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## *Psallus (Psallus) enejokosu n. sp.* from the Basque Country, northern Iberian Peninsula (Hemiptera: Heteroptera: Miridae)

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### Abstract

*Psallus (Psallus) enejokosu n. sp.* (Hemiptera: Heteroptera: Miridae: Phylinae: Phylini) is described from the peninsular Basque Country (northern Iberian Peninsula). It belongs to the group of species of *P. (P.) haematodes* (Gmelin, 1790) and, specifically, it is the sixth known member of the subgroup of species occurring on ash trees (*Fraxinus* spp.). All the specimens have been collected on *Fraxinus angustifolia* in the southernmost locality of the province of Araba. The new species is most similar to *P. (P.) lepidus* Fieber, 1858 and *P. (P.) orni* Wagner, 1968, from which it can be easily separated by the male genitalia (particularly vesica and left paramere), the female genitalia (particularly genital chamber with its dorsal sac and sclerotized rings) and several characters of external morphology. It shows a strong secondary sexual dimorphism.

**Key words:** *Psallus (Psallus) enejokosu n. sp.*, Heteroptera, Miridae, *Fraxinus angustifolia*, Basque Country, Iberian Peninsula, taxonomy.

### Resumen

***Psallus (Psallus) enejokosu n. sp. del País Vasco, norte de la Península Ibérica (Hemiptera: Heteroptera: Miridae)***

Se describe *Psallus (Psallus) enejokosu n. sp.* (Hemiptera: Heteroptera: Miridae: Phylinae: Phylini), del País Vasco peninsular (norte de la Península Ibérica). Pertenece al grupo de especies de *P. (P.) haematodes* (Gmelin, 1790) y, más concretamente, constituye el sexto miembro conocido del subgrupo de especies asociadas a fresnos (*Fraxinus* spp.). Todos los ejemplares se han capturado sobre *Fraxinus angustifolia* en la localidad más meridional de la provincia de Araba. Las especies más parecidas son *P. (P.) lepidus* Fieber, 1858 y *P. (P.) orni* Wagner, 1968, de las cuales puede separarse con facilidad por la genitalia masculina (especialmente vesica y parámetro izquierdo), la genitalia femenina (especialmente la cámara genital, con su saco dorsal y sus anillos esclerotizados) y varios caracteres de morfología externa. Muestra un fuerte dimorfismo sexual secundario.

**Palabras clave:** *Psallus (Psallus) enejokosu n. sp.*, Heteroptera, Miridae, *Fraxinus angustifolia*, País Vasco, Península Ibérica, taxonomía.

### Laburpena

***Psallus (Psallus) enejokosu n. sp., Euskal Herrikoa, Iberiar Peninsularen iparraldea (Hemiptera: Heteroptera: Miridae)***

*Psallus (Psallus) enejokosu n. sp.* (Hemiptera: Heteroptera: Miridae: Phylinae: Phylini) deskribatzen da, Euskal Herri penintsularrekoa (Iberiar Penintsularen iparraldea). *P. (P.) haematodes* (Gmelin, 1790)-ren espezie-taldekoa da eta, zehazki, lizarrei (*Fraxinus* spp.) lotutako espezieen azpitaldean ezagutzen den seigarren ordezkaria da. Ale guztiak Araba lurraldearen lokalitate hegoaldekoeneko *Fraxinus angustifolia* harrapatu dira. Antza handiena duten espezieak *P. (P.) lepidus* Fieber, 1858 eta *P. (P.) orni* Wagner, 1968 dira eta haietatik erraz bereiz daiteke arren genitaliarengatik (bereziki besika eta ezkerreko parameroarengatik), emeen genitaliarengatik (bereziki ganbera genitala, bere zaku dortsala eta eraztun esklerotizatuekin) eta kanpo-morfologiaren zenbait karaktererengatik. Sexu-dimorfismo sekundario handia aurkezten du.

**Gako-hitzak:** *Psallus (Psallus) enejokosu n. sp.*, Heteroptera, Miridae, *Fraxinus angustifolia*, Euskal Herria, Iberiar Penintsula, taxonomia.

## Introduction

*Psallus* Fieber, 1858 is one of the largest genera of Phylinae (Hemiptera: Heteroptera: Miridae) with more than 150 species described in 7 subgenera (*Apocremnus* Fieber, 1858, *Calopsallus* Yasunaga & Vinokurov, 2000, *Hylopsallus* Wagner, 1952, *Mesopsallus* Wagner, 1970, *Phylidea* Reuter, 1899, *Pityopsallus* Wagner, 1952, *Psallus* Fieber, 1858) mainly from the Palaearctic Region (catalogued by: Kerzhner and Josifov, 1999; Aukema *et al.*, 2013). Their classification is still unsatisfactory and there is a great consensus about the non-monophyly of the group. A world revision could give generic status to some of those subgenera and provide more unequivocal diagnoses for the taxa included/excluded in one or another genera or subgenera. Among recent literature, some papers have interestingly dealt with this problem (see, for example: Yasunaga, 2010; Matocq and Pluot-Sigwalt, 2011; Pluot-Sigwalt and Matocq, 2017b), being the unpublished doctoral thesis by Wyniger (2004) the most thorough attempt to shed light on it on the basis of the Central European fauna.

