteriorly with extensive pale markings. Larva in gall on *Salix rhamnifolia*.

Female. Holotype: Head black. Upper temple broadly yellowish brown, clypeus and supraclypeal area brownish yellow. Labrum yellow, mandible yellow, apically amber red, palpi piceous. Flagellum brown, beneath brownish yellow, flagellomeres 1–2 above slightly infuscate. Thorax black. Upper hind margin of pronotum and tegula yellow. Costa and pterostigma pale, yellow. Forewing clear, veins mostly brownish. Hind wing largely whitish, with whitish veins. Coxae basally blackish, apically yellow. Trochanters and trochantelli yellowish. Femora brown, with infuscate bases and infuscate lower and upper margins, less so in hind femur. Tibiae yellow, mid- and hind tibia basally almost whitish, apex of hind tibia brownish infuscate. Tarsi brownish yellow, hind tarsus infuscate. Abdomen brownish black. Tergum 9 apically and tergum 10 and basal sheath yellow. Cercus yellowish white. Clypeus apically roundedly emarginate to 0.44 of its medial length. Supraclypeal area hairy, hairs directed mediad and a little upwards. Frontal area with granulate sculpture, weakly shining, covered with hairs. Anterior wall of frontal area V-shaped, notched medially, hairy, interantennal fovea very small, round. Paratorular area with 2–3 rows of horizontal hairs besides orbital setae. Midlobe of mesoscutum with dense alutaceous sculpture and punctured, weakly shining, median suture impressed, linelike. Tergum 1 with up to 13 rather long setae on either side. Longer apical setae on one side of sawsheath form an obtuse angle with setae on other side. Measurements:

Body 5.1, fore wing 5.26, costa 3.1. Head width 1.33. Compound eye 0.57 × 0.40. Flagellomeres from base on 0.36 (height 0.12), 0.37, 0.35, 0.29, 0.25, 0.23 and 0.28, total 2.13. Hind femur 1.17, height 0.33. Hind tibia 1.65, apical width 0.23, inner hind spur 0.21. Hind tarsomeres from base on 0.61, 0.27, 0.20, 0.12 and 0.31, total 1.51. Ovipositor sheath 1.26, sawsheath 0.67. Cercus 0.25.

Paratype female: Head width 1.36 mm. Lancet of the saw (pr. 302 VV) 1.07–1.08 mm long, lamnium of lancet 0.87–0.88 mm long, with 24 teeth, ctenidia present from 4th annulus on and 6th and 7th teeth from base with 13–15 fine serrulae (Fig. 9c).

Male. Head black. Clypeus, supraclypeal area, lateral face and a small part of lower lateral frons, and gena brownish yellow. Temple brownish. Flagellum pale brown. Labrum, mandible, and palpi coloured as in female. Thorax black. Pronotum a little and tegula brownish yellow. Costa and pterostigma brownish. Legs brownish yellow. Coxae basally infuscate, trochanters and trochantelli partly infuscate. Bases of and lower and upper sides of femora slightly infuscate. Hind tibia apically brownish infuscate, hind tarsus infuscate. Abdomen brownish black, hypopygium dark brown. Penis valve (Fig. 13). Measurements: Body 4.5, fore wing 5.0, costa 2.8. Head width 1.34. Eye 0.55 × 0.43. Flagellomeres from base on 0.45 (height 0.17), 0.52, 0.51, 0.42, 0.40, 0.36 and 0.40, total 3.06. Hind femur 1.17, height 0.295. Hind tibia 1.60, apical width 0.20, inner hind spur 0.24. Hind tarsomeres from base on 0.68, 0.28, 0.20, 0.12 and 0.27, total 1.55. Hypopygium 1.09.

Variation. Female: Body length (n = 4) 4.0–5.2, fore wing 4.4–5.4, costa 2.4–3.1, and head width 1.11–1.36 mm. In smallest female ovipositor sheath longer than head width (1.10×), in larger females shorter (0.95×). Male: Body length (*n* = 4) 4.0–4.8, forewing 4.3–5.0, costa 2.4–2.8, and head width 1.25–1.41 mm.

Host plant and biology. The biology of the new species was described by Verzhutskij (1966) under the name of *Pontania crassipes* (Thomson) from the type locality. The food plant of the larva was mentioned as *Salix chlorostachya*. The valid name for *S. chlorostachya* Turcz. which grows in the type locality is now *Salix rhamnifolia* Pallas (Skvortsov 1999). Below I give a brief version of the biology of the species by Verzhutskij (1966).

In 1963, a massive population of this species was observed in Tunka Valley in Tibelti. The flight of the sawfly had already begun when first observations were made, but it had not reached its peak which occurred on 29–31 May. The last males were captured on 2 July and the last females on 17 July. Altogether, 257 males and 352 females were captured.

The eggs were laid only on one species of willow, *S. chlorostachya*, which grows on the sandy deposits along the Irkutsk River. Another abundant species of willow, *S. rossica*, was not attacked at all. (*Salix rossica* Nasarov is a synonym of *S. viminalis* L. [Skvortsov 1999]). One egg is deposited on a leaf, seldom two eggs and still more seldom three eggs can be found on a leaf. Each female can lay 42–93 eggs. The eggs are whitish and banana shaped; their dimensions are 0.2 × 0.7 mm. The galls are bean-shaped, swellings are formed almost uniformly on both sides of the leaf near the main vein, the surface of them is smooth and without hairs. The upper side of the gall is red (raspberry colour), the lower side is yellowish green. The size of the gall is 5 × 10 mm.

The full-grown larva is 8 mm long, with width of head capsule 1 mm. Head is brown with a dark greybrown frons. The body is pale, grey-brown. Dorsally on each segment, except the first and the last three, there are three transverse rows of dots which form broken longitudinal and transverse stripes. The thoracic legs are pale, greybrown.

Departure of larvae for cocoon formation in the soil ends in the second half of September. On 28 August, out of 100 galls which were opened, 28 contained larvae of the sawfly and the remaining galls were either empty or contained larvae or pupae of parasites. On 9 September 23 sawfly larvae were found in 100 opened galls but on 20 September only one healthy sawfly larva per 100 galls. The cocoons are brown, from 2.5 × 7 to 3.5 × 8 mm, they are in the mineral layer of the soil, less frequently between the forest litter and the mineral layer. They are covered with adhering soil particles.

Etymology. The new species is named after Dr. Boris Verzhutskij who has studied the sawfly fauna of the Baikal region and published his observations in several works.

Distribution. Russia: E. Siberia, Buryatskaya Republic.

Notes. This species is easily distinguished from other species of *E. crassipes*-group by its entirely brownish-yellow clypeus and supraclypeal area in the female and by the extensive pale markings of the anterior head in the male.

On further female specimens (not paratypes): Two females which had been reared from galls on *Salix rhamnifolia* from Buryatskaya Republic, Turan (ca. 65 km W of Tunka) were examined from coll. ZMMSU; this was possible with the courier help of Dr. A. Zinovjev. They are labelled: Turan, from galls 24.V.1939, D. Floroff leg. and both pins bear a leaf of *Salix* with a gall of *Eupontania*. The leaves had been earlier presented to Prof. A. K. Skvortsov and he identified them as belonging to *Salix rhamnifolia* (A. Zinovjev, pers. comm.).

Larger female: much paler than holotype of *E. borisi*: pronotum almost wholly brownish yellow, mesoscutellum brownish yellow and mesepisternum brownish yellow except glabrous zone blackish. Femora yellowish brown, without infuscations. Terga 4–6 laterally partly and terga 7–10 and all sterna wholly brownish yellow. Flagellum almost black, only apical flagellomeres below brownish. Interantennal fovea longitudinal, but so also in paratype females. Sawsheath in dorsal view: long subapical setae on one side form a slightly acute angle with setae on the other side but so also in smallest female paratype.

Measurements of the larger female: Body 5.0, fore wing 5.4, costa 2.9. Head width 1.28. Compound eye 0.55 × 0.36. Flagellomeres from base on 0.38 (height 0.13), 0.39, 0.37, 0.33, 0.29, 0.27 and 0.31, total 2.34. Hind femur 1.14, height 0.31. Hind tibia 1.65, apical width 0.23, inner hind spur 0.17. Hind tarsomeres from base on 0.55, 0.27, 0.21, 0.12 and 0.26, total 1.41. Ovipositor sheath 1.11, sawsheath 0.60. Cercus 0.23.

Smaller female from Turan: 4.4 mm long, fore wing 4.7 and head width 1.17. Ovipositor sheath 1.07, sawsheath 0.64 and cercus 0.25 mm. Head still paler: inner orbits broadly and frontal ridge brownish yellow.

The size of the galls from Turan is 10–11 mm (length) × 7 mm (width) × 5.4 mm (height), they are near the base of the leaf and equally developed on upper and lower side of the leaf-blade, colour reddish especially on upper side, surface matt, glabrous.

Eupontania aborigensis sp. n.

Holotype female labelled Magadan. ob.[last], 100 km N Ust-Omtchug, Aborigen sta., M. Viitasaari & A. Zinovjev Nr. 2085, Salix dshugdshurica, galls VII.1987, em. 12.V.1988 (coll. ZISP). Paratypes: 3 ♀♀, the same data, except one emerged on 16.5.1988 (coll. ZISP and DABUH). The type locality is the Aborigen biological station on Upper Kolyma River in the area of Upper Kolyma Highlands (W of station Pik Aborigen 2586 m a.s.l., co-ordinates 61°59´N 149°21´E).

Diagnosis. Female: Supraclypeal area black, tegula yellow. Sawsheath in dorsal view with narrow zone of long subapical setae, those on one side form an obtuse angle with setae on other side. Larva in gall on *Salix dshugdshurica*.

Female. Holotype: Head, including antenna and supraclypeal area black. Palpi piceous, base of mandible and labrum brownish yellow. Lateral lobes of clypeus anteriorly, gena, upper temple and lateral vertex yellowish brown. Thorax black. Upper hind margin of pronotum, prepectus and tegula yellow. Costa and pterostigma yellow. Veins of forewing brown, except Sc + R and 1A yellow. Coxae blackish, apical half of hind coxa yellowish brown. Femora brownish yellow, fore and midfemur basally infuscate. Tibiae whitish yellow. Tarsi brownish yellow, apically infuscate. Abdomen black. Terga 6–10 mostly brownish yellow, apical sterna and basal sheath yellow. Cercus yellowish, apically infuscate. Sawsheath brown, dorsally and apically infuscate.

Clypeus apically roundedly emarginate to 0.35 of its medial length. Supraclypeal area hairy, hairs directed mediad and a little upwards. Frontal area with weak irregular surface sculpture, weakly shining, covered with hairs. Anterior wall of frontal area weakly developed, hardly shallowed medially, hairy, interantennal fovea longitudinal. Lateral frons above antennal hollow hairy. Paratorular area with horizontal hairs on lateral half. Lateral face with scattered hairs. Midlobe of mesoscutum densely punctured, shining, laterally with dense alutaceous sculpture, median suture furrow-like. Metanotum medially with 2–3 setae on either side. Tergum 1 with 2–4 setae on either side. Sawsheath in dorsal view: Long subapical setae on one side form an slightly obtuse angle with long setae on other side.

Measurements. Body 4.5, fore wing 5.4, costa 3.0. Head width 1.38. Compound eye 0.59 × 0.40.

Flagellomeres from base on 0.44 (height 0.135), 0.40, 0.38, 0.35, 0.32, 0.30 and 0.33, total 2.52. Hind femur 1.20, height 0.325. Hind tibia 1.57, apical width 0.21, inner hind spur 0.18. Hind tarsomeres from base on 0.56, 0.25, 0.20, 0.11 and 0.26, total 1.38. Ovipositor sheath ca. 1.18, sawsheath 0.65. Cercus 0.25.

Male. Unknown.

Variation. Female: body length of paratypes 3.6–4.2 mm, fore wing 4.2–5.5 and head width 1.14–1.36 mm. The largest paratype distinctly paler: clypeus mostly brownish yellow, but still basally infuscate, malar space area, gena and temple with more extensive yellowish brown colouration, upper part of mesepisternum with large yellowish brown spot, and mesoscutellum mostly yellowish brown. Coxae only basally blackish, and all femora brownish yellow. On lower paratorular area horizontal setae reach almost to torulus. Tergum 1 medially with ca. 15 setae on both sides. Smallest paratype female dark as holotype. In female with head width 1.25 mm the long subapical setae of sawsheath on one side form an acute angle with setae on the other side.

Host plant. *Salix dshugdshurica* Skvortsov. This species is very close to *Salix bogadinensis* Trautv. and further study is needed to solve their relationships (Skvortsov 1999). Up to now four species of *Eupontania crassipes*-group are known to feed on four species of *Salix* (subgenus *Vetrix*) from sect. Arbuscella subsect. Arbusculae: *S. arbuscula*, *S. foetida*, *S. dshugdshurica* and *S. rhamnifolia*.

Etymology. The specific name is derived from the name of the Aborigen biological station.

Distribution. Northeastern Russia, Magadan oblast.

Notes. The female of the species differs from that of *E. borisi* by the following characters: Supraclypeal area is completely black, clypeus is at least basally blackish and its apical emargination is shallower and sawsheath apically with narrower zone of long subapical setae.

