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Three new caddisflies for the Belgian fauna : *Holocentropus insignis* Martynov, 1924 ; *Hydroptila tineoides* Dalman, 1819 and *Oxyethira simplex* Ris, 1897 (Trichoptera)

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Abstract

Three caddisflies are reported for the first time from Belgium : *Holocentropus insignis* Martynov, 1924; *Hydroptila tineoides* Dalman, 1819 and *Oxyethira simplex* Ris, 1897. *H. insignis* was caught by sweeping the vegetation in a wet area of the nature reserve Kalmthoutse heide (province Antwerp). *H. tineoides* was captured with a light trap along the lake Étang des Epioux near Florenville (province Luxembourg). *O. simplex* was sampled with a light trap in a peat-moor area of the nature reserve Tourbière de Roumont, Ancienne Troufferies de Libin (province Luxembourg). In addition, two other species should be removed from the Belgian checklist. In earlier publications, one specimen of *Halesus rubricollis* (Pictet, 1834) has been reported from the Hautes Fagnes, however, this is a habitat (peat-moor) rather than a location. As this is an alpine species that occurs nowhere near Belgium, the label was considered unreliable. The identification of *Rhyacophila hirticornis* McLachlan, 1879 could not be confirmed and because this species does not occur near Belgium, this species was removed from the Belgian checklist too.

Keywords : caddisfly, *Halesus rubricollis*, Hydroptilidae, Polycentropodidae, *Rhyacophila hirticornis*.

Samenvatting

Drie schietmotten worden voor de eerste keer in België gemeld : *Holocentropus insignis* Martynov, 1924, *Hydroptila tineoides* Dalman, 1819 en *Oxyethira simplex* Ris, 1897. *H. insignis* werd gevonden tijdens het slepen van de vegetatie in een nat deel van het natuurreservaat Kalmthoutse heide (provincie Antwerpen). *H. tineoides* werd met een lichtval gevangen langs het meer Étang des Epioux bij Florenville (provincie Luxemburg). *O. simplex* werd met een lichtval gevangen in een stuk hoogveen van het natuurreservaat Tourbière de Roumont, Ancienne Troufferies de Libin (provincie Luxemburg). Twee andere soorten moeten worden geschrapt van de Belgische soortenlijst. Eén exemplaar van *Halesus rubricollis* (Pictet, 1834) werd gemeld van de 'Hautes Fagnes', maar dit is eerder een biotoop (hoogveen) dan een locatie. Omdat dit een alpiene soort is die verder niet in de buurt van België voorkomt, werd het etiket als onbetrouwbaar beschouwd. De identificatie van *Rhyacophila hirticornis* McLachlan, 1879 kon niet worden bevestigd en omdat deze soort niet in de buurt van België voorkomt, werd ook deze soort geschrapt van de Belgische soortenlijst.

Résumé

Trois trichoptères sont rapportés pour la première fois de Belgique : *Holocentropus insignis* Martynov, 1924, *Hydroptila tineoides* Dalman, 1819 et *Oxyethira simplex* Ris, 1897. *H. insignis* fut trouvé en

fauchant la végétation dans une zone humide de la réserve naturelle Kalmthoutse heide (province d'Anvers). *H. tineoides* fut capturé à l'aide d'un piège lumineux le long de l'Étang des Epioux à Florenville (province du Luxembourg) et *O. simplex* fut capturé par la même méthode dans la réserve naturelle Tourbière de Roumont, Ancienne Troufferies de Libin (province du Luxembourg). Deux autres trichoptères doivent être écartés de la liste des trichoptères de Belgique. La première espèce étant *Halesus rubricollis* (Pictet, 1834) car un exemplaire était rapporté des Hautes Fagnes, ce qui fait référence à un habitat (tourbières) et non à une localité, et en fait c'est une espèce alpine qui n'est pas présente en, ni à proximité de, Belgique, donc l'étiquette a été considérée comme douteuse. La seconde espèce est *Rhyacophila hirticornis* McLachlan, 1879 dont l'identification n'a pu être confirmée et qui n'est non plus pas présente en, ni à proximité de, Belgique.

Introduction

Most caddisflies are attracted to light just like moths and light trapping can thus be valuable to increase the knowledge about the distribution of Trichoptera in Belgium. Sweeping the vegetation with a net, which is a method commonly used to catch for example ladybirds, can also be a rewarding technique to catch caddisflies, especially along streams, lakes and wetlands. Recently, 205 species were reported in an updated checklist of the Belgian caddisflies (LOCK & GOETHALS, 2012b). However, the records of three new species for the Belgian fauna indicate that there is still a lot to be discovered about the Belgian caddisflies.

