

Review of the genus *Norellisoma* Wahlgren, 1917 in Belgium (Diptera: Scathophagidae)

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Abstract

Collection material in the RBINS of the genus *Norellisoma* has been reviewed, and detailed images, key characters and distribution of all Belgian species are presented herein. This paper provides references to a set of papers that allow correct identification of *Norellisoma* species found in Belgium. One additional species, *Norellisoma flavicorne* (Meigen, 1826) is added to the Belgian checklist and one species, *N. striolatum* (Meigen, 1826), is deleted. Four other species are confirmed to occur in Belgium: *N. armipes* (Meigen, 1826), *N. lituratum* (Meigen, 1826), *N. nervosum* (Meigen, 1826) and *N. spinimanum* (Fallén, 1819).

Keywords: Scathophagidae, *Norellisoma*, identification, images

Samenvatting

Collectiemateriaal van het genus *Norellisoma* werd herzien en gedetailleerde beelden, belangrijke kenmerken en verspreidingen van alle Belgische soorten worden gepresenteerd. Deze paper geeft verwijzingen naar een set van publicaties die toelaten een correcte identificatie te maken. *Norellisoma flavicorne* Meigen 1826 wordt toegevoegd aan de checklist en *N. striolatum* (Meigen, 1826) wordt geschrapt. Het voorkomen van vier andere soorten wordt bevestigd: *N. armipes* (Meigen, 1826), *N. lituratum* (Meigen, 1826), *N. nervosum* (Meigen, 1826), *N. spinimanum* (Fallén, 1819).

Résumé

Tout le matériel appartenant au genre *Norellisoma* des collections de l'IRSNB a été révisé. Les principaux critères d'identification, des photos détaillées et la distribution de toutes les espèces belges sont présentés. En outre, cet article fournit des références permettant une identification correcte. *Norellisoma flavicorne* Meigen, 1826 est une espèce nouvelle pour la faune belge, par contre *N. striolatum* (Meigen, 1826) est supprimé de la liste des espèces belges. Quant à *N. armipes* (Meigen, 1826), *N. lituratum* (Meigen, 1826), *N. nervosum* (Meigen, 1826) et *N. spinimanum* (Fallén, 1819), leur présence est confirmée.

Introduction

The genus *Norellisoma* is a striking genus of dung flies with a turbulent taxonomic history and many recently described species. According to original species descriptions and catalogues, the genus currently comprises 28 species, of which 27 are Palaearctic and 1 is Holarctic.

Norellisoma is often treated as a subgenus of *Norellia*, but as did HIRONAGA & SUWA (2005), ŠIFNER (2008) and OZEROV (2009), *Norellisoma* is treated herein as a valid genus. *Norellisoma* is separated from all other Scathophagidae by the following set of characters: one pair of scutellar bristles (except two pairs in *Norellisoma vockerothi* Ozerov, 2013); fore femur and fore tibia with a double row of strong, long setae; mid- and hind femora mostly with fine apical anteroventral setae. General body colour varies from black to yellow although most species have a dark thorax and yellow legs. West European species are rather large, ranging from 5 to 13 mm.

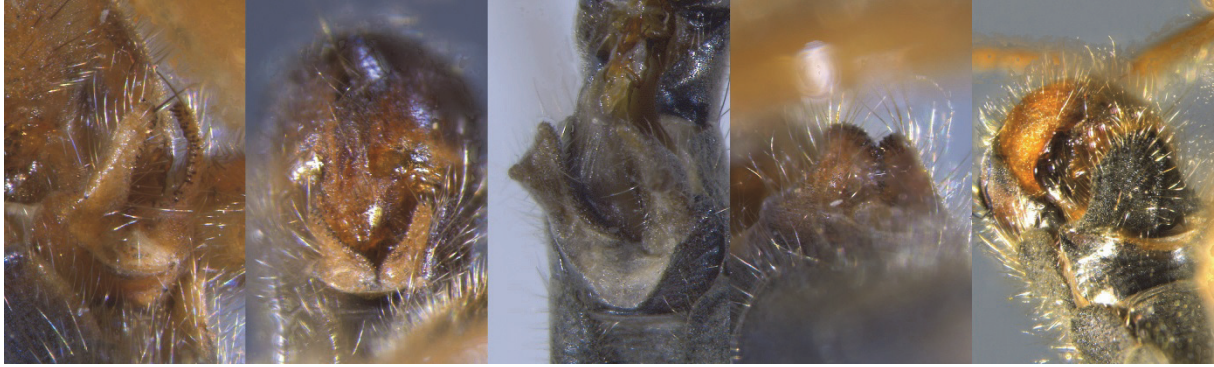


Plate 1. Male sternite 5, left to right: *Norellisoma spinimanum*, *Norellisoma lituratum*, *Norellisoma flavicorne*, *Norellisoma armipes* and *Norellisoma nervosum*.