3.4. *Eupontania aquilonis*-group

Adult can be recognized in both sexes by unmodified left mandible, mostly glabrous frontal area (except in *E. retusae*), paratorular area medially glabrous and laterally glabrous or with few hairs besides orbital setae (excepted in *E. retusae*) and mesepisternum below with glabrous zone. Female: inner hind tibial spur short or rather short. Larva: abdominal segment 1–8 with 4 dorsal annulets, and body without blackish spots or dark spiculae. Gall similar as in *E. crassipes*-group or protruding more on undersurface of leaf.

Female. Left mandible not modified (as in *Euura*). Frontal area mostly glabrous, lateral frons above outer antennal hollow largely glabrous, and in many species paratorular area almost or wholly glabrous, except row of orbital setae (exception: *E. retusae* with unusually hairy frons and lateral face). Flagellum filiform, 1.5–2.05 as long as head wide, and flagellomere 1 is 0.63–0.84 as long as eye high or 0.91–1.26 as long as eye wide. Lower mesepisternum with longitudinal, glabrous zone. Pterostigma pale. Hind tibial spurs in many species short or rather short (inner spur 0.8–0.9–1.0 as long as tibia wide; exceptions about 1.1 in *E. retusae* and *E. ora*). Ovipositor usually slightly longer than in *E. crassipes*-group: e.g. longest measured lamnium of lancet in *E. crassipes*-group in *E.crassipes* 0.96, in *E. herbaceae* 0.97 mm, whereas lamnia in *E. aquilonis*-group often longer than 1.00 mm: measured values in *E. aquilonis* 1.01–1.10, *E. myrsiniticola* 1.06–1.07 and *E. retusae* 1.06–1.17 mm. Serrulae are stronger and their number is less than in *E. crassipes*-group.

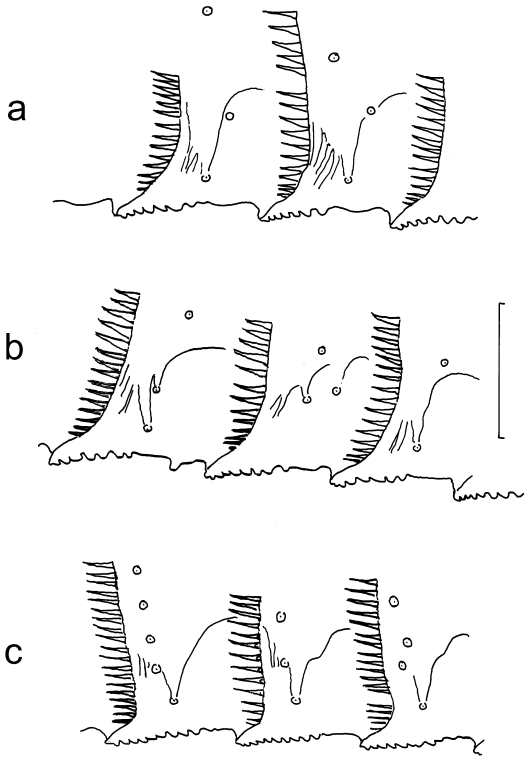
Male. Left mandible, distribution of hairs on head and mesepisternum similar as in female. Flagellum longer than in female, 2.2–3.15 as long as head wide, and flagellomere 1 0.84–1.08 as long as eye high or 1.09–1.57 as long as eye wide. Pterostigma often darker, brownish. Tibial spurs longer than in female: inner hind spur 1.05–1.4 as long as tibia wide.

Larva. Abdominal segments 1–8 have four dorsal annulets. Cuticle lacks dark spiculae and blackish dots.

Gall. Bladder-like or large pea-shaped gall similar as in *E. crassipes*-group. In some species gall is protruding more on underside of leaf, e.g. *E. myrsiniticola* and *E. arctica*.

Host plant. Mainly dwarf willows of subgenus *Chamaetia* and dwarf form of *S. pulchra* of subgenus *Vetrix* (Zinovjev 1999).

Notes. The females are rather similar to those of *E. crassipes*-group. The galls caused by species



Figs 14. Ventral part of 6th , 7th and 8th segment of lamnium of lancet from base. — a. *Eupontania aquilonis* (Benson), Leutsuvaara, ex *Salix herbacea*. — b. *E. aquilonis* (Benson), Saana, ex *Salix herbacea*. — c. *E. myrsiniticola* (Kopelke), Saana, ex *Salix myrsinites*. Scale 0.05 mm.

Fig. 15. Penis valve of *Eupontania aquilonis* (Benson), Saana, ex *Salix herbacea*. Apical part and basal part drawn separately. Scale 0.1 mm.

of this group are of the same type as in *E. crassipes*-group. When the galls of both groups occur on the same willow species, e.g. *Salix herbacea*, they cannot be distinguished from each other. However, the larvae are quite different. The larvae of this group resemble those in *E. viminalis* group. The galls of some species are intermediate between the two groups. Zinovjev (1999) treated *polaris*- and *viminalis*-groups together in the same table because in herbarium samples the galls are sometimes difficult to distinguish from each other. Also adult characters are not so distinct between the two species-groups. The *E. aquilonis*-group is not so homogeneous as *E. crassipes*-group and contains diverse elements. *E. retusae* has several deviating characters and is rather isolated in the group. The relationships of *E. aquilonis*- and *E. viminalis*-groups need further study, especially in N. America.

This species-group has been known earlier as the *Pontania polaris*-group (Kopelke 1989b, 1999, Zinovjev 1995, 1999) but this name is no longer acceptable because *Pontania polaris* Malaise proved to be a synonym of *E. herbaceae* of *E. crassipes*-group. I call it *E. aquilonis*-group according to its oldest European member the biology of which is now well known.

Eupontania aquilonis (Benson, 1941) (Figs. 8c–d, 14a–b, 15, 16a)

Pontania herbaceae (Cameron): Malaise, 1920: 110., *nec* Cameron (see below).

Pontania aquilonis Benson, 1941: 134. Nom. nov. for *Pontania herbaceae* (Cam.) Malaise, nec Cameron. Lectotype ♀, Sweden: Torne Träsk, in NHML; examined (see designation below).

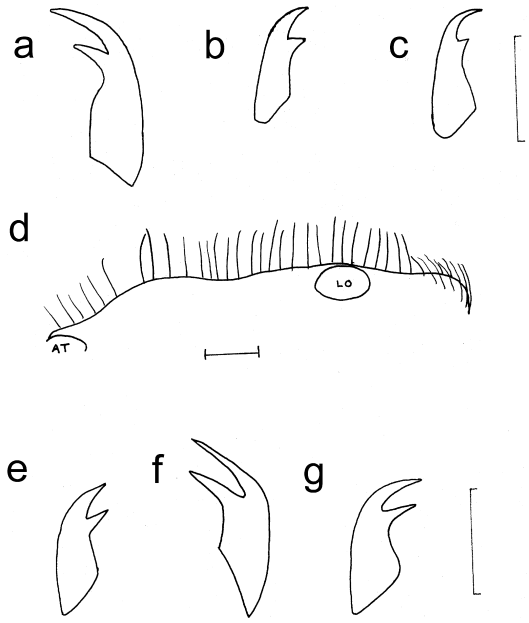


Fig. 16. Inner hind claw. — a. *E. aquilonis* (Benson), Vys. Tatry, female ex *Salix herbacea*. — b. *Eupontania retusae* (Benson), holotype female. — c. *E. retusae* (Benson), Furkota, male ex *Salix retusa*. — d. Frons and vertex of *Eupontania retusae* (Benson) in lateral view, Furkota, female ex *Salix retusa*. AT = antennal torulus; LO = lateral ocellus. — e. *E. alpinae* sp. n., paratype male. — f. *E. reticulatae* (Malaise), Bel. Tatry, female ex *Salix reticulata*. — g. *E. reticulatae* (Malaise), Bel. Tatry, male ex *Salix reticulata*. Scales 0.1 mm.

Pontania algida Benson, 1941: 134 (in key), 135. Holotype ♀, Scotland: Perthshire, in NHML; examined (see below). Syn. nov.

Diagnosis. Adult: frontal area with regular surface sculpture, matt, glabrous, its anterior wall well developed, entire or slightly incised. Hairs on abdominal terga 1–4 reduced, very short or absent. Larva in gall on *Salix herbacea* and *S. polaris*.

Female. Lectotype: Large, well developed. Brownish yellow clypeus broadly and roundly emarginate to 0.46 of its medial length. Frontal area and anterior wall of frontal area glabrous. Frontal area distinctly microsculptured, dull. Anterior wall of frontal area well-developed, slightly notched medially. Lateral face on paratorular area practically glabrous, except one orbital row of setae. Tegula yellow. Upper hind corner of pronotum, lateral lobe of mesoscutum laterally and apical margin of mesoscutellum with reddish brown. Longer setae of sawsheath on one side form an acute angle with long setae on other side. Tergum 1 medially glabrous. Measurements: Body 5.3. Fore wing 5.5, costa 3.0. Head width 1.38. Compound eye 0.65 × 0.42. Flagellomeres missing. Hind femur 1.10, height 0.30. Hind tibia 1.64, apical width 0.22, inner hind spur 0.20. Hind tarsomeres from base on 0.48, 0.24, 0.18, 0.11, 0.26, total 1.27. Ovipositor sheath 1.36, sawsheath 0.71, cercus 0.25.

Holotype of *P. algida*: Small with rather shining, glabrous frons and with rather indistinct anterior wall of frontal area (Fig. 8d). Clypeus shallowly and roundedly emarginate, paratorular area glabrous except one row of orbital setae and tegula yellow. Median lobe of mesoscutum with high elevated medial keel and tergum 1 with few very short setae. Saw exserted: lamnium with 24 segments and ctenidia present from 4th basal annulus on. All these characters fit *E. aquilonis* but not *E. myrsiniticola*.

Measurements. Body ca. 3.8, fore wing 3.9, costa 2.25. Head width 1.07. Compound eye 0.45 × 0.33. Flagellomeres missing. Hind femur 0.95, height 0.25. Hind tibia 1.41, apical width 0.16, inner hind spur 0.17–0.18. Hind tarsomeres 0.43, 0.25, 0.17, 0.10 and 0.20, total 1.15. Ovipositor sheath 1.25, sawsheath 0.71, cercus 0.24. Lamnium of lancet 1.01.

Because the name bearing types of *E. aquilonis* and *E. algida* lack flagellum, one reared female (Finland: Saana, from galls on *Salix herbacea*, August 1966, rearing 4/66 V. Vikberg; saw no. 295) was measured: Body 5.1, fore wing 4.8, costa 2.6. Head width 1.30. Compound eye 0.56 × 0.37. Flagellomeres from base on 0.355 (height 0.115), 0.36, 0.34, 0.26, 0.235, 0.23 and 0.25, total 2.03. Hind femur 1.01, height 0.26. Hind tibia 1.50, apical width 0.20, inner hind spur 0.18. Hind tarsomeres from base on 0.46, 0.22, 0.18, 0.10 and 0.24, total 1.20. Cercus 0.25. Lancet of saw 1.27–1.30, lamnium of lancet 1.01–1.02, with 26–27 teeth, ctenidia present from 4th annulus on; 6th to 8th teeth from base have 7–8 strong serrulae (Fig. 14a–b).

Male. Paralectotype: Clypeus yellow, with base slightly infuscate, apical emargination not rounded, bottom rather straight with lateral angles of 150°. Frontal area with distinct micro-

sculpture, dull and glabrous. Anterior wall of frontal area well developed, slightly notched medially, glabrous. Paratorular area glabrous except row of orbital setae. Lower lateral face glabrous. Supraclypear area laterally with rather few short hairs, medially glabrous. Pronotum black, tegula brownish yellow. Midlobe of mesoscutum alutaceous, faintly shining, anteriorly with median furrow and posteriorly with median keel. Costa and pterostigma yellow. Basal 0.5 of fore, 0.5 of mid-, and 0.3 of hind femora blackish, on lower margin, blackish extends more apically. Tergum 1 medially with 5 very short hairs on either side. Measurements: Body 4.7. Fore wing 5.1, costa 2.7. Head width 1.32. Compound eye 0.57 × 0.43. Flagellomeres from base on 0.48 (height 0.15), 0.52, 0.50, 0.45, 0.39, 0.37, and 0.40, total 3.11. Hind femur 1.11, height 0.29. Hind tibia 1.55, apical width 0.20, inner hind spur 0.21. Hind tarsomeres from base on 0.55, 0.30, 0.22, 0.12, and 0.26, total 1.45. Hypopygium 1.05.

Variation. Female: Body length of 21 reared females is 3.4–5.0 mm, head width 0.89–1.30 mm. Longest saw (pr. 292 VV; female reared from *Salix herbacea* in Leutsuvaara) measured: lancet 1.35 mm, lamnium of lancet 1.09–1.10, with ca. 27 teeth, ctenidia present from 4th annulus on; 6th and 7th teeth from base have 7–8 strong serrulae, apical half of teeth are without serrulae (Fig. 14a). Comparison of the length of ovipositor sheath with that of *E. herbaceae* the larva of which feeds on the same host plants: in *E. herbaceae* ovipositor sheath 0.85–1.22 mm, head width 0.87–1.20 mm, and ovipositor sheath/head width 0.83–1.11; in *E. aquilonis* ovipositor sheath 1.07–1.36 mm, head width 0.89–1.38 mm, and ovipositor sheath/head width 0.99–1.20 (the index value is small in large specimens and high in small specimens; the ovipositor sheath length is more stable than body size). Male: Body length of 17 reared males is 3.3–4.9 mm, and head width 0.95–1.34 mm. Penis valve (Fig. 15) of a male reared from galls on *Salix herbacea* in Saana.

