Bull. Soc. Nat. luxemb. 102 (2001) p. 83-86

Helophorus discrepans Rey, 1885 recently discovered in Luxembourg and in north-eastern France

by

Raoul Gerend [1]) & Henry Callot [2])

Abstract: *Helophorus discrepans* Rey, 1885, a seemingly rare helophorid water beetle, has been discovered for the first time in the Grand Duchy of Luxembourg and in two *départements* of north-eastern France in 1998 and 1999/2000 respectively. The sampling sites and their coleopteran assemblages are described.

Résumé: *Helophorus discrepans* Rey, 1885, un coléoptère aquatique à distribution mal connue en France, est signalé pour la première fois du grand-duché de Luxembourg en 1998 et de deux *départements* du nord-est de l'hexagone en 1999/2000. Les milieux dans lesquels l'espèce a été découverte sont présentés et la faune lui associée est décrite.

1. Introduction

Helophorus discrepans is very similar externally to the widespread and common *Helophorus granularis* (Linnaeus, 1761) from which it can be reliably distinguished through its characteristic aedeagus (Angus 1992). Looking through species lists and catalogues one is immediately struck by how few if any records of this species exist from western and central Europe. So far there are no records at all from Germany; the species is not mentioned in the recently published catalogues (Köhler & Klausnitzer 1998, Köhler 2000). Considering the rather wide distribution of *Helophorus discrepans* from the mountains of northern Spain to the Urals and further south to Transcaucasia and Iran in the east and Morocco in the west (Angus 1992), one wonders whether this species is genuinely rare or just merely overlooked by collectors used to dealing with the ubiquitous sibling *Helophorus granularis*. Although Angus (op. cit.) mentions many mountainous areas (Pyrenees, Auvergne, Alps, Carpathians, etc.), the species is not restricted to higher elevations as he found it in the vicinity of St. Petersburg, and Bameul (in litt.) quotes records for French lowland-*départements* such as Gironde, Dordogne and Seine-et-Oise. Another French locality given by Sainte-Claire Deville (1935), Tarbes, is in the Hautes-Pyrénées. The species is not known from the Netherlands but it has been found quite recently in south-eastern Belgium (Drost 1991) in the upper part of the Semois valley.

In February 1998 the first author captured a single male of *H. discrepans* in south-western Luxembourg. Another specimen later identified by the second author was

[1]) 35 rue de Hellange, L-3487 Dudelange, Luxembourg (raoul.gerend@ci.educ.lu).

[2]) Faculté de Chimie, 1 rue Blaise Pascal, F-67008 Strasbourg Cedex, France (callot@chimie.u-strasbg.fr).

taken by G. Jacquemin (University of Nancy) in Lorraine in June 1999 soon followed by new records from the *département* Bas-Rhin in March and April 2000 (leg. Callot). Finally one more male specimen was found in May 2000 (leg. Gerend) in eastern Lorraine.

The aim of this note is to give the exact localities for these new records along with a description of the sampling sites and the associated coleopteran fauna.

2. Results

Helophorus discrepans has been recorded from the following localities:

France, *département* Meurthe-et-Moselle (54), Dombasle-sur-Meurthe, Prés de la Raye, altitude 205 m a.s.l., small saline pool not far from the river Meurthe on open industrial wasteland, leg. Jacquemin, 24.06.1999 (one male); along with *Helophorus obscurus* Mulsant, 1844 and *H. griseus* Herbst, 1793. Also associated were *Enochrus bicolor* (F., 1792) and *E. halophilus* (Bedel, 1878).

France, *département* Bas-Rhin (67), Herbitzheim,1 km southwest of village, close to road Herbitzheim-Sarralbe on alluvial deposits of the Sarre river; 210 m a.s.l., UTM: 5430,2 x 358,5; small pool on wet pasture with gramineous vegetation and rushes; leg. Callot, 11.03.2000 (one male), 01.04.2000 (4 females) along with *Helophorus pumilio* Erichson, 1837; *H. asperatus* Rey, 1885, *H. granularis* (L., 1761), *H. minutus* F., 1775 and *H. obscurus* Mulsant, 1844.

