THE LEAFHOPPER GENUS *RHOPALOPYX* IN THE NETHERLANDS (HEMIPTERA: AUCHENORRHYNCHA: CICADELLIDAE)

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A revision of the Dutch material of the leafhopper genus *Rhopalopyx* yielded some surprising results, leading to a new checklist for this genus. A few specimens resembling *R. brachyanus* were found within populations of *R. elongata.* However, it is concluded that these males were parasitized by Pipunculidae, which led to deformation of their genitalia. *Rhopalopyx brachyanus* is described from Hungary on the basis of five males found in a large population of *R. vitripennis*. Based on this similarity, it is assumed that the *R. brachyanus* material concerned parasitized males. Consequently, *R. brachyanus* is considered to be a synonym of *R. vitripennis*.

INTRODUCTION

The Palaearctic leafhopper genus *Rhopalopyx* comprises three species groups (Dmitriev 1999) separated by differences in coloration, markings and details of the male genitalia. The *R. preyssleri* group with *R. preyssleri* (Herrich-Schäffer, 1838) and *R. adumbrata* (C. Sahlberg, 1842), the *R. brevis* group with only *R. brevis* (Emeljanov, 1964) and the *R. vitripennis* group with *R. vitripennis* (Flor, 1861), *R. monticola* Ribaut, 1939, *R. elongata* W. Wagner, 1952 and *R. tianshanica* (Mitjaev, 1969). All species occur in Europe, with the exception of *R. brevis* and *R. tianshanica,* which are both from Kazakhstan (Dmitriev 1999, Jach & Hoch 2013, Zahniser 2007). In 1999 a new species belonging to the *R. vitripennis* group was described from Hungary: *R. brachyanus* Orosz, 1999 and up till now no other locations of this species are known. Finally, a new species was discovered in central Italy: *R. cicigas* Guglielmino, 2002, belonging to the *R. vitripennis* group. The *R. vitripennis* group now comprises six species, but future research may give new insights (Guglielmino 2002), as several authors had different opinions on some synonymies. Wagner (1967) synonymized *R. parvispina* Wagner, 1947 and *R. monticola* with *R. vitripennis.* This opinion was followed by Nast (1987) and Ossiannilsson

Figure 1. *Rhopalopyx preyssleri*, ♂, Schlossböckelheim, Rheinland-Pfalz, Germany, 7.VIII.2010. Photo Gernot Kunz.
Figuur 1. *Rhopalopyx preyssleri*, ♂, Schlossböckelheim, Rheinland-Pfalz, Duitsland, 7.VIII.2010. Foto Gernot Kunz.

(1983), but not by Della Giustina (1989) and Dmitriev (1999), who consider *R. monticola* a distinct species. Others consider *R. parvispina* as a valid species (Holzinger 2009).

Analysing the samples collected during the 25th Auchenorrhyncha Meeting in the Netherlands, a discussion arose on the identity of the collected *Rhopalopyx* material (Van Klink et al. 2019). This discussion encouraged the study of all Dutch material of this leafhopper genus. Another incentive was the discovery by the third author of a population of *R. elongata* with some specimens in which the genital structures strongly resemble that of *R. brachyanus*.

When available, Dutch geographical coordinates (Amersfoortcoördinaten = AC) are given for the collecting sites. Unless stated otherwise, the material was collected and identified by the first author.

Figure 2. The locality of *Rhopalopyx preyssleri* in the Netherlands.
Figuur 2. Vindplaats van *Rhopalopyx preyssleri* in Nederland.

Rhopalopyx preyssleri (Herrich-Schäffer, 1838)

Gelderland Wageningen, Sanoer, AC 176.2-443.3, 31.VII.1978, 1 ♂, 1 ♀, on *Poa pratensis*, J. Rozeboom (col. Naturalis).

