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**Three new species of the *Pontania dolichura*
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Tenthredinidae: Nematinae)**

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Three new species of the *Pontania dolichura* group from Europe and Siberia (Hymenoptera: Tenthredinidae: Nematinae)

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Abstract. Described as new are *Pontania bigallae* sp. nov., causing globose galls on the leaves of *Salix caprea* L. and *S. starkeana* Willd. ssp. *cinerascens* (Wahlenb.) Hultén in N. Finland, N. Norway and Karelian Republic, Russia, *P. magadanensis* sp. nov. inducing similar galls on the leaves of *S. starkeana* ssp. *cinerascens* in Magadan District, Yakutia and Kamchatka, NE. Russia and *Pontania unigallae* sp. nov. inducing sausage shaped galls on *Salix repens* L. ssp. *rosmarinifolia* (L.) Andersson in Leningrad Province, Russia and Estonia.

Kolme tieteelle uutta *Pontania dolichura* –ryhmän lajia Euroopasta ja Siperiasta

Lyhennelmä. Uusi laji *Pontania bigallae* aiheuttaa puolipallonmuotoisia pariäkämiä raidan ja kangaspajun lehtien yläpinnalle Pohjois-Suomessa, Pohjois-Norjassa ja Karjalan tasavallassa Venäjällä. Sille läheinen uusi laji *P. magadanensis* aiheuttaa samanlaisia äkämiä kangaspajun lehtiin Magadanin alueella, Jakutiassa ja Kamtsatkan niemimaalla Koillis-Venäjällä. Kolmas uusi laji *P. unigallae* aikaansaa makkaramaisen äkämän synnyn kapealehtipajun lehteen Leningradin alueella Venäjällä ja Virossa.

1. Introduction

A key to three species groups of the sawfly genus *Pontania* A. Costa was presented by Zinovjev & Vikberg (1999). The adults of the *P. dolichura* group are rather similar to those of the leaf rolling species of *P. crassispina* group, for which a new genus *Tubpontania* was proposed by Vikberg (2010), but they differ in having a non-tuberculate vertex and frons, longer cerci (females) and longer antennae (males). The species of the *Pontania dolichura* group induce very characteristic galls on the leaves of many species of *Salix*: these are mostly sausage shaped and often paired one each side of the mid-rib of the leaf and project only from the upper surface of the leaf (Benson 1958, 1960, Kopelke 1999: figs. 4a-i). The studies of Kopelke (1986, 1987, 1990, 1994, 1999) have greatly changed the

species concept in the *Pontania dolichura* group: the earlier monotypic Holarctic group of Benson (1960) contains up to now seven named species alone in North and Central Europe. The species are more or less monophagous on species of *Salix*. The adults of the group are very difficult to distinguish from each other. Kopelke (1994) misidentified the first species of the group to have been described, *Pontania dolichura* (Thomson, 1871), and confused *Pontania femoralis* (Cameron, 1876) with it (Vikberg & Malinen 2012). Following the revision by Kopelke (1994), the larva of *Pontania femoralis* on *Salix phylicifolia* was misidentified as *P. dolichura* by Nyman et al. (2006).

In this paper we describe two new species of the group from N. Europe. One feeds on *Salix caprea* L. and *Salix starkeana* ssp. *cinerascens* (Wahlenb.) Hultén. Its galls were already

described over 40 years ago from North Finland (Vikberg 1970). The other induces galls on *S. repens* L. ssp. *rosmarinifolia* (L.) Andersson in Leningrad District, Russia (Zinovjev 1993, 1999) and Estonia (Zinovjev 1999). In addition we describe one new species from Magadan District, NE. Russia, where it causes galls on the leaves of *Salix starkeana* ssp. *cinerascens*. Its galls have been mentioned earlier by Zinovjev (1993, 1999; the willow was named as *Salix bebbiana* [*xerophila*]).

2. Material and methods

Galls of the *Pontania dolichura* group were collected in Finland since 1965 and during one trip to S. Norway in August 1968. Author AZ collected galls on *Salix repens* ssp. *rosmarinifolia* in June 1981 and later at two localities in Leningrad province, Russia. He made several excursions to the Russian Far East, e.g. in 1979 and 1982, and to Aborigin biological station, Magadan District, NE. Russia in July 1987. Full grown larvae were given small glass vials containing fine sand, moss (*Sphagnum*) and a piece of rotten wood, in which to make cocoons. Overwintering took place outside in larger boxes filled with crushed newspaper, etc., and covered with soil or snow, or kept in a sheltered place under cover.

Morphological terminology follows Goulet & Huber (1993), Viitasaari (2002), and Vikberg (2003). Specimens were studied and measurements were made as described in Vikberg & Zinovjev (2006) or Vikberg (2010). Body part measurements are given in millimeters; the length of the hind femur was measured with trochantellus. The annuli of the lancet are numbered from the base towards the tip of the lancet starting with annulus 1. The names of *Salix* are according to Jonsell (2000) and Skvortsov (1999).

Abbreviations used: POL = Postocellar line, measured as the distance between the inner margins of the lateral ocelli. OOL = Ocello-

ocular line, measured as the distance between the outer margin of one lateral ocellus and the inner margin of the compound eye of the same side. OD = Ocellar diameter, measured as the maximum diameter of one lateral ocellus.

CVV = private collection of Veli Vikberg, Turenki, Finland. FMNH = Finnish Museum of Natural History, Zoological Museum, University of Helsinki, Finland. IPAE = Institute of Plant and Animal Ecology, Ekaterinburg, Russia. ZISP = Zoological Institute, Academy of Sciences, St. Petersburg, Russia.

3. Results

3.1. *Pontania bigallae* sp. nov. induces paired, globose galls on *Salix caprea* L. and *S. starkeana* Willd. ssp. *cinerascens* (Wahlenb.) Hulten in N. Europe

Pontania bigallae sp. nov.

Female holotype. Black. Flagellum brown-black, apically more brownish. Lateral vertex obscurely red-brown. Supraclypeal area slightly brownish. Clypeus apically brown, labrum brown-yellow. Mandible brown-yellow, extreme base infuscate, teeth amber red. Palpi piceous. Tegula yellow, upper hind corner of pronotum with narrow, brown-yellow margin. Legs brown-yellow, with coxae almost black. Trochanters pale, partly infuscate. Basal 0.6-0.75 of femora blackish, trochantelli pale. Tarsi apically slightly infuscate. Wing venation and pterostigma dark brown, pterostigma pale basally. Abdomen brown-black, with sterna dark brown. Cerci pale. Sawsheath black; basal plate pale brown, infuscate basally. Head setose, with a small glabrous area in front of medial ocellus. Vertex covered with sculpture, median frons and supraclypeal area rather shining, almost smooth. POL/OOL 1.00. Fovea on anterior frons broad, shallow. Clypeus smooth, shining, medially emarginate about 0.3 of medial length. In dorsal view genae rounded, subparallel, in lateral view behind eye a depressed, glabrous, smooth margin. Mesoscutum hairy, sculptured, indistinctly punctured, rather dull. Mesoscutellum faintly convex, smooth and shining. Mesepisternum with

very faint sculpture, shining, upper half hairy, broad glabrous area on upper part of lower half. All claws bifid.