Material and methods

For the night catches, a 12V car battery was used in combination with a 40W actinic lamp. A battery has the advantage of being lighter than a generator and in addition, it makes no sounds and it does not smell of petrol. The disadvantage of a battery is that a high pressure mercury lamp (HPL) of for example 125W cannot be used. Although a 40W actinic lamp produces less light, it still attracts a lot of insects : along the border of a lake or river, usually hundreds of caddisflies come to this light. It has the additional advantage that it does not damage the eyes, as can be the case with HPL lamps. A Leuchtturm, which is a big net that is put around the lamp as a kind of lampshade, was used. This setup (Fig. 1) has the advantage that insects sit on the net, where they can be easily watched or captured, instead of flying around. Especially near water surfaces, where midges and mosquitoes are usually abundant, this comes in handy.

Adult caddisflies can be identified with the atlas of MALICKY (2004), which contains drawings of the genitalia of all the European species. A good identification key is currently lacking, but an identification key for the adults of the Benelux is in preparation (TEMPELMAN *et al.*, unpublished data).

Fig. 1. Used equipment for night catches : battery, actinic lamp and Leuchtturm (photograph by David Tempelman).

Results

Holocentropus insignis Martynov, 1924 belongs to the family Polycentropodidae. It is a rather small caddisfly with dark forewings with small bright spots. *H. insignis* closely resembles other species of the genus *Holocentropus*, but it can be recognised on the basis of the genitalia. Male

Fig. 2. Female of *Hydroptila tineoides* Dalman, 1819 (photograph by Koen Lock).

Fig. 3. Female of *Oxyethira simplex* Ris, 1897 (photograph by Koen Lock).

Fig. 4. Tourbière de Roumont on 19.V.2012, near the site where *Oxyethira simplex* Ris, 1897 was captured (photograph by David Tempelman).

genitalia can be distinguished by the gradually rounded dorsal plate and the simple tapering claspers. Female genitalia possess one pair of ventral appendages with a concave upper edge. Three males were captured with a handnet in the nature reserve Kalmthoutse heide (UTM : 31UFS0095). The vegetation consisted of heath, which was standing in shallow water that dries up during summer. The three individuals probably wandered off from more suitable fens, which are not accessible to the public. The species was found on 25.VI.2012 during daytime and no other caddisflies were observed at that time. *H. insignis* is a species from fens, that was known from a few records in the Drenthe province in the Netherlands (HIGLER, 2008), where it was recently rediscovered (TEMPELMAN *et al.*, unpublished data). However, the species has not yet been observed in the Grand-Duchy of Luxembourg, France and the bordering states of Germany (ROBERT, 2001 ; SCHRANKEL *et al.*, 2008 ; COPPA, 2012).

Hydroptila tineoides Dalman, 1819 from the family of the Hydroptilidae is a very small species with dark forewings of 2.5-3 mm that have a bright spot in the middle and uniformly pale antennae (Fig. 2). In contrast to other *Hydroptila* species, the male front femora are covered with black hairs. Male genitalia on each side of segment 9 bear a long thorn dorsally and a dark, downcurved hook ventrally. Female genitalia possess two large setose ventral lobes. One female was captured with a light trap along the lake Étang des Epioux near Florenville (UTM : 31UFR6513) on 27.V.2012. Other species that were captured that night were : *Agapetus delicatulus* McLachlan, 1884 ; *Agapetus ochripes* Curtis, 1834 (Glossosomatidae) ; *Allotrichia pallicornis* (Eaton, 1873) ; *Ithytrichia lamellaris* Eaton, 1873 (Hydroptilidae) ; *Lepidostoma hirtum* (Fabricius, 1775) (Lepidostomatidae) ; *Stenophylax permistus* McLachlan, 1895 (Limnephilidae) ; *Cyrnus flavidus* McLachlan, 1864 ; *Polycentropus irroratus* Curtis, 1835 (Polycentropodidae) and *Notidobia ciliaris* (Linnaeus, 1761) (Sericostomatidae). *H. tineoides* has been observed in two lakes in the Netherlands (HIGLER, 2008) and was also reported from northern France (COPPA, 2012) and the bordering federal states of Germany (ROBERT, 2001).