Literature needed to identify species of *Norellisoma* is scarce and scattered, which makes identification difficult. Additionally, many recently described species (e.g., *N. mirusae* Šifner, 1974 and *N. mireki* Šifner, 1977) cannot be properly studied because type specimens in the Šifner collection are inaccessible. Keys are provided in GORODKOV (1988), ŠIFNER (1995) and ŠIFNER (2003), but these keys are unreliable, lack many species, and contain synonymous species and should therefore be used with care. On the other hand, combination of ŠIFNER (1995; 2003) and OZEROV (2009) are useful for identification and can be used in a preliminary manner to identify *Norellisoma*. Furthermore, interpretation of existing keys and species descriptions are difficult because they lack habitus images for even common species. We include herein a photographic image of a typical specimen of each of the five species currently known from Belgium. These images will greatly facilitate identification of species, but examination of the terminalia are necessary to exclude species not yet recorded from Belgium.

Material

For this paper, all *Norellisoma* in the RBINS was examined by the author (MOJ = Mortelmans Jonas). Exactly 61% of *Norellisoma* in the collection had been misidentified.

Results

Norellisoma armipes (Meigen, 1826)

- = *Cordylura armipes* Meigen, 1826. Holotype.
- = *Cordylura flavicauda* Meigen, 1826
- = *Cordylura flava* von Roser, 1840
- = *Norellia roserii* Rondani, 1867

MATERIAL EXAMINED. **Namur**: 26.VIII.1950, Falaen, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; VI.1952, Herbeumont, 5♂♂, leg. Bequaert M, det. MOJ, coll. RBINS. **Oost-Vlaanderen**: 2.V.1945, Sint-Amandsberg, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 7.V.1950, Melle, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS. **Brussels Hoofdstedelijk Gewest**: 10.V.1905, Boitsfort, 4♂♂, leg. Guillaume A., det. MOJ, coll. RBINS.

KEY CHARACTERS. *Norellisoma armipes* is a large, stout species similar to *N. striolatum* (Meigen, 1826) and *N. mireki* (Šifner, 1977). It is dark with completely yellow legs (Figs 1-2). *Norellisoma striolatum* (Meigen, 1826) and *N. armipes* are easy to separate by use of the images of the genitalia of both species in OZEROV (2009) (Plate 1). To distinguish *N. armipes* from *N. mireki*, the species description in ŠIFNER (1977) can be used. The fore coxa of *N. mireki* is black, in contrast to those of *N. armipes* and *N. striolatum* (ŠIFNER, 1977), which are yellow. Amongst examined foreign material, specimens of *N. armipes* were found with dark yellowish-brown streaks on the femora indicating a variable colouration of the leg.



Fig. 1. *Norellisoma armipes*, male in lateral view.



Fig. 2. *Norellisoma armipes* male in dorsolateral view.

REMARKS ON TAXONOMY. ŠIFNER (1995) synonymised *N. armipes* with *N. spinimanum* (Fallén, 1819) without providing any details for the basis of this synonymy. Interestingly, ŠIFNER (1977) described *N. mireki*, a species of which genitalia are very similar to those of *N. armipes*. In this paper we regard *N. armipes* as a valid species, as did OZEROV (2009), who studied and depicted the genitalia of the holotype male.

STATUS IN BELGIUM. *Norellisoma armipes* is one of the rarer *Norellisoma*. It is known from only five locations but from rather large series. No recent observations are known. Observations in Belgium have been made in May and June and once in August. GOSSERIES (1991) recorded the species from Belgium.

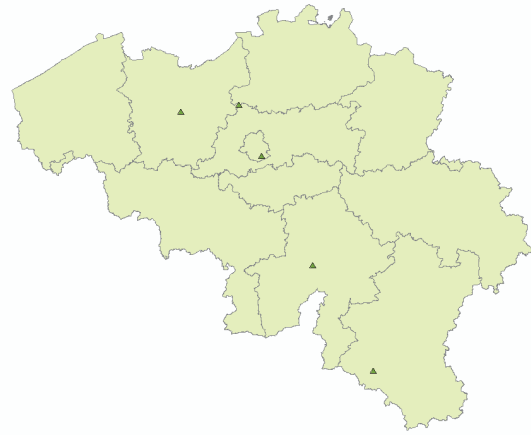


Fig. 3. *Norellisoma armipes*, map. ▲ < 1960, ■ > 1960.