In 2017 a new species of *Psallus* (*Psallus*) belonging to the speciose group of *P. (P.) haematodes* (Gmelin, 1790) was described from the Basque Country on *Fraxinus angustifolia* (Oleaceae) (Pagola-Carte, 2017). Therefore, the species *P. (P.) anashanti* became the fifth known member of the subgroup of species occurring on *Fraxinus* spp., after the recent description of *P. (P.) inancozgeni* Matocq and Pluot-Sigwalt, 2011 from Turkey.

In the present paper, a further representative of the same group and subgroup is described, surprisingly again on the basis of specimens collected on *Fraxinus angustifolia* (Oleaceae) from the Basque Country. Even more unexpectedly, the new species *P. (P.) enejokosu* n. sp. has only been found on a single tree of the type locality of *P. (P.) anashanti*, where both species are chronologically separated by about two weeks.

Throughout the description, measurements are based on all the males (8) and 8 females of the type series and are given in millimetres (mm). For most morphometric characters, after the average value, the whole range is given in parentheses. Measurements are indicated separately for males and females only for those characters showing sexual dimorphism.

## Description

### *Psallus (Psallus) enejokosu* n. sp.

#### *General habitus:*

Macropterous males and females (Fig. 1). Total length: ♂♂ = 3.98 (3.78–4.13); ♀♀ = 3.69 (3.35–3.95). Body subovate, 2.94 (2.85–3.05) × (♂♂) and 2.65 (2.59–2.75) × (♀♀) longer than basal (posterior) width of pronotum and 2.50 (2.35–2.61) × (♂♂) and 2.18 (2.10–2.29) × (♀♀) longer than maximum width. Tegument shiny. Punctuation indistinct. General colour brown to dark red combined with paler regions, particularly in females, which show a characteristic tricolour pattern. Colour in males: head, pronotum, mesoscutum and scutellum dark brown, hemelytra dark brown, slightly paler anteriorly and gradually becoming dark red or maroon posteriad. Colour in females: most of pronotum and mesoscutum brown, head, callar regions of pronotum and scutellum light brown, hemelytra markedly tricolour, from yellowish beige anteriorly to red posteriorly passing through a range of browns in intermediate regions. Dorsal vestiture consisting of two types of setae: simple, semierect, dark setae and reclining, sericeous, pale setae; the latter more abundant anteriorly (head, pronotum, mesoscutum/scutellum and anterior half of hemelytra) and becoming gradually scarcer posteriad.

#### *Head:*

Brown (males) or light brown (females), preocular areas always paler. Approximately 1.35 × wider than high in front view. Frons evenly convex. Front and vertex mottled with darker brown; sometimes reddish spots dispersed, more abundantly towards mandibular and maxillary plates; tylus of the same reddish colour as antennal segment I; margin of bucculae pale; gulae dark; a distinct dark spot beside inner margin of eye, devoid of pubescence and more contrasting in females. Eyes maroon to brown. Ocular index: ♂♂ = 1.58 (1.47–1.66); ♀♀ = 2.11 (2.00–2.19). Antennae generally orange in males and orangish yellow in females; segment I basally brownish, segment III with a slightly darkened basal ring, sometimes a similar one in segment IV, which is darker (dirty yellowish or brownish) in most specimens. Pubescence of antennae short, appressed, darker in males than in females. Length of antennal segments I – II – III – IV: ♂♂ = 0.20 (0.18–0.20) – 1.11 (1.03–1.14) – 0.48 (0.45–0.50) – 0.34 (0.33–0.35); ♀♀ = 0.19 (0.18–0.21) – 1.04 (1.00–1.13) – 0.48

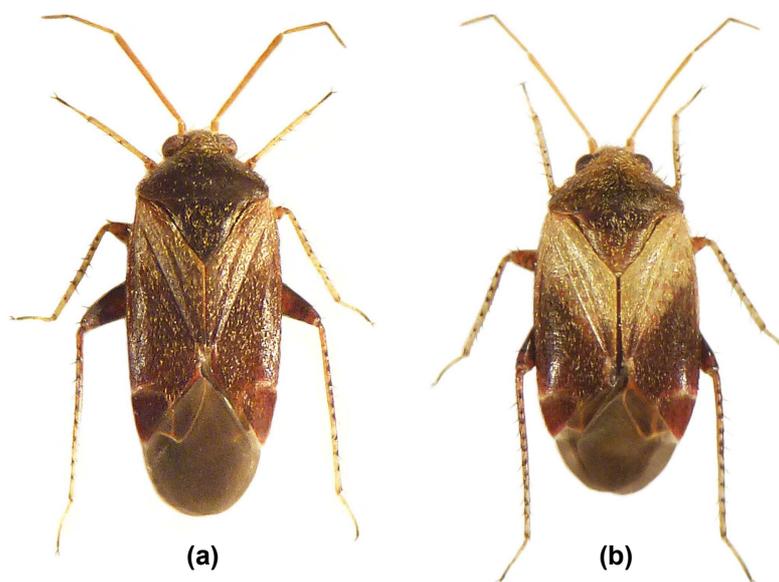


FIGURE 1. *Psallus (Psallus) enjokosu* n. sp., habitus: (a) Male (holotype); (b) Female (paratype).