Abdominal tergum 1 medially with up to 9 setae on one side. Tergum 9 in dorsal view glabrous, with a tuft of small setae around midline, on down turned lateral parts densely hairy near hind margin. Cercus long, but does not reach apex of sawsheath. Sawsheath rather long, in dorsal view with long lateral setae forming an acute angle of 30 degrees with each other, on dorsomedial margin with hairs in apical half, in lateral view sawsheath rather broadly rounded apically. Lancet with 24-segmented lamnium, length/width of lamnium 5.4. Apex of lancet with rather high serrulae (Fig. 1). Lance rather narrow, radix with short projection for muscles, lamnium of lance with 22 segments.

Measurements of holotype (lengths in mm): Body 4.3 (with sawsheath 4.5). Fore wing 4.0, costa 2.2. Head width 1.05, head height 0.70, head length 0.60. Malar space 0.07. Intertorular distance 0.15. Compound eye 0.47 x 0.31. Distance between eyes on frons 0.70, on face 0.69. POL 0.20, OOL 0.20, OD 0.08. Postocellar area 0.18 x 0.32. Flagellomeres 1-7: 0.25 (height 0.10), 0.30, 0.29, 0.25, 0.22, 0.21, 0.26 (height 0.07); total 1.78. Hind femur 1.00, height 0.20. Hind tibia 1.13, apical width 0.15, inner hind spur 0.21, outer hind spur 0.14. Hind tarsomeres 1-5: 0.39, 0.18, 0.12, 0.08, 0.20; total 0.97. Hind claw 0.13. Ovipositor sheath 1.22. Sawsheath (valvula 3) 0.70 x 0.21. Cercus 0.25 x 0.05. Lamnium of lancet 0.91.

Variability in females. Body length 3.4-4.4 mm. Fore wing length 3.3-4.1 mm. Head width 0.88-1.05 mm. Length of flagellum as long as 1.7-2.1x head width. Length of flagellomeres 1-3/head width 0.82-1.04 (mean 0.96, n= 4). Lamnium of lancet/head width 0.87-0.95 (mean 0.92, n= 4). Lamnium of lancet with 21-24 segments.

Allotype male. Darker than female. Hypopygium brown. Tergum 1 with 5 and 6 setae medially. Hind claw practically simple (inner tooth hardly discernible). Penis valve with rather straight base (Fig. 6).

Measurements of allotype. Body 3.6, fore wing 3.8, costa 2.2. Head width 1.04, head height 0.69, head length 0.60. Malar space 0.08. Intertorular distance 0.14. Compound eye 0.45 x 0.32. Distance between eyes on frons 0.68, on face 0.65. POL 0.21, OOL 0.24, OD 0.08. Postocellar area 0.13 x 0.30. Flagellomeres 1-7: 0.40 (height 0.11), 0.45, 0.45, 0.39, 0.35, 0.33, 0.35 (height 0.06); total 2.72. Hind femur 1.02, height 0.20. Hind tibia 1.10, apical width 0.14, inner spur 0.20, outer spur 0.15. Hind tarsomeres 1-5: 0.41, 0.20, 0.15, 0.09, 0.21; total 1.06. Projection of last tergum: width 0.15. Hypopygium 0.79 x 0.60.

Variability in males. Body length 3.3-3.7 mm. Fore wing length 3.6-3.9 mm. Head width 0.97-1.04 mm. Length of flagellum as long as 2.4-2.8x head width. Length of flagellomeres 1-3/head width 1.23-1.39 (mean 1.31, n= 5). One male has only 6 flagellomeres in both antenna.

Specimens examined: Holotype female, Finland, Kainuu (Kn): Hyrynsalmi, (Uniform Grid 27° E reference 717:357), reared from galls on *Salix caprea*, collected 3.vii.1965, emerged iv.1966, V. Vikberg leg (FMNH); lancets in Euparal are on slide nr. 226 (VV).

Paratypes: Finland, Kainuu: Hyrynsalmi, two females and three males (one allotype), the same collecting data as in holotype. Inari Lapland (InL): Inari, 762:351, one male, reared from galls on *Salix caprea*, collected 6.vii.1989, emerged in iii.1990, V. Vikberg leg. Utsjoki, Kevo, 774:350, 4 males, reared from galls on *Salix starkeana* ssp. *cinerascens*, collected on 25.vi.1989, emerged in iii.1990, V. Vikberg leg. (nr. 9/89). Utsjoki, Pulmankijärvi, 776:353, one female on *Salix starkeana* ssp. *cinerascens* 22.vi.1989; 4 males reared from galls on *Salix starkeana* ssp. *cinerascens* collected on 22.vi.1989, emerged in iii.1990, V. Vikberg leg. (nr. 9b/89); 3 males reared from galls on *Salix starkeana* ssp. *cinerascens*, collected on 22.vi.1989, emerged in iv.1990, A. Zinovjev leg.

The species induces galls on *Salix caprea* L. and *S. starkeana* ssp. *cinerascens* (Wahlen.) Hultén (in Skvortsov's classification, subgenus *Vetrix*,

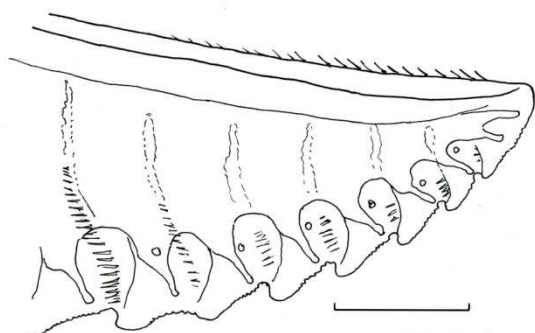


Fig. 1. *Pontania bigallae* sp. nov., holotype. Apex of lance of saw in lateral view. Scale line 0.05 mm.

Kuva 1. *Pontania bigallae*, holotyypin. Sahan lansetin kärkiosa sivulta. Mittajana 0,05 mm.

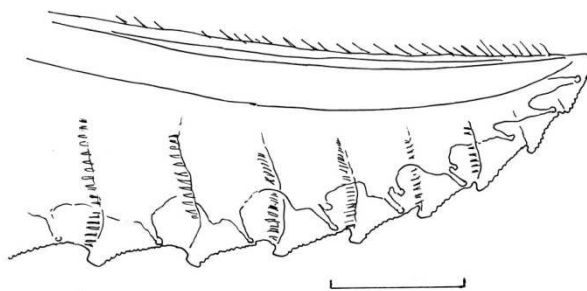


Fig. 3. *Pontania unigallae* sp. nov., paratype. Apex of lance of saw in lateral view. Scale line 0.05 mm.

Kuva 3. *Pontania unigallae*, paratyypin. Sahan lansetin kärkiosa sivulta. Mittajana 0,05 mm.