DISTRIBUTION. The current global distribution of *N. armipes* remains uncertain because of the erroneous synonymy with *N. spinimanum*. GORODKOV (1986) accepted the validity of *N. armipes* and listed the species as occurring in both France and Germany. OZEROV (2009) also confirmed its occurrence in Ukraine and Russia (region of Moscow). Many occurrences are probably listed under the name *N. spinimanum*, and thus *N. armipes* is more widespread than in only the countries listed here (Fig. 3).

Norellisoma flavicorne Meigen, 1826

= *Cordylura flavicornis* Meigen, 1826. Holotype
= *Cordylura opacum* Loew 1864

MATERIAL EXAMINED. **Namur**: 6.V.1949, Falaën, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 24.IV.2014, Matagne la grande vliegveld, 1♂, det. leg. coll. MOJ; 24.IV.2014, Villers-en-Fagne, 1♂, det. leg. coll. MOJ. **Oost-Vlaanderen**: 7.V.1931, Heusden, 1♂, leg. Goetgebuier M, det. MOJ, coll. RBINS; 27.IV.1941, Melle, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 1.V.1941, Gent, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 8.V.1941, Melle, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 11.V.1941, Melle, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 30.IV.1944, Heusden, 2♂♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 30.IV.1950, Melle, 2♂♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 19.IV.1980, Melle, 1♂, leg. Grootaert Patrick, det. MOJ, coll. RBINS; 19.IV.2014, Heusden, 1♂, det. leg. coll. MOJ.



Fig. 4. *Norellisoma flavicorne* male in lateral view; characteristic bifid sternite 5 is easily seen.



Fig. 5. *Norellisoma flavicorne* male in dorsolateral view.

KEY CHARACTERS AND IDENTIFICATION. *N. flavicorne* is a greyish species and is, together with *N. lituratum* (Meigen, 1826), one of the smaller representatives of *Norellisoma*, with relatively slender legs (Figs 4-5). Males of this species can be recognised in the field by the bifid lobes on sternite 5, especially in lateral view (Plate 1). This feature is shared only with *N. mirusae*. For identification, one can use NELSON & ŠIFNER (2000), which provides an accurate species description, figures the terminalia of the male and female. The only similar species, *N. mirusae*, can best be excluded by comparing specimens to the description of *N. flavicorne* in ŠIFNER (1974). It is difficult to separate *N. flavicorne* from *N. mirusae* since type material of *N. mirusae* in the Šifner collection in Prague is inaccessible; and the type material of *N. flavicorne* is assumed to be lost.

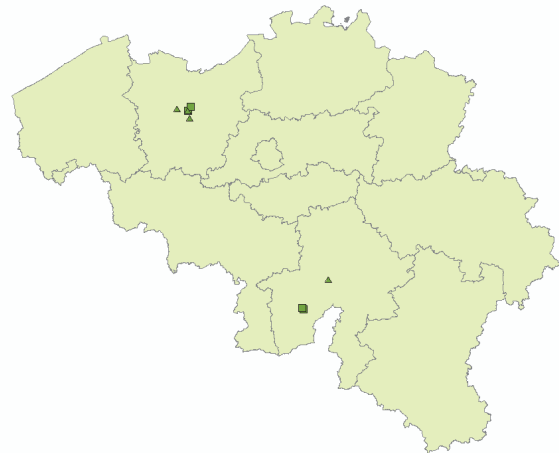


Fig. 6. *Norellisoma flavicorne*, map. ▲ < 1960, ■ > 1960.

STATUS IN BELGIUM. *Norellisoma flavicorne* appears to be a common species, as both recent and historic records are ubiquitous. In Belgium it is especially abundant in spring (April and May). Elsewhere it has been found from April to June.

DISTRIBUTION. *Norellisoma flavicorne* has been found only in Britain (NELSON & ŠIFNER, 2000) and in the Czech Republic (ŠIFNER 2008). From Britain, it is known to be very abundant (NELSON & ŠIFNER, 2000). Its sibling species, *N. mirusae* has been found in the Czech Republic, Switzerland (ŠIFNER, 1974) and Slovakia (ŠIFNER, 2003). PÜCHEL-WIELING (1999) records *N. mirusae* from Germany, but this record should be omitted since recent communication revealed an error in identification (Püchel-Wieling, pers. comm). These German records in fact refer to *N. flavicorne*. Belgian material proved the absence of *N. mirusae* and the presence of *N. flavicorne* (Fig. 6).