(0.46–0.50) – 0.36 (0.33–0.38); segment I provided with two longer, bristle-like setae not arising from distinct black spots and shorter than the segment width; segment II thicker than III (proportion 3/2 in males, 5/3 in females); slightly fusiform in males, slightly clubbed in females (1.5 × thicker apically than basally). Ratio antennal segment II / pronotum width: ♂♂ = 0.82 (0.78–0.84); ♀♀ = 0.75 (0.73–0.78). Ratio antennal segments II / III+IV: ♂♂ = 1.36 (1.28–1.45); ♀♀ = 1.24 (1.17–1.30). Rostrum reaching mesotrochanters; first segment and second segments reddish brown, third segment yellowish, fourth segment mostly dark (more than distal 2/3) with base shortly yellowish.

#### *Thorax:*

Pronotum entirely dark brown in males and brown with callar regions (calli + surroundings or only calli or partly calli) paler in females; faintly mottled with dark brown spots in most females, additionally with reddish ones in some of them; trapezoidal, with the narrow anterior margin exceeded by the eyes at least in 1/3 of their width; a pair of bristle-like setae present on anterolateral angles; anterior margin with a small medial concavity, posterior margin substraight to slightly arcuate in males and clearly arcuate in females, lateral margins moderately convex; pronotal calli

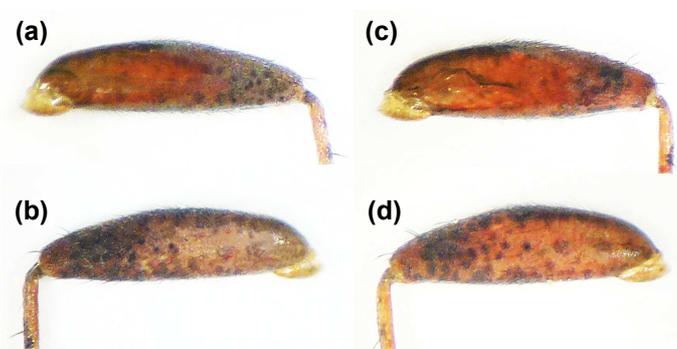
hardly visible, concolor in males or included in the pair of paler regions in females. Mesoscutum and scutellum subequally dark brown in males, mesoscutum brown darker than scutellum in females; scutellum with its apex more or less largely pale and the whole surface bearing reddish spots in most females. Laterally, pronotum paler than dorsally, with ventral margins the palest; meso- and metapleura brown or maroon with some margins pale; metathoracic scent glands brownish yellow but not markedly pale; propleura and/or meso- and metapleura showing a few red longitudinal bands in some specimens.

#### *Hemelytra:*

Surpassing the apex of abdomen. Densely covered by setae, with reclining pale ones less abundant posteriad and so the cuneus mostly provided with semierect dark ones. Chromatic pattern in females: very distinctive, approximately tricolour: (1) basal region: yellowish beige, mottled with orange-reddish spots of variable size (Fig. 2: a specimen with very large spots), most developed medially with clavus almost entirely included; (2) intermediate region: brown, covering most of the coria, darkening from anterior pale brown to posterior brownish, dark red; (3) distal region: representing the most bright-red area of the insect



**FIGURE 2.** *Psallus (Psallus) enejokosu n. sp.*, hemelytra: Anterior region in a female with large orange-reddish spots.



**FIGURE 3.** *Psallus (Psallus) enejokosu n. sp.*, metafemora: (a)-(b) Male; (c)-(d) Female; (a), (c) Dorsal surface; (b), (d) Ventral surface.

dorsally and including the cuneus entirely, with the exception of a narrow, pale stripe on its base associated to the cuneal fracture. Chromatic pattern in males: much darker than that of females but which may be viewed as an «attenuated» version of it: dark brown, only slightly paler basally, with clavus rarely mottled with very faint orange-reddish spots, and gradually becoming dark red or maroon posteriorly, the cuneus not reaching to be so brightly red as in females. Membrane dark grey, with one paler area on the posterior margin, contiguous with the minor cell; membrane veins distinctly red, more distinctly around minor cell.

#### Legs:

Coxae maroon to brown. Trochanters pale. Femora reddish (pro- and mesofemora) or very dark red (meta-

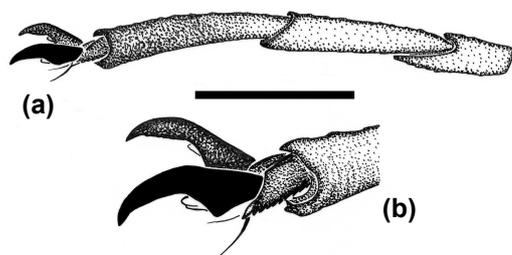
femora); all femora mottled with distinct dark spots, which are variable in density and size among individuals; more abundant and uniformly distributed ventrally (longitudinally arranged) than dorsally (concentrated on the apical third); dorsal pattern of metafemoral spots as in Figs. 3a, c; apically matt, hampering the observation of the spots; ventral pattern of metafemoral spots as in Figs. 3b, d. Tibiae pale, in strong contrast to femora; metatibiae always tinged with red on basal half; tibial spines black, longer than tibial width, arising from well-defined, large dark spots which are generally larger and irregularly shaped on metatibiae; spots also slightly larger on mesotibiae than on protibiae. First and second tarsomeres pale, third tarsomeres darkened almost entirely (pro- and mesotarsi) or in the apical half or two thirds (metatarsi). Length of metatarsomeres (approximate proportions): I – II – III = 5 – 9 – 10 (Fig. 4a). Claws as in Fig. 4b, with apex curved and pulvillus small; parempodia setiform.

