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Two new additions to the Belgian fauna: *Eristalis obscura* Loew, 1866 and *Orthonevra stackelbergi* Thompson & Torp, 1982 (Diptera:Syrphidae)

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Abstract

This paper describes the first records of *Eristalis obscura* and *Orthonevra stackelbergi* in Belgium. These northern species probably are restricted to the highest parts of the Hautes Fagnes in eastern Belgium.

Keywords: Syrphidae, new Belgian species, Hautes Fagnes

Résumé

Les premières données de *Eristalis obscura* et *Orthonevra stackelbergi* sont mentionnées pour la Belgique. Ces espèces nordiques sont probablement limitées aux parties les plus hautes du massif Ardennais.

Samenvatting

De eerste Belgische vangsten van de noordelijke zweefvliegen *Eristalis obscura* en *Orthonevra stackelbergi* worden beschreven. Beide soorten komen in België waarschijnlijk beperkt voor op de hoogste delen van het Ardeens massief.

Introduction

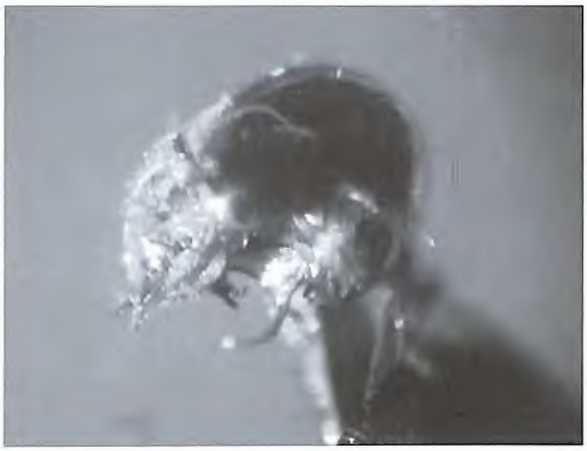
One well-known hot-spot of Syrphidae biodiversity in Belgium is the Hautes Fagnes area in eastern Belgium. Besides comprising large and relatively pristine habitats (coniferous and deciduous forests, fens, marshes, small river valleys), its cold climate for temperate Western-European standards makes it a refugium for more northern and mountainous species. Several of these species have never been observed outside the Hautes Fagnes in Belgium. Examples are *Cheilosia frontalis* LOEW, 1857, *Epistrophe obscuripes* (STROBL, 1910), *Epistrophe leiophtalma* (SCHINER & EGGER, 1853) and *Platycheirus amplus* (CURRAN, 1927). Two other such species may now be added: *Eristalis obscura* LOEW, 1866 and *Orthonevra stackelbergi* THOMPSON & TORP, 1982.

Detailed account of the records

Orthonevra stackelbergi

(1) Sourbrodt, near Russenkreutz, 10.VI.2006, 1 male on *Potentilla erecta*, det., leg. & coll. G. Van de Weyer (2) Eupen, Forsterei Hahneister, 23.VI.2010, 1 male on *Viburnum opulus*, det., leg. & coll. F. Van de Meutter

On 23 June 2010 FVdM visited the Hautes Fagnes area in seareh of Syrphidae. Flowers were relatively scarce that day, but some flowering *Viburnum opulus* were found next to the Forsterei Hahneister, located along the road Eupen-Monschau at an altitude of 590 m ASL. The immediate vicinity of the Forsterei Hahneister is dominated by *Picea* forest, with some broad lanes bordered by grassy verges with sparse flowers (mainly *Ranunculus*). Small ditches along the roads have running water most of the year. Less than 500 meters eastwards starts the large open plain of the Brack Venn. The *Viburnum* tree attracted good numbers of Syrphidae including several *Brachyopa* species (*B. bicolor*, *B. testacea*, *B. vittata*), a female *Epistrophe obscuripes*, several *Eriozona syrphoides* and 15+ *Chrysogaster virescens*. Among the latter species at a height of 2 meters,



Figs 1: Male genitalia of *O. Stackelbergi* 23.VI.2010, Eupen. Note the gradually pointed surstyli.