Cobben & Gravestein (1958) reported *R. preyssleri* (fig. 1) as a new species for the Netherlands. Unfortunately, their publication is just a list of species names, without location data. They promised to supply these data in another publication but did not keep their promise. Their publication mentioned that R.H. Cobben collected *R. preyssleri*. In the Cobben collection, now part of the Naturalis collection (RMNH), only one series is available with identification labels of *R. preyssleri*. However, study of the single male in this series showed that it concerned another species: *R. adumbrata*. *Rhopalopyx preyssleri* and *R. adumbrata* resemble each other in external appearance, both species have black spots on the thorax, on a grey background. They differ in minor but clear details of the male genitalia (Biedermann & Niedringhaus 2004, Dmitriev 1999). This confusion is understandable, because for a long time *R. adumbrata* and *R. preyssleri* were considered to be conspecific, until Vilbaste (1962) pointed out that the male genitalia differed.
Females of *R. preyssleri* and *R. adumbrata* are inseparable. Therefore material (only females) from Driel (province of Gelderland), Herkenbosch and Beegden (province of Limburg) could not be attributed to one of the species.
Distribution In the Netherlands *R. preyssleri* is known from one location (fig. 2), a dry, sandy, sunny and open vegetation where it was collected on the grass *Poa pratensis*. In 1970-1980 this location has been regularly sampled by the former Laboratory of Entomology of the Wageningen University and only a single couple was found in the collections suggesting that it was not a common species. *Rhopalopyx preyssleri* occurs in the major part of Europe: Austria, Belgium,

Figure 3. The locality of *Rhopalopyx adumbrata* in the Netherlands.
Figuur 3. Vindplaats van *Rhopalopyx adumbrata* in Nederland.

Central, North and South European Russia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Latvia, Lithuania, Luxembourg, Moldavia, Norway, Poland, Romania, Slovakia, Slovenia, Sweden, Switzerland, Ukraine and former Yugoslavia. The absence of *R. preyssleri* from Great Britain and Ireland, the Iberian Peninsula and Italy is remarkable (Seljak 2016, Jach & Hoch 2013, Niedringhaus et al. 2010). Outside of Europe, this species is known from Central Siberia, Tuva, Kazakhstan, Central Asia and Mongolia (Dmitriev 1999).

Ecology The biology of *R. preyssleri* is not thoroughly studied. The habitat of the Dutch location is in accordance with the habitat description of this xerophilous species: sunny, occasionally slightly shaded grass stands in damp to dry, basic to acidic sites. Often disturbed habitats as ruderal sites, abandoned fields, roadsides and dry grassland (Nickel 2003, Ossiannilsson 1983, Vilbaste 1962). Probably it lives exclusively on the grass *Poa pratensis*, the grass on which the Dutch specimens were sampled. This grass is quite common in the Netherlands (NDFF 2015), also in the proper habitat type as described for *R. preyssleri*, yet this species is rare. Perhaps this is due to the fact that the Netherlands is on the western edge of its distribution area.
In Austria and Germany, *R. preyssleri* has one generation, hibernating in the egg stage. Adults were collected from June till October (Holzinger 2009, Nickel 2003).

Rhopalopyx adumbrata (C. Sahlberg, 1842)

New for the Netherlands

Gelderland Wageningen, Binnenveld, 5.VIII.1954, 1 ♂, 7 ♀, R.H. Cobben (col. Naturalis).

Distribution The location of the single Dutch sample is only known approximately (fig. 3). In the fifties of the last century the location Binnenveld was a humid hay field and pasture area with marshes. *Rhopalopyx adumbrata* (fig. 4) is less widely distributed than the preceding species: Austria, Czech Republic, East Palaearctic, Estonia, Finland, France, Germany, Great Britain, Greece, Latvia, Lithuania, Luxembourg, Norway, Poland, Romania, Slovakia, Slovenia, Sweden and Switzerland. This species is absent from the Iberian Peninsula and Italy (Seljak 2016, Jach & Hoch 2013, Niedringhaus et al. 2010). In neighbouring Belgium this species is not yet found (Den Bieman et al. 2011). *Rhopalopyx adumbrata* is also reported from Kazakhstan and Central Asia (Dmitriev 1999).

Ecology *Rhopalopyx adumbrata* and *R. preyssleri* are sometimes found syntopically but *R. adumbrata* has a preference for a moist environment, while *R. preyssleri* prefers drier habitats. *Rhopalopyx adumbrata* is found in oligotrophic, moderately wet, sunny sites in patches of low grass, mainly low-productive meadows and pastures and heathland (Nickel 2003, Ossiannilsson 1983, Vilbaste 1962). The Dutch location Binnenveld fits in this

Figure 4. *Rhopalopyx adumbrata*, ♂, Marmorea, Chur, Switzerland, 27.VIII.2006. Photo Gernot Kunz.
Figuur 4. *Rhopalopyx adumbrata*, ♂, Marmorea, Chur, Zwitserland, 27.VIII.2006. Foto Gernot Kunz.

