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Faunistics of the Dolichopodid fauna (Diptera: Dolichopodidae) of the Voeren region (Belgium) with new records for species for special faunistic interest

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Abstract

The subregion of Voeren, an enclave of the Flemish province of Limburg in the Wallon province of Liège, was sampled for long-legged flies (Dolichopodidae, Diptera) for the first time in 2003. Fifteen sites in both ancient forests, naturally afforested plots and plantations were investigated with Malaise traps, white pan traps and pitfall traps from April until October. The total yield comprised 26.268 specimens of at least 62 species, with four species accounting for 85.6% of the specimens. Besides 15 rare, 2 vulnerable and 2 insufficiently known species, *Neurigona pallida* was rediscovered which had previously been considered extinct in Flanders. *Hercostomus vivax* and *Neurigona erichsoni* are recorded for the first time in Flanders, and *Hercostomus argentifrons* and *Medetera unisetosa* are recorded for the first time in Belgium. Data on the distribution and ecology of 17 species of special faunistic interest are given, including all new records for Flanders since POLLET (2000). Factors explaining the estimated rarity of these species are discussed.

Key words: Dolichopodidae, Voeren, Limburg, Belgium, faunistics, ecology, distribution, Red Data Book.

Samenvatting

De deelregio Voeren als enclave van de Vlaamse provincie Limburg in de Waalse province Luik werd in 2003 voor het eerst onderzocht op slankpootvliegen (Dolichopodidae, Diptera). Van april tot oktober werden vijftien plaatsen in zowel oude bossen, natuurlijk verboste habitats en aanplantingen bemonsterd met behulp van Malaisevallen, witte watervallen en bodemvallen. In totaal werden 26.268 exemplaren verzameld, behorend tot tenminste 62 soorten. Vier soorten vertegenwoordigden 85.6% van de totale vangstopbrengst. Naast 15 zeldzame, 2 bedreigde en 2 onvoldoende gekende soorten, werd ook *Neurigona pallida* – die tot hier toe als uitgestorven voor Vlaanderen werd beschouwd – opnieuw ontdekt. *Hercostomus vivax* en *Neurigona erichsoni* werden voor het eerst in Vlaanderen vastgesteld, terwijl *Hercostomus argentifrons* en *Medetera unisetosa* als nieuwe soorten aan de nationale soortenlijst kunnen worden toegevoegd. Gegevens over de verspreiding en de ecologie van 17 faunistisch interessante soorten werden in deze bijdrage opgenomen, inclusief alle nieuwe vangsten sinds POLLET (2000). Factoren die de vastgestelde zeldzaamheid van deze soorten beïnvloeden, worden besproken.

Sleutelwoorden: Dolichopodidae, Voeren, Limburg, Belgium, faunistiek, ecologie, verspreiding, Rode lijst

Introduction

Large-scale surveys on Diptera in general, and on Empidoidea in particular, in Belgium were initiated by the department of Entomology of the KBIN in the early 80'ies. During the 90'ies inventories were focused mainly on Flanders which resulted in a fair coverage of its surface. As a result, Dolichopodidae were recorded from about 40% of all UTM 5 km squares in Flanders (POLLET, 2000). However, sampling efforts appeared strongly biased among provinces with Limburg the least sampled (33.3%) as compared to Oost-Vlaanderen (44.3%), Vlaams Brabant (45.5%), Antwerpen (53.1%) and West-Vlaanderen (58.2%). The subregion of Voeren (see Fig. 1) – as an enclave of the province Limburg within the boundaries of the Wallon province of Liège – had not been sampled at all at that point.

During 2003 a project [AMINAL/B&G/30/2002] was started by the Flemish Administration of Nature and Environment to study the (re)colonization potentials of invertebrate faunas during afforestation processes. Both ancient forests, spontaneous afforestations as well as plantations were included in the sampling program that was conducted in the Voeren subregion of the province Limburg. In the present contribution, faunistics are presented of the Dolichopodidae that were established during this inventory, whereas results on the impact of the forest developmental stage on the dolichopodid faunas will be treated in a separate paper.