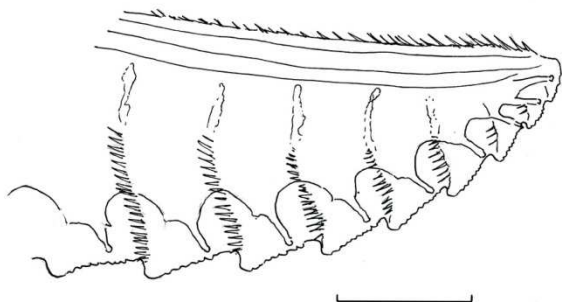


Fig. 2. *Pontania magadanensis* sp. nov., paratype. Apex of lance of saw in lateral view. Scale line 0.05 mm.

Kuva 2. *Pontania magadanensis*, paratyypin. Sahan lansetin kärkiosa sivulta. Mittajana 0,05 mm.

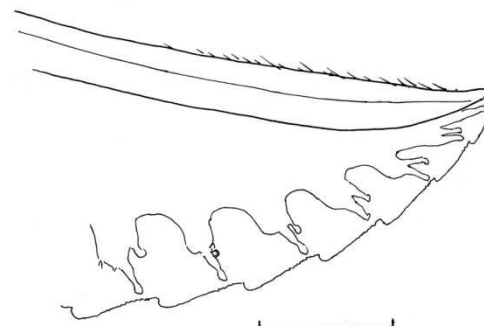


Fig. 4. *Pontania femoralis* (Cameron) from Finland, Tampere, 11.vi.1965, leg. V. Vikberg. Apex of lance of saw in lateral view. Scale line 0.05 mm.

Kuva 4. *Pontania femoralis* (Cameron), Tampere, 11.vi.1965, leg. V. Vikberg. Sahan lansetin kärkiosa sivulta. Mittajana 0,05 mm.

section *Vetrix*, former in subsection *Laeves*, latter in subsection *Substriatae*). At the type locality the paired galls were found on *Salix caprea*, on the upper surface of the leaf near its apex. They were short, globose and measured 6.0-6.5 x 4.5-5.0 mm. They were covered with short and thick hairs, the colour was brownish green and when the larvae have left the galls, they were pale brownish, with thin walls and filled with larval faeces. The galls on *Salix starkeana* ssp. *cinerascens* are similar, but usually somewhat smaller.

The galls of *Pontania bigallae* are short, because the female lays an egg and injects gall stimulating substances by stinging each leaf-half only once. Other species of *Pontania dolichura* group inject gall stimulating substances by stinging each leaf-

half several times (e.g. see Kopelke 1985: fig. 2; ovipositing scars of *Pontania virilis* Zirngiebl (as "*P. dolichura*") on *Salix purpurea* L.; the egg is laid through the larger middlemost incision).

The full grown larva is 6-7 mm long, head pale, with dark brown markings, body pale yellowish, the green gut shines through.

Cocoon is compact, dark brown, its size is 4.5-5 x 2-2.5 mm.

The galls have been observed at the following localities: Finland, Kainuu: Hyrynsalmi (717:357), on *S. caprea* in July 1965 (Vikberg 1970); Koillismaa (Ks): Kuusamo (732:359), on *S. caprea* in July 1967 (J. Kangas); Kittilä Lapland (KiL): Kolari, Äkäslompolo (750:337), on *S. caprea* in July 1997 (V. Vikberg). Enontekiö Lapland (EnL): Enontekiö,

Palojoensuu (758:333), on *S. caprea* in July 1994 (V. Vikberg); Enontekiö, Hetta (759:336), on *S. caprea* in July 1994 (V. Vikberg). Inari Lapland: Inari (762:351); (763:351); (764:350), all on *S. caprea*, June-July 1989 (I. Togashi, V. Vikberg); Inari (766:350), on *S. caprea* and *S. starkeana* ssp. *cinerascens* in June 1989 (V. Vikberg, A. Zinovjev). Utsjoki, Kevo (774:350), on *S. starkeana* ssp. *cinerascens* in June 1989 (V. Vikberg); Utsjoki, S of Pulmankijärvi (776:353), on *S. starkeana* ssp. *cinerascens* in June 1989 (V. Vikberg, A. Zinovjev). Kopelke (1999) recorded galls from two localities (Vaggatem in 1985, Nyrud in 1997) in N. Norway, Finnmark, S. Varanger near the eastern border of Inari and published a photograph of the paired galls on *Salix caprea* (Kopelke 1999: fig. 4h).

Etymology. The specific epithet *bigallae* is formed of Latin words *bi-* having two and *galla* meaning a gall. The species of *Pontania dolichura* group usually have paired galls.

Note. Author V. Vikberg intended to describe the species as new in the paper on Kilpisjärvi fauna (Vikberg 1970), but because the differentiating characters were small, he gave up the plan. However, the working name *Pontania bigallae* has become well known among those who study Finnish sawflies. This is the reason, why Roininen & Nyman (1997) report the galls of the species from Sosnovyi jarvi [66.00° N, 32.30° E], Karelian Republic, under the name *Pontania bicalla* [nomen nudum] on *Salix caprea* in August 1996. All known localities are shown on a map (Fig. 5).

Kokkonen (2000) studied the biology of the sawfly species as an undescribed species near *Pontania dolichura* group (P1) on *Salix caprea* and *S. starkeana* ssp. *cinerascens* and their putative hybrids near Kevo research station (69.75° N, 27.02° E) in Utsjoki, Inari Lapland, Finland. The females of P1 oviposited early in summer and the larvae developed rapidly compared with *Pontania pedunculi*.

The type locality Hyrynsalmi (64.68° N, 28.48° E) is the southernmost known locality of *Pontania bigallae*, although *Salix caprea* is

common and distributed throughout South Finland. Possible records of the galls of the species on *Salix caprea* in more southern regions are following: Germany (H. Weiffenbach pers. comm.: he wrote that in early 1960's a few galls were found in W. Germany but the rearing was not successful); and Armenia (Mirzoyan 1970). These records need confirmation.

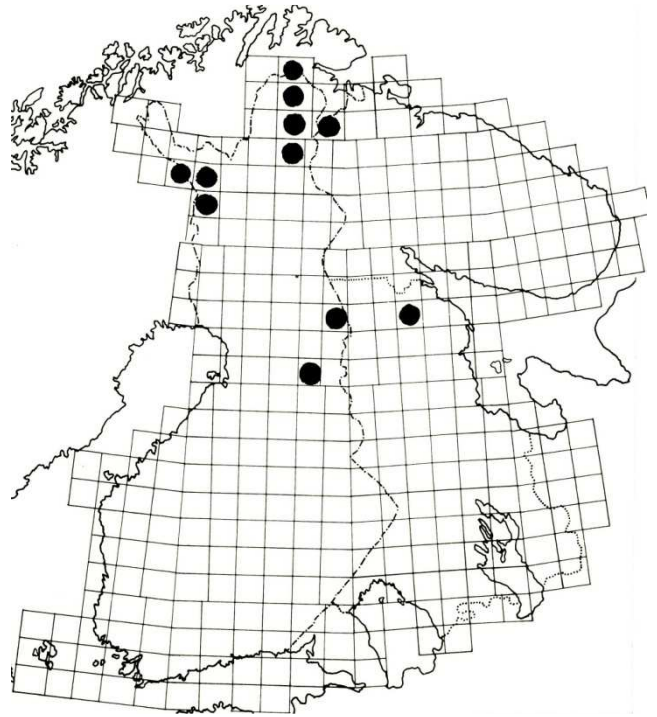


Fig. 5. Distribution of *Pontania bigallae* in East Fennoscandia in 50 km squares of UTM (Universal Transverse Mercator) grid map.