REMARKS ON TAXONOMY. *Norellisoma flavicorne* has had a complicated taxonomic history. To begin with, the type material is presumed to be lost. This loss created a bifurcated taxonomy: on one hand, BECKER (1905) synonymised *N. flavicorne* with *N. lituratum*, an action accepted by ŠIFNER (1995), CHANDLER (1998) and BALL (2014). On the other hand, STACKELBERG (1933), COLLIN (1958), MORGE (1976), GORODKOV (1986) and NELSON & ŠIFNER (2000) all accepted *N. flavicorne* as a valid species. Moreover, a third species, *N. opacum* Loew, 1864, was said to be a junior synonym of *N. flavicorne* (e.g., GORODKOV, 1986; ŠIFNER, 1995) or a junior synonym of *N. lituratum* (e.g., BECKER, 1905; ŠIFNER, 2008; OZEROV, 2014), whereas other entomologists still consider *N. opacum* to be a valid species (e.g., DE JONG, 2002; BALL, 2014).

In this publication we accept the validity of the name *N. flavicorne* (sensu NELSON & ŠIFNER, 2000), the validity of the name *N. lituratum* (sensu OZEROV, 2009), and the synonymy of *N. opacum* as a junior synonym of *N. flavicorne*.

A current example of this taxonomic confusion is seen in BALL (2014), who provides a key to *N. lituratum* and *N. opacum* (= *N. lituratum*) together with images of male genitalia clearly belonging to two different species. In my opinion, the *N. opacum* figured in BALL (2014) is actually *N. flavicorne*, whereas the *N. lituratum* figured in the same paper is actually *N. lituratum*. Apparently a similar situation is found in the Netherlands, where DE JONG (2002) listed both *N. lituratum* and *N. opacum* (= *N. lituratum*) as occurring. We assume that his record of *N. opacum* refers to *N. flavicorne* but note that we examined no material upon which to base this assumption. A basis for the bifurcated taxonomy of *N. opacum* and *N. lituratum* originated with CHANDLER (2000). He did not agree with NELSON & ŠIFNER (2000) because this study was not based on type material. DE JONG (2002) followed CHANDLER (2000) in this matter.



Fig. 10. *Norellisoma lituratum*, male in lateral view.



Fig. 8. *Norellisoma lituratum* male in dorsolateral view.

***Norellisoma lituratum* (Meigen, 1826)**

= *Cordylura liturata* Meigen, 1826. Holotype
= *Cordylura spinigera* Zetterstedt, 1938: 733

MATERIAL EXAMINED. **Liège**: 2.VI.1924, Hockai, 1♂, leg. Goetgebuer M, det. MOJ, coll. RBINS; 29.V.2011, Rocherath, 1♂, leg. det. coll. MOJ; 7.VI.2014, Belle croix, 1♂, leg. det. coll. MOJ. **Oost-Vlaanderen**: 24.IV.1945, Destelbergen, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS.

KEY CHARACTERS. *Norellisoma lituratum* is a dark species with yellow legs, similar in size to the common *N. flavicorne* (Figs 7-8). ŠIFNER (2008) accepted the validity of this taxon, and OZEROV (2009) provided good illustrations of the male genitalia (Plate 1). In this paper we follow the species alignment sensu OZEROV (2009).

Norellisoma lituratum is rather difficult to identify on the basis of general morphological features, but the genitalia are unique and can be confused only with those of *N. lesgiae* (Becker, 1894) and *N. oreinum* (OZEROV, 2009), two species unlikely to occur in Belgium. OZEROV (2009) provided good illustrations of both of the latter species.

STATUS IN BELGIUM. *Norellisoma lituratum* is a very rare *Norellisoma*, known from only two recent and two historic records; three records are known from the Hautes-Fagnes region and one from Ghent. *Norellisoma lituratum* appears to be a spring species, with records from April, May and June. Although much Belgian material was labelled *N. lituratum*, most were actually *N. flavicorne*. No *N. lituratum* material was found labelled as *N. lituratum* (Fig. 9).