Larva. Described by Malaise (1920) as *P. herbaceae* and by Beneš (1968) as *P. crassipes*. One large larva (Pikku-Malla on *S. herbacea*, preserved in alcohol) was examined before and after KOH treatment: Head width 1.17 mm, body 10–11 mm. Frons with 11 setae, clypeus with 2, and labrum with 2 setae on either side. Mandible with 1 seta. Stipes with 2–3, palpifer with 2 setae. Maxillary palpus 2 with 1 seta. Dorsal lengths of segments of thoracic leg 3: coxa 0.42, trochanter 0.16, femur 0.24, tibia 0.28 and tarsus with claw 0.15 mm. Tibia 3 with 8–9 setae.

Third abdominal segment with 4 dorsal annulets. Annulet 1 with 2–3 setae and near anterior margin ventrally with one microseta and subdorsally with 2 microsetae, annulet 2 with 3 and annulet 3 with 2–3 setae and subdorsally one microglanduba. Annulet 2 dorsomedially elevated, annulet 4 small, without setae or microsetae. Postspiracular lobe with 3–4 setae, and 0–1 microglanduba. Subspiracular lobe with 4–5 setae and anteroventrad 2 microsetae. Surpedal lobe with 4 setae and caudally 0–2 microsetae. Proleg with 4 setae and one microglanduba visible in lateral view, with 5 setae on inner margin near base. Anteromediad of proleg with one seta and 2 microsetae, and on ventral annulet 1, one microseta.

Suranal cerci small, rounded, their interspace shallow, rounded. Distance between cerci 0.13 mm or 0.11 of head width or 0.15 of basal width of anal tergum.

Head brownish, with upper corner of frons and vertex nearby blackish brown as also a short stripe from ocellarium towards middle of vertex. Body pale, whitish (in alcohol), setae brownish, spiracles dark brown, not winged. A brown stripe from head to base of thoracic leg 1. Dorsal lobes of Th 1 greyish, femora and tibiae grey, tarsi brownish with apically dark claws. Prolegs slightly greyish anteriorly on basal half. Anal tergum greyish, especially on caudal margin, with small grey spots.

Host plant. *Salix herbacea* L. and *S. polaris* Wahlenb. and their hybrid (Malaise 1920). Gall is similar to that of *E. herbaceae*, possibly slightly larger.

Material examined. Adults: reared from galls on *Salix herbacea*: Finland, Le: Leutsuvaara, 9 ♀ 5 ♂, galls collected in August 1966; Saana, reg. alpina, 5 ♀ 12 ♂, galls collected in August 1966 (E. Valkeila leg., V. Vikberg leg.). Slovak Republic, the High Tatra Mts.: Mengusovská dolina, Hinkova plesa, ca. 1800 m, 3 ♀, galls collected in August 1959, K. Beneš leg. Adults examined reared from galls on *Salix polaris*: Finland. Le: Saana, regio alpina, 2 ♀♀, galls collected in August 1966 (J. Kangas leg.). Sweden, Torne Träsk

area, Björkliden, 1 ♀, galls collected in August 1989 (V. Vikberg leg.). Larvae: Finland, Pikku-Malla, galls on *Salix polaris*, 8.VIII.1997, 7 larvae in alcohol; 14.VIII.1997, galls on *S. herbacea*, 3 larvae in alcohol, T. Nyman leg. Sweden, Abisko, Njulla, galls on *S. polaris*, 12.VIII.1998 3 larvae in alcohol; galls on *S. herbacea*, 12.VIII.1998 1 larva in alcohol, leg. T. Nyman. Abisko, Björkliden, galls on *S. herbacea*, 13.VIII.1998 1 larva, 15.VIII.1998 1 larva in alcohol, leg. T. Nyman. Larval samples of *E. aquilonis* from Finland (not examined by me but examined earlier by Nyman and/or by Zinovjev and identified as "*P. polaris*"): on *S. herbacea*: Pikku-Malla, 4.VIII.1997, 8.VIII.1997, 13.VIII.1997, 18.VIII.1998; Saana, 31.VII.1997, 1.VIII.1997; Jehkatsi (= Jeähkkas) 10.VIII.1997; on *Salix polaris*: Pikku-Malla, 4.VIII.1997, 8.VIII.1997; Saana, 31.VII.1997 and 1.VIII.1997, all leg. T. Nyman. Identification of the *Salix* species of T. Nyman from the year 1998 samples were confirmed by Prof. A. K. Skvortsov, Moscow.

Type material. — *Pontania herbaceae:* Malaise, nec Cameron. Malaise (1920) described female, male, larva, and gall. Description of adults was based on 9 males and 21 females, reared from galls of *Salix herbacea, S. polaris* and *S. herbacea* x *polaris* in the Torne Träsk area and Riksgränsen, N. Sweden by R. Malaise.

Pontania aquilonis Benson, 1941: 134. Nom. nov. for *Pontania herbaceae* (Cam.) Malaise, nec Cameron. Adult syntypes are the above mentioned 9 males 21 females. Lectotype hereby designated (in order to fix the use of the nominal taxon *Pontania aquilonis*) a female in coll. NHML labelled: Type (round printed label with red margin); Torne Tr Malaise, Pontania herbaceae Cam. Det. Malaise; Pontania aquilonis Bens. ♀ 1941 HOLOTYPE; B. M. TYPE HYM. 1–692.; Lectotype ♀ Eupontania aquilonis (Benson, 1941) V. Vikberg 2001. Three female and three male syntypes in coll. NRMS labelled Torne Tr., Malaise and with rearing no. 5 (one male with rearing no. 70a) were labelled as paralectotypes by me (one female and one male of them were earlier labelled as Typus or Allotypus and they bear the identification label Pontania herbaceae in Malaise's handwriting), and fourth female (labelled earlier paratype of *P. aquilonis*) was labelled as a paralectotype in coll. NHML. Type locality: Torne Träsk area in Swedish Lapland. Note: Quinlan (1974) wrote that Benson in error published *aquilonis* as nom. n. (= *herbaceae* (Cameron) sensu Malaise) and published the data on the "holotype". I cannot agree with him, because Benson (1941) did not name any types.

Pontania algida. Benson (1941) described female. Holotype female was collected from catkins of *Salix herbacea*, over 2000 ft., on 7.–14.VI.1932 on Breadalbane Mountains near Killin, Perthshire, Scotland (R. B. Benson leg., in NHML). The holotype bears the labels "Pontania algida Benson 1941 ♀ HOLOTYPE" and "B. M. TYPE HYM. 1–693". Leg mounted.

Distribution. Finland, Norway, Sweden, Slovak Republic, United Kingdom (Scotland).

Notes. The female of the species was redescribed and figured as *P. algida* by Kopelke (1989b; figure 15, lamnium of lancet; figure 22, sawsheath and cerci in lateral and in dorsal view).

Eupontania aquilonis is locally more frequent than *E. herbaceae* in the northern Fennoscandia, e.g., in Björkliden, Torne Träsk area, Sweden. In the Torne Träsk area, Malaise (1920) reared 30 specimens of *E. aquilonis* (as *P. herbaceae*) but only 14 specimens of real *E. herbaceae* (as *P. polaris*). In some years in the Kilpisjärvi area, Finnish Lapland, *E. aquilonis* is rather frequent in regio alpina but *E. herbaceae* is yet unknown. The opposite case is true for the eastern part of Finmarken, Norway where *E. herbaceae* occurs in many localities but *E. aquilonis* is missing.

Malaise (1920) reared two different species from similar galls on *Salix herbacea, S. polaris,* and their hybrid. He divided the galls into three rearing bottles according to the plant species or their hybrid. From all three rearing bottles he got both species. This result has since been regarded as doubtful by Benson (1941) and Kopelke (1989b, 1999). My experience with *E. aquilonis*, which has a pale unicoloured larva, is similar to that of Malaise. In Leutsuvaara near the southern end of Kilpisjärvi both *Salix herbacea* and *S. polaris* grow together on a snow patch area on the northern side of this arctic mountain. Both species of *Salix* have often similar galls which contain pale unicoloured larvae and rearings result in adults of *E. aquilonis* only. This can be regarded as the result of a natural ovipositing experiment. I also have had similar results in Björkliden, Torne

Träsk area, in August 1989; pale unicoloured larvae inside the galls of *Salix herbacea* and *S. polaris* close to each other produced adults of *E. aquilonis*. Similar observations were made later in Leutsuvaara and Björkliden by Tommi Nyman. I could not find any maculated larvae in those two localities. In Björkliden, T. Nyman found in addition flecked larvae in galls on *Salix herbacea* and once on *S. polaris*. Those two dwarfish species of *Salix* are closely related and *Salix herbacea* x *polaris* is very frequent in the Scandes according to Hedrén and Elven (2000).

Galls similar to galls of *E. aquilonis* were found by A. Zinovjev (pers. comm.) at the Harvard University Herbaria in 1995 on *Salix herbacea*. The willow specimen with a few galls was collected on Brave Mountain above Mugford Tickle (57°48´N 61°52´W), Labrador Peninsula by David Potter and W. B. Brierly on August 9, 1934. The dissected gall contained a small unflecked larva. Its identity remained unclear.

Eupontania breviserratae (Kopelke, 1989)

Pontania breviserratae Kopelke, 1989b: 67. Holotype ♀, Switzerland, Valais, Saas Almagell, 2000 m a.s.l., reared from galls on *Salix breviserrata* collected on 14.VIII.1984 by J.-P. Kopelke; in FNMS, SMF H 2127a, not examined.

Diagnosis. Female: Clypeus and supraclypeal area pale, brown. Clypeal emargination rounded, shallow. Lamnium of lancet with ctenidia present from 3rd basalmost annulus on. Male: Penis valve lacking small spines on ventral margin. Larva in gall on *Salix breviserrata*.

Female. Paratype: Head black. Palpi piceous. Labrum brownish yellow. Base of mandible, clypeus, and supraclypeal area yellowish brown. Malar space area brown and lateral vertex a little reddish brown. Thorax black. Tegula rather pale, brown. Costa and pterostigma pale, yellowish, venation brown. In lateral view most of hind femur brownish infuscate. Tibiae yellowish brown, apex of hind tibia broadly brownish infuscate, spurs brown, hind tarsus brownish infuscate. Flagellomeres short, broad. Frontal basin formed, shining, almost entirely glabrous. Midlobe of mesoscutum with median furrow in anterior 0.6. Metanotum medially with ca. 20 setae on each side. Tergum 1 medially with 15–20 setae on each side. Measurements: Body 4.3 mm, fore wing 5.2, costa 2.8. Head width 1.35. Compound eye 0.52 × 0.34. Flagellomeres from base on 0.36 (height 0.17), 0.335, 0.33, 0.295, 0.26, 0.21 and 0.26, total 2.05. Hind femur 1.10, height 0.30. Hind tibia 1.60, apical width 0.24, inner hind spur 0.20. Hind tarsomeres from base on 0.48, 0.23, 0.18, 0.11, and 0.25, total 1.25. Ovipositor sheath 1.26. Sawsheath 0.66. Cercus 0.20.

Male. Paratype: Clypeus black, partly brownish laterally. Tegula black. Costa and pterostigma dark, brownish. Hind femur mostly black. Hind tibia almost entirely strongly infuscate. Measurements: Body 3.6, fore wing 4.0, costa 2.3. Head width 1.11. Eye 0.44 × 0.34. Flagellomeres from base on 0.42 (height 0.13), 0.41, 0.39, 0.34, 0.32, 0.30 and 0.30, total 2.48. Hind femur 0.84, height 0.20. Hind tibia 1.26, apical width 0.16, inner hind spur 0.19. Hind tarsomeres from base on 0.47, 0.25, 0.20, 0.10 and 0.21, total 1.23. Hypopygium 0.89.

Material examined. Adults: One female paratype (SMF H 2128a) and one male paratype (SMF H 2128c) reared from galls on *Salix breviserrata* from the type locality.

Host plant. *Salix breviserrata* Flod. Gall globular, a little more developed on underside of leaf-blade than on upper side, surface smooth, matt, colour green or one side red (Kopelke 1989b: figure 21).

Distribution. Switzerland.

Notes. The female, male and larva of the species were described and figured by Kopelke (1989b; figure 17b, head in anterior and dorsal view; figure 14, sawsheath and cerci in lateral and in dorsal view; figure 15, lamnium of lancet; figure 16, penis valve; figure 20a–f, larva). The figures of the 2nd and 3rd abdominal segments of the larva are inaccurate because the spiracular lobes bear two setae and the dorsal annulets are incorrectly drawn.

Eupontania myrsiniticola (Kopelke, 1991) (Figs. 14c, 17)

Pontania myrsiniticola Kopelke, 1991: 116. Holotype ♀, Norway: S.-Tröndelag, Dovrefjell, reared from galls on *Salix myrsinites* L. collected on 19.viii.1988 by J.-P. Kopelke, in FNMS, SMF H 2204; not examined.

Fig. 17. Penis valve of *Eupontania myrsiniticola* (Kopelke), Saana, ex *Salix myrsinites*. Apical part and basal part drawn separately. Scale 0.1 mm.