Kuva 5. Lajin *Pontania bigallae* levinneisyys Itä-Fennoskandiassa, karttapohjana UTM-kartan 50 x 50 km ruudut.

3.2. *Pontania magadanensis* sp. nov. induces globose galls on leaves of *Salix starkeana* ssp. *cinerascens* in Yakutia, Magadan, middle Anadyr River and Kamchatka, NE Russia

Pontania magadanensis sp. nov.

Female holotype. Colour similar to holotype of *P. bigallae* sp. nov., except that extreme base of mandible is not infusate, clypeus is apically yellow, pronotum has a rather broad yellow margin, apical part of coxae is yellow, and only basal 0.5 of femora is slightly infusate.

Frons and vertex with stronger microsculpture, bases of setae slightly elevated, fovea on anterior frons lacking. POL/OOL 0.90. Mesoscutellum flattened. Tergum 1 of abdomen medially without hairs. Tergum 9 in dorsal view glabrous, median tuft of hairs lacking. Sawsheath longer and narrower in lateral view. In dorsal view the long setae at apex of sawsheath apically distinctly incurved. Lancet: lamnium long, with 25 segments.

Measurements of holotype female: Body 3.4 (with sawsheath 3.6). Fore wing 4.0, costa 2.2. Head width 1.00, head height 0.68, head length 0.54. Malar space 0.06. Intertorular distance 0.14. Compound eye 0.45 x 0.31. Distance between eyes on frons 0.65, on face 0.62. POL 0.18, OOL 0.20, OD 0.08. Postocellar area 0.15 x 0.28. Flagellomeres 1-7: 0.34 (height 0.10), 0.33, 0.30, 0.24, 0.22, 0.21, 0.26 (height 0.06); total 1.90. Hind femur 1.07, height 0.21. Hind tibia 1.26, apical width 0.15, inner hind spur 0.20, outer hind spur 0.16. Hind tarsomeres 1-5: 0.41, 0.17, 0.16, 0.08, 0.20; total 1.02. Hind claw 0.12. Ovipositor sheath 1.20. Sawsheath (valvula 3) 0.70 x 0.16. Cercus 0.27 x 0.05. Lamnium of lancet 1.09.

Variability in females. Body length 2.8-4.0 mm. Fore wing length 3.0-4.1 mm. Head width 0.79-1.10 mm. Length of flagellum as long as 1.8-1.9x head width. Length of flagellomeres 1-3/head width 0.91-0.97 (mean 0.94, n= 6). Lamnium of lancet/head width 1.01-1.11 (mean 1.04, n= 4). Lamnium of lancet with 24-26 segments. Apex of lancet is drawn in Fig. 2.

Allotype male. Hypopygium brown. POL/OOL 1.00. Tergum 1 with 3 and two setae medially. Hind claw practically simple (inner tooth hardly discernible).

Measurements of allotype. Body 3.4, fore wing 3.7, costa 2.1. Head width 0.96, head height 0.65, head length 0.55. Malar space 0.07. Intertorular distance 0.12. Compound eye 0.43 x 0.31. Distance between eyes on frons 0.65, on face 0.60. POL 0.20, OOL 0.20, OD 0.07. Postocellar area 0.11 x 0.25. Flagellomeres 1-7: 0.38 (height

0.12), 0.45, 0.44, 0.37, 0.35, 0.32, 0.33 (height 0.06); total 2.64. Hind femur 1.04, height 0.20. Hind tibia 1.24, apical width 0.15, inner spur 0.21, outer spur 0.16. Hind tarsomeres 1-5: 0.44, 0.20, 0.16, 0.08, 0.20; total 1.08. Projection of last tergum: width 0.12. Hypopygium 0.82 x 0.50.

Variability in males. Body length 3.0-3.4 mm. Fore wing length 3.1-3.6 mm. Head width 0.89-0.96 mm. Length of flagellum as long as 2.5-2.7x head width. Length of flagellomeres 1-3/head width 1.22-1.31 (mean 1.26, n= 3). Penis valve is drawn in Fig. 7.

Specimens examined. Holotype female, Russia, Magadan oblast, 100 km N Ust-Omtchug, Aborigen station, reared from galls on *Salix bebbiana*, vii.1987, em. 12.v.1988, A. Zinovjev leg. (nr. 2041) (ZISP). Paratypes: 5 females 3 males (one allotype), same data as holotype, except emerged 10-13.v.1988.

The host plant of the larvae was identified as *Salix bebbiana* Sarg. by Prof. A. K. Skvortsov, Moscow, in 1988. Skvortsov (1999) treated *Salix bebbiana* as the valid name of a species which has an almost circumboreal distribution. He wrote that it is possible to treat *S. bebbiana* as a subspecies of *Salix starkeana*, and in that case the valid name should be *Salix starkeana* ssp. *cinerascens* Hultén. *Salix bebbiana* was originally described from North America. According to Jonsell (2000) *Salix bebbiana* occurs only in North America (from Alaska to E Canada), and the Eurosiberian host plant should be called as *S. starkeana* ssp. *cinerascens*.

The paired galls project from the upper side of the leaf near its apex; they are thickly covered with short pale hairs and they measure 4.2-6.0 x 3.0-3.5 mm.

Zinovjev (1999) mentioned galls on *Salix bebbiana* (*xerophila*) from Yakutia, Magadan District and Kamchatka: Klutchi; paired galls on a single leaf 11.viii.1978. Similar galls were found also on the related *Salix taraiensis* Kimura in Northern Sikhote-Aline: Tumnin, but adults were not reared (Zinovjev 1999).

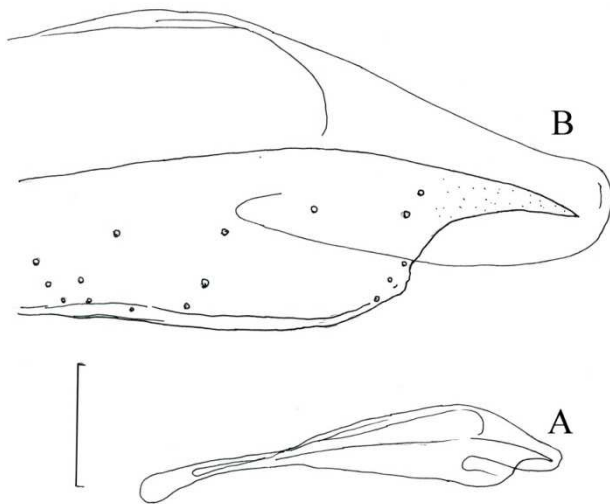


Fig. 6. Penis valve of *Pontania bigallae* sp. nov, allotype. A: whole penis valve. B: apex of penis valve. Scale line A: 0.2 mm, B: 0.05 mm.
 Kuva 6. Lajin *Pontania bigallae* allotyypin penisvalvi, A: koko penisvalvi, B: sen kärkiosa. Mittajana A: 0,2 mm, B: 0,05 mm.