#### Abdomen:

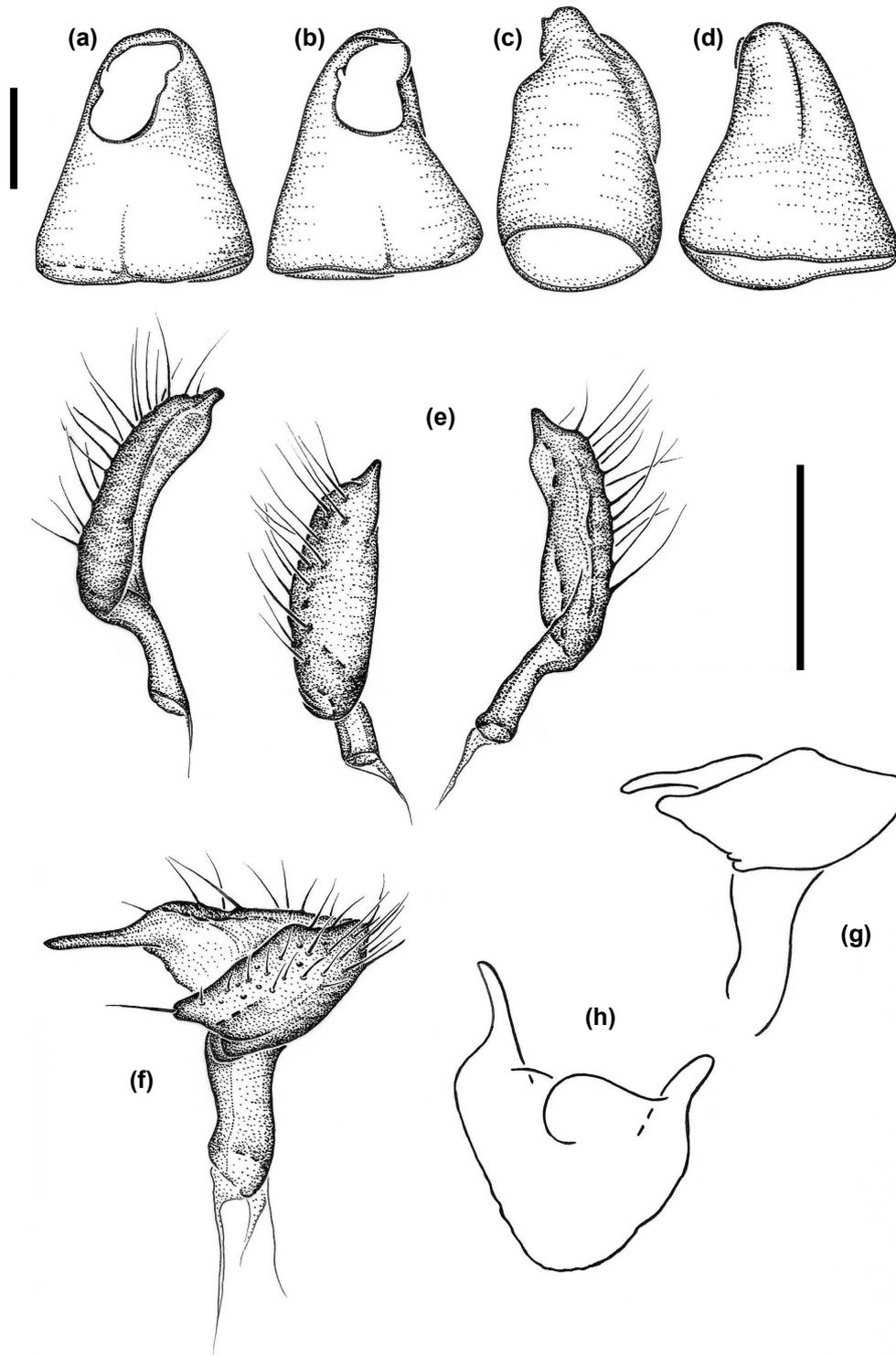
Pregenital abdomen dark red to brownish, dull, darker laterally than ventrally. Pygophore of males and genital segments of females of brighter red, particularly in some females.

#### Male genitalia:

Pygophore elongate-conical, distinctly longer than wide (Figs. 5a-d), with a longitudinal keel ventrally and a protruding (ear-like), longitudinal keel subapically on left side. Parameres small; right paramere as in Fig. 5e, without special features; left paramere as in Figs. 5f-h, with both apophysis and sensory lobe rather



**FIGURE 4.** *Psallus (Psallus) enejokosu n. sp.*, metatarsus: (a) Schematic view (setae omitted), showing proportions of tarsomeres; (b) Detail of the claws (Scale bar: (a) = 0.2 mm; (b) = 0.1 mm).



**FIGURE 5.** *Psallus (Psallus) eneokosu* n. sp., pygophore and male genitalia: (a)-(d) Pygophore (parameres and vesica removed, setae omitted); (e) Right paramere in different views and/or specimens; (f)-(h) Left paramere in different views and/or specimens (the schematic views «(g)» and «(h)» are aimed at illustrating the «maximum-angularity-of-sensory-lobe» view and the caudal view, respectively) (Scale bars: (a)-(d) = 0.4 mm; (e)-(h) = 0.2 mm).