Diagnosis. Adult: Frontal area rather smooth or with weak irregular surface sculpture, shining, its anterior wall deeply incised. Hairs on abdominal terga 1–4 normally developed. Female: Clypeus and supraclypeal area black, clypeal emargination often rectangular. Lamnium of lancet with ctenidia present from 1st or 2nd basalmost annulus on. Male: Penis valve with narrow valvispina and on ventral margin covered with small spines. Larva in gall on *Salix myrsinites*.

Female. Finland, Le: Saana, reg. subalpina, from galls on *Salix myrsinites* in August 1966; rearing no. 5/66, leg. V. Vikberg): Clypeus black, lateral teeth brown, emargination of anterior margin not rounded but bottom rather straight and with lateral angles ca. 120°. Frontal area rather shining, with very fine wrinkles, glabrous. Anterior wall of frontal area weakly developed, medially broadly notched, glabrous. Paratorular area with ca. one row of horizontal, laterally directed hairs besides orbital setae. Midlobe of mesoscutum with median furrow, not with raised keel. Tegula brownish black. Costa and pterostigma pale, yellow. Femora mostly black. Hind tibial spurs short, slightly curved, rather thin. Tergum 1 medially on both sides with ca. 10 moderately long setae. Measurements: Body 5.0, forewing 4.8, costa 2.65. Head width 1.25. Compound eye 0.53×0.38. Flagellomeres from base on 0.42 (height 0.14), 0.38, 0.35, 0.31, 0.29, 0.27 and 0.31, total 2.33. Hind femur 1.06, height 0.28. Hind tibia 1.50, apical width 0.19, inner hind spur 0.18. Hind tarsomeres from base on 0.51, 0.23, 0.18, 0.10 and 0.25, total 1.27. Sawsheath 0.70. Cercus 0.23. Lancet of saw 1.28–1.32, lamnium of lancet 1.06–1.07, with 26–27 teeth, ctenidia present from 1st or 2nd basalmost annulus on; 6th to 8th teeth from base have ca. 10 rather strong serrulae (Fig. 14c).

Measurements of the female paratype (SMF H 2208e): Body 3.6, forewing 3.9, costa 2.1. Head width 1.09. Compound eye 0.46 × 0.31. Flagellomeres from base on 0.31 (height 0.12), 0.28, 0.27, 0.26, 0.24, 0.22 and 0.22, total 1.80. Hind femur 0.80, height 0.22. Hind tibia 1.13, apical width 0.165, inner hind spur 0.14. Hind tarsomeres from base on 0.42, 0.20, 0.16, 0.09 and 0.21, total 1.08. Ovipositor sheath 1.17. Sawsheath 0.65. Cercus 0.22.

Male. The same rearing as female from Finland, Saana: Clypeus black, anterior emargination almost rectangular with lateral angles 110°. Frontal area sculptured but rather shining, mostly glabrous, some long hairs near lateral walls. Anterior wall of frontal area distinctly formed but medially incised to the bottom, almost glabrous, with some scattered long hairs. Paratorular area glabrous, except row of orbital setae, this rather away from orbit especially on lower lateral face. Supraclypear area densely hairy allover. Pronotum and tegula black. Midlobe of mesoscutum with rather dense alutaceous sculpture, feebly shining, median suture furrow-like. Costa dark, brownish, pterostigma brownish yellow. Basal 0.7–0.8 of femora black. Tergum 1 medially with 8–11 rather long setae on either side. Penis valve, see Fig. 17. Measurements: Body 4.0, forewing 4.6, costa 2.4.

Head width 1.26. Compound eye 0.55 × 0.40. Flagellomeres from base on 0.49 (height 0.145), 0.47, 0.46, 0.40, 0.37, 0.34 and 0.33, total 2.86. Hind femur 1.05, height 0.28. Hind tibia 1.40, apical width 0.18, inner hind spur 0.25. Hind tarsomeres from base on 0.55, 0.26, 0.19, 0.11 and 0.23, total 1.34. Hypopygium 1.07.

Measurements of the male paratype (SMF H 2208g): Body 3.8, forewing 4.0, costa 2.2. Head width 1.10. Compound eye 0.47 × 0.33. Flagellomeres from base on 0.45 (height 0.15), 0.43, 0.43, 0.38, 0.34, 0.31 and 0.32, total 2.66. Hind femur 0.86, height 0.23. Hind tibia 1.23, apical width 0.18, inner hind spur 0.20. Hind tarsomeres from base on 0.55, 0.25, 0.21, 0.11 and 0.20, total 1.32. Hypopygium 0.90.

Variation. Female: Body length of 35 reared females is 3.1–5.0 mm, and head width 0.84–1.25 mm. The 5 females captured in the wild are larger: body 4.1–5.0 mm, and head width 1.24–1.42 mm. The length of ovipositor sheath is rather similar to that of *E. aquilonis*; in *E. myrsiniticola* the values are: ovipositor sheath 0.95–1.40 mm and ovipositor/head width index 0.99 (large specimen)–1.21 (small specimen). Male: Body length of 6 reared males is 3.3–4.1 mm, and head width 0.96–1.25 mm. In 9 males captured in the wild, body is 4.0–4.85 mm long and head width 1.07–1.33.

Larva. Described by Kopelke (1991: 118, and figure 85). I studied closer 1 larger larva from Jehkatsijärvi with head width 0.94 and body length 8.7 mm (thus not full grown but perhaps fourth instar). Its characters are following: Colour similar to fullgrown larva of *E. aquilonis*, but dark colour on frons more extensive and spiracles of body dark brown and brown winged. Anal tergum grey but without darker spots. Frons with 15 setae. Clypeus with 2 and labrum with 2–3 setae on each side. Stipes with 2 and palpifer with 3 setae, maxillary palpus 2 with 1 seta. Mandible with 1 seta. Dorsal lengths of parts of thoracic leg 3 are: Coxa 0.37, trochanter 0.12, femur 0.16, tibia 0.21 and tarsus with claw 0.12. Tibia 3 with 11 setae of which 2 on underside.

Third abdominal segment with 4 annulets dorsally, annulet 1 with 3 setae and near anterior margin ventrally 1–2 microsetae and subdorsally 2 microsetae, annulet 2 is highest, with 2–3 setae and annulet 3 with 3–4 setae and subdorsally with one microglanduba. Postspiracular lobe with 4–6 setae and one microglanduba, subspiracular lobe with 4 (3–5) setae and anteroventrad 2 microsetae. Surpedal lobe 3–4 setae and caudally 2 microsetae. Proleg with 3 setae and one microglanduba visible in lateral view and on inner side near base with 5 setae. Anteromediad of proleg one seta and 2 microsetae and on ventral annulet 1 one microseta.

Suranal cerci weakly developed, close to each other and with slightly concave interspace. Distance between tips of cerci 0.15 mm or 0.16 of head width.

Host plant. *Salix myrsinites* L. Gall is better developed on the underside of the leaf-blade, surface smooth and shining, colour green to red-cheeked (Kopelke 1991:118, and figure 101).

Material examined. Adults reared from galls on *Salix myrsinites*: Finland, Le: Saana, regio subalpina, 35 ♀ 6 ♂, galls collected in August 1966 (V. Vikberg leg.). Adults captured in the wild examined: Finland, Le: Kilpisjärvi, regio subalpina, 17.VI.1964 1 ♀ 1 ♂, 20.VI.1964 1 ♀ 1 ♀, 21.VI.1964 1 ♂, 22.VI.1964 2 ♀ 1 ♂, 16.VI.1966 2 ♂, 17.VI.1966 3 ♂, 11.VII.1968 1 ♀ (V. Vikberg leg.). Norway: S.-Tröndelag, Dovrefjell 1 ♀ paratype, and 1 ♂ paratype from the same rearing as the holotype. Larvae: from galls on *Salix myrsinites*: Finland, Le: Jehkatsi, 10.VIII.1997 3 small larvae in alcohol, leg. T. Nyman. Jehkatsijärvi, 10.VIII.1997 4 larvae in alcohol, leg. T. Nyman. Pikku-Malla, 14.VIII.1997 2 larvae in alcohol, leg. T. Nyman. Saana, 23.VIII.1998 1 larva in alcohol, leg. T. Nyman.

Distribution. Finland, Norway, United Kingdom (Scotland).

Notes. The female and male of the species were described and figured by Kopelke (1991; figure 14, head in dorsal and in anterior view; figure 32, sawsheath and cerci in lateral and in dorsal view; figure 50, lamnium of lancet; figure 68, penis valve).

The species is added to the Finnish fauna. In August 1966 the galls on *Salix myrsinites* were locally very numerous near Saana. The structure of the galls is intermediate between *Eupontania aquilonis* group and *E. viminalis* group because the part on upper surface is distinctly smaller than that on lower surface of the leaf-blade.

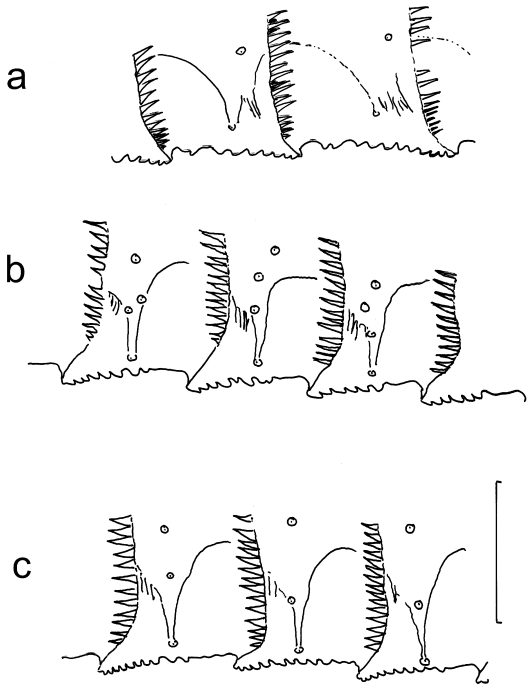


Fig. 18. Ventral part of 6th and 7th segment (and 8th; b–c) of lamnium of lancet from base. — a. *Eupontania retusae* (Benson), paratype. — b. *E. arctica* (MacGillivray), Churchill, ex *Salix reticulata*. — c. *E. reticulatae* (Malaise), lectotype. Scale 0.05 mm.

Fig. 19. Penis valve of *Eupontania retusae* (Benson), Furkota, ex *Salix retusa*. Apical part and basal part drawn separately. Scale 0.1 mm.

Eupontania retusae (Benson, 1960) (Figs. 3c, 12c–d, 16b–d, 18a, 19)

Pontania retusae Benson, 1960b: 181. Holotype ♀, Switzerland, Valais, Mt. Rogneaux, Lac Vaux near Verbier, ca. 9000 ft. a.s.l., in NHML; examined (see below).

Diagnosis. Adult: hind claws with subapical tooth. Lateral wall of frontal area covered with erect, long hairs. Female: Sawsheath in dorsal view narrow, apical tuft of long hairs present only near apex, upper subapical long setae of one side form a right angle with setae on other side. Male: Valvispina of penis valve very broad, ventral margin of penis lacking small spines. Larva in gall on *Salix retusa*.

Female. Large reared female from Slovak Republic, Vys. Tatry, Furkota, emerged in March, 1960, the galls on *Salix retusa* were collected in August 1959 by K. Beneš, the species was determined as *Pontania retusae* by Beneš (1967): Clypeus brownish yellow, apical emargination rounded, shallow. Supraclypeal area brownish, densely haired. Frontal area with faint irregular surface sculpture, shining, in front of median ocellus rather large glabrous area, otherwise covered with long, erect setae. Anterior wall of frontal area rather weakly developed, medially broadly notched, with long setae. Paratorular area 5 rows of long, horizontal setae besides orbital setae. Malar space partly yellow. Reddish brown colour present slightly on lateral vertex and upper temple and on upper hind corner of pronotum. Tegula yellow. Midlobe of mesoscutum largely without any sculpture, shining, with median keel. Costa brownish yellow, pterostigma yellow. Basal 0.7–0.8 of femora blackish. Tergum 1 medially with up to 12 setae on one side, some hairs long. Sawsheath in dorsal view (Fig. 3c): Long subapical setae of sawsheath rather straight, those on

one side forming a rectangular angle with long setae on the other side. Measurements: Body 6.0, forewing 5.7, costa 3.1. Head width 1.50. Compound eye 0.595 × 0.44. Flagellomeres from base on 0.50 (height 0.16), 0.49, 0.45, 0.40, 0.36, 0.35 and 0.43, total 2.98. Hind femur 1.30, height 0.31. Hind tibia 1.90, apical width 0.23, inner hind spur 0.26. Hind tarsomeres from base on 0.50, 0.25, 0.21, 0.12 and 0.30, total 1.38. Ovipositor sheath 1.60. Sawsheath 0.80. Cercus 0.30. Another reared female from Furkota: head width 1.35. Lancet exposed: length of lamnium is 1.17 mm, and lamnium with 27 teeth.

Measurements of holotype female: Body 3.95, forewing 4.4, costa 2.45. Head width 1.08. Compound eye 0.455 × 0.31. Flagellomeres from base on 0.32 (height 0.12), 0.33, 0.33, 0.30, 0.29, 0.27 and 0.31, total 2.15. Hind femur 0.93, height 0.23. Hind tibia 1.40, apical width 0.15, inner hind spur 0.17. Hind tarsomeres from base on 0.41, 0.21, 0.17, 0.10 and 0.20, total 1.09. Ovipositor sheath 1.30. Sawsheath 0.69. Cercus 0.22. Lamnium of lancet ca. 1.05. Inner hind claw (Fig. 16b).