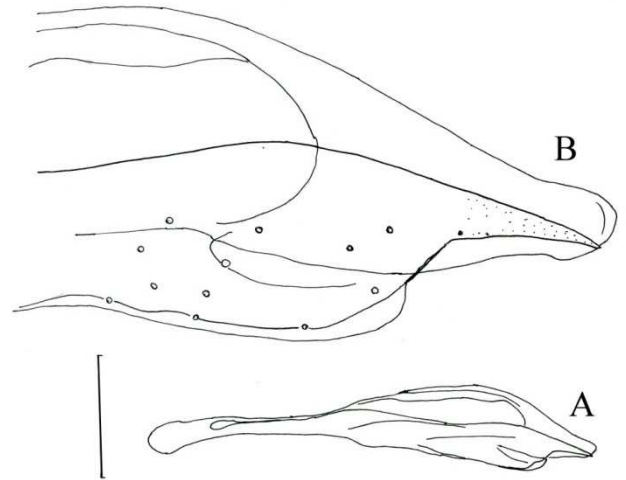


Fig. 7. Penis valve of *Pontania magadanensis* sp. nov, paratype. A: whole penis valve. B: apex of penis valve. Scale line A: 0.2 mm, B: 0.05 mm.
 Kuva 7. Lajin *Pontania magadanensis* paratyypin penisvalvi, A: koko penisvalvi, B: sen kärkiosa. Mittajana A: 0,2 mm, B: 0,05 mm.

The confirmed localities (with coordinates) and the samples of the galls are listed below. Galls on the related *Salix taraikensis* from Northern Sikhote-Aline may also belong to this species: Magadan, Aborigin station near Sibik-Tyellakh (61.95° N, 149.61° E), on *Salix bebbiana*. 8.-19.vii.1987, 13 galls, three of them not paired, leg. M. Viitasaari & A. Zinovjev (rearing no. 2041) (CVV). Magadan, Kolyma River, near Vetrennyy (61.82° N, 149.83° E), on *Salix bebbiana*, one gall, 20.vii.1987, leg. A. Zinovjev (CVV). Kamchatka: Klutchi (56.31° N, 160.82° E), on *Salix bebbiana*, 11.viii.1978 (IPAE #468253). Chukotka Autonomous Okrug: Markovo, R. Anadyr (64.68° N, 170.45° E), on *Salix bebbiana*, 10.vii.1989 (IPAE #468231, #468232, #468233; 7 pinned leaves with galls). Yakutia: Yakutsk, R. Mytakh (61.82° N, 129.66° E), *Salix bebbiana* 6.vii.1990; SE Yakutsk, Khaptagay (61.82° N, 129.66° E), *Salix bebbiana* 10.vii.90; Njurba (63.28° N, 118.33° E) 21.vi.86 (leg. E. Kajmuk). Khabarovsk prov., Northern Sikhote-Aline, Tumnin (49.67° N, 140.10° E), on *Salix taraikensis*, 8.vii.1982 (IPAE #468421); this is the southernmost locality.

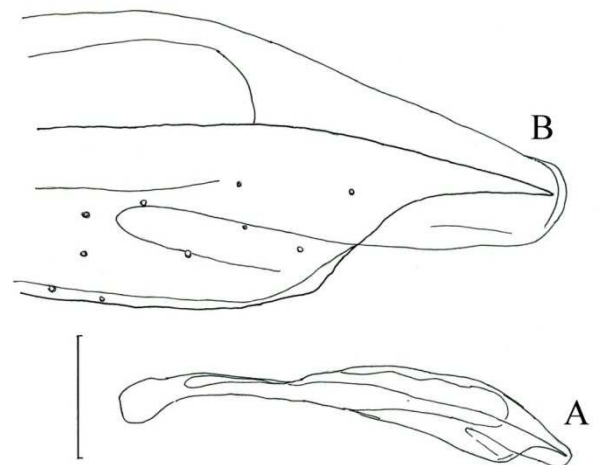


Fig. 8. Penis valve of *Pontania unigallae* sp. nov, paratype. A: whole penis valve, B: apex of penis valve. Scale line A: 0.2 mm, B: 0.05 mm.
 Kuva 8. Lajin *Pontania unigallae* paratyypin penisvalvi, A: koko penisvalvi, B: sen kärkiosa. Mittajana A: 0,2 mm, B: 0,05 mm.

The known localities of the galls are shown on a map (Fig. 9)