description. The grass *Festuca rubra* is the main hostplant but *R. adumbrata* is also reported from *F. ovina*. Both grasses are common in the Netherlands (NDFF 2015) and the habitat types as described for *R. adumbrata* are widespread. Nevertheless, *R. adumbrata* is a rare species in the Netherlands and the single sample is from long ago. Despite much field work on Auchenorrhyncha in the last twenty years no material of this species was collected. In Great Britain *R. adumbrata* is a local species (Boffing & Bantock 2014) and in Germany it is widespread (Nickel 2003). The Netherlands is definitely not on the edge of the distribution area. It is striking that *R. adumbrata* is also missing in Belgium. The reason for this absence is not clear.
The phenology of *R. adumbrata* resembles that of *R. preyssleri*: one generation, adults from July till October, and hibernation in the egg stage (Holzinger 2009, Nickel 2003).

Rhopalopyx elongata W. Wagner, 1952

Gelderland Millingerwaard, AC 196-431, 16.IX.2018, 1 ♂. Ooy, lawn, AC 200.7-436.4, R. Soethof & M. de Haas (data see table 1). **Limburg** Rijkel, AC 199-363, 5.VI.1959, 3 ♂, 2 ♀, W. Gravestein (col. Naturalis). Idem., 6.VI.1959, 3 ♂, 4 ♀. Tulle, St Pietersberg, 16.IX.1950, 1 ♂, Exc St Pietersberg (col. Naturalis). Vaals, AC 198-309, 9.VI.1959, 1 ♂, W. Boelens (col. Naturalis). 1 km NW Eys, Piepert, AC 192.4-315.4, 4.X.2018, 1 ♂ 9 ♀. Simpelveld, Station, AC 196.4-315.8, 18.IX.2020, 7 ♂, 1 ♀. Idem, 20.IX.2020, 2 ♂, 2 ♀. **Noord-Brabant** 9 km W Werkendam, Biesbosch, AC 112.7-422.1, 19.IX.2018, 2 ♂ on *Calamagrostis epigeios*. Breda, industrial area Hoogeind II, 116.8-400.7, 15.VII.2016, 1 ♂ on *Calamagrostis epigeios*. 2 km NEE Sleeuwijk, Groesplaat, river shore Merwede, AC 126.7-425.8, 18.VI.2017, 1 ♂. Idem., 21.IX.2017, 1 ♂. 1.8 km SEE Strijbeek, dry sandy extensive meadow, AC 115.7-389.4 (data see table 1). **Noord-Holland** Zaandam, AC 115-495, 3.VI.1993, 1 ♂, J.H. Woudstra (col. Naturalis). **Zeeland** 3,5 km W Colijnsplaat, Oesterput, AC 44-402, 10.IX.2020, 6 ♂. 2 km SW Kamperland, shore Veerse Meer, AC 37.0-397.4, 11.IX.2020, 1 ♂. 2 km NE Vrouwenpolder, Veerdam, AC 33.4-401.3, 11.IX.2020, 1 ♂. Neeltje Jans, AC 38.0-407.7, 31.VIII.2019,1 ♂. Westerschouwen, Inlaag, AC 39.5-410.3, 1.IX.2020, 3 ♂. Kouderkerksche Inlaag, AC 43-411, 2.IX.2019, 2 ♂. Ouwerkerk, Hoek van Ouwerkerk, dunes, AC 56.3-404.0, 13.VI.2020, 1 ♂. 3 km NE Rilland, Haven Rattekaai, AC 72.5-384.1, 9.IX.2012, 1 ♂. 2.5 km W Ouwerkerk, dam in Oosterschelde, AC 55.2-404.7, 13.VI.2020, 3 ♂. Sint Philipsland, Rammegors, AC 71-403,

Table 1. *Rhopalopyx elongata* parasitization by Pipunculidae in two Dutch populations.
Tabel 1. *Rhopalopyx elongata* parasitering door Pipunculidae in twee Nederlandse populaties.