DISTRIBUTION. *Norellisoma lituratum* is a rare but widely distributed species in the Palaearctic, having been recorded in Austria, the Czech Republic, Denmark, Finland, France, Germany, Great Britain, Ireland, Mongolia, the Netherlands, Norway, Poland, Romania, Russia (European Russia, West Siberia, East Siberia), Slovakia, Slovenia, Spain, Sweden and Switzerland (ŠIFNER 2008).

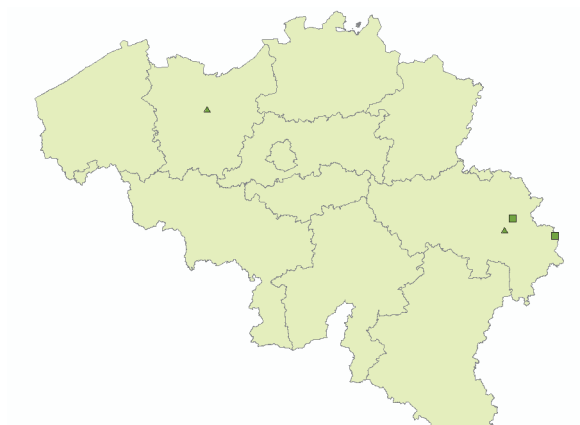


Fig. 9. *Norellisoma lituratum*, map. ▲ < 1960, ■ > 1960.

Norellisoma nervosum (Meigen, 1826)

= *Cordylura nervosa* Meigen, 1826. Holotype
= *Clidogastra flaviceps* Vimmer, 1938

MATERIAL EXAMINED. **Liège**: 11.VI.1900, Hockai, 1♂, leg. Candèze E, det. MOJ, coll. RBINS; 12.VI.1925, Hockai, 1♂, leg. Goetgebuer M, det. MOJ, coll. RBINS; 21.VI.1991, Hockai, 1♂, leg. Collart A., det. MOJ, coll. RBINS; 29.V.2011, Rocherath, 1♀, leg. det. coll. MOJ; 7.VI.2014, Blera valley, 1♂, 1♀, leg. det. coll. MOJ; 7.VI.2014, Rocherath, 1♂, leg. det. coll. MOJ. **Namur**: 18.V.1970, Vallée Meuhaigne, 1♂, leg. Detry R, det. MOJ, coll. RBINS. **Oost-Vlaanderen**: 14.V.1917, Louise marie, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 18.V.1942, Scheldrode, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 29.V.1944, Schelderode, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 9.V.1947, Schelderode, 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 27.V.1968, Everbeek, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS. **Brussels Hoofdstedelijk Gewest**: 7.V.1905, Boitsfort, 1♂, leg. Guillaume A., det. MOJ, coll. RBINS. **Brabant Wallon**: 17.V.1973, Ohain, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS. **West-Vlaanderen**: 21.V.1972, Brugge, 1♂, leg. Verbeke Charles, det. MOJ, coll. RBINS; 5.V.1982, Snellegem, 1♂, leg. Verbeke Charles, det. MOJ, coll. RBINS; 15.V.1982, Snellegem, 1♂, leg. Verbeke Charles, det. MOJ, coll. RBINS; 18.V.1982, Snellegem, 2♂♂, leg. Verbeke Charles, det. MOJ, coll. RBINS; 19.V.1982, Snellegem tuin, 2V, leg. Verbeke Charles, det. MOJ, coll. RBINS; 20.V.1982, Snellegem, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS; 30.V.1982, Snellegem, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS; 19.VI.1984, Snellegem, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS.



Fig. 10. *Norellisoma nervosum* male in lateral view; note the large sternite 5 and yellow shiny apical end of abdomen.



Fig. 11. *Norellisoma nervosum* male in dorsolateral view.

KEY CHARACTERS. *Norellisoma nervosum* is a large, stout species with a relatively setose abdomen, especially the apical tip. In males, the lobes of sternite 5 are very wide, and the setae on these lobes is very long and dense (Plate 1). Another feature that separates *N. nervosum* from most of its congeners is its long-haired arista. Finally, the species is dark in colour but with purple tinges on the thorax (Figs 10-11) and typically with a shiny, yellowish tip of the abdomen. For additional characters see ŠIFNER (1995, 2003). In Belgian material, the dorsal tip of the femora sometimes is darkened, but this character is within the normal variability of the species.