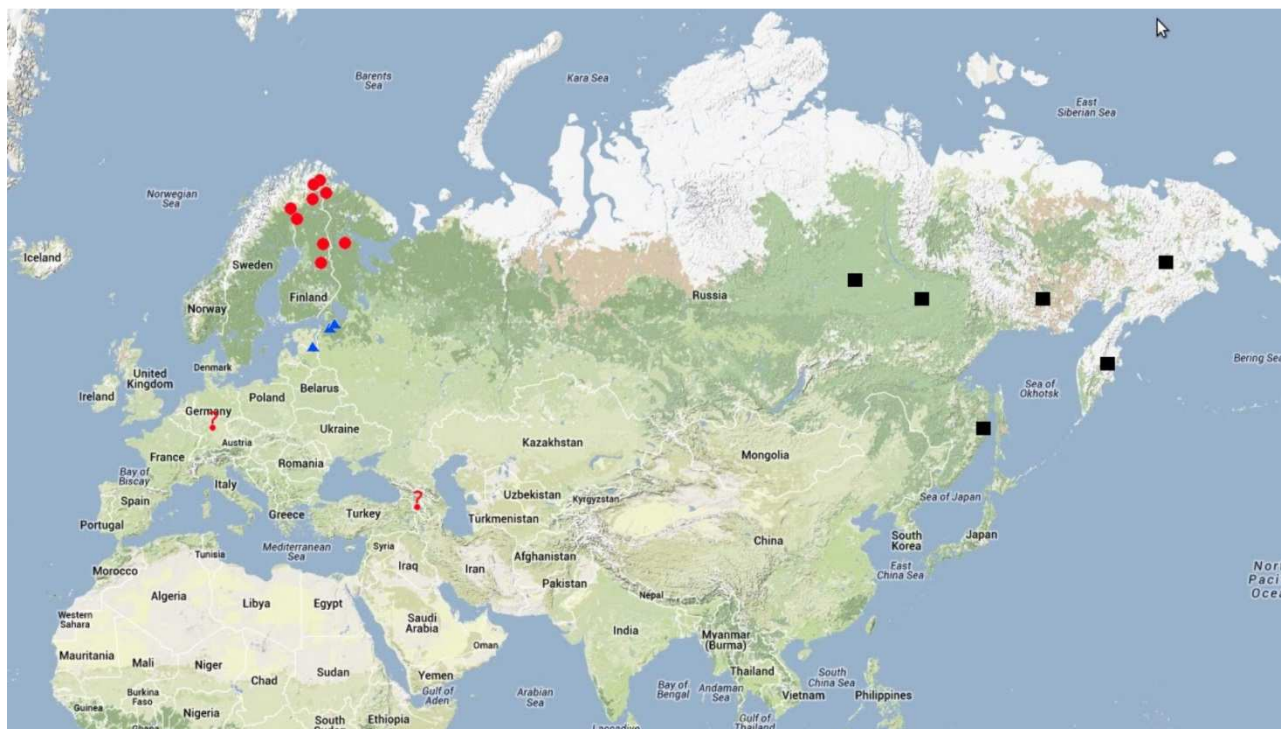


Fig. 9. Known localities of galls of *Pontania bigallae* sp. nov. (red circles), *P. magadanensis* sp. nov. (black squares) and *P. unigallae* sp. nov. (blue triangles).

Kuva 9. Paikat mistä uusien lajien *Pontania bigallae* (punaiset ympyrät), *P. magadanensis* (mustat neliöt) ja *P. unigallae* (siniset kolmiot) äkämät on löydetty

Etymology. The specific epithet *magadanensis* is formed from Magadan and Latin epithet *-ensis* which means living in that area.

Two or possibly three species of the *Pontania dolichura* group have been described from Asia.

Pontania narzikulovi Mucic, 1976 was reared from galls on *Salix pycnostachya* Anderss. in Tadshikistan, Hissar-belt, 1750 m by Mucic (1976). The galls were described as red, somewhat distorted, long, slightly curved. Later authors have regarded the species either as a species of subgenus *Eupontania* Zinovjev (Lacourt 1999, Taeger et al. 2010) or of *Pontania dolichura* group (Zhelochovtsev & Zinovjev 1995, Haris 2003, Lelej & Taeger 2007). In any case, the female has supraclypeal and interantennal area, hind corner of pronotum and tegula white, so it is clearly different from *Pontania magadanensis*.

Pontania shibayanagii (Togashi and Usuba) was described as a species of *Euura* Newman from Mt. Nokogiri, Chiba Prefecture, Japan (Togashi & Usuba 1980). The fore wing has “*Euura*

venation”, but all morphological characters of adults and larva, and the gall on *Salix japonica* Thunberg fit the *Pontania dolichura* group. This was observed by Vikberg (1988). The Japanese species differs clearly from *Pontania magadanensis*.

Pontania mongolodolichura was described from three females collected in Mongolia, Central aimak, SE of Somon Bajanzogt, 1600 m by Haris (2003). Its pterostigma is entirely pale yellow. This character does not fit *Pontania magadanensis*, which has a bicoloured pterostigma.

3.3. *Pontania unigallae* sp. nov. induces sausage shaped galls on *Salix repens* ssp. *rosmarinifolia* L. in Leningrad province, Russia and Estonia

Pontania unigallae sp. nov.

Holotype female. Black. Clypeus apically brown. Labrum and base of mandible brown-yellow, teeth amber red. Palpi piceous. Flagellum from flagellomere 2 on brown-black. Upper hind

corner of pronotum yellow-brown. Tegula brown. Legs brown-yellow, coxae mostly black, basal 0.6-0.8 of femora black, tarsi infuscate apically. Venation and pterostigma dark brown, pterostigma pale basally. Abdomen brown-black, sawsheath black, basal plate yellowish, basally infuscate. Cercus pale.

Head with rather weak sculpture, slightly shining. POL/OOL 0.96. Frons medially smooth, shining, anterior fovea small, shallow. Clypeus rather strongly emarginate.

Mesoscutum weakly sculptured, shining. Mesoscutellum slightly convex, smooth, shining. Mesepisternum smooth, shining, hairs as in *P. bigallae*. Abdominal tergum 1 medially with no and one seta on one side. Tergum 9 in dorsal view glabrous. Long setae of sawsheath form an angle of 30 degrees with setae on other side in dorsal view, no hairs on dorsomedial margin. Cerci almost reach apex of sawsheath.

Measurements of holotype. Body 3.4 (with sawsheath 3.6). Fore wing 4.0, costa 2.2. Head width 1.05, head height 0.72, head length 0.59. Malar space 0.07. Intertorular distance 0.10. Compound eye 0.45 x 0.32. Distance between eyes on frons 0.69, on face 0.66. POL 0.22, OOL 0.23, OD 0.07. Postocellar area 0.14 x 0.32. Flagellomeres 1-7: 0.41 (height 0.10), 0.44, 0.47, 0.34, 0.31, 0.30, 0.35 (height 0.07); total 2.62. Hind femur 1.09, height 0.21. Hind tibia 1.28, apical width 0.15, inner hind spur 0.21, outer hind spur 0.16. Hind tarsomeres 1-5: 0.40, 0.19, 0.15, 0.08, 0.24; total 1.06. Hind claw 0.13. Ovipositor sheath 1.05. Sawsheath (valvula 3) 0.65 x 0.15. Cercus 0.26 x 0.05.

Variability in females. Body length 2.6-3.6 mm. Fore wing length 2.8-4.0 mm. Head width 0.74-1.05 mm. Length of flagellum as long as 2.4-2.7x head width. Length of flagellomeres 1-3/head width 1.16-1.31 (mean 1.20, n= 7). Lamnium of lancet/head width 0.85-0.85 (mean 0.85, n= 2). Lamnium of lancet with 19-20 segments. Apex of lancet is drawn in Fig. 3.

Three females, including the holotype, have "Euura venation" in fore wing: cells 1RS and 2RS fused, because vein 2r-m missing. The

female reared from galls in 1997 has stronger microsculpture on frons and vertex and on mesoscutum which has also many small punctures.

Allotype male. Darker than female. Clypeus black. Tegula dark brown. Trochanters and trochantelli partly infuscate. Hypopygium brown. Flagellum long, surface very uneven, covered with dense, erect hairs. POL/OOL 1.00. Tergum 1 with 4 setae medially on either side. Hind claw with small distinct tooth.

Measurements of allotype. Body 3.6, fore wing 3.9, costa 2.2. Head width 1.01, head height 0.69, head length 0.58. Malar space 0.06. Intertorular distance 0.11. Compound eye 0.45 x 0.32. Distance between eyes on frons 0.67, on face 0.62. POL 0.21, OOL 0.21, OD 0.07. Postocellar area 0.14 x 0.30. Flagellomeres 1-7: 0.46 (height 0.12), 0.55, 0.56, 0.45, 0.40, 0.38, 0.42; total 3.22. Hind femur 1.06, height 0.20. Hind tibia 1.23, apical width 0.15, inner spur 0.21, outer spur 0.17. Hind tarsomeres 1-5: 0.42, 0.22, 0.18, 0.09 and 0.25; total 1.16. Projection of last tergum: width 0.12. Hypopygium 0.84 x 0.50.