France, *département* Bas-Rhin (67), Herbitzheim, Schandelfeld; paddle between two fields on alluvial deposits near Sarre river; 210 m a.s.l.; UTM: 5430,5 x 359,2; leg. Callot 01.04.2000 (one male) along with one *H. granularis* (L.) and two *H. obscurus* Muls.

France, *département* Meurthe-et-Moselle (54), Saint-Clément, southeast of Gros Hachot, floodplain of the river Meurthe; 235 m a.s.l.; elongated pool in secondary channel on sediment bank with seeping water, vegetation of algae mats and thinly growing helophytes; leg. Gerend, 01.05.2000 (one male) along with *Helophorus grandis* Illiger, 1798, *Laccobius striatulus* (F., 1801), *Hydrochus nitidicollis* Mulsant, 1844, *Limnebius nitidus* (Marsham, 1802), *Hydraena palustris* Erichson, 1837, *Nebrioporus canaliculatus* (Lacordaire, 1835), *Anacaena bipustulata* (Marsham, 1802), *Anacaena lutescens* (Stephens, 1829), *Dryops luridus* (Erichson, 1847), *Helochares lividus* (Forster, 1771), *H. obscurus* (Müller, 1776) and *Ochthebius minimus* (F., 1792).

Luxembourg, Gutland, Schifflange, 800 m east of Dumontshaff, floodplain of the river Alzette; 277 m a.s.l.; eutrophic ditch in open landscape (meadows) with very slightly flowing well mineralized (1107 µS/cm conductivity on 26.02.1998, 1155 µS/cm and pH 7,74 on 11.04.00) water and a vegetation of *Phalaris arundinacea*, *Caltha palustris* and *Glyceria maxima* over muddy bottom; leg. Gerend 26.02.1998 (one male) along with, *Hygrotus impressopunctatus* (Schaller, 1783), *Hydroporus planus* (F., 1781), *Laccophilus minutus* (L., 1758), *Ochthebius minimus* (F., 1792), *Helophorus aequalis* Thomson, 1868, *H. grandis* Ill., *H. strigifrons* Thomson, 1868, *H. pumilio* Er., *H. granularis* (L.), *H. minutus* F., *H. brevipalpis* Bedel, 1881, *Hydrobius fuscipes* (L., 1758), *Laccobius sinuatus* Motschulsky, 1849, *Anacaena limbata* (F., 1792) and *Dryops griseus* (Erichson, 1847).

3. Discussion

So far all the recently discovered localities are situated on alluvial floodplains in open agricultural countryside. They are located on the north-eastern fringe of the Bassin Parisien on heavy clay or marl soils at rather low elevations (205-277 m a.s.l.), the next mountainous areas being the Vosges and Ardennes in the east and north respectively. So far *Helophorus discrepans* is not known from any of these systems. Most authors refer to *Helophorus discrepans* as a species of higher elevations, especially in the western part of its area (Hansen 1987), associating it with pools left by melting snow (Angus 1992). There are no indications about the abundance of this species at the sampling sites in the available literature. However, the first author took a good sample of *Helophorus discrepans*, including many males, in the Spanish Pyrenees at an elevation of ca. 1700 m a.s.l. in 1994. The sampling site was a small road-side ditch filled with spring water. *Helophorus discrepans* was the commonest water beetle there along with *Limnebius truncatellus*, a characteristic species of cold spring environments. Although no hasty generalization should be made from a single observation, it could none the less be that *Helophorus discrepans* is in fact a montane species, as suggested by most authors, with isolated specimens being found at lower altitude. Whether these are members of small but established lowland populations or mere errants found by chance, cannot be decided at the moment. *Helophorus discrepans* has been found in quite different faunal assemblages but always with a range of other, mostly common species of the genus, i.e., *H. obscurus*, *H. minimus*, *H. granularis*, *H. strigifrons* and *H. pumilio*. The other associated *Helophorus* species, i.e., *H. griseus*, *H. brevipalpis* and especially *H. asperatus*, are less frequently encountered in northeastern France and in Luxembourg. The fauna of the gravel pool in the bed of river Meurthe is quite different from that of the other sites as it is made up to a large extent of more or less thermophilous backwater and gravel pit species like *Nebrioporus canaliculatus, Limnebius nitidus* and *Hydrochus nitidicollis*. Very interesting is also the cooccurence of *H. discrepans* with the halophilous *Enochrus bicolor* and *E. halophilus* at the inland saline waters of Dombasle-sur-Meurthe.