Measurements of paratype female: Body 3.95, forewing 4.1, costa 2.4. Head width 1.10. Compound eye 0.46 × 0.33. Flagellomeres from base on 0.34 (height 0.12), 0.35, 0.34, 0.31, 0.29, 0.27 and 0.31, total 2.21. Hind femur 0.95, height 0.22. Hind tibia 1.40, apical width 0.16, inner hind spur 0.17. Hind tarsomeres from base on 0.41, 0.21, 0.18, 0.10 and 0.25, total 1.15. Ovipositor sheath 1.33. Sawsheath 0.65. Cercus 0.22. Lancet 1.33, lamnium of lancet 1.06. Lamnium with 25 segments or teeth, ctenidia present from 5th basalmost annulus on. 6th and 7th teeth from base with 8–11 strong serrulae (Fig. 18a).

Male. Reared male from Slovak Republic, Vys. Tatry, Furkota, emerged in May, 1960, the galls on *Salix retusa* were collected in August 1959 by K. Beneš, the species was determined as *Pontania retusae* by K. Beneš (Beneš 1967): Clypeus brownish black, apical emargination rounded, shallow. Supraclypeal area black, densely haired. Frontal area with faint irregular surface sculpture, concave, shining, covered with long, erect setae. Anterior wall of frontal area rather well developed, medially broadly notched, with long setae. Paratorular area with two rows of orbital setae, long horizontal setae (2–3 rows) present near the lower border and on lower lateral face. Pronotum black, tegula brownish black. Midlobe of mesoscutum rather smooth, shining, with median furrow anteriorly and weak keel posteriorly. Costa infuscate, pterostigma brownish yellow, its anterior and posterior margins infuscate. Basal 0.8–0.9 of femora blackish. Hind tibia and tarsus infuscate. Tergum 1 medially with 5 rather short setae on either side. Inner hind claw with short subapical tooth (Fig. 16c). Penis valve (Fig. 19) with broad valvispina and without small spinulae on ventral margin. Measurements: Body 5.0, forewing 4.7, costa 2.7. Head width 1.30. Compound eye 0.51 × 0.35. Flagellomeres from base on 0.515 (height 0.15), 0.63, 0.59, 0.55, 0.49, 0.48 and 0.47, total 3.725. Hind femur 1.07, height 0.255. Hind tibia 1.54, apical width 0.19, inner hind spur 0.25. Hind tarsomeres from base on 0.51, 0.28, 0.20, 0.12 and 0.26, total 1.37. Hypopygium 1.13.

Variation. Female: (n = 4 reared females from Furkota) Body 3.9–5.6, head width 1.04–1.51, fore wing 3.8–5.6, and costa 2.1–3.2 mm. Male: (n = 3 reared males from Furkota) Body 4.5–5.0, head width 1.16–1.30, fore wing 4.6–4.8, and costa 2.6–2.8 mm.

Host plant. *Salix retusa* L. Gall is globular, surface smooth and shining, colour from green to red-cheeked (Kopelke 1989b: 67, and figure 19). From the Slovak Republic the food plant was published as *Salix kitaibeliana* Willd. (Beneš 1967). This is regarded as a subspecies of *Salix retusa* by some authors, and Skvortsov (1968, 1999) treated it merely as a synonym of *S. retusa*. According to Beneš (1967; map 2) only *Salix kitaibeliana* is found in the High Tatra Mountains. However, according to Jalas & Suominen (1976; maps 208 and 209) both *Salix retusa* and *S. kitaibeliana* occur there and the specimens were labelled *Salix retusa* and labels of one reared female from Furkota bear as the host plant information: *Salix retusa*, det. Chmelar.

Larva. Described by Beneš (1967, 1968) and Kopelke (1989b: 66, and figure 18a–d). I examined 11 larvae from Slovak Republic, Vys. Tatry, Furkota, from galls on *Salix retusa*, ix.1959, K. Beneš leg. The largest larva (head width 1.20 mm) was treated with KOH (in alcohol the body length was 10.5, in KOH 12 mm). Frons with 11 setae, clypeus and labrum with 2 setae on each side, mandible 1 seta. Stipes 2 setae, palpifer with 3 setae and maxillar palpus 2 with one seta.

Fig. 20. Penis valve of *Eupontania alpinae* sp. n., paratype. Apical part and basal part drawn separately. Scale 0.1 mm.

Body pale, unicoloured. Abdominal segment 3 with 4 dorsal annulets. Annulet 1 with 3 setae and anteriorly with 1–2 microsetae ventrally and 2 microsetae between two upper setae. Annulet 2 with 3 setae and annulet 4 with 3 setae and one microglanduba near the medial seta. Postspiracular lobe with 3 setae and one microglanduba. Subspiracular lobe with 5 setae and a little anteroventrally 2 microsetae. Surpedal lobe with 4 setae and a little caudally 2 microsetae. Proleg on lateral and anterior side with 3 setae and one microglanduba, on inner side near the base with 5 setae. Anterior of proleg one seta and one microseta and on ventral annulet 1 one microseta.

Cerci small, rounded, with shallow interspace. Distance between cerci 0.08–0.10 mm or 0.07–0.09 of head width.

Material examined. Adults reared from galls on *Salix retusa* examined: Slovak Republic, the High Tatra Mts., Furkotská dolina, ca. 1700–1800 m a.s.l., 4 ♀ 3 ♂, galls collected in August 1959, K. Beneš leg.

Type material. — Pontania retusae. Benson (1960b) described female. Type locality: Switzerland, Valais, Mt. Rogneaux, Lac Vaux near Verbier, ca. 9000 ft a.s.l.. Holotype female (NHML) labelled: Type (round label with red margin); On Salix retusa L.; Switzerland: Valais, nr. Verbier. c. 9.000 ft. a.s.l. 27.VI.1959 J. E. & R. B. Benson. B. M. 1959–294.; HOLOTYPE Pontania retusae Bens. ♀ det. R. B. Benson. 1960; B. M. TYPE HYM. 1.766. One paratype female (NHML; examined) with the same data; lancets of saw on slide pr. 299 (VV).

Distribution. Austria, Bosnia-Herzegovina, ?Poland, Slovak Republic, Switzerland.

Notes. The female and male of the species were redescribed and figured by Kopelke (1989b; figure 17a, head in dorsal and in anterior view; figure 15, lamnium of lancet; and figure 16, penis valve).

Eupontania alpinae sp. n. (Figs. 16e, 20)

Holotype ♂, Slovak Republic, Belanské Tatry Mountains, ca. 1800–2000 m, reared from galls on *Salix alpina*, galls collected on 4 September 1960, male emerged in 1961 (Karel Beneš leg., in coll. Beneš, Prague). One male paratype, same data (in coll. V. Vikberg, Turenki).

Diagnosis. Male: Flagellum long, three basal flagellomeres counted together as long as 1.47× head width. Hind claws bifid or subbifid. Penis valve with very broad valvispina. Female unknown. Larva in gall on *Salix alpina*.

Female. Not known for certain. Beneš (1967) reared two females of his *Pontania crassipes* from the type locality from galls on *Salix alpina*, but I have not examined them.

Male. Head black. Lateral vertex and upper temple slightly reddish brown. Clypeus blackish, apically brownish. Mandible brownish yellow, apically amber red. Palpi piceous. Flagellum brownish black. Thorax black. Apical margin of mesoscutellum slightly reddish brown. Legs brownish yellow. Coxae, trochanters, trochantelli and basal 0.8–0.9 of femora black, tarsi brownish infuscate. Costa and pterostigma brownish, ptero-

stigma brownish yellow in middle. Abdomen brownish black, hypopygium dark brown, partly infuscate.

Emargination of clypeus rounded, shallow. Supraclypeal area densely hairy, medially hairs turned towards clypeus. Frontal area faintly defined, its surface rather smooth, with some indistinct wrinkles, shining, hairs rather short, most not erect. Anterior wall of frontal area rather shallow, slightly notched medially, with some hairs. Paratorular area with 2–3 rows of short, subhorizontal hairs besides orbital setae. Midlobe of mesoscutum almost smooth, shining, with shallow medial furrow (holotype) or faint keel (paratype). Tergum 1 medially with 2–4 short setae. Penis valve (Fig. 20) with broad valvispina and without small spinulae on lower margin.

Measurements, holotype male: Body 4.4, fore wing 4.4, costa 2.3. Head width 1.19. Eye 0.49 × 0.35. Flagellomeres from base on 0.53 (height 0.16), 0.62, 0.60, 0.53, 0.48, 0.45 and 0.48, total 3.69. Hind femur 0.96, height 0.24. Hind tibia 1.35, apical width 0.18, inner hind spur 0.23. Hind tarsomeres from base on 0.49, 0.24, 0.20, 0.10 and 0.23, total 1.26. Hypopygium 0.95.

Measurements, paratype male: Body 4.8, fore wing 4.5, costa 2.5. Head width 1.23. Eye 0.51 × 0.35. Flagellomeres from base on 0.55 (height 0.16), 0.65, 0.61, 0.55, 0.50, 0.50 and 0.52, total 3.88. Hind femur 1.00, height 0.25. Hind tibia 1.45, apical width 0.19, inner hind spur 0.22. Hind tarsomeres from base on 0.54, 0.26, 0.20, 0.11 and 0.24, total 1.35. Hypopygium 1.00.

Larva. One full grown larva (body 10.4 mm, head width 1.05 mm) treated with KOH. Chaetotaxy: frons 10 setae, clypeus 2+2 setae, labrum 2+2 setae, mandible 1 seta, stipes 2 setae, palpifer 2 setae and 1 seta medioventrally, 2nd maxillary palpus 1 seta, 3rd maxillary palpus 0–1 seta. Tibia 3 with 9 setae.

Body pale, unicoloured, without dark flecks and spicules. 3rd abdominal segment with 4 dorsal annulets, first three with setae. Annulet 1 with 3 setae and near anterior margin with 3 microsetae. Annulet 2 with 2–3 setae. Annulet 3 with 3 setae and one microseta-glanduba. One microseta near spiracle anterodorsally. Postspiracular lobe with 3 seta and one microseta-glanduba. Subspiracular lobe with 3 setae. Surpedal lobe with 4 setae and caudally 2 microsetae. Proleg laterally with 2 setae and one microglanduba, anteriorly with one seta and medially near base with 5 setae. Ventral annulet 1 with one microseta and ventral annulet 2 with one seta and one microseta. Anal tergum with very small, rounded cerci very close to each other.

Host plant. *Salix alpina* Scopoli. Gall is pea-shaped and transected by the leaf-blade (Beneš 1968: 120, as *P. crassipes* partly).

Material examined. Larvae: Slovak Republic, Bel. Tatry, *Salix alpina*, 4.9.1960, altogether 15 larvae, of which some small, 5–6 mm long, 8 larvae fullgrown, ad 10.4 mm long (all in alcohol), leg. K. Beneš: as *P. crassipes*.

Etymology. The specific name is formed from the host plant of the larva, *Salix alpina*.

Distribution. Slovak Republic.

Notes. The penis valve of the new species resembles that of *E. retusae* in Kopelke (1989b; figure 16). Kopelke (1999) supposed that the species on *S. alpina* possibly could be *E. maculosa* Kopelke, but the morphology of the larva shows that it does not belong to the *E. crassipes*-group.

Eupontania arctica (MacGillivray, 1919) (Figs. 18b, 21)

Euura arctica MacGillivray, 1919: 5G. Lectotype ♀, Canada: Northwest Territories, Cape Barrow (Cape Krusenstern), in CNCO; examined (see designation below).

Euura abortiva MacGillivray, 1919: 4G. Holotype ♀, Canada: Yukon Territory, Herschell island, in CNCO; examined (see below). Synonymized by Benson (1960a).

Pontania delicatula MacGillivray, 1919: 8G. Lectotype ♂, Canada: Yukon Territory, Herschell island, in CNCO; examined (see designation below). Synonymized by Benson (1960a).

Pontania deminuta MacGillivray, 1919: 9G. Holotype ♀, Canada: Northwest Territories, Chantry island, in CNCO; examined (see below). Synonymized by Benson (1960a).

Diagnosis. Adult: Frontal area regularly sculptured, matt, glabrous, its anterior wall well developed, slightly to deeply notched. Larva in gall on *Salix reticulata*, gall protruding mostly on underside of leaf (only one-fourth on upperside).

Female. Lectotype of *E. arctica*: Frontal area regularly sculptured, matt, glabrous. Anterior wall of frontal area raised, only slightly shallowed in the middle, sculptured, glabrous. Lateral frons above antennal hollow sculptured, matt, glabrous.