Variability in males. Body length 2.4-3.5 mm. Fore wing length 2.6-3.8 mm. Head width 0.70-1.00 mm. Length of flagellum as long as 2.9-3.4x head width. Length of flagellomeres 1-3/head width 1.41-1.93 (mean 1.60, n= 7). Penis valve has twisted basis (Fig. 8).

Specimens examined. Holotype female, Russia, Leningrad oblast, [60 km S of St. Petersburg] River Suida, reared from galls on *Salix rosmarinifolia* on 7.vi.1984, em. 13.v.1985, A. Zinovjev leg. (nr. 1457) (ZISP). Paratypes, 4 females 3 males, the same locality as in holotype, but galls on *Salix rosmarinifolia* collected on 28.vi.1981 and adults emerged in iv.1982. The same locality, reared from galls on *Salix rosmarinifolia* in 1997, one female and two males emerged in 1998, A. Zinovjev leg. The same locality and host plant 7.iv.84, four males (one allotype) emerged 12.-13.v.1985; 27.iv.88 2 males emerged 29.v.1989, A. Zinovjev leg (6 galls pinned).

In addition to the type locality galls on *Salix rosmarinifolia* have been found 16 km S of St. Petersburg and in Estonia (Zinovjev 1999). The locality is SE. Estonia, Voru county, Luutsniku (57.62° N, 26.98° E), gall on *S. rosmarinifolia*, 27.v.1991 (leg. A. Zinovjev).

The larval host plant of the species is *Salix repens* L. ssp. *rosmarinifolia* (L.) Andersson (subgenus *Vetrix*, sectio *Incubaceae*). It has often been regarded as a distinct species, *S. rosmarinifolia* L. The galls usually occur singly, on only one side of the leaf, which might be correlated with the extremely small and narrow leaves of this willow. The red gall is sausage shaped, its length is 13-16 mm, width about 2.7 mm, height on upper side of the leaf about 2.0 mm and on lower side 0.2 mm, lower side of the gall is paler. The gall is not shiny, has no hairs and often has several constrictions and swellings. At the type locality, galls of the *P. dolichura* group are present only on *S. repens* ssp. *rosmarinifolia*. No galls have been found on *Salix phylicifolia*, which is the only recorded host plant of the group in S. Finland. There, no galls of the group have been found on *S. repens* ssp. *rosmarinifolia* although this is frequent in many places, e.g. in Janakkala, where author V. Vikberg has collected since 1974.

The lancet of *Pontania femoralis* has lower and longer serrulae and smaller small teeth (Fig. 4) compared with those of *P. unigallae* sp. nov.

Etymology. The specific epithet *unigallae* is formed from the Latin words *uni-* one and *galla* meaning a gall. The species of the *Pontania dolichura* group usually have paired galls, but as a rule the gall of this species is on only one side of the leaf.

4. Discussion

The adults of the species of the *Pontania dolichura* group are as a rule very similar and it is difficult to distinguish them. This is especially true of males, which often cannot reliably be separated from each other. Often biological data is required to identify species reliably. Most

species induce galls only on one species of *Salix* and some species induce galls on two or three closely related species of *Salix*.

Vikberg & Malinen (2012: Fig. 3) showed that the length of lamnium of lancet can be used as an aid in identification, especially if it is combined with body size, e.g. head width. In this scatter diagram specimens of *Pontania magadanensis* are included from Magadan, although without any name. This species has the highest lamnium length/head width index or ratio of all known species (1.01-1.11). The next highest index is of *Pontania glaucae* Kopelke. We have constructed a new but similar scatter diagram (Fig. 10) which includes *P. magadanensis*, *P. bigallae*, *P. unigallae*, *P. femoralis*, and *P. virilis*. Specimens of *Pontania bigallae* with lamnium/head width index 0.87-0.95 are located between *Pontania glaucae* (index 0.90-1.00) and *Pontania dolichura* (Thomson) (= *P. lapponicola* Kopelke) (index 0.81-0.83). Specimens of *P. unigallae* have an index between 0.8-0.9 and because of their small size they are located near the lower left margin of the scatter diagram. Two species of *Pontania*, which oviposit in smooth-leaved willows (*P. femoralis*/*Salix phylicifolia* and *P. virilis*/*S. purpurea*), have the lowest lamnium/head width index.

The difference in the length of ovipositor is noticeable although slight, if one compares the length of sawsheath (valvula 3) with head width. In *Pontania monogallae* the index of sawsheath length/head width is 0.57-0.68 (mean 0.63, n= 7), in *Pontania bigallae* this index is 0.64-0.72 (mean 0.69, n= 4) and in *Pontania magadanensis* the index is 0.67-0.78 (mean 0.74, n= 6).

On the basis of the unusually short, globose galls and the overlapping host plant range the two sawflies *Pontania bigallae* from Finland and *P. magadanensis* from East Siberia appear to be very closely related. So far we have not seen any material from the large area between these two localities (some 4500 km), but morphological differences between the studied populations appear too large to treat them as subspecies; therefore we describe them as two separate species. They differ clearly in the length of lamnium/head width index, and in addition by