Material and methods

A total of 15 sites (site VOER01-15) were investigated using one Malaise trap, 3 pitfall traps (9.5 cm, depth 9 cm) and 3 white pan traps (rectangular – 17 x 10 cm, depth 5 cm) in 11 sites. In sites VOER06 and VOER13-15 on the other hand, only 3 pitfall traps were installed. Pitfall and pan traps were placed in one row with internal distances of 3-5 m. They were filled with 10% formaline (or about 3.5% formaldehyde) solution and detergent, whereas 70% alcohol solution was used in the collecting jars of the Malaise traps. Traps were in operation between 2 April and 8 October 2003 and were emptied 12 times, usually at fortnightly intervals. Dolichopodid specimens were sorted out by the second author and subsequently identified by the senior author. Detailed information on

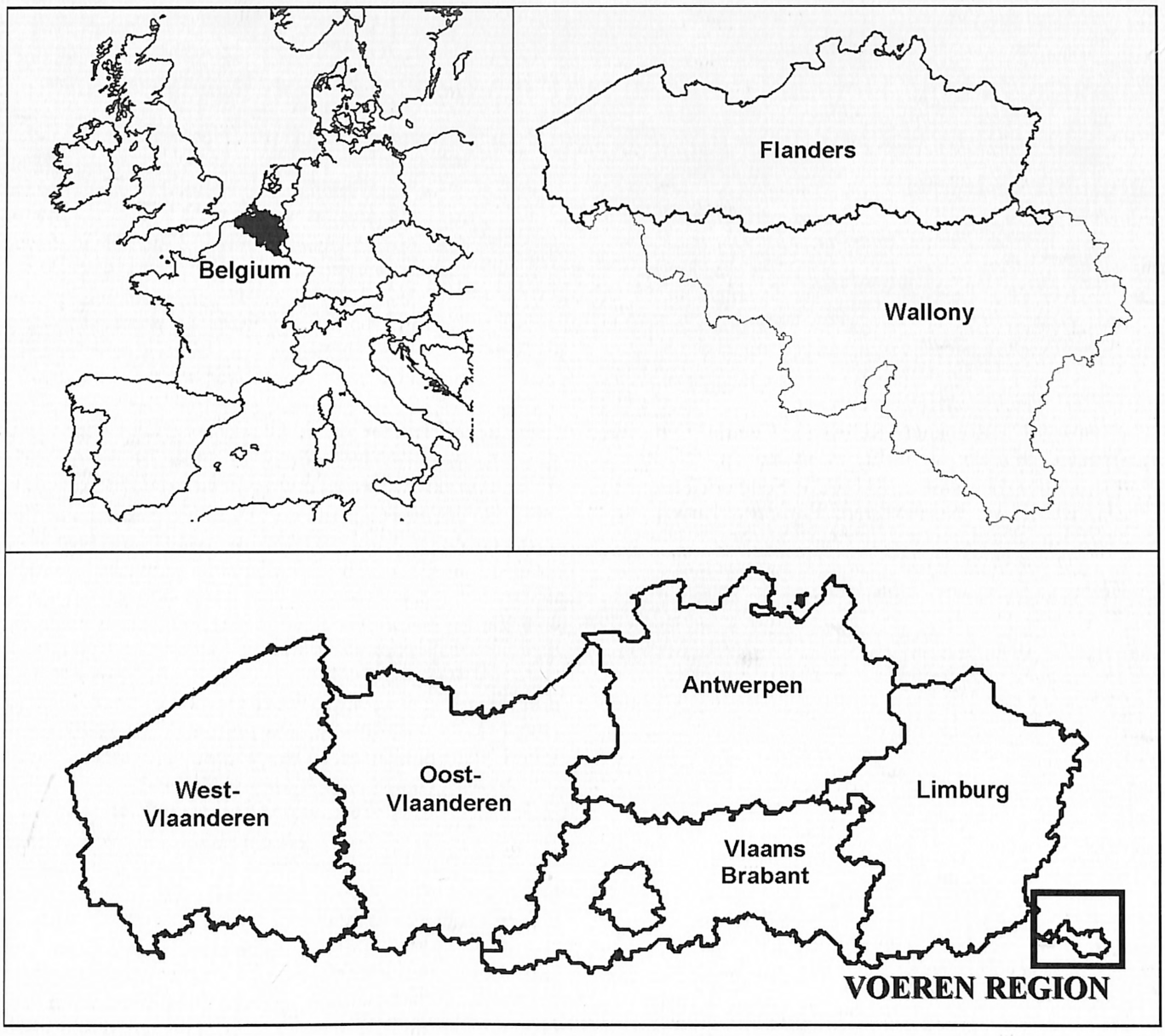

Fig. 1 — Location of the subregion Voeren (prov. Limburg) in Belgium

the sampling strategy and the recorded environmental variables is given in DEKONINCK *et al.* (2005).