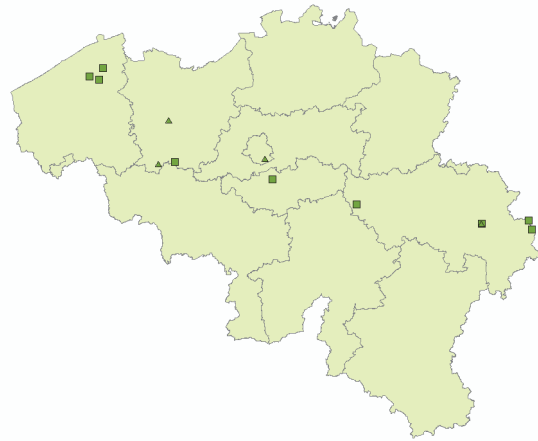


Fig. 12. *Norellisoma nervosum*, map. ▲ < 1960, ■ > 1960.

STATUS IN BELGIUM. *Norellisoma nervosum* has been collected frequently and appears to be rather common. Although only few recent observations were noted in the material examined, the species is certainly still present in several locations in Belgium. All known records are from May and June (Fig. 12).

DISTRIBUTION. Known European records indicate that the species is rather common and is primarily a spring species (e.g., STUKE & SCHACHT, 2009), widely distributed across Europe (Austria, Bosnia-Herzegovina, Czech Republic, France, Germany, Italy, Netherlands, Poland, Romania, Slovakia and Switzerland (ŠIFNER, 2008). GOSSERIES (1991) recorded the species from Belgium.

***Norellisoma spinimanum* (Fallén, 1819)**

- = *Musca semiflava* Panzer, 1798
- = *Cordylura spinimana* Fallén 1819. Holotype.
- = *Cordylura ruficauda* Zetterstedt, 1838
- = *Cordylura zetterstedti* Gimmerthal, 1846
- = *Norellia occidentalis* Malloch 1919: 311
- = *Norellisoma septentrionale* Hendel 1930

MATERIAL EXAMINED. **Antwerpen:** 28.VII.2012, Hingene - Nattenhaasdonk, 1♂, leg. det. coll. MOJ. **Liège:** 6.VII.1947, Nonceveux (li), 1♂, leg. Bequaert M, det. MOJ, coll. RBINS; 30.V.2010, Rocherath, 1♀, leg. det. coll. MOJ; 18.V.2013, Eupen, 1♂, leg. det. coll. MOJ. **Luxembourg:** 22.VII.1951, Bois de Guéville, 1♂, leg. , det. MOJ, coll. RBINS; 12.VII.2012, Bertrix, 1♀, leg. det. coll. MOJ. **Namur:** 15.VIII.1946, Chiny, 2♂♂, 1♀, leg. Bequaert M, det. MOJ, coll. RBINS; 25.VI.1952, Herbeumont, 2V, leg. Bequaert M, det. MOJ, coll. RBINS; date unknown, Falaën, 1♂, leg. Goetgebuer M, det. MOJ, coll. RBINS; 10.VII.2009, Dourbes, 1♂, 1♀, leg. det. coll. MOJ. **Oost-Vlaanderen:** 15.VIII.1909, Gand, 1♀, leg. ?, det. MOJ, coll. RBINS; 30.VIII.1911, Nukerke, 1♀, leg. ?, det. MOJ, coll. RBINS; 3.IX.1911, Gand, 1♀, leg. ?, det. MOJ, coll. RBINS; 25.VIII.1912, Gand, 1♀, leg.?, det. MOJ, coll. RBINS; 24.V.1921, Heusden, 1♂, leg. Goetgebuer M, det. MOJ, coll. RBINS; 15.IV.1924, Vinderhout, 1♀, leg. Goetgebuer M, det. MOJ, coll. RBINS; 10.V.1934, Heusden, 1♂, leg. Goetgebuer M, det. MOJ, coll. RBINS; 9.VIII.1940, Heusden, M, leg. Goetgebuer M, det. MOJ, coll. RBINS; 10.V.1941, St Amandsberg, 1♂, 1♀, leg. Verbeke Jan, det. MOJ, coll. RBINS; 19.IV.1942, Heusden, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 12.V.1942, Schelderode, 1♂, leg. Goetgebuer M, det. MOJ, coll. RBINS; 26.IV.1943, St Amandsberg, 1♂, leg. Verbeke Charles, det. MOJ, coll. RBINS; 29.V.1944, Schelderode, 2♂♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 18.IV.1945, Heusden, 1♀, leg. , det. MOJ, coll. RBINS; 5.X.1949, Melle, 1♀, leg. Verbeke Jan, det. MOJ, coll. RBINS; 26.VI.1980, Destelbergen, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS; 1.V.1981, Sint Martens Latem, 1♀, leg. Grootaert Patrick, det. MOJ, coll. RBINS; 19.IV.2014, Heusden, 1♂, 1♀, leg. det. coll. MOJ; 21.VII.2014, Heusden, 1♂, leg. det. coll. MOJ; 1.V.1900, Bruxelles, 1♂, leg. Jacobs Jean-Charles, det. MOJ, coll. RBINS; 2.VII.2012, Destelbergen - Damvallei, 1?, leg. det. coll. MOJ; 4.V.2013, Destelbergen - Damvallei, 1♂, leg. det. coll. MOJ; 19.IV.2014, Heusden (Destelbergen), 1?, leg. det. coll. MOJ.; 30.VIII.1903; **Brussels Hoofdstedelijk Gewest:** Boitsfort, 1♀, leg.