Date	♂ non-parasitized	♂ parasitized	♂ parasitized %	♀ non-parasitized	♀ parasitized	♀ parasitized %	Recorder
Population Ooy							
8.IX.2019	1	3	75 %				R. Soethof
7.X.2019	0	2	100 %				R. Soethof
13.X.2019	0	1	100 %				R. Soethof
22.VI.2020	2	0	0 %				R. Soethof
3.VII.2020	6	0	0 %	9	0	0 %	M.C. de Haas
25.VII.2020	2	0	0 %				R. Soethof
21.IX.2020	3	9	75 %	1	0	0 %	R. Soethof
11-15.X.2020	14	11	44 %	44	6	12 %	R. Soethof
17.X.2020	5	7	58 %	12	14	54 %	M.C. de Haas
Population Strijbeek							
15.X.2020	1	4	80 %	6	1	14 %	C.F.M. den Bieman
19.X.2020	0	5	100 %	28	13	32 %	C.F.M. den Bieman

10.VI.2020, 3 ♂, 2 ♀. Brouwersdam, Haven Springersdiep, AC 50.0-421.9, 2 ♂. **Zuid-Holland** Hellegatsplein, AC 86.2-412.8, 19.VI.2014, 2 ♂. Idem., 30.IX.2013, 2 ♂.
Samples with only females are not included because females of *R. elongata* and *R. vitripennis* are inseparable.

Rhopalopyx elongata (fig. 5) and *R. vitripennis* are narrowly related species. The prime difference is the pattern of macrosetae on the pygopher lobes (fig. 6). In *R. elongata* these macrosetae are absent from the apical part, while in *R. vitripennis* they are present along the entire length (Biedermann & Niedringhaus 2004, Della Giustina 1989, Dmitriev 1999, Wagner 1952). There is some individual variation in the pattern of the macrosetae, but a larger sample of males from one locality brings clarity. There is sometimes even variation in this pattern between the two pygopher lobes of the same individual. Dmitriev (1999) clearly shows the strong variation in the shape of the pygopher lobes of *R. vitripennis*. The variation in macrosetae patterns and shape of pygopher lobes questions species differences based on these characters. This illustrates that the *R. vitripennis* group is in need of a proper taxonomic evaluation using different kinds of characters, including molecular analysis. Our Dutch material is evaluated using the given differences in macrosetae pattern of the pygopher lobes.

Rhopalopyx elongata was reported by Cobben & Gravestein (1958) as new for the Netherlands based on material collected by W. Gravestein. His material was retrieved from the collections

Figure 5. *Rhopalopyx elongata*, ♂, Meugliano, Piemonte, Italy, 8.IX.2007. Photo Gernot Kunz.
Figuur 5. *Rhopalopyx elongata* ♂, Meugliano, Piemonte, Italië. 8.IX.2007. Foto Gernot Kunz.

and proved to be correctly identified. One of the males collected in Rijkel in 1959 was identified by W. Wagner, the author of this species. The first mention of *R. vitripennis* for the Dutch fauna was by Blöte (1927), no collection data were given.

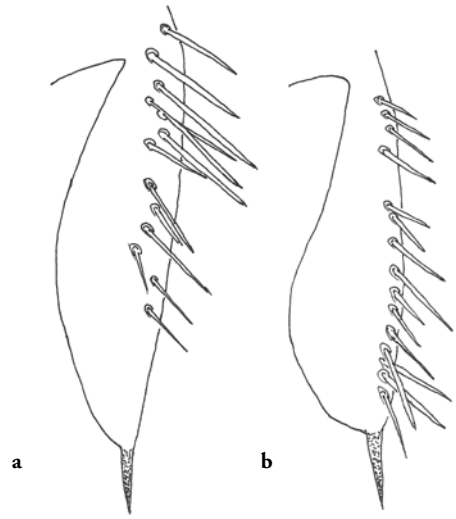

Figure 6. Pygophore lobe of male *Rhopalopyx*, a. *Rhopalopyx elongata*, Ooy, the Netherlands, 1.IX.2020, b. *Rhopalopyx vitripennis,* after Wagner (1952) and Biedermann & Niederinghaus (2004).
Figuur 6. Pygofooraanhangsel van mannetjes van *Rhopalopyx,* a. *Rhopalopyx elongata*, Ooy, Nederland, 1.IX.2020, b. *Rhopalopyx vitripennis,* naar Wagner (1952) en Biedermann & Niederinghaus (2004).