Figs 2: General habitus of male *E. obscura*, 23.VI.2010, Jalhay.

a smaller, shinier specimen was seen feeding on the flowers and caught with a hand net. This specimen turned out to be an *Orthonevra* species that later was identified as *O. stackelbergi.*

After this find also an older record became known. A male *O. stackelbergi* had been caught on flowering *Potentilla erecta* in a transition zone between the *Picea* forest and the fagnes at Sourbrodt (close to the car park near the Russenkreutz) at 570 m ASL (det., leg. & coll. G. Van de Weyer). This record was erroneously mentioned by VAN DE MEUTTER (2008) as referring to *O. intermedia*.

Eristalis obscura

(1) *Jalhay, Belle Croix, 23.VI.2010, 1 male on* Viburnum opulus, *det., leg. & coll. F. Van de Meutter.*

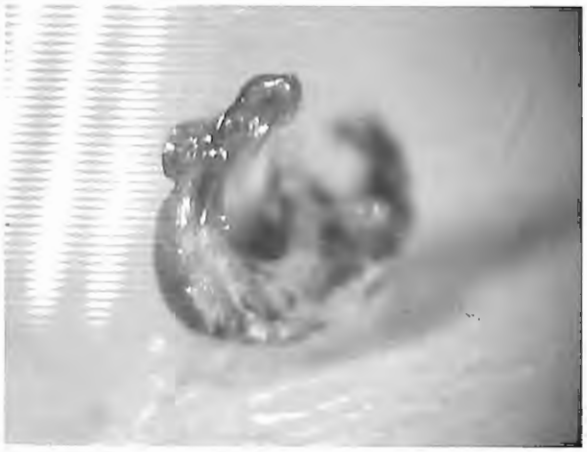
On 23 June 2010 FVdM visited the Belle Croix at Jalhay. This area is located at 600 m ASL and forms the upper ridge of the West flank of the central plateau of the Hautes Fagnes (Grande Fagne). This place is well-known for its high Syrphidae densities as the road margins (of the N672) abound in flowering bushes and herbs that attract syrphids from the large surroundings where flowers are scarce (grassy fagnes, *Picea* forest). With the hope of ever finding an *E. obscura* in Belgium, FVdM collected *E. nemorum* (Linnaeus, 1758) alike syrphids on a flowering *Viburnum opulus*. Later inspection at home revealed that one of them was a male *E. obscura*.

Recognition

Using the key for Belgian Syrphidae by VERLINDEN (1991, 1994) *O. stackelbergi* does key out with *O. intermedia* LUNDBECK, 1916. In fact, both species are extremely similar, and males may only be distinguished by use of the genitalia. *O. stackelbergi* is included in the keys of VAN VEEN (2004) and BARTSCH (2009) who portrays the genitalia of both *O. intermedia* and *O. stackelbergi*. BARTSCH (2009) in addition also he provides some characteristics to distinguish females of both species. Although being very similar in general appearance, *O. intermedia* and *O. stackelbergi* have structurally very different

male genitalia: the surstyli of *O. intermedia* are blunter and grow broad rapidly starting from the tip, but then show a remarkable notch halfway where the width suddenly almost halves again. The surstyli of *O. stackelbergi* are more pointed, more slender and only gradually change in width (no notch, See Fig. 1).

E. obscura also is not included in the key of VERLINDEN (1991, 1994). *Male E. obscura* are very similar to *E. nemorum* (LINNAEUS, 1758) (=*E. interrupta* (PODA, 1761)) in general appearance (Fig. 2) and may key out there (*E. obscura* has a relatively short pterostigma as well). Female *E. obscura* are most akin to *E. picea* (FALLÉN, 1817) or *E. rupium* FABRICIUS, 1805. Males are only reliably identified by their genitalia: *E. obscura* has broad, blunt paramere ends (Fig. 3), differentiating it from *E. picea* and *E. rupium*. *E. nemorum* has similar parameres shape, yet, the surstyli of *E. nemorum* have an elongated side lobe whereas *E. obscura* has triangular-shaped surstyli (Fig. 4). These features are best illustrated in BARTSCH (2009). An easier clue for identification of males is given by SPEIGHT (2010): the colour of the hairs on the posterolateral side of the fore femora is yellowish in *E. nemorum* and black in *E. obscura*. This characteristic appears to work well for differentiating Belgian *E. nemorum* and *E. obscura*.