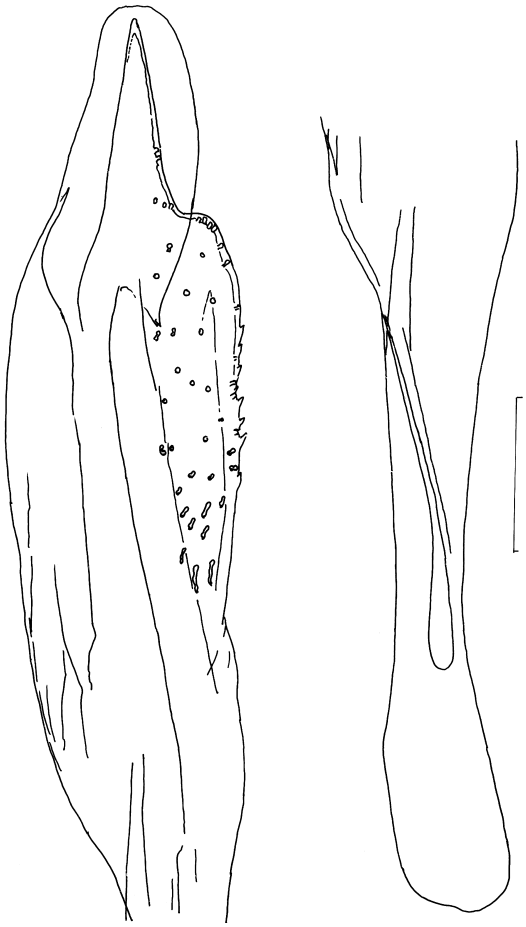


Fig. 21. Penis valve of *Eupontania arctica* (MacGillivray), Churchill, ex *Salix reticulata*. Apical part and basal part drawn separately. Scale 0.1 mm.

Postocellar area regularly sculptured, matt, hairs short, sparse. Paratorular area glabrous, with few transverse hairs besides orbital setae, lower lateral face mainly glabrous. Clypeus with shallow, rounded emargination. Mesoscutum sculptured, rather matt, midlobe with distinct medial keel. Mesoscutellum almost smooth, shining. Tegula brownish yellow. Hind tibial spurs short, curved. Sawsheath in dorsal view: long subapical hairs on one side form an acute angle with setae on other side, setae slightly curved apically. Measurements: Body 4.9, forewing 5.1, costa 2.9. Head width 1.35. Compound eye 0.55 × 0.36. Flagellomeres missing. Hind femur 1.14, height 0.295. Hind tibia 1.68, apical width 0.22, inner hind spur 0.20. Hind tarsomeres from base on 0.54, 0.27, 0.21, 0.12 and 0.28, total 1.42. Ovipositor sheath 1.35. Sawsheath 0.75. Cercus 0.24.

Female. Holotype of *E. abortiva*: Small specimen with abnormal, shortened wings as in some specimens of an arctic species *Amauronematus abnormis* (Holmgren). Anterior wall of frontal area notched medially almost to bottom. Measurements: Body 3.3, forewing 2.3, costa 1.5. Head width 0.98. Compound eye 0.40 × 0.28. Flagellomeres from base on 0.33 (height 0.10), 0.30, 0.27, 0.22, 0.21, 0.18 and 0.24, total 1.75. Hind femur 0.83, height 0.22. Hind tibia 1.25, apical width 0.17, inner hind spur 0.12. Hind tarsomeres from base on 0.37, 0.20, 0.14, 0.09 and 0.20, total 1.00. Ovipositor sheath 1.24. Sawsheath 0.68. Cercus 0.23. Lamnium of lancet 1.01.

Female, holotype of *P. deminuta*: Teneral female with unexpanded wings and distorted hind tarsi. Resembles lectotype of *E. arctica*: anterior wall of frontal area only slightly shallowed medially and midlobe of mesoscutum with strong medial keel. Measurements: Body 4.0, forewing 3.9, costa 2.2. Head width 1.20. Compound eye 0.48 × 0.33. Flagellomeres missing. Hind legs malformed. Ovipositor sheath ca. 1.25. Sawsheath 0.67. Cercus 0.20.

Female from Manitoba, Churchill, Canada, emerged March 1957, reared from galls on *Salix reticulata* collected in September 1956 by E. Beckett, specimen determined as *Pontania arctica* by Benson (1960a): Clypeus yellowish brown, apical emargination small, rounded, extending 0.26 of medial length. Supraclypeal area brownish, densely haired. Frontal area densely granulate,dull, glabrous. Anterior wall of frontal area strongly developed but deeply notched medially, glabrous. Paratorular area glabrous, with one row of orbital setae. Lower lateral face mostly glabrous. Reddish brown colour on lateral vertex and upper temple and on upper hind corner of pronotum. Tegula yellow. Midlobe of mesoscutum with dense microsculpture, almost dull, anteriorly with deep median furrow. Costa and pterostigma brownish yellow. Basal 0.5 of fore, 0.7 of mid- and hindfemora blackish. Tergum 1 medially with 0–1 short seta on either side. Longer apical setae of sawsheath short, straight, those on one side forming a very acute angle with setae on the other side. Lamnium of lancet with 26–27 teeth, ctenidia

present from 5th basalmost annulus on; 6th to 8th teeth from base with 7–8 coarse serrulae, apical third of teeth without serrulae (Fig. 18b).

Measurements (female from Churchill). Body 4.6, forewing 4.9, costa 2.8. Head width 1.26. Compound eye 0.53 × 0.41. Flagellomeres from base on 0.42 (height 0.11), 0.43, 0.40, 0.35, 0.31, 0.28 and 0.31, total 2.50. Hind femur 1.05, height 0.24. Hind tibia 1.43, apical width 0.20, inner hind spur 0.16. Hind tarsomeres from base on 0.50, 0.29, 0.24, 0.12 and 0.29, total 1.44. Sawsheath 0.65. Cercus 0.23. Lancet of saw 1.20–1.23, lamnium of lancet 0.99–1.00.

Male. An individual from Canada, Manitoba, Churchill, emerged March 1957, reared from galls on *Salix reticulata* collected in September 1956 by E. Beckett, specimen determined as *Pontania arctica* by Benson (1960a): Clypeus brownish yellow, apical emargination small, rounded, shallow. Supraclypeal area brown, densely haired. Frontal area densely granulate, dull, glabrous. Anterior wall of frontal area strongly developed but deeply notched medially, glabrous. Paratorular area glabrous, with one row of orbital setae. Lower lateral face almost glabrous. Reddish brown colour on lateral vertex and upper temple. Tegula brownish yellow. Midlobe of mesoscutum with dense microsculpture, almost dull, anteriorly with deep median furrow. Costa and pterostigma infuscate, brownish, pterostigma medially brownish yellow. Basal 0.6–0.7 of fore and mid-femora slightly infuscate, hind femur infuscate on upper and lower margins. Tergum 1 medially with 3–4 short setae on either side. Penis valve (Fig. 21). Measurements: Body 4.3, forewing 5.1, costa 2.7. Head width 1.28. Compound eye 0.55 × 0.43. Flagellomeres from base on 0.47 (height 0.15), 0.48, 0.49, 0.43, 0.39, 0.36 and 0.40, total 3.02. Hind femur 1.08, height 0.23. Hind tibia 1.40, apical width 0.20, inner hind spur 0.23. Hind tarsomeres from base on 0.54, 0.30, 0.23, 0.13 and 0.26, total 1.46. Hypopygium 0.85.

Male, Lectotype of *P. delicatula*: Small specimen rather similar to holotype of *E. abortiva*: anterior wall of frontal area notched medially to bottom. Measurements: Body 3.4, forewing ca. 3.2, costa 1.9. Head width 0.91. Compound eye 0.37 × 0.28. Flagellomeres from base on 0.265 (height 0.10), 0.32, 0.30, 0.25, 0.23, 0.20 and 0.21, total 1.775. Hind legs missing. Hypopygium 0.83.

Larva. The larva of *Pontania delicatula* was described with many details (MacGillivray 1919: 9G). Its body is pale (white in alcohol), abdominal segments 1–8 with four annulets, three first of them are setose.

Host plant. *Salix reticulata* L. Galls at Churchill, Manitoba, Canada were pea-shaped and attached to the mid-vein near the base of the underside of the leaf, but with a large scar up to ca. one-fourth the size of the gall visible on the upperside (Benson 1960a), so the galls are transected by the leaf-blade. Galls of European *E. reticulatae* (Malaise) are on the same species of *Salix* but they are completely on the underside of the leaf with only a flat scar on the upper side.

Type material. — *Euura arctica*. MacGillivray (1919) described female, and gall. Female were reared from galls on the leaves of *Salix reticulata*, galls described as small, reddish, globular and they resemble in appearance and shape those of *Pontania atrata* MacGillivray. Type locality: Bernard harbour (where larvae only in willow catkins!) and Cape Barrow (Cape Krusenstern), Northwest Territories, Canada. According to the Code galls can be considered as syntypes. Therefore, the only female is considered as one of several syntypes. Lectotype female is hereby designated in order to fix the taxon; (coll. CNCO) labelled: TYPE E. arctica No. 429 (red label); Bernard Harbour and Cape Krusenstiern; 295; F. Johansen Coll.; Canadian Arctic Expedition July, 6, 1916; Type of *Euura arctica* A. D. MacGillivray. (Red label); *Nematus* (*Pontania*) *abortivus* MacG. ♀ det. R. B. Benson, 1956. Lectotype ♀ *Eupontania arctica* (MacGillivray, 1919): V. Vikberg 2002.

Euura abortiva. MacGillivray (1919) described one female, reared from galls on the leaves of *Salix reticulata*. Type locality: Herschell island, Yukon Territory, Canada. Holotype female (coll. CNCO) labelled: TYPE E. abortiva No. 428 [red label]; Herchell Isl. Alaskan Arctic Coast.; Canadian Arctic Expedition Aug, 13, 1914; 253; F. Johansen Coll.; Type of Euura abortiva A. D. MacGillivray. [red label]; Nematus (Pontania) abortivus MacG. ♀ det. R. B. Benson 1956.

Pontania delicatula. MacGillivray (1919) described male, larva, and gall on leaves of *Salix reticulata*. Type locality: Herschell island, Yukon Territory, Canada. Lectotype male (coll.

CNCO) is hereby designated in order to fix the taxon; labelled: TYPE P. delicatula No. 432 [red label]; Herschell Isl. Alaskan Arctic Coast.; F. Johansen Coll.; Canadian Arctic Expedition Aug, 13, 1914; 252; Type of Pontania delicatula A. D. MacGillivray. (Red label); Nematus (Pontania) abortivus MacG. ♂ det. R. B. Benson, 1956. Lectotype ♂ Eupontania delicatula (MacGillivray, 1919): V. Vikberg 2002.

Pontania deminuta. MacGillivray (1919) described one female. Type locality: Chantry island, Northwest Territories, Canada. Holotype female (coll. CNCO) labelled: TYPE P. deminuta No. 433 [red label]; Chantrey Isl. N. W. T.; Canadian Arctic Expedition Aug, 16, 1915; 132 7 [right wing glued on label]; Type of Pontania deminuta A. D. MacGillivray. [red label]; [left forewing between small round cover glasses].

Notes. The adults of *E. arctica* resemble of European species mostly those of *E. aquilonis* by strongly sculptured, matt, mostly glabrous frons and glabrous lateral face.

Kopelke (1999) wrote that *E. arctica* lives on *Salix arctica*, but this was a lapsus.

Eupontania ora (Kincaid, 1900)

Pontania ora Kincaid, 1900: 354. Lectotype ♀, Alaska: Popof Island, in USNM; examined (see designation below).

Diagnosis. Female: Frontal area mostly glabrous, its lateral wall posteriorly with numerous setae. Lateral frons above antennal hollow with some long hairs. Inner hind tibial spur 0.95–1.12 as long as tibia wide apically. Male, larva and gall unknown.

Female. Frontal area mostly glabrous, in one female with some short setae in front of median ocellus. Posterior part of lateral wall of frontal area with numerous setae. Lateral frons above antennal hollow with some long transverse hairs. Clypeus rather flat, lobes laterad of emargination prominent. Mesepimeron: lower glabrous zone interrupted by numerous setae. Costa brownish, pterostigma pale with hind margin brownish infuscate. Hind tibia apically infuscate, all tarsi infuscate. Sawsheath in dorsal view: long subapical hairs on one side form almost or fully rectangular angle with long setae of other side, long setae curved apically.

Measurements of lectotype: Body 4.6, forewing 5.0, costa 2.8. Head width 1.14. Compound eye 0.47 × 0.31. Flagellomeres from base on 0.39 (height 0.115), 0.40, 0.37, 0.32, 0.30, 0.27 and 0.30, total 2.35. Hind femur 1.02, height 0.25. Hind tibia 1.50, apical width 0.17, inner hind spur 0.19. Hind tarsomeres from base on 0.56, 0.25, 0.18, 0.10 and 0.28, total 1.37. Ovipositor sheath 1.23. Sawsheath 0.74. Cercus 0.29. Lamnium of lancet 0.98, with 24–25 segments.

Measurements of paralectotype (10 July): Body 4.55, forewing 4.9, costa 2.7. Head width 1.12. Compound eye 0.47 × 0.31. Flagellomeres from base on 0.375 (height 0.11), 0.37, 0.35, 0.29, 0.27, 0.25 and 0.30, total 2.205. Hind femur 1.00, height 0.26. Hind tibia 1.47, apical width 0.20, inner hind spur 0.19. Hind tarsomeres from base on 0.55, 0.24, 0.18, 0.10 and 0.27, total 1.34. Ovipositor sheath 1.30. Sawsheath 0.75. Cercus 0.25.