Blöte had not seen Dutch material himself and his record is probably based on information from D. Mac Gillavry. Only two specimens collected before 1927 are represented in the Dutch collections. Both are identified by Mac Gillavry as *R. vitripennis.* It concerns only females belonging to the *R. vitripennis* group and in this group females cannot be identified to species level. In later Dutch faunistic overviews, *R. vitripennis* was listed without supplementary information or data. Recently *R. vitripennis* was reported from Reijerskamp (1 ♂) and Kootwijkerzand (both province of Gelderland) (1 ♀) (Van Klink et al. 2019). Re-evaluation of the male showed that it has more characters of *R. elongata* than of *R. vitripennis*. At this moment no proper *R. vitripennis* material is known from the Netherlands and this species should be omitted from the Dutch fauna list.

Distribution Based on the number of specimens of *R. elongata* in Dutch museum collections, this species seems to be rare in the Netherlands. However, fieldwork in the last three years yielded 19 populations in the south and middle of the Netherlands (fig. 7). The absence from the north is a sample bias, no sample activities were undertaken here in the right time of year. Judging from these data *R. elongata* is a quite common species in the Netherlands at warm, dry, often sandy and extensively used meadows, roadsides and dike

Figure 7. Records of *Rhopalopyx elongata* in the Netherlands.
Figuur 7. Vindplaatsen van *Rhopalopyx elongata* in Nederland.

slopes. *Rhopalopyx elongata* occurs only in the south-western parts of Europe in a limited number of countries: Belgium, France, Germany, Great Britain, Italy, Slovenia, Spain and Switzerland (Jach & Hoch 2013, Lock 2019, Stewart 2015). The strong resemblance of *R. elongata* and *R. vitripennis* and the discussions on the species-specific characteristics raises questions on the correct identification of older specimens. Especially, the reports of *R. vitripennis* from Ireland and Spain should be checked. They do not fit well in the view that *R. elongata* is a western European species, while *R. vitripennis* occurs in Central and Eastern Europe.

Ecology Information on the ecology of *R. elongata* is limited. It is described as a species living in rather dry and sun-exposed sites on limestone and sand (Nickel 2003). Comparable to the habitat conditions as described for the Netherlands. The hostplants are grasses but no specific grass species are given. Contrary to the two preceding *Rhopalopyx* species, *R. elongata* probably has two generations with adults found from June till October. This species hibernates in the egg stage (Nickel 2003).

PARASITIZATION BY PIPUNCULIDAE

Most studies on parasitization by Pipunculidae (Diptera) focus on the taxonomy of the Pipunculidae, host specificity and the rates of parasitization by the Pipunculidae, rather than on the effect on the hosts, the plant- and leafhoppers. Most studies concern planthoppers (Delphacidae) and the effects described for planthoppers are believed to occur also in parasitized leafhoppers.

Parasitized hoppers are sometimes recognizable by their swollen abdomen and sluggish movements. However parasitized and gravid females are sometimes difficult to distinguish (May 1979, Rothschild 1964). Jumping and walking were impaired in parasitized planthoppers (*Stenocranus minutus* (Fabricius, 1787)), probably due to reduction in femur length and damage to the thoracic muscles and nervous system (May 1979). Dissection is usually necessary to confirm that parasitization has occurred (Skevington & Marshall 1997). The abdominal sclerites of adult hoppers sometimes become poorly pigmented (May 1979, Rothschild 1964). The infested adult leaf- and planthoppers generally show greater body size including head and thorax, compared to non-parasitized adults (Lauterer 1981). However, this effect on head width was not found by May (1979). Ovipositor length and the shape of the parameres are reduced in parasitized adults (May 1979, Skevington & Marshall 1997). The effect of pipunculid parasitization on the development of the male genitalia of leafhoppers is shown by Ylönen & Raatikainen (1984) describing the deformation of the aedeagus of *Verdanus abdominalis* (Fabricius, 1803) and *V. limbatellus* (Zetterstedt, 1828). In female hosts, the development of ovarioles is halted and mature eggs are rarely found. In males, the testes, spermathecal ducts, and a greater part of the accessory glands are often lost (May 1979, Skevington & Marshall 1997). Some males can still copulate and

fertilize females. Probably they were infested in a later stage (May 1979). The effects on genital development are only found in plant- and leafhoppers parasitized in the larval stage. In froghoppers (Aphrophoridae), only adults are attacked by Pipunculidae, because nymphs are protected by their foam. In froghoppers no effect on genital development is found (Whittaker 1969).