For all species, estimates of rarity and recent decline were retrieved from POLLET (2000). For species of special faunistic interest, three data sources were consulted to present up-to-date information on their distribution and ecology: (i) the Fauna Europaea on-line database (http://www.faunaeur.org/) with respect to their distribution in Europe (POLLET, 2004); (ii) the documented Red List of Dolichopodidae of Flanders and associated databases (POLLET, 2000) with Belgian distributional records from 1850-1997 (further indicated as "Distribution in Belgium"), and (iii) an unpublished database with identification results of approx. 250.000 specimens collected in Belgium mainly between 1997 and 2004 (further indicated as "New records").

Data on the distribution of the species in Europe were retrieved from the Palaearctic catalog (NEGROBOV, 1991) and subsequent publications. In the country list of each species, references are only given for post-1982 (the cut-off year for Negrobov's record gathering) and other records, not included in his catalog. Doubtful records are indicated by a question mark. Non-European regions are separated from European records by a semicolon.

New records for Flanders are given in the following format: PROVINCE: locality, toponym [= name of site or area], sampling date/period, no. males no. females, sampling method, collector. Records from Voeren are listed as follows: locality, toponym [= name of forest] (sampling site code), sampling period, no. males, no. females, sampling method. Particular information that applies to more than one record is mentioned at the end of these records, if appropriate, preceded by "all". All specimens of the Voeren sampling campaign were collected by the second author (Wouter Dekoninck) and all

dolichopodid specimens listed are stored in the personal collections of the senior author (Marc Pollet) unlike otherwise mentioned.

List of abbreviations

Countries: AT: Austria; BA: Bosnia and Herzegovina; BE: Belgium; BG: Bulgaria; BY: Belarus; CH: Switzerland; CY: Cyprus; CZ: Czech Republic; DE: Germany; DK: Denmark; EE: Estonia; ES: Spain; FI: Finland; FR: France; GB: Great Britain; GR: Greece; GR-AEG: North Aegean Islands (Greece); HR: Croatia; HU: Hungary; IE: Ireland; IT: Italy; LU: Luxembourg; MK: the former Yugoslav Republic of Macedonia; NL: The Netherlands; NO: Norway; PL: Poland; PT-AZO: Azores (Portugal); RO: Romania; RU-RUC: Central European Russia; RU-RUE: Eastern European Russia; RU-RUN: Northern European Russia; RU-RUS: Southern European Russia; RU-RUW: Northwestern European Russia; SE: Sweden; SI: Slovenia; SK: Slovakia; UA: Ukraine; YU: Yugoslavia (Serbia, Kosovo, Voivodina, Montenegro); EPA: Eastern Palaearctic; NEA: Nearctic; NRE: Near East; NAF: North Africa. See http://www.faunaeur.org for more information about the delimitation of the above regions.

Collecting methods: HC: collected by hand; MT: Malaise trap; OBS: observation; PT: pitfall trap; SW: collected by sweepnet; WiT: window trap; WPT: white pitfall trap; WWT: white pan trap; YWT: yellow pan trap.

Others: UA: University of Antwerp, N.R.: Nature Reserve.

Results

In general

Table 1 gives a summary of the collected species with information on their abundance, Red List status and habitat preference.

During this 2003 sampling campaign, 26.268 specimens of at least 62 species were collected. A relatively large number of females of the genera *Chrysotus* and, to a lesser extent, of *Medetera*, *Teuchophorus* and *Rhaphium* could not be identified with absolute certainty. Two *Medetera* males definitely belong to species other than listed under "Identified species" but their identity remains unclear.

The fauna established in the Voeren region represents 21.0% of the Belgian, and 23.8% of the Flemish fauna. This rather low number is only in part explained by the fact that only forest habitats – that are usually rather species poor – were involved in this survey. Indeed, most *Achalcus*, *Campsicnemus* and *Chrysotus* species and a considerable number of *Dolichopus* and *Hercostomus* species prefer open habitats. A Malaise trap in a humid woodland site in Wijnendalebos (Torhout-Ichtegem, West-Vlaanderen, Belgium) yielded 42 species (POLLET & GROOTAERT, 1987), in contrast with the average 20 species that were collected per site in the Voeren region, ranging from 12 (site VOER10) to 29 (site VOER04). Most probably the observed low species diversity is also related to the rather low pH of the soil (min. 4.71, max. 6.12) in the sampling sites, especially as compared to forests in the more western sandy loamy Houtland region.