Measurements of paralectotype (12 July): Body 4.2, forewing 4.4, costa 2.4. Head width 1.07. Compound eye 0.44 × 0.32. Flagellomeres from base on 0.33 (height 0.10), 0.32, apical 5 missing. Hind femur 0.91, height 0.23. Hind tibia 1.31, apical width 0.17, inner hind spur 0.19. Hind tarsomeres from base on 0.49, 0.22, 0.165, 0.10 and 0.25, total 1.225. Ovipositor sheath 1.23. Sawsheath 0.72. Cercus 0.26.

Material examined. Three adult females (lectotype and two paralectotypes from type locality.

Type material. — *Pontania ora*. Kincaid (1900: 354) described female. Syntypes: three females from Popof Island, Alaska. Lectotype female (coll. USNM) hereby designated (in order to fix the use of the taxon) labelled: Popoff Island Alaska, July 9 '99; Harriman Expedition '99 T. Kincaid, Collector; CoType ♀ No. 5297 U. S. N. M. (red label); Pontania ora Kincaid ♀; Lectotype ♀ Pontania ora Kincaid, 1900: V. Vikberg 2002. Paralectotypes (coll. USNM): two females with the same data, except dates July 10, and July 12, 1899.

Notes. Male, host plant, larva and gall are unknown. The species was incorrectly synonymized with *Pontania crassipes* (Thomson) by Benson (1960a:379). It is a member of *Eupontania aquilonis*-group and not synonymous with any European species. Or because the gall is unknown,

the species can possibly belong to the *viminalis* group.

Eupontania atrata (MacGillivray, 1919)

Pontania atrata MacGillivray, 1919: 6G. Lectotype ♀, Canada: Yukon Territory, Herschel island, in CNCO; examined (see designation below).

Pontania lorata MacGillivray, 1919: 8G. Lectotype ♀, Canada: Yokon Territory, Herschel island, in CNCO; examined (see designation below). Syn. nov.

Diagnosis. Female: Frontal area weakly, but regularly sculptured, glabrous, shining. Lateral walls of frontal area and lateral frons above antennal hollow glabrous. Larva in gall on *Salix arctica*. Gall projecting about equally onto both surfaces of leaf.

Female. Frontal area weakly regularly sculptured, shining, glabrous. Lateral walls of frontal area and lateral frons above antennal hollow glabrous. Clypeus a little convex in longitudinal axis, emargination shallow, lateral part not prominent, shallow, rounded. Mesepimeron with broad glabrous zone below. Costa and pterostigma pale, brownish yellow. Hind tibia pale brownish yellow throughout, only apical tarsomeres infuscate. Sawsheath in dorsal view: Long subapical setae on one side form an acute angle with setae on other side. Measurements (lectotype of *P. atrata)*: Body 4.5, forewing 5.2, costa 3.0. Head width 1.21. Compound eye 0.53 × 0.35. Flagellomeres missing. Hind femur 1.12, height 0.25. Hind tibia 1.57, apical width 0.20, inner hind spur 0.20. Hind tarsomeres from base on 0.49, 0.25, 0.18, 0.11 and 0.28, total 1.31. Ovipositor sheath 1.40. Sawsheath 0.80. Cerci missing.

Measurements (lectotype of *P. lorata)*: Body 4.2, forewing 4.6, costa 2.5. Head width 1.10. Compound eye 0.46 × 0.33. Flagellomeres from base on 0.30 (height 0.12), 0.29, 0.30, 0.24, 3 apical missing. Hind femur 0.95, height 0.22. Hind tibia 1.40, apical width 0.18, inner hind spur 0.16. Hind tarsomeres from base on 0.43, 0.23, 0.18, 0.10 and 0.22, total 1.44. Ovipositor sheath ca. 1.25. Sawsheath 0.75. Cercus 0.23. Lamnium 1.05, with 24–25 segments, 3rd basalmost annulus with numerous ctenidia to near ventral end.

Male. Not studied.

Larva. Larva of *Pontania atrata* was described in great detail by MacGillivray (1919). It is pale (white in alcohol), abdominal segments 1–8 have four annulets of which three first setose. Length of body 10–12 mm.

Host plant. *Salix arctica* Pallas. Galls located near the mid-rib and projecting about equally onto both surfaces of the leaf, about the size of a large pea or slightly larger, the surface with depressions with irregular swellings between, in some specimens one-half of the gall bluntly pointed; colour probably brownish or reddish, a single gall on a leaf (MacGillivray 1919).

Type material. — *Pontania atrata*. MacGillivray (1919: 6G–7G) described female, male, larva, and gall on leaf of *Salix arctica*. Type locality: Herschel island, Yukon Territory, Canada. Lectotype female (coll. CNCO) hereby designated in order to fix the taxon, labelled: TYPE P. atrata No. 430 [red label]; Herschell Isl. (Y. T.) Alaskan Arctic coast.; F. Johansen Coll.; Canadian Arctic Expedition Aug, 13–19, 1914; 264; Type of Pontania atrata A. D. MacGillivray. (red label); Nematus (Pontania) atratus MacG. ♀ det. R. B. Benson, 1956; Lectotype ♀ Eupontania atrata (MacGillivray, 1919): V. Vikberg 2002. The paralectotype males were not examined.

Pontania lorata. MacGillivray (1919: 8G) described female and male. Syntypes (one female, 3 males) were reared from galls of creeping willow *Salix arctica* in Herschel island, Yokon Territory, Canada, collected on August 13, 1914. Lectotype female (coll. CNCO), hereby designated in order to fix the taxon, labelled: TYPE P. lorata No. 431 [red label]; Hersebell. Isl. Alaskan (Y. T.) Arctic Coast; Canadian Arctic Expedition, Aug, 13–19, 1914; F. Johansen Coll.; 265; Type of *Pontania lorata* A. D. MacGillivray [red label]; *Nematus* (*Pontania*) *atrata* MacG. ♀ det. R. B. Benson, 1956.; Lectotype ♀ *Eupontania lorata* (MacGillivray, 1919): V. Vikberg 2002. The paralectotype males were not examined.

Notes. Benson (1960a) regarded the species synonymous with *Pontania crassipes* (Thomson) and *P. ora* Kincaid. In reality *E. crassipes* does not belong to the same species group and there are several different characters between *E. ora* and *E. atrata* and I do not consider them as synonyms.

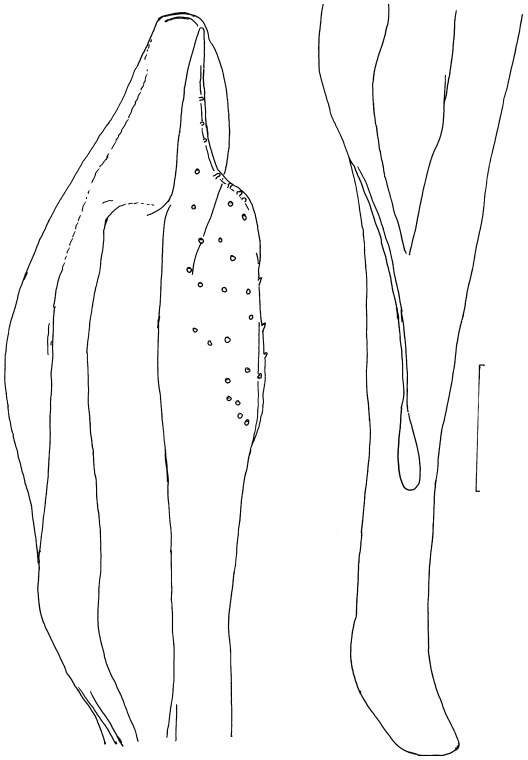


Fig. 22. Penis valve of *Eupontania reticulatae* (Malaise), Furkota, ex *Salix reticulata*. Apical part and basal part drawn separately. Scale 0.1 mm.

3.5. *Eupontania reticulatae* (Malaise, 1920) (Figs. 3d, 12e, 16f–g, 18c, 22)

Pontania reticulatae Malaise, 1920: 109. Lectotype ♀, Sweden: Torne Träsk, in NHRS; examined (see designation below).

Diagnosis. Adult: Frontal area and its lateral walls covered with long, erect hairs. Hind claws bifid. Female: Hind spurs thin, straight. Sawsheath in dorsal view with long subapical setae on one side forming an acute angle with long setae on other side. Male: penis valve strong, broad. Larva in pea-shaped gall on underside of leaf of *Salix reticulata*.

Female. Lectotype: Head black. Palpi piceous. Mandible basally, labrum, malar space area and clypeus brownish yellow. Supraclypeal area brownish and lateral vertex with reddish brown spot. Flagellum especially apically brownish black. Thorax black. Pronotum brownish black, tegula brownish yellow. Costa yellowish brown, pterostigma brownish yellow, venation brown. Legs blackish, femora apically, tibiae and tarsi yellowish brown, hind tarsus brownish infuscate apically. Abdomen brownish black, tergum 10, cercus and basal sheath brownish yellow. Frontal area defined, covered with long, erect hairs, so also its walls. Anterior wall deeply incised medially. Lateral frons above antennal hollow with some hairs. Paratorular area with 1–2 rows of horizontal setae, orbital setae numerous. Metanotum medially with 4–5 long setae on each side. Tergum 1 medially with ca. 10 short setae on each side. Sawsheath in dorsal view broad, triangular (Fig. 3d). Lamnium of lancet with 24 segments. Ctenidia short, triangular, present on 3rd basalmost annulus on; 6th to 8th teeth from base bear 9–10 rather strong serrulae (Fig. 18c). Measurements: Body 5.1, forewing 5.0, costa 2.8. Head width 1.24. Compound eye 0.51 × 0.37. Flagellomeres from base on 0.405 (height 0.13), 0.45, 0.40, 0.36, 0.34, 0.305 and 0.35, total 2.61. Hind femur 1.10, height 0.255. Hind tibia 1.67, apical width 0.19, inner hind spur 0.23. Hind tarsomeres from base on 0.50, 0.25, 0.20, 0.11 and 0.29, total 1.35. Sawsheath 0.77, cercus 0.22. Lancet 1.34, lamnium 1.03.

Female from Finland, Saana, reg. alpina, reared from galls on *Salix reticulata*, gathered in August 1966, leg. V. Vikberg; rearing no. 8/66: Clypeus yellow, with rounded emargination. Supraclypeal area brownish, densely hairy. Frontal area with distinct microsculpture, weakly shining, with erect hairs. Anterior wall of frontal area well developed, medially weakly notched, with erect hairs. Paratorular area with many rows of orbital setae, horizontal hairs present on lower part of area and especially on lower lateral face. Reddish brown colour on vertical orbit and upper temple. Upper hind corner of pronotum slightly reddish brown, tegula brownish yellow. Midlobe of mesoscutum densely alutaceous, faintly shining, bases of hairs slightly tuberculate, median keel present. Costa yellowish brown, pterostigma brownish yellow. Basal 0.8–0.9 of femora black. Measurements: Body 5.5, forewing 5.1, costa 2.9. Head width 1.40. Compound eye 0.55 × 0.41. Flagellomeres from base on 0.475 (height 0.14), 0.46, 0.425, 0.39, 0.38, 0.31 and 0.37, total 2.81. Hind femur

1.17, height 0.295. Hind tibia 1.65, apical width 0.20, inner hind spur 0.25. Hind tarsomeres from base on 0.50, 0.26, 0.21, 0.11 and 0.28, total 1.36. Ovipositor sheath 1.35. Sawsheath 0.82. Cercus 0.25. Lancet of saw 1.40–1.43, lamnium of lancet 1.10–1.11, with 26 teeth, ctenidia present from 4th basalmost annulus on.

Male. Paralectotype: Head similarly coloured as lectotype female, but malar space area brownish. Tegula brown, pterostigma darker, brownish. Hypopygium pale brown. Hairs on head as in female, anterior wall of frontal area only slightly shallowed medially. Tergum 1 medially with ca. 15 short setae on each side. Measurements: Body 4.8, forewing 4.9, costa 2.7. Head width 1.25. Compound eye 0.50 × 0.36. Flagellomeres from base on 0.45 (height 0.15), 0.50, 0.49, 0.43, 0.39, 0.36 and 0.43, total 3.05. Hind femur 1.06, height 0.255. Hind tibia 1.50, apical width 0.20, inner hind spur 0.26. Hind tarsomeres from base on 0.56, 0.26, 0.21, 0.11 and 0.25, total 1.40. Hypopygium 1.07.

Male from Finland, Saana; same rearing as the examined female (see above): Clypeus brownish black, with shallow emargination. Paratorular area with 2–3 rows of setae, clearly horizontal setae present only below and especially on lower lateral face. Pronotum and tegula black. Midlobe of mesoscutum with weak medial keel. Costa rather dark, brownish, pterostigma yellowish brown. Basal 0.8–0.9 of femora black. Tergum 1 medially with 15–17 rather short setae. Measurements: Body 4.7, forewing 4.4, costa 2.7. Head width 1.26. Compound eye 0.49 × 0.39. Flagellomeres from base on 0.47 (height 0.14), 0.525, 0.51, 0.41, 0.39, 0.37 and 0.42, total 3.095. Hind femur 1.07, height 0.28. Hind tibia 1.50, apical width 0.18, inner hind spur 0.25. Hind tarsomeres from base on 0.53, 0.30, 0.18, 0.12 and 0.23, total 1.36. Hypopygium 1.12.