In two Dutch populations of *R. elongata* (table 1) males were observed with deviating genital structures: strong reduction of the anal tube, reduction of the dorsal incision of the pygopher, absence of pygopher lobes while the lateral side of the pygopher is much more developed and reduction of the basal lateral protrusions of the aedeagus (fig. 8-9). All these deviating males from both Dutch *R. elongata* populations were parasitized by Pipunculidae. The abdomen of these males contained one pipunculid larvae each, almost all of these larvae were orientated with the head towards the thorax of their host. The pipunculid larvae were easily recognizable by their dark mouth hooks. Even in dry leafhopper material the parasite could be found after maceration, the mouth hooks of the larvae are the best character to search for. Also parasitized females were found, again each with one pipunculid larvae in the abdomen and also in female leafhoppers the head of the parasite was orientated towards the thorax of the host. These parasitized females did not contain eggs while the non-parasitized females contained one to five eggs. This observation is consistent with the parasitization effect described above. Contrary to the effect of parasitization on the development of the ovipositor as described before, no external genital morphological differences could be found between parasitized and non-parasitized females of *R. elongata*.

The parasitized males often have yellowish sternites, much lighter than in non-parasitized males. This colour difference could also be found in females but was much less noticeable. This symptom is also described in other leaf- and planthoppers.

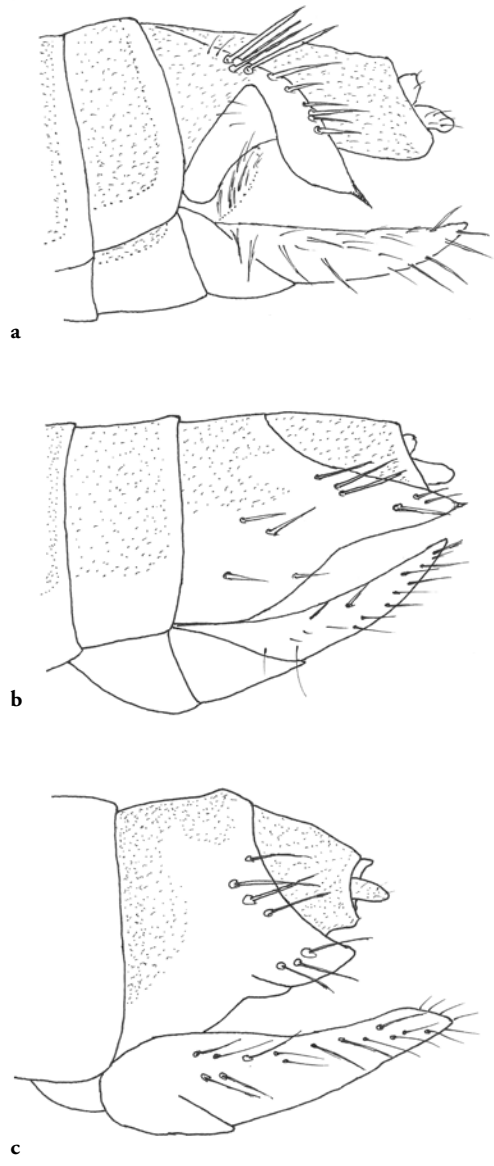

Figure 8. Male genitalia of *Rhopalopyx*, lateral view, a. *Rhopalopyx elongata*, Ooy, the Netherlands, 1.IX.2020, b. *Rhopalopyx elongata,* parasitized by Pipunculidae, Ooy, the Netherlands, 7.X.2019; c. *Rhopalopyx brachyanus,* after Orosz (1999).
Figuur 8. Linker zijkant mannelijk genitaal van *Rhopalopyx*, a. *Rhopalopyx elongata*, Ooy, Nederland, 1.IX.2020, b. *Rhopalopyx Elongata,* parasitized by Pipunculidae, Ooy, Nederland, 7.X.2019, c. *Rhopalopyx brachyanus,* naar Orosz (1999).