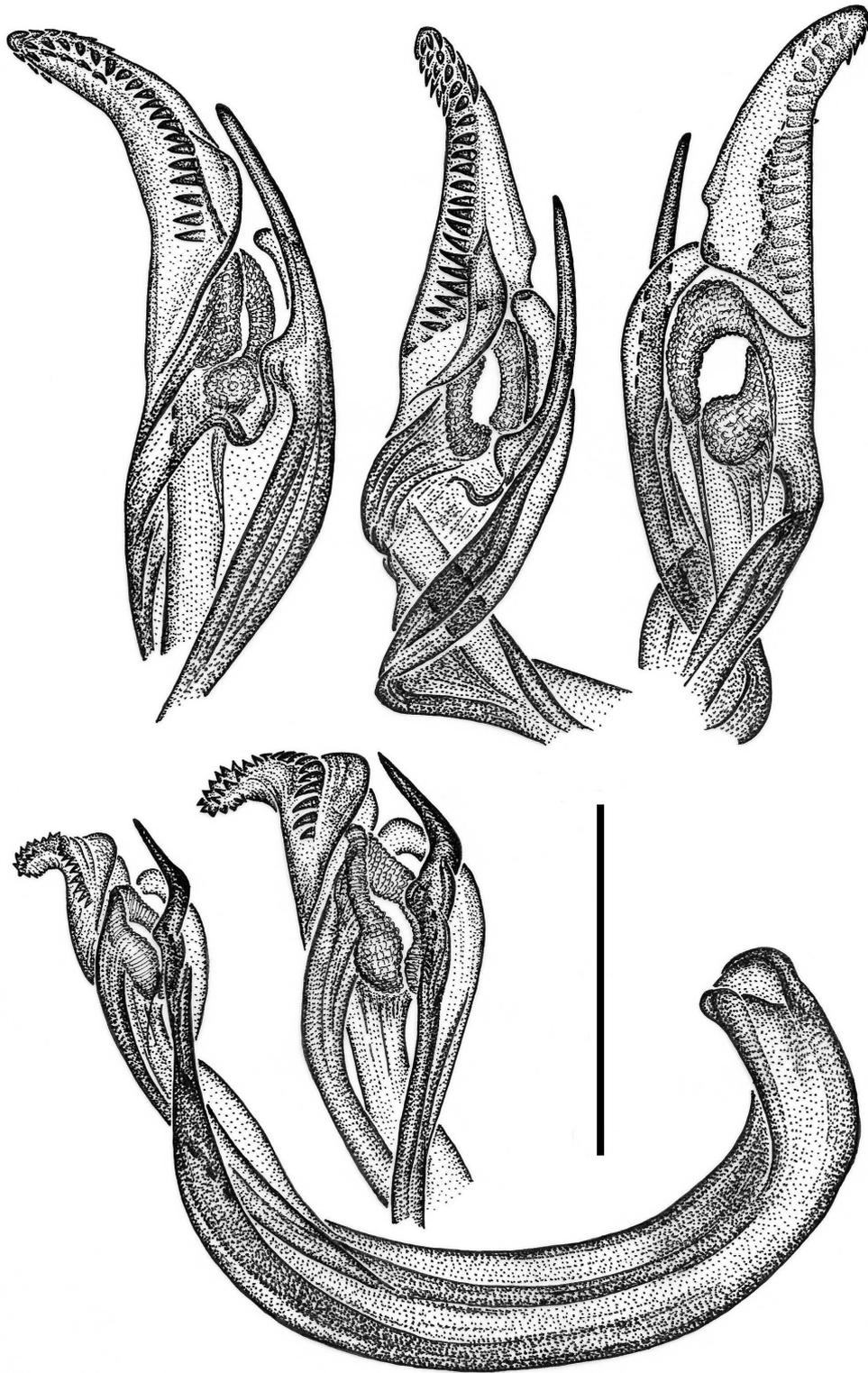


FIGURE 6. *Psallus (Psallus) enejokosu* n. sp., male genitalia: Vesica in different views and/or specimens (Scale bar = 0.2 mm).