Four species represent together 22.178 or 85.6% of the collected specimens, including 2 eurytopic forest species (*Sciapus platypterus*: n = 4.107, 15.9%; *Dolichopus popularis*: n = 3.886, 15.0%), one eurytopic species with a preference for sunny, dry habitats (*Chrysotus gramineus*: n = 3.989, 15.4%) and one eurytopic species with a strong affinity for humid forests (*Dolichopus ungulatus*: n = 10.196, 39.4%). The remaining 3.723 specimens belong to no less than 58 species. The proportion of the most abundant species per site varies between 36.4% (site VOER04, *Chrysotus gramineus*) and 94.1% (site VOER13, *Dolichopus ungulatus*).

Among the 62 species, 38 or 61.3% are considered at low risk at present which implies that they have recently (1981-1997; see POLLET, 2004) been recorded from at least 10% of the sampled UTM 5 km squares in Flanders and that they show a maximum decline since 1981 of 25%. Further, 15 rare, 2 vulnerable species and one species that was supposedly extinct in Flanders have been collected, along with two species with an insufficiently known ecology. The survey also yielded two new species for Flanders and two new species for Belgium. On specimen level, non-threatened (thus common) species represent over 98% of the fauna (see Fig. 2), but some rare species like *Chrysotimus flaviventris* and *Argyra ilonae* appeared fairly abundant too.

Species of special faunistic interest

Threatened (Red List) species, insufficiently known species, new species and rare species are discussed below.

– *Argyra grata* LOEW, 1857

Red List status in Flanders: 3 – Vulnerable. Near threatened in GB (FALK & CROSSLEY, 2005). Not threatened in DE (BELLSTEDT & WAGNER, 1998).

Distribution in Europe: AT, BE, CH, CZ, DE, ES, FR, GB, HU, NL, PL, RO, RU-RUC, ?RU-RUE, RU-RUS, RU-RUW, SK (OLEJNICEK, 1997), UA; NAF (PARVU, 1984).

Distribution in Belgium: this species shows an equal distribution in Wallony (southern Belgium) and Flanders (northern Belgium). Old Flemish records (prior to 1981) mainly originated from the Brussels region (Forêt de Soignes – Zoniënwoud). More recent localities (1981-1997) are mainly situated in West- and Oost-Vlaanderen, and Limburg with the "Mandelhoek" nature reserve as the northwesternmost locality.

New records: ANTWERPEN: Ranst, Muizenbos, 1 ♀, 26.vii.2001, WWT; Ranst, Zevenbergen, 1 ♀, 26.vii.2001, YWT, all leg. UA; LIMBURG: Wimmertingen, Oude Mombeek, 1 ♀, 17.vii-5.viii.1997, YWT, leg. KBIN;

Table 1 — List of Dolichopodid species from 15 sampling sites in the subregion of Voeren (prov. Limburg, Belgium) as collected with Malaise traps, white pan traps and pitfall traps during 2003, with information on habitat affinity, Red List category and the number of specimens gathered. Red List category according to POLLET (2000), except for "NvB" and "NvV".