Guillaume A., det. MOJ, coll. RBINS; 7.V.1904, Boitsfort, 3♂♂, leg. Guillaume A., det. MOJ, coll. RBINS; 7.V.1905, Boitsfort, 6♂♂, 1♀, leg. Guillaume A., det. MOJ, coll. RBINS; 11.V.1939, Boitsfort, 1♀, leg. Goetgebuer M, det. MOJ, coll. RBINS, 9.VI.1951, Bruxelles, M, leg. Collart A., det. MOJ, coll. RBINS, **Vlaams Brabant**: 18.V.1950, Bekkevoord, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 24.VII.1959, Tervuren, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS; 1.VI.1961, Hoeilaart, M, leg. Verbeke Jan, det. MOJ, coll. RBINS; 20.V.2009, Averbode - Vierkensbroek, 1?, leg. van de Meutter, F. det. coll. MOJ; 17.IV.2012, Holsbeek - Dunbergbroek, 1?, leg. van de Meutter, F. det. coll. MOJ; 3.V.2012, Assent - Paepenbroek, 1?, leg. van de Meutter, det. coll. MOJ; 17 V 2012, Assent - Paepenbroek, 1?, leg. van de Meutter, det. coll. MOJ; 31.V.2012, Assent - Paepenbroek, 1?, leg. van de Meutter, Frank, det. coll. MOJ; 20.VII.2012, Holsbeek - Dunbergbroek, 1?, leg. det. coll. MOJ; 3.VIII.2012, Holsbeek - Dunbergbroek, 3?, leg. det. coll. MOJ; 3.IX.2012, Holsbeek - Dunbergbroek, 2?, leg. det. coll. MOJ. **West-Vlaanderen**: 5.IX.1931, De Panne, 1♀, leg. Goetgebuer M, det. MOJ, coll. RBINS; 3.V.1978, Brugge, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS; 16.VII.1979, Snellegem, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS; 19.VIII.1979, Brugge, 1♂, leg. Verbeke Charles, det. MOJ, coll. RBINS; 16.V.1980, Snellegem, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS; 30.V.1981, Loppem, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS, 31.VII.1982; Brugge, 1♂, leg. Verbeke Charles, det. MOJ, coll. RBINS, 16.V.1989, Snellegem, 1♀, leg. Verbeke Charles, det. MOJ, coll. RBINS; 26.VI.2009, Duinbossen Wenduine tot De Haan - Zandpanne (ZP), 1♂, leg. det. coll. MOJ; 30.VI.2012, Oudenburg - Weiden Pompje (WPOB) - Schorreweiden, 1♀, leg. det. coll. MOJ. **Hainaut**: 2.VI.1950, Beloeil, 1♂, leg. Verbeke Jan, det. MOJ, coll. RBINS. **Unknown**: 3.V.1900, 'W D Mis', 1♂, leg. Jacobs Jean-Charles, det. MOJ, coll. RBINS; 24.V.1900, 'La Cambre', 1♂, leg. Jacobs Jean-Charles, det. MOJ, coll. RBINS; 20.VIII.1941, 'Coy', 1♀, leg. Leclercq Marcel, det. MOJ, coll. RBINS.

KEY CHARACTERS. *Norellisoma spinimanum* is a characteristic and common *Norellisoma*. It is one of the few *Norellisoma* whose larval habitat is known: larvae mine in several species of *Rumex*, especially *R. aquaticus* (DISNEY, 1976). These stem mines are easy to detect because the stem becomes red and swollen. Adults typically have a yellow thorax with two dark longitudinal stripes (Figs 13-14). This character makes identification easy, although some variation exists, and both dark-bodied and completely yellow-bodied specimens are known. The wide range of body colour has led to an impressive list of synonyms, although the name *N. spinimanum* is currently unquestioned. *Norellisoma spinimanum* is one of the largest species of *Norellisoma*.