Figs 3: Parameres of *E. obscura*, 23.VI.2010, Jalhay.

Fig. 4: Surstyli of *E. obscura*, 23.VI.2010, Jalhay.

Discussion

Eristalis obscura and *Orthonevra stackelbergi* are typical exponents of the northern European fauna. According to current knowledge *O. stackelbergi* is restricted to Scandinavia, northern Poland, the Baltic states and European Russia reaching as far east as the Pacific coast. The most southerly records in Western-Europe come from eastern Denmark (SPEIGHT 2010). The current records in Belgium extend the southern range margin of *O. stackelbergi* with more than 600 km. *E. obscura* has a similar distribution, but reaches south as far as South-West Germany and occurs in the Nearctic as well (HIPPA *et al.* 2009).

The habitat of *O. stackelbergi* is described by SPEIGHT (2010) as "wetland/forest, wet clearings/open areas in deciduous forest and mixed boreal forest", which resembles the situations where *O. stackelbergi* was found in the Hautes Fagnes. Remarkable is that BARTSCH (2009) among the few flower species mentioned to be visited by *O. stackelbergi* also mentions *Viburnum opulus*. Possibly, *V. opulus* may be the main bush species still flowering late in the season when *O. stackelbergi* is on the wing (June-July). *Potentilla erecta* is for the first time mentioned as a flower visited by this species. *E. obscura* is said to occur along freshwater wetland (fens, marshes, floodplain lakes). No fens or pools are found close to the location of discovery at Jalhay, however, many small rivulets and

muddy situations may be found here and there in the nearby fagnes that may occasionally provide good habitat for *Eristalis* larvae.

The current records of *O. stackelbergi* come from both the north and south side of the Grande Fagne – the highest, central part of the Hautes Fagnes. Since much habitat similar to that where *O. stackelbergi* was found still remains around the Grande Fagne, and in other parts of the Hautes Fagnes, *O. stackelbergi* may occur more widespread over the area, although the current records suggest it may be restricted to the high plateau above 550 m ASL. From the single record of *E. obscura* it is difficult to guess if and where it may be found. Anyway, much suitable habitat remains (even more suitable than where it was found now) and it will be definitely worth looking for this species in the large surroundings.

The finding of two new Syrphidae species in what Verlinden called "a thoroughly researched area" (the Hautes Fagnes, VERLINDEN & DECLEER 1987) may seem surprising. Recent colonization seems improbable since extant populations we currently know of are (very) distant (see higher), suggesting these species must have persisted here unnoticed. This situation reminds that of *O. intermedia* in Britain: as with *O. stackelbergi* in Belgium, the species was recently discovered and, in contrast to other newcomers (migrants, recent splits), it is believed that *O. intermedia* was simply long overlooked (DRAKE, 2006). Their small size, inconspicuous behaviour and affinity with habitat that is difficult to access may explain why their presence was revealed not before now. For *E. obscura* the situation is somewhat different. There has been considerable confusion on the identity of this species. It was first described as *E. vitripennis var. pseudorupium* and later named *E. pseudorupium*. Only recently, HIPPA *et al.* (2009) revealed the synonymy of this species with the Nearctic species *E. obscura*. In addition it is very difficult to separate from other common *Eristalis* in the field and thus easily overlooked. The catch of *E. obscura* after checking only a handful of *E. nemorum* from the Hautes Fagnes may have been a "lucky shot", or may indicate that the species is not that rare in the area. Future investigations will have to show the actual status of this species here.

Eristalis obscura and O. stackelbergi may be ice-age relicts that now persist at the highest, thus coldest parts of the Ardennes mountain ridge. Therefore these species are extremely vulnerable to a warming climate: little scope is left for an altitudinal shift to a colder climate. In this respect, they may be suitable indicator species of the impact of further climate change on the Belgian fauna.

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