Dolichopodid species	habitat affinity	Red List category	no specimens
Argyra argentina (Meigen, 1824)	marshlands	vZ - Fairly rare	1
Argyra diaphana (Fabricius, 1775)	forests	N - Safe/Low risk	3
Argyra grata Loew, 1857b	forests	3 - Vulnerable	73
Argyra ilonae Gosseries, 1988	forests	Z - Rare	86
Argyra leucocephala (Meigen, 1824)	eurytopic	N - Safe/Low risk	1
Campsicnemus curvipes (Fallén, 1823)	eurytopic	N - Safe/Low risk	3
Campsicnemus scambus (Fallén, 1823)	eurytopic	N - Safe/Low risk	1
Chrysotimus flaviventris (von Roser, 1840)	forests	Z - Rare	111
Chrysotimus molliculus (Fallén, 1823)	eurytopic	N - Safe/Low risk	93
Chrysotus blepharosceles Kowarz, 1874	grasslands	N - Safe/Low risk	681
Chrysotus cilipes Meigen, 1824	grasslands	N - Safe/Low risk	26
Chrysotus femoratus Zetterstedt, 1843	heathlands & MOORS	N - Safe/Low risk	1
Chrysotus gramineus (Fallén, 1823)	eurytopic	N - Safe/Low risk	3989
Chrysotus neglectus (Wiedemann, 1817)	eurytopic	N - Safe/Low risk	59
Dolichophorus kerteszi Lichtwardt, 1902b	habitat unknown	? - Insufficiently known	10
Dolichopus brevipennis Meigen, 1824	eurytopic	N - Safe/Low risk	1
Dolichopus claviger Stannius, 1831	forests	N - Safe/Low risk	29
Dolichopus festivus Haliday, 1832	forests / marshlands	N - Safe/Low risk	1
Dolichopus griseipennis Stannius, 1831	habitat unknown	vZ - Fairly rare	9
Dolichopus latilimbatus Macquart, 1827	riparian habitats	N - Safe/Low risk	5
Dolichopus nigricornis Meigen, 1824	forests	N - Safe/Low risk	122
Dolichopus plumipes (Scopoli, 1763)	eurytopic	N - Safe/Low risk	14
Dolichopus popularis Wiedemann, 1817	forests	N - Safe/Low risk	3886
Dolichopus signatus Meigen, 1824	forests	N - Safe/Low risk	24
Dolichopus signifer Haliday, 1838	marshlands	Z - Rare	1
Dolichopus subpennatus Assis Fonseca, 1976	marshlands	N - Safe/Low risk	28
Dolichopus trivialis Haliday, 1832	forests	N - Safe/Low risk	1206
Dolichopus ungulatus (Linnaeus, 1758)	eurytopic	N - Safe/Low risk	10196
Dolichopus urbanus Meigen, 1824	marshlands	vZ - Fairly rare	1
Dolichopus wahlbergi Zetterstedt, 1843	forests	N - Safe/Low risk	18
Gymnopternus brevicornis (Staeger, 1842)	forests	N - Safe/Low risk	563
Gymnopternus celer (Meigen, 1824)	forests / riparian habitats	N - Safe/Low risk	1
Gymnopternus cupreus (Fallén, 1823)	forests	N - Safe/Low risk	16
Hercostomus argentifrons Oldenberg, 1916	habitat unknown	NvB - New for Belgium	3
Hercostomus praeceps Loew, 1869a	reedmarshes	vZ - Fairly rare	7
Hercostomus vivax (Loew, 1857b)	habitat unknown	NvV - New for Flanders	1
Medetera abstrusa Thuneberg, 1955	tree trunks	vZ - Fairly rare	1
Medetera dendrobaena Kowarz, 1877	eurytopic	N - Safe/Low risk	12
Medetera impigra Collin, 1941	tree trunks	vZ - Fairly rare	2
Medetera jacula (Fallén, 1823)	eurytopic	N - Safe/Low risk	50
Medetera pallipes (Zetterstedt, 1843)	tree trunks	N - Safe/Low risk	56
Medetera saxatilis Collin, 1941	eurytopic	N - Safe/Low risk	4
Medetera tristis (Zetterstedt, 1838)	tree trunks	? - Insufficiently known	2
Medetera truncorum Meigen, 1824	eurytopic	N - Safe/Low risk	32
Medetera unisetosa Collin, 1941	habitat unknown	NvB - New for Belgium	1
Neurigona erichsoni (Zetterstedt, 1843)	forests	NvV - New for Flanders	6
Neurigona pallida (Fallén, 1823)	forests	0 - Extinct in the wild	3
Neurigona quadrifasciata (Fabricius, 1781)	forests	N - Safe/Low risk	115
Poecilobothrus nobilitatus (Linnaeus, 1767)	eurytopic	N - Safe/Low risk	19
Rhaphium appendiculatum Zetterstedt, 1849	forests	N - Safe/Low risk	4
Rhaphium caliginosum Meigen, 1824	eurytopic	N - Safe/Low risk	2
Rhaphium commune (Meigen, 1824)	forests	3 - Vulnerable	74
Rhaphium crassipes (Meigen, 1824)	forests	N - Safe/Low risk	18
Rhaphium ensicorne Meigen, 1824	forests	Z - Rare	9
Sciapus platypterus (Fabricius, 1805)	forests	N - Safe/Low risk	4107
Sybistroma obscurellum (Fallén, 1823)	forests	N - Safe/Low risk	54
Systenus bipartitus (Loew, 1850a)	rotholes / sapruns in trees	zZ - Very rare	1
Systenus pallipes (von Roser, 1840)	rotholes / sapruns in trees	zZ - Very rare	1
Teuchophorus nigricosta (von Roser, 1840)	forests	vZ - Fairly rare	39
Teuchophorus simplex Mik, 1880	forests	Z - Rare	1
Thrypticus tarsalis Parent, 1932	habitat unknown	Z - Rare	3
Xanthochlorus tenellus (Wiedemann, 1817)	eurytopic	N - Safe/Low risk	16
Total no of species			62
Total no of identified specimens			25902