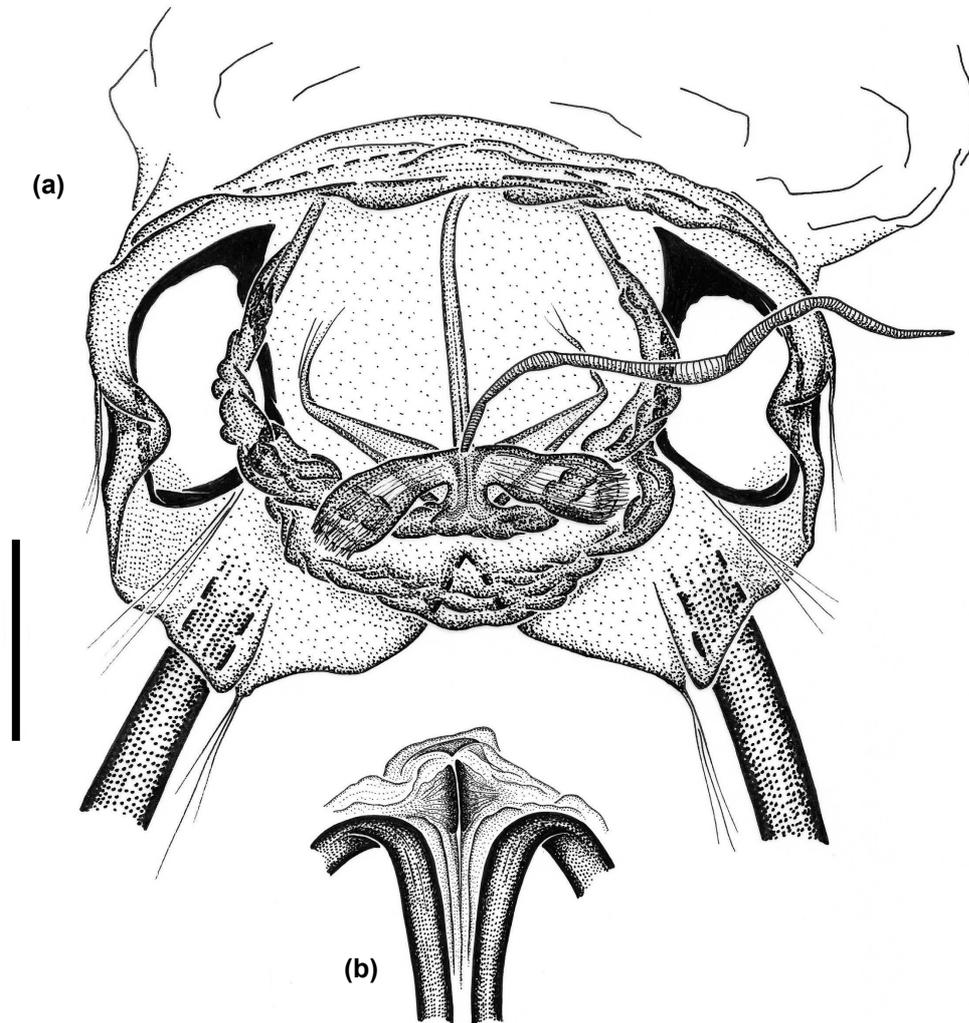


FIGURE 7. *Psallus (Psallus) enjokosu* n. sp., female genitalia: (a) Genital chamber, generalization from several specimens; (b) Vestibulum (Scale bar = 0.2 mm).

short; sensory lobe in lateral view subrhomboidal and provided with a strong, apically-placed seta. Vesica (Fig. 6) small, U-shaped but apically convoluted, with secondary gonopore in subapical position; basal arc slender; apical process strongly curved, provided with a long row of about 20 teeth and three short rows of 4-7 teeth forming a slender, club-like, apical structure; lateral process spine-like, strongly curved basally, approximately parallel to the apical process and not surpassing the middle of its long row of teeth.

#### *Female genitalia:*

Genital chamber subelliptic to subrectangular (Fig. 7a), with membranous differentiation of the dorsal wall of type I among Phylini (Pluot-Sigwalt and Matocq, 2017a). Dorsal sac conspicuous and rather constant in shape; slightly asymmetrical bilaterally; the main lateral strands apparently fastened to the internal line of the sclerotized rings; dorso-ventrally organised in three levels: the most dorsal (upper) two consisting of the typical lobes and strands, the most ventral (lower)

one being a subtle but well-defined structure, bilaterally subtriangular, with a medial, straight axis anchored to the anterior wall of the chamber, in an intermediate point between both main lateral strands. Sclerotized rings subrectangular to teardrop-shaped, apically pointed anteriorly. Vestibulum as in Fig. 7b.

#### Type material:

HOLOTYPE: ♂, labelled «ARABA: Guardia: El Esperal / (Lapuebla de Labarca), 400 m, / 30TWN3302, 6-05-2018, / *Fraxinus angustifolia* / S. Pagola Carte leg.». A red label is now added below: «HOLOTYPE ♂ / *Psallus* (*Psallus*) / *enejokosu* n. sp. / Pagola-Carte, 2018». The specimen is mounted on a white card with the pygophore glued separately on an additional card below. Deposited in the Museum National d'Histoire Naturelle (Paris).

PARATYPES: 7 ♂♂ + 29 ♀♀:

4 ♀♀, labelled «ARABA: Guardia / El Esperal (Lapuebla de Labarca) / 400 m 30TWN3302 / *Fraxinus angustifolia* / 25-05-2017 / S. Pagola Carte leg.».

7 ♂♂ + 25 ♀♀, labelled «ARABA: Guardia: El Esperal / (Lapuebla de Labarca), 400 m, / 30TWN3302, 6-05-2018, / *Fraxinus angustifolia* / S. Pagola Carte leg.».

A red label is now added below: «PARATYPE ♀ [or ♂] / *Psallus* (*Psallus*) / *enejokosu* n. sp. / Pagola-Carte, 2018». The specimens are mounted on a white card, some of them with the genitalic segments, the genitalic structures and/or the posterior right leg glued separately on the same or an additional card (below). Deposited in: Museum National d'Histoire Naturelle (MNHN, Paris) (2 ♀♀), the collections of Hannes Günther (Ingelheim) (1 ♂ + 2 ♀♀), Armand Matocq (Paris) (1 ♂ + 2 ♀♀) and Christian Rieger (Nürtlingen) (1 ♂ + 2 ♀♀) and the author's collection (rest of paratypes).

#### Etymology:

I dedicate the name of the new species to my nephews Eneko and Josu Pagola Angulo, with the hope that their lives are always surrounded by this amazing Nature, as well as guided by scientific and free thought. The specific epithet «*enejokosu*» is an unvariable noun in apposition formed by combination of the syllables contained in their first names.