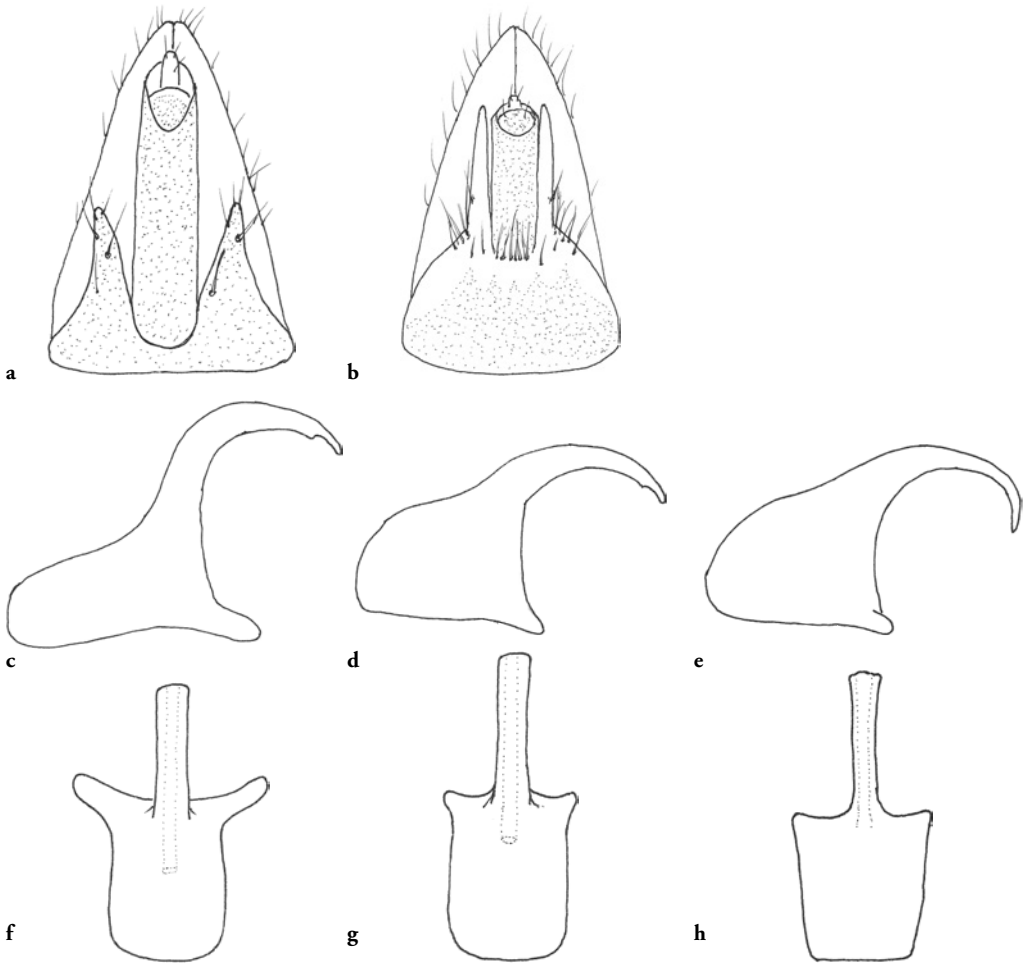

Figure 9. Male genitalia of *Rhopalopyx*, a-b. dorsal view, c-e. aedeagus lateral view, f-h. aedeagus, dorsal view, a. *Rhopalopyx elongata*, Ooy, the Netherlands, 21.IX.2020, b. *Rhopalopyx elongata*, parasitized by Pipunculidae, Ooy, the Netherlands, 21.IX.2020, c and f. *Rhopalopyx elongata*, Ooy, the Netherlands, 21.IX.2020, d and g. *Rhopalopyx elongata,* parasitized by Pipunculidae, Ooy, the Netherlands, 21.IX.2020, e and h. *Rhopalopyx brachyanus,* after Orosz (1999).

Figuur 6. Mannelijk genitaal of *Rhopalopyx*, a-b. dorsaal aanzicht, c-e. aedeagus van opzij, f-h. aedeagus van boven, a. *Rhopalopyx elongata*, Ooy, Nederland, 21.IX.2020, b. *Rhopalopyx elongata,* geparasiteerd door Pipunculidae, Ooy, Nederland, 21.IX.2020, c en f. *Rhopalopyx elongata*, Ooy, Nederland, 21.IX.2020, d en g. *Rhopalopyx elongata,* geparasiteerd door Pipunculidae, Ooy, Nederland, 21.IX.2020, e en h. *Rhopalopyx brachyanus,* naar Orosz (1999).