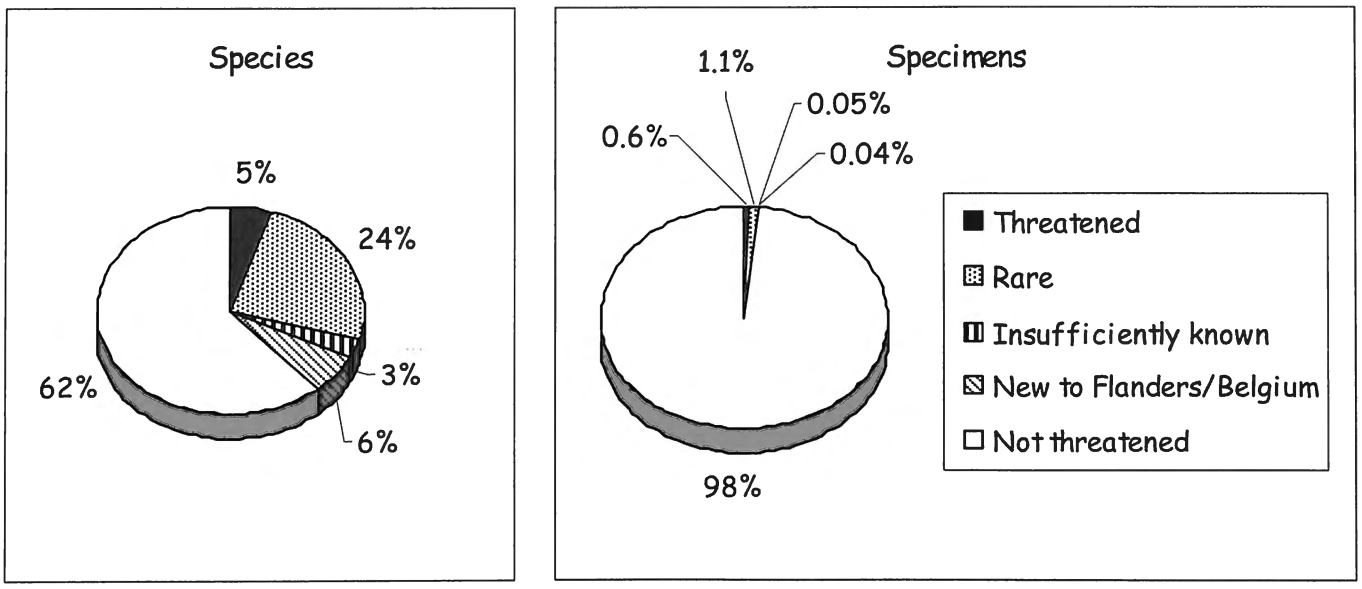

Fig. 2 — Distribution of species and specimens over Red List categories. Threatened = categories: Extinct in Flanders + Critically endangered + Endangered; Rare = categories: Very rare + Rare + Fairly rare; Not threatened = categorie Safe/At low risk.