#### Type locality:

El Esperal, near Lapuebla de Labarca (municipality) but belonging to Guardia/Laguardia (municipality), in the province of Araba/Álava, in the Basque Autonomous Community, in the State of Spain.

In non-administrative terms: the gallery forest of the Ebro river in the southernmost part of «Rioja alavesa», in the Mediterranean Basque Country.

#### Collecting circumstances, biology and distribution:

Among the material of *P. (P.) anashanti* collected in 2017 in the province of Araba, 4 females were separated as not belonging to the same species and, accordingly, they were excluded from the type series. All those four females had been collected on a single tree of *Fraxinus angustifolia* on May 25. They also could not be identified as any of the other known species of *Psallus*, but in the absence of males and suspecting the possibility of an undescribed species occurring earlier in spring, I decided to come back there to collect in 2018. As soon as April 24 of the current year a number of dark V-instar nymphs of *Psallus* (Fig. 8a) were detected on the same single tree. Finally on May 6 the adults of *P. (P.) enejokosu* n. sp. were collected, abundantly but circumscribed to the mentioned tree, which is a small one, slightly separated from the dense gallery forest (*Fraxinus-Populus-Salix*). Despite every effort, no more than 8 males and 25 females were collected. Co-occurring with them, one dark nymph (like that of Fig. 8a) and several paler ones (almost totally greenish) (Fig. 8b) were also observed. The former presumably belongs to *P. (P.) enejokosu* n. sp., the latter to *P. (P.) anashanti*. Moreover, further nymphs of the pale-type were collected that day by beating the branches of other *Fraxinus angustifolia* trees, together with a few newly-moulted adults of *P. (P.) anashanti*.

The known biology of the new species can be consequently summarized as follows. The narrow-leaved ash, *Fraxinus angustifolia*, is the host plant and both nymphs and adults are found on branches full of green samara. Nymphs develop in early spring and adults mainly live at the beginning of May, with some females occurring also later on May. The species may co-occur on the same trees with *P. (P.) anashanti*, although it seems to be rarer than it.

For the moment, the new species is only known from the type locality, on the banks of the Ebro river in the southernmost region of the peninsular Basque Country, Mediterranean Region. As hypothesised for *P. (P.) anashanti* (see: Pagola-Carte, 2017), *P. (P.) enejokosu* n. sp. might also be distributed over a larger area according to the distribution of its host plant. Alternatively, it is likely to represent a further case of Iberian endemic species associated to the glacial refuges provided by river depressions and their gallery forests.

## Discussion

*Psallus* (*Psallus*) *enejokosu* n. sp. is included in the group of *P. (P.) haematodes* (Gmelin, 1790) according to the morphology of the vesica. The species in this group show a high host-specificity on trees other than *Quercus* (Fagaceae), being most usually associated with one or another genus/species of the families Betulaceae, Oleaceae or Salicaceae. Ash trees of the genus *Fraxinus* (Oleaceae) have been revealed as a «hot spot» of speciation, particularly after the recent description of *P. (P.) inancozgeni* Matocq and Pluot-Sigwalt, 2011 and *P. (P.) anashanti* Pagola-Carte, 2017, which were added to the previously known *P. (P.) lepidus* Fieber, 1858, *P. (P.) flavellus* Stichel, 1933 and *P. (P.) orni* Wagner, 1968. The paper by Matocq and Pluot-Sigwalt (2011) constitutes the best framework for the study of the «*Fraxinus* species of *Psallus*». Concerning the Iberian Peninsula, an update of the knowledge has been provided by Pagola-Carte (2017). Both contributions should be consulted as a complement to the comparative purposes of the present discussion.

On the Iberian Peninsula, other than the mentioned *P. (P.) anashanti*, *P. (P.) flavellus* and *P. (P.) lepidus* (all three living on *Fraxinus* spp.), *P. (P.) falleni* Reuter, 1883 occurs on *Betula* spp., *P. (P.) haematodes* (Gmelin, 1790) on *Salix* spp., *P. (P.) salicis* (Kirschbaum, 1856) on *Alnus* spp. and *P. (P.) vicinus* Reuter, 1899 on *Populus* spp. (Kerzhner and Josifov, 1999; Aukema *et al.*, 2013). Their external morphology, male genitalia and, in some recent works, female genitalia have been dealt with, among others, by: Woodroffe, 1957; Wagner and Weber, 1964; Wagner, 1975; Kerzhner, 1988; Yasunaga and Vinokurov, 2000; Wyniger, 2004; Rintala and Rinne, 2011; Wachmann *et al.*, 2012; Matocq, 2013; Skipper, 2013; Pluot-Sigwalt and Matocq, 2017b.

As is the case in many genera of Phylini, the shape and structure of the vesica is crucial for species delimitation and identification in *Psallus*. Care must be taken, however, regarding the speciose group of *P. (P.) haematodes*, since the vesica may show no more than subtle (although constant) divergences between some of its members. Being the sixth known species occurring on *Fraxinus* spp., *P. (P.) enejokosu* n. sp. will be hereinafter compared to the remaining five members of the *lepidus*-subgroup, but also to those other species of the *haematodes*-group with most similar vesica.