Variation. Female (n = 18 reared females): Body 3.6–5.4 mm, head width 0.96–1.45 mm, fore wing 3.6–5.4 and costa 2.0–3.0 mm. Lancet: 6th–7th teeth of lamnium of lancet from base (Fig. 12e) of a reared female from Furkota bear 8–10 coarse serrulae, and ctenidea short, triangular. Male (n = 10 reared males): Body 4.1–5.2, head width 1.10–1.35, fore wing 4.2–5.0 and costa 2.4–2.7 mm. Penis valve of a reared male from Furkota (Fig. 22).

Larva. Described by Malaise (1920), Beneš (1968; as *P. arctica*) and Kopelke (1991; figure 82). I examined two dry prepared fullgrown larvae and one larva in alcohol was treated with KOH and describe them as follows: Head width 1.10–1.15–1.22, length of extended body 12.8–13.0 mm. Frons with 10–15 setae, clypeus with 2 (seldom 3) and labrum with 2 setae on either side. Mandible with 1 seta. Stipes usually with 3, rarely 2 setae, palpifer with 2 setae, maxillary palpus 1 with 1 very small and 2nd with 1 distinct seta. Third thoracic leg: the dorsal length of segments: coxa 0.52, trochanter 0.20, femur 0.26, tibia 0.30 and tarsus with claw 0.14. Tibia 3 also distinctly longer than femur 3 and with 10–11 setae of which two on inner side.

Third abdominal segment with 4 dorsal annulets. Annulet 1 with 2–4 setae and near anterior margin ventrally one microseta and subdorsally with 3 microsetae. Annulet 2 with 3 setae and mediodorsally with elevated transverse part. Annulet 3 with 2–5 setae and subdorsally one microglanduba. Postspiracular lobe with 4–6 setae and one microglanduba. Subspiracular lobe with 3–7 setae and anteroventrad 2 microsetae. Surpedal lobe with 3–6 long setae and caudally 2 microsetae. Proleg with 5 setae and one microglanduba visible in lateral view and 5–6 setae on inner side near base. One seta and 2 microsetae present anteriad and mediad of proleg, and one microseta on ventral annulet 1 on either side.

Suranal cerci hardly developed, rounded, close each other (distance 0.10 mm or 0.08–0.09 of head width), their interspace shallow, almost truncate.

Host plant. *Salix reticulata* L. Gall is on the underside of the leaf-blade, with only scar on upper side near mid-vein. Gall is globular, often irregular, sometimes with sharp lower apex, surface glabrous, matt, colour pale yellowish green to red (figure 97 in Kopelke [1991]).

Material examined. Adults reared from galls on *Salix reticulata*: Finland, Le: Saana, regio alpina, 7 ♀♀ 3 ♂♂, galls collected in August 1966, V. Vikberg leg. Pikku-Malla, 1 ♀, gall collected in July 1969, E. O. Peltonen leg. Norway, Hjerkinn, 1♀, gall collected in August 1968, V. Vikberg leg. Slovak Republic, the Belanské Tatry Mts., ridges ca. 1800–2100 m a.s.l., 4 ♀ 5 ♂, galls collected in Aug. 1959 and 1960, K. Beneš leg.

Sweden, Torne Träsk area, Björkliden, 1 ♀ 1 ♂, galls collected in August 1989, V. Vikberg leg. Larvae: Finland, Le: Pikku-Malla, from galls on *Salix reticulata*, 25.VII.1969 and 27.VII.1969, two dry prepared larvae, leg. E. O. Peltonen. Slovak Republic, Belanske Tatry, from galls on *Salix reticulata*, 6.IX.1960, 18 larvae in alcohol (body 5–11 mm, 7 of them fullgrown: body 10–11 mm, head widths 1.06, 1.10, 1.10, 1.14, 1.16, 1.20 and 1.22 mm), leg. K. Beneš.

Type material. — *Pontania reticulatae*. Malaise (1920) described female, male, larva and gall. Syntypes (one male and 9 females) reared from galls on *Salix reticulata* in Torne Träsk area and Riksgränsen, Swedish Lapland. Lectotype female (in NHRS) hereby designated in order to fix the taxon labelled: 4 [rearing no.]; Torne Tr., Malaise; Type; Pontania reticulatae n. sp. (ex gall) [in Malaise's handwriting]; Typus [red label]; PR. 178 (VV); Prep. 7040; Naturhistoriska Riksmuseet Stockholm Loan no 4/02; Lectotype ♀ Eupontania reticulatae (Malaise, 1920) V. Vikberg 2002. Type locality: Torne Träsk area, Swedish Lapland. Four females and one male from Torne Träsk having the same rearing number (4) were labelled as paralectotypes (NHRS).

Distribution. Austria, Finland, France, Italy, Norway, Poland, Slovak Republic, Sweden, Switzerland.

Notes. The female and the male of the species were redescribed and figured by Kopelke (1991: 110, and figure 11, head in dorsal and in anterior view; figure 28, sawsheath and cerci in lateral and in dorsal view; figure 46, lamnium of lancet; figure 64, penis valve).

This species is a member of *Eupontania viminalis*-group (Kopelke 1991) where it is a rather isolated species. It is treated in this paper because Benson (1960a) synonymized it with *E. arctica* (the same larval food plant) and later (Benson 1960b, 1962) with *E. crassipes*. Beneš (1967) used the name *Pontania arctica* for it and included it in his *Pontania crassipes*-group which corresponds to the *E. aquilonis*-group in this paper. Vikberg (1970) treated *Pontania reticulatae* as valid species. The galls of the species can be found only above the treeline in regio alpina or arctic tundra (Beneš 1967, Vikberg 1970).

3.6. Key to the adults of European species of *Eupontania crassipes*- and *aquilonis*-groups and *Eupontania reticulatae*, with annotated information on larval host plants, galls, larvae and distribution

1 (2) Hind claws with a subapical tooth (Figs. 16b–c). Lateral walls of frontal area covered with erect, long hairs (Fig. 16d). Frontal area largely glabrous or almost completely hairy. ♀: sawsheath in dorsal view narrow, apical tuft of long hairs present only near apex, lateral surface of sawsheath mostly glabrous, upper subapical long hairs of one side form a right angle with setae on other side (Fig. 3c). ♂: Valvispina of penis valve very broad, ventral margin of penis lacking small spines (Fig. 19). Pale unicoloured larva with 4 dorsal annulets in globular gall transecting the leaf-blade of *Salix retusa* L. (C. and SE. European mountains) .... *Eupontania retusae* (Benson)

2 (1) Hind claws bifid or subbifid (Fig. 16a, e–g)

3 (14) Frontal area covered with setae, except small glabrous area may be anterior to median ocellus.

4 (5) Frontal area and its lateral walls covered with long, erect hairs. ♀: hind spurs thin, straight. Sawsheath in dorsal view: long apical hairs of one side forming an acute angle with long setae on other side. ♂: penis valve strong, broad (Fig. 22). Pale unicoloured larva with 4 dorsal annulets in gall on the underside of leaf-blade of *Salix reticulata* L. (N. and C. Europe; an isolated member of *Eupontania viminalis*-group) ..... *E. reticulatae* (Malaise)

5 (4) Frontal area and its lateral wall covered with rather short setae which are inclined forward and some inclined laterad. ♀: hind spurs thick, short, apically curved. Larva dark flecked, cuticle with dark spiculae, with 3 dorsal annulets; in gall transecting the leaf-blade of other species of *Salix*. (*Eupontania crassipes*-group; only females are keyed).

6 (11) ♀: sawsheath in dorsal view: subapical long setae on one side forming an acute angle with long setae on other side.

7 (8) Frontal basin formed, concave, with anterior wall entire or only slightly notched. Larva in globular gall on *Salix arbuscula* L. (Scotland, ? N. Europe) ..... *E. arbusculae* (Benson)

8 (7) Frontal basin not formed, anterior wall weak and deeply notched.

9 (10) ♀: metanotum medially with 0–5 hairs. Body usually with pale colouration. Larva in globular gall on *Salix herbacea* L. and less often on *Salix polaris* Wahlenb. (Britain and North Europe) .... *E. herbaceae* (Cameron)

10 (9) ♀: metanotum medially with 10 hairs. Body usually dark. Larva in globular gall on *Salix foetida* Schleich. ex Lam. & DC. (Alps in Austria and Switzerland) ..... *E. foetidae* (Kopelke)

11 (6) ♀: sawsheath in dorsal view: long subapical setae on one side forming an obtuse angle with long setae on other side (at least in large specimens).

12 (13) ♀: Tegula yellow. Larva in gall on *Salix lapponum* L. (Scotland and N. Europe, in lowland to beyond tree line) ..... *E. crassipes* (Thomson)

13 (12) ♀: Tegula dark brown to black. Larva in gall on *Salix helvetica* Vill. (Alps in Austria and Switzerland) ..... *E. maculosa* (Kopelke)

14 (3) Frontal area wholly glabrous, or at most with few isolated hairs. ♀: sawsheath in dorsal view: long subapical hairs on one side forming an acute angle with long hairs on other side. Larva pale, unicoloured with 4 dorsal annulets in gall transecting the leaf-blade but often better developed on the underside. (*Eupontania aquilonis*-group).

15 (16) Frontal area with regular surface sculpture, matt. Anterior wall of frontal area well developed, entire or slightly incised. [In very small specimens surface sculpture can be slight and frontal wall can be absent]. Hairs on abdominal terga 1–4 reduced, very short or absent. Larva in globular gall on *Salix herbacea* L. and *S. polaris* Wahlenb. (Scotland, N. Europe, the High Tatra Mountains) .... *E. aquilonis* (Benson)

16 (15) Frontal area rather smooth or with weak irregular surface sulpture, shining. Anterior wall of frontal area deeply incised. Hairs on abdominal terga 1–5 normally developed.

17 (18) ♂: Three basal flagellomeres counted together as long as 1.47 × head width. Penis valve with very broad valvispina (Fig. 20). Female unknown (compare with description of male if *Salix alpina* present). Larva in gall on *Salix alpina* Scop. (Slovak Republic) ..... *E. alpinae* Vikberg

18 (17) ♂: Three basal flagellomeres together as long as 1.20 × head width or less. Valvispina of penis valve not broad. Female: try next couplet.

19 (20) ♀: Clypeus and supraclypeal area black. Clypeal emargination often rectangular. Lamnium of lancet with ctenidia present from 1st or 2nd basalmost annulus on. ♂: Penis valve on ventral margin covered with small spines. Larva in gall on *Salix myrsinites* L. (Scotland and N. Europe) .... *E. myrsiniticola* (Kopelke)

20 (19) ♀: Clypeus and supraclypeal area pale, brown. Clypeal emargination rounded, shallow. Lamnium of lancet with ctenidia present from 3rd basalmost annulus on. ♂: Penis valve lacking small spines on ventral margin. Larva in gall on *Salix breviserrata* Flod. (Switzerland) .. *E. breviserratae* (Kopelke)

4. Discussion

Benson (1960a) listed the following ten taxa as synonyms of his arctic and circumpolar *Pontania crassipes* (Thomson): *N. herbaceae* Cameron, 1876, *P. ora* Kincaid, 1900, *P. atrata* MacGillivray, 1919, *P. lorata* MacGillivray, 1919, *P. polaris* Malaise, 1920, *P. lapponica* Malaise, 1920, *P. enslini* Zirngiebl, 1937, *P. arbusculae* Benson, 1941, *P. algida* Benson, 1941 and *P. aquilonis* Benson, 1941. Benson (1960b) added five new synonyms: *Euura arctica* MacGillivray, 1919, *Euura abortiva* MacGillivray, 1919, *Pontania delicatula* MacGillivray, 1919, *Pontania deminuta* MacGillivray, 1919 and *Pontania reticulatae* Malaise, 1920, but in the same paper he described one new species, *Pontania retusae*. The lumping together had reached its maximum; in this paper the synonymized species of Benson are treated under 8 valid species belonging to 3 different species-group. The types of the North American species were studied in order to see if they are conspecific with some European species and to which species-group they do belong. None of them belonged to *Eupontania crassipes*-group and no Holarctic species could be confirmed. All proved to be representatives of the *E. aquilonis*-group. Further research is needed to find if there are Holarctic species in these two species-groups.

Until now, there has been no key to distinguish between the females and males of European species of *Eupontania herbaceae*- and *aquilonis*-species groups. The key presented in this paper is the first attempt since Benson (1941), but it is only partly satisfactory. Especially the males and small females of *E. crassipes*-group are very difficult to separate from each other. More rearings and ovipositing experiments are needed to clarify the status of some species. Also DNA studies would be welcome, perhaps they can add further light in this homogeneous group.

The larvae are often studied with only low magnification of a stereomicroscope. After the treatment with KOH and dissection of body parts, high magnification of a compound microscope can be used. This reveals many small details, e.g. very small setae (microsetae) and glandubae can be seen more accurately. A rather similar technique was used earlier in Vikberg & Nuorteva (1997) in studying larval morphology. It is interesting to note that near the anterior margin of dorsal annulet 1 of *Dulophanes morio* (Fabricius) (as *Nesoselandria*; transferred to *Dulophanes* by Lacourt [1998]) and *Birka cinereipes* (Klug) (Tenthredinidae,

Selandriinae) there are microsetae both subdorsally and near the level of the spiracle as in studied larvae of *Eupontania*.

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