OOST-VLAANDEREN: Aalst, Het Osbroek NR, 1 ♀, 6.vii.2000, SW, leg. Marc Pollet; Denderleeuw, De Molenbeekmeersen NR, 1 ♂, 15-29.vi.2002, MT, leg. Joost Mertens; Denderleeuw, De Wellemeersen NR, 1 ♀, 20-27.vii.2002, MT, leg. Eric De Tré; Ename, Bos t'Ename, 1 ♂, 24.vi.1994, SW, leg. Marc Pollet; 1 ♀, 15-29.vii.2001, WWT, leg. KBIN; 1 ♀, 26.vi-10.vii.1994, PT, leg. Konjev Desender & Jean-Pierre Maelfait; 1 ♀, 4.vii.2000, SW, leg. Marc Pollet; Geraardsbergen, Boelarebos, 1 ♂, 16.vi.2001, WWT; Geraardsbergen, Raspaillebos, 3 ♀, 27.vii.2001, YWT, all leg. UA; Gontrode, Aelmoes, 1 ♀, 17-30.vii.1997, YWT; Parike, Parikebos, 3 ♀, 1-29.vii.1997, WWT; 2 ♀, 15-29.vii.1997, YWT; Schorisse, Bos Ter Rijst, 2 ♀, 1-15.vii.1997, YWT, all leg. KBIN; St-Martens-Latem, Latemse Meersen NR, 43 ♂ 28 ♀, 30.v-1.viii.1999, MT; 5 ♀, 21.vi-28.vii.1999, PT; 12 ♀, 4.vi-28.vii.1999, YWT, all leg. KBIN; Wachtebeke, Provinciaal domein Puyenbroek, 1 ♀, 27.vii.2001, YWT, leg. UA; VLAAMS BRABANT: Hoeilaart, Zoniënwoud, 1 ♀, 18.vii-1.viii.1997, YWT; WEST-VLAANDEREN: Ruiselede, Vorte Bossen, 1 ♀, 20.vi-4.vii.1997, WWT, all leg. KBIN.

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER05), 3 ♂ 4 ♀, 26.vi-25.vii.2003, PT; 11 ♂ 19 ♀, 14.vi-7.viii.2003, MT; 2 ♀, 26.vi-7.viii.2003, WWT; Sint-Pieters-Voeren, Alserbos (site VOER08), 1 ♂, 14-26.vi.2003, MT; 1 ♀, 26.vi-11.vii.2003, WWT; 2 ♀, 26.vi-25.vii.2003, PT; (site VOER09), 1 ♂, 14-26.vi.2003, MT; (site VOER12), 1 ♀, 11-25.vii.2003, PT; (site VOER13), 1 ♂ 23 ♀, 14.vi-7.viii.2003, PT; (site VOER14), 4 ♀, 26.vi-25.vii.2003, PT.

Ecology: *A. grata* is a species of humid and cool, wooded, mesotrophic to eutrophic marshlands with pools, and of fairly humid woodlands with fast running streams. This description corresponds largely with the findings of Falk & Crossley (2005): "old broadleaved woods, probably with a requirement for pools or streams". In Wallony, it is also found in rich riparian vegetations along rivers. Wood (1913) collected this species under overhanging shrubs in a rocky river bed, whereas Allen (1991) found it along a muddy, canopied forest path. Collart (1935) recorded it from the Leopold park close to the KBIN buildings in the centre of Brussels. *A. grata* is often collected together with *A. atriceps*, which suggests that both species might have similar ecological demands.

Remarks: recent sampling revealed that this species is more widespread than earlier data indicated. At present it is known from all Flemish provinces.

– *Argyra ilonae* Gosseries, 1988

Red list status in Flanders: Z – Rare. Not threatened in GB and DE.

Distribution in Europe: AT, ?BA, BE (Pollet, 2000), CH (Pollini & Pollet, 1998), CZ (Olejnicek, 1985), DE; DK, FR, GB, ?HR, HU, IT, ?MK, NL, NO (Jonasen, 1988), PL, RO, RU-RUC, ?RU-RUE, RU-RUS, RU-RUW, SE, ?SI, SK (Olejnicek, 1997), UA, ?YU; NRE.

Distribution in Belgium: *A. ilonae* shows an equal distribution in our country. It has been recorded from 5 localities in Flanders (or 3% of the sampled UTM 5 km squares) after 1981, in particular from West- and Oost-Vlaanderen.

New records: ANTWERPEN: Ranst, Muizenbos, 1 ♀, 26.vii.2001, WWT, leg. UA; LIMBURG: Nieuwenhoven, 2 ♂, 1.vi-1.vii.1999, MT, leg. Luc Crevecoeur; OOST-VLAANDEREN: Aalst, Het Osbroek NR, 24 ♂ 10 ♀, 3.vi.2002