Oxyethira simplex Ris, 1897 also belongs to the family Hydroptilidae. It is a very small species with very slender dark forewings of 2.5 mm and yellow-brown antennae (Fig. 3). Male genitalia are rounded and setose, not curved inward and without hooks or spines. Female genitalia contain narrow posterior sclerites that converge apically in a bell-shape ; no V-shaped excision is present on the posterior margin of sternite VII and lateral margins of segment VIII+IX are not concave. Two females were sampled with a light trap in a peat-moor area of the nature reserve Tourbière de Roumont, Ancienne Troufferies de Libin (UTM : 31UFR6636) on 18.V.2012. The habitat consisted of a moorland area, with acidic moorland pools as well as a moorland stream, which drains the area.

The dominant vegetation included *Molinia caerulea*, *Carex paniculata* and *Salix cinerea* ; in and bordering the moorland pools, *Sphagnum* species, *Menyanthes trifoliata* and *Eriophorum vaginatum* were found. It was a cold night and the only additional observed species was *Limnephilus auricula* Curtis, 1834 (Limnephilidae). The next day during daytime, also *Parachiona picicornis* (Pictet, 1834) (Limnephilidae) and *Oligotricha striata* (Linnaeus, 1758) (Phryganeidae) were spotted. *O. simplex* has also been reported from three locations in the Netherlands (HIGLER, 2008). However, the species has not yet been reported in the Grand-Duchy of Luxembourg, northern France and the bordering federal states of Germany (ROBERT, 2001 ; SCHRANKEL *et al.*, 2008 ; COPPA, 2012).

One female of *Halesus rubricollis* (Pictet, 1834) is present in the collection of the Gembloux Agricultural University. The label indicates 'Hautes Fagnes, 19.VII.1969' and this record has been mentioned by STROOT (1984, 1985, 1987a) and LOCK & GOETHALS (2012b). As 'Hautes Fagnes' is a habitat (peat-moor) rather than a location, it could not be ascertained that this specimen originated from Belgium. *H. rubricollis* is an alpine species (NEU, personal communication), which has otherwise never been recorded near Belgium and therefore, this species was removed from the Belgian checklist.

Two larvae identified as *Rhyacophila hirticornis* McLachlan, 1879 are present in the collection of the Royal Belgian Institute of Natural Sciences. The material was captured in the river Le Ninglinspo in Nonceveux on 24.IV.1918 and this record was mentioned by STROOT (1984, 1985, 1987a,b) and LOCK & GOETHALS (2012b). However, larvae of *R. hirticornis* and *Rhyacophila philopotamoides* McLachlan, 1879 cannot yet be distinguished (NEU, personal communication). Adults of *R. hirticornis* have only been confirmed from alpine regions, while all reported records of *R. hirticornis* near Belgium turned out to be larvae (NEU, personal communication). It is therefore more likely that the Belgian larvae actually belong to the species *R. philopotamoides*. Therefore, also *R. hirticornis* was removed from the Belgian checklist.

Discussion

The three new species were all known from the Netherlands (HIGLER, 2008), their discovery in Belgium is therefore no big surprise. Of the 182 species that occur in the Netherlands (HIGLER, 2008 ; SANABRIA & LOCK, unpublished data), 16 have not yet been observed in Belgium, however, half of these are probably regionally extinct. 183 caddisflies have been reported for the Grand-Duchy of Luxembourg (SCHRANKEL *et al.*, 2008) and four of these have not yet been found in Belgium. In northern France, there also occur 17 species that have not been reported in Belgium (COPPA, 2012) and in the federal states of Germany bordering Belgium, Rheinland-Pfalz and Nordrhein-Westfalen, even 23 species (ROBERT, 2001). Recently, 12 species have been added to the Belgian fauna (LOCK & GOETHALS, 2010 ; LOCK *et al.*, 2010 ; LOCK & GOETHALS, 2012b ; present study). Although already 206 species have been reported for Belgium, there are thus probably still additional species that can be expected. Flanders has recently been studied intensively, although stagnant waters remain insufficiently sampled (LOCK & GOETHALS, 2012a). However, Wallonia has hardly been investigated during the last two decades and additional species are therefore especially expected in this region. Because caddisflies are known as very good indicators of the water quality (GABRIELS *et al.*, 2010), more data should be collected about their distribution. These data can be gathered by collecting caddisflies during moth catches with light traps and also by sweeping the vegetation with a net along streams, lakes and wetlands. All collected material is very welcome and can be sent to the first author.

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