Fig. 13. *Norellisoma spinimanum* male in lateral view.



Fig. 14. *Norellisoma spinimanum* male in dorsolateral view.

OZEROV (2009) provided useful images of the male genitalia, and ŠIFNER (1995) provided drawings of male and female genitalia. This species might be confused with *N. alpestre* (Schiner, 1864) and *N. jeliniki* Šifner 2008, both of which have a yellow thorax. To separate these, ŠIFNER (2008) provided a short summary of characters of these three species (mainly wing venation, male genitalia and the shape of sternites) (Plate 1.)

STATUS IN BELGIUM. *Norellisoma spinimanum* is very common and can be found in a wide variety of habitats, probably because of the ubiquity of the host plant, *Rumex* sp. Adults can be found from April to November, with two distinct peaks, one in May and one in September (Fig. 15).

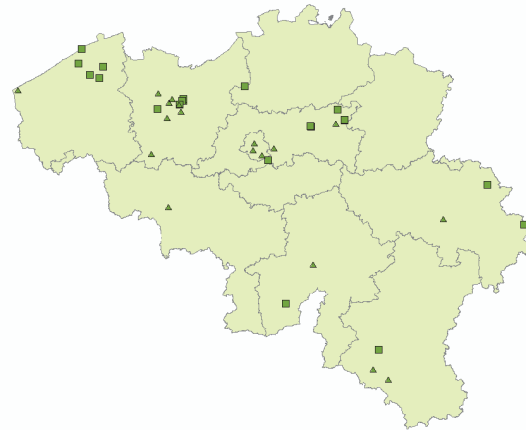


Fig. 15. *Norellisoma spinimanum*, map. ▲ < 1960, ■ > 1960.

DISTRIBUTION. *Norellisoma spinimanum* is the only *Norellisoma* with a Holarctic distribution. It is very common in most European countries: Andorra, Austria, Bosnia-Herzegovina, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Latvia, Macedonia, the Netherlands, Norway, Poland, Romania, Russia (European Russia, West Siberia, East Siberia, Far East), Slovakia, Spain, and Sweden (ŠIFNER, 2008).

Concluding remarks

The author is still searching for specimens of the much expected *N. striolatum* from Belgium; to that end, he would be most willing to examine collected material. Finally, the author would like to note that the photographs published herein received only minor adjustment; besides removal of dust spots, the images were merely sharpened.

Tentative key to known and expected male *Norellisoma* in Belgium

1. Thorax, pleura, legs and coxa yellow (variable character, dark specimens are known). Thorax often with 2 longitudinal dark lines on the DC. Male genitalia as in OZEROV (2009)..... *Norellisoma spinimanum*
 - Thorax always grey to black. Mid- and hind coxae always dark. Male genitalia not as in OZEROV (2009)2
2. Smaller species (≤ 8 mm); if in doubt, follow this step.....3
 - Larger species (≥ 7 mm), similar to the common *N. spinimanum*; if in doubt, go to step 35
3. Arista long-haired, femora mostly yellow but sometimes with dark streaks; lobes of sternite 5 of male always wide and setose, apex of abdomen often yellowish. Thorax often with reddish tinge. Genitalia as in ŠIFNER (2003)..... *Norellisoma nervosum*
 - Arista short- to moderately long-haired, femora always yellow, thorax without reddish tinge; lobes of sternite 5 of male not wide and setose; genitalia not as in ŠIFNER (2003)4
4. Mid-frontal stripe distinct, male sternite 5 in lateral view bifid and large. Hairs on arista longer than 2X the diameter of arista. Male genitalia bifid, as in NELSON & ŠIFNER (2000) *Norellisoma flavicorne*
 - Mid-frontal stripe indistinct, sternite 5 of male straight and small. Hairs on arista much less than 2X the diameter of arista. Male genitalia not bifid, as in OZEROV (2009).....*Norellisoma lituratum*
5. Arista long-haired, femora mostly yellow but sometimes with dark streaks; lobes of sternite 5 of male always wide and setose. Genitalia as in ŠIFNER (2003)..... *Norellisoma nervosum*
 - Arista short- to moderately long-haired, femora always yellow, lobes of sternite 5 of male not wide and setose6
6. Male genitalia as in OZEROV (2009) *Norellisoma armipes*
 - Male genitalia as in OZEROV (2009) *Norellisoma striolatum*

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