Among the latter, the eastern-Palaearctic *P. (P.) nigricornis* Yasunaga & Vinokurov, 2000 (on *Alnus* spp.) and *P. (P.) oyashimanus* Yasunaga & Vinokurov, 2000

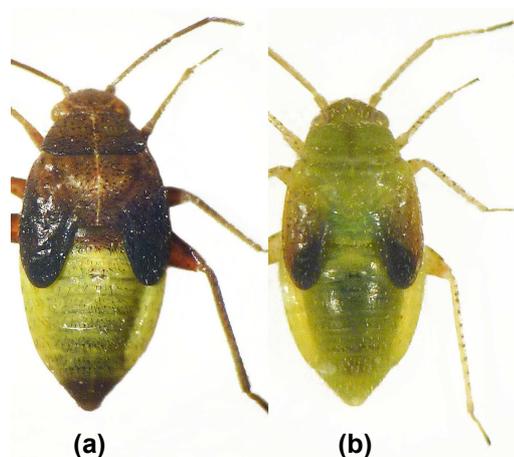


FIGURE 8. V-instar nymphs, presumably of: (a) *Psallus* (*Psallus*) *enejokosu* n. sp.; (b) *Psallus* (*Psallus*) *anashanti* Pagola-Carte, 2017.

(on *Betula emernii*) are very different in external morphology, with antennae fuscous, hemelytra reddish and femora paler; moreover, *P. (P.) nigricornis* is clearly smaller (3.1–3.5 mm). On the other hand, in the widespread *P. (P.) salicis*, apart from its different external morphology, the vesica is expanded subapically, in a similar way to *P. (P.) haematodes*. In addition, the vesica of all these species shows a single row of teeth, easily distinguishing them from *P. (P.) enejokosu* n. sp., and the development of the adults takes place in summer or even late summer (in the new species, in early spring) in different host trees. The other two species of the *haematodes*-group not living on *Fraxinus* spp. and occurring on the Iberian Peninsula, namely *P. (P.) falleni* and *P. (P.) vicinus*, show obvious differences not only in the shape of the vesica but also in relevant characters of external morphology (see descriptions and illustrations in the abovementioned works).

Focusing on the subgroup of species dependent on *Fraxinus* spp., *P. (P.) enejokosu* n. sp. can be easily separated by the following combination of characters (based on the mentioned bibliographic references and the author's observations):

The male genitalia is very distinguishing. The apical process of the vesica forms a club-like structure due to the presence of several rows of teeth, a character only shared with *P. (P.) lepidus*. In the remaining species the vesica bears a single row and does not form such a structure. In addition, the vesica of *P. (P.) inancozgeni*

is unique as it lacks the lateral process, that of *P. (P.) orni* is J-shaped instead of U-shaped and that of both *P. (P.) lepidus* and *P. (P.) anashanti* is remarkably stouter, with a broad basal arc. Concerning the left paramere, in the new species it is more similar to *P. (P.) flavellus* and *P. (P.) orni* than to the remaining species. In general, the male genitalia is proportionately smaller in *P. (P.) enejokosu* n. sp.

Concerning the female genitalia, by the shape of its genital chamber and the structure of the dorsal sac, it is closer to *P. (P.) orni*; however, the sclerotized rings are clearly elongated, as in *P. (P.) lepidus*. Moreover, a previously undescribed structure ventrally associated to the dorsal sac (bilaterally subtriangular with a medial, straight axis) has been included in the description of *P. (P.) enejokosu* n. sp. Most probably it is not unique to the new species, but has remained unnoticed in previous studies dealing with other species.

As to the external morphology, the general colouration and the strong sexual dimorphism are the most outstanding features. The dominance of brownish colours over the reddish ones is shared with *P. (P.) lepidus* and *P. (P.) orni*, but the contrasting tricolour pattern and the differences between males and females are rather distinguishing. It is also noteworthy the combination of orange antennae, very dark metafemora, narrow pale stripe at the base of cuneus and membrane veins distinctly red.

On the other hand, the secondary sexual dimorphism does not only concerns chromatic characters, but also several morphometric ones (for *P. (P.) anashanti*, *P. (P.) flavellus* and *P. (P.) lepidus*, see: Pagola-Carte, 2017: table 1). Differences between males and females in body size and shape are greatest in *P. (P.) enejokosu* n. sp., with males closer to *P. (P.) lepidus* and females closer to *P. (P.) anashanti*. Antennal segments I, III and IV are proportionately shorter in the new species and some ratios (antennal segment II / pronotum width; antennal segments II / III+IV) show again the greatest sexual disparity. Ocular index is also very dissimilar ( $\sigma\sigma = 1.58$  (1.47–1.66);  $\text{♀♀} = 2.11$  (2.00–2.19)), due to the noticeably bigger eyes of males. A comparable disparity is found in *P. (P.) lepidus* and *P. (P.) orni*, with only a slightly different value in males (*P. (P.) orni*: 1.45) or in females (*P. (P.) lepidus*: 1.93) (Wagner, 1975; Pagola-Carte, 2017).

In conclusion, *P. (P.) enejokosu* n. sp., belonging to the *lepidus*-subgroup (species occurring on *Fraxinus* spp.) of the *haematodes*-group (sharing the same type of vesica and not occurring on *Quercus* spp.) of *Psallus* (*s. str.*), seems to be most closely related to *P. (P.) lepidus* and *P. (P.) orni*, with some characters more similar

to the former or to the latter. These three species are likely to be closely related phylogenetically, but dependent on different *Fraxinus* species (*F. angustifolia*, *F. excelsior* and *F. ornus*, respectively).

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