Table 1 shows that in June-July no parasitized leafhoppers were found, however the sample sizes were limited. In September-October up to 100 % of the population showed to be parasitized. The higher parasitization levels by Pipunculidae in the second generation of leafhoppers has been observed in a number of species (Waloff 1975). Very high levels of parasitization were observed especially at the end of the season (table 1) and our hypothesis is, that this could be a direct effect of parasitization. It is known that planthoppers parasitized by Strepsiptera live longer than

non-parasitized individuals (Den Bieman & Booij 1984, Lindberg 1939, 1949). Perhaps the same applies to leafhoppers parasitized by Pipunculidae. At the end of the season the non-parasitized leafhoppers have died after mating and oviposition while the parasitized leafhoppers still survive.

One male collected on 19.x.2020 of the population Strijbeek was remarkable. While four other parasitized males of this sample showed the deviating genital structure, that male showed 'normal' *R. elongata* genitalia while it contained a smaller pipunculid larvae than the other parasitized male specimens. Perhaps, this is an effect of the moment of parasitization. Parasitization of younger instars could have a more pronounced effect on genital development compared to parasitization of older leafhopper instars.

Attempts to rear the Pipunculidae from adult *R. elongata* have not yet been successful.

Rhopalopyx brachyanus

Based on the genital structures of the parasitized males of the two Dutch populations the first impression was that it concerned a new species for the Netherlands: *R. brachyanus* described by Orosz (1999) from Hungary. Subsequent analysis showed that the Dutch material concerned malformations caused by pipunculid parasitization. Orosz (1999) found in September 1997 four males with aberrant genitalia within a large population of *R. vitripennis*. An additional male was found in a museum collection, collected in central Hungary in October 1981. The characters of the male genitalia described for *R. brachyanus* that resemble those of the parasitized males found in the Dutch *R. elongata* populations (fig 8-9) are listed below.

1. Reduction of the anal tube and the dorsal pygopher incision, compare fig. 9b with fig. 25 (photo) in Orosz (1999).
2. The lateral and apical parts of the pygopher bear long macrosetae, covering the ventral side of the anal tube, compare fig. 8b-c. In *R. brachyanus* the pygopher top is rounded with a small sclerotized tooth in dorsal view, in some of the parasitized *R. elongata* this top bears a clear tooth (fig. 8b) while in some others this tooth is strongly reduced.
3. The aedeagus base is more square and the lateral protrusions are reduced in *R. brachyanus* and the parasitized *R. elongata* (fig. 9g-h).

As in the Dutch populations the Hungarian deviating males were also found at the end of the season.

The morphological similarities in male genital structures between *R. brachyanus* and the parasitized *R. elongata* individuals create the impression that the Hungarian material of *R. brachyanus* concerned in fact parasitized males of *R. vitripennis*. Consequently *R. brachyanus* should be considered as a synonym of *R. vitripennis*.

ACKNOWLEDGEMENTS

The discussion with Igor Malenovský, Herbert Nickel, Werner Witsack and Roel van Klink was the starting point for this paper. The beautiful photos were taken by Gernot Kunz (Graz, Austria). Max Caspers, curator of Naturalis Biodiversity Center (Leiden), made the museum material available.

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SAMENVATTING

Het dwergcicadengenus *Rhopalopyx* in Nederland (Hemiptera: Auchenorrhyncha: Cicadellidae)

Van het dwergcicadengenus *Rhopalopyx* komen volgens de literatuur drie soorten in Nederland voor: *R. preyssleri*, *R. vitripennis* en *R. elongata*. Het materiaal waarop de melding van *R. preyssleri* gebaseerd is, bleek echter te behoren tot *R. adumbrata,* een nieuwe soort voor ons land. Van *R. preyssleri* zijn wel andere exemplaren aanwezig in de Nederlandse collecties, dus de soort kan gehandhaafd blijven op de fauna lijst. Van *R. vitripennis* is geen Nederlands materiaal gevonden en deze soort wordt verwijderd van de Nederlandse faunalijst. De ecologie en verspreiding van de Nederlandse soorten wordt besproken.

In twee populaties van *R. elongata* is parasitisme door oogkopvliegen Pipunculidae waargenomen. De genitalia van geparasiteerde mannetjes zijn sterk vervormd. De genitaalstructuur van geparasiteerde mannetjes lijkt sterk op die van *R. brachyanus*. Deze soort is beschreven uit Hongarije aan de hand van een vijftal mannetjes uit een grote populatie van *R. vitripennis*. Op basis van deze gelijkenis wordt verondersteld dat het materiaal van *R. brachyanus* geparasiteerde mannetjes betreft en dat *R. brachyanus* daarom een synoniem is van *R. vitripennis*.

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