We would like to stress that despite great sampling efforts by the second author and several thousand specimens of *Helophorus* examined, up to now not a single *H. discrepans* could be found east of the Vosges ridge in the floodplain of the Rhine in Alsace (Callot in press). The two localities near Herbitzheim, though politically a part of Alsace and known customarily as Alsace bossue, belong in fact to the Plateau Lorrain. This region has been paid much less attention to by the second author than the well-studied Alsatian plain and nevertheless produced a species not found there. This could be coincidence but we think that climatic factors might be responsible for this absence. In fact, the regions west of the Vosges mountains are relatively colder and wetter than the wine-producing Rhine plain and should thus better suit the requirements of a montane species.

So far *H. discrepans* has not been recorded during the many sampling campaigns which the first author carried out in other parts of Lorraine and which focused on small pools in the open farmland of the *départements* Meuse and Moselle. All the recently discovered localities are characterized by nutrient-rich and even saline waters with high conductivity levels and an often gramineous-dominated vegetation (*Phalaris*, *Glyceria*) in alluvial environments. We think that *Helophorus discrepans* will be discovered in further similar places in this area and that entomologists studying water beetles should carefully examine any *Helophorus granularis* and even *H. minutus* to make sure not to miss the odd *H. discrepans* that might be among them.

Acknowledgements

The authors are particularly indebted to R. B. Angus (UK) for kindly checking the identification of the specimens submitted to him. We also wish to thank C. Braunert (Luxembourg) for reading the final version of this note and the useful comments he made on it.

References

Angus, R., 1992. - Insecta, Coleoptera, Hydrophilidae, Helophorinae. - In: Süßwasserfauna von Mitteleuropa, vol. 20/10-2 (Schwoerbel, J. & P. Zwick, eds.). Gustav Fischer Verlag, Stuttgart, Jena, New York, 144 pp.

Callot, H., in press. - Catalogue et Atlas des Coléoptères d'Alsace. Hydraenidae, Spercheidae, Hydrophilidae, Hydrochidae, Liodidae, Scydmaenidae, Ptiliidae. - Société Alsacienne d'Entomologie, Musée Zoologique de l'Université et de la Ville de Strasbourg.

Drost, M. B. P., 1991. - *Helophorus discrepans* Rey, nieuw voor België (Coleoptera: Hydrophilidae). - Phegea 19 (4): 137-138.

Hansen, M., 1987. - The Hydrophiloidea (Coleoptera) of Fennoscandia and Denmark. - Fauna Entomologica Scandinavica, vol. 18: 1-254.

Köhler, F. & B. Klausnitzer (eds.), 1998. - Verzeichnis der Käfer Deutschlands. - Entomologische Nachrichten und Berichte (Dresden), Beih. 4: 1-185.

Köhler, F., 2000. - Erster Nachtrag zum "Verzeichnis der Käfer Deutschlands".- Entomologische Nachrichten und Berichte (Dresden), 44, 2000/1.

Sainte-Claire Deville, J., 1935. - Catalogue raisonné des coléoptères de France. - L'Abeille 36 (2): 161-264.