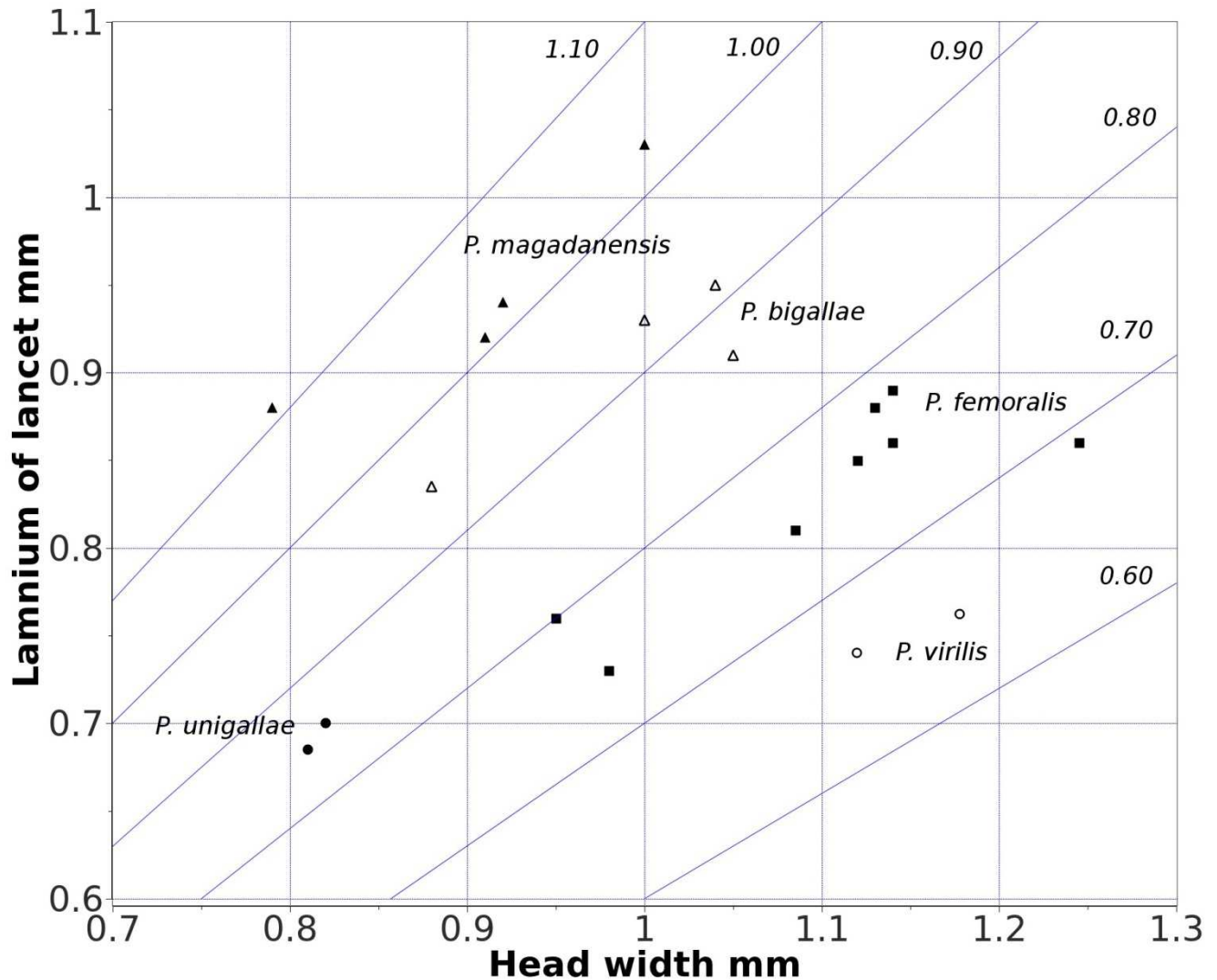


Fig. 10. Scatter diagram showing the relationship of the length of lamnium of lancet (ordinate) and head width (abscissa) in *Pontania magadanensis* sp. nov., *P. bigallae* sp. nov., *P. unigallae* sp. nov., *P. femoralis* (Cameron) and *P. virilis* Zirngiebl. Lines indicating indexes 1.10, 1.00, 0.90, 0.80, 0.70 and 0.60 drawn.

Kuva 10. Sirontakuvio joka osoittaa *Pontania dolichura* -lajiryhmän viiden lajin yksilöiden sahan lansetin lamniumin pituuden (oordinaatta) ja pään leveyden (abskissa) suhteen. Suorat jotka osoittavat suhteen arvot 1,10, 1,00, 0,90, 0,80, 0,70 ja 0,60 piirretty kuvioon.

many small differences in colour characters and body morphology (convex or flattened mesoscutellum).

5. Tiivistelmä

Artikkelissa kuvataan kolme tieteelle uutta äkämänaiheuttajaa lehtipistiäisten Tenthredinidae heimon Nematinae-alaheimosta. Ne ovat kaikki suvun *Pontania* A. Costa lajeja ja kuuluvat *Pontania dolichura* -lajiryhmään. Tämän

lajiryhmän äkämät ovat yleensä parillisia: lehden keskisuonen molemmiin puolin lehden yläpinnalla on useimmiten makkaramaiset äkämät.

Uuden lajin *Pontania bigallae* äkämät ovat lähes puolipallomaisia pariäkämiä raidan ja kangaspajun lehdissä. Kirjoittaja V. Vikberg löysi ensimmäiset äkämät raidalta Hyrynsalmen kirkonkylästä vuonna 1965 ja tämä onkin lajin eteläisin löytö. Lajin äkämiä on löytynyt sittemmin Kuusamosta, Kittilän Lapista, Enontekiön Lapin länsiosista ja Inarin Lapista. Inarin Lapissa äkämät voivat olla myös

kangaspajulla. Lajin äkämiä on saksalainen tutkija Jens-Peter Kopelke löytänyt myös Ruijasta läheltä Suomen rajaa ja Roininen & Nyman (1997) totesivat äkämiä Venäjän Karjalan pohjoisosasta. Laji on varhainen, joten J.-P. Kopelke ei onnistunut kasvattamaan ja kuvaamaan sitä lajiryhmää koskevien tutkimustensa kuluessa (äkämänaiheuttajat olivat jo pudottautuneet maahan koteloitumista varten). Toisen uuden lajin *Pontania magadanensis* äkämiä löytyivät kangaspajulta noin 4500 km päässä Koillis-Venäjältä Aasian puolelta. Koska lajiryhmän lajit ovat useimmiten monofaageja eli aiheuttavat äkämiä vain yhden pajulajin lehtiin, kirjoittajat pitivät tätä lajia ensin samana kuin Suomen Lapista löydettyä. Sitten ilmeni että lajien tuntomerkit poikkesivat toisistaan oleellisesti. Suurin ero on sahanpajun pituudessa ja muodossa: itäisen lajin tuppi on pitempi ja kapeampi. Lajiryhmän lajeja on usein vaikea erottaa toisistaan. Vikberg & Malinen (2012) käyttivät joidenkin lajien tunnistamiseen munanasettimen (sahan) jaokkeisen kärkiosan (lamnium) ja pään leveyden suhdetta. Itäisen uuden lajin tämä suhde on lajiryhmässä korkein tunnettu ja Suomen Lapin laji eroaa selvästi lyhyemmän suhteen kautta. Tästä syystä ne on kuvattu kahtena lajina eikä esim. saman lajin alalajeina.

Kolmas uusi laji *Pontania unigallae* aiheuttaa punaisia, makkaramaisia äkämiä kapealehtipajun lehtiin, useimmiten vain yhden äkämän lehteä kohti; tästä lajinimi *unigallae*. Sen äkämiä on löytynyt toistaiseksi vain Pietarin eteläpuolelta kahdesta paikkaa ja Viron kaakkoisosasta. Tyyppilokaali on Suida-joen varrella noin 60 km Pietarista etelään. Moni paikoin Etelä-Suomessa kapealehtipajua kasvaa runsaana, kuten esim. Janakkalassa missä kirjoittaja V. Vikberg on asunut vuodesta 1974 lähtien. Etelä-Suomesta ei ole löytynyt yhtään tämän lajiryhmän äkämää kapealehtipajulla, vaan ainoastaan toisen ryhmän lajin *Pontania femoralis* äkämiä kiiltopajulla. Pietarin etäpuolella kiiltopajua esiintyy yleisesti, mutta sillä ei siellä ole äkämiä. Näiden kahden *Pontania* lajin naaraiden sahan pituus ja hampaistus eroavat selvästi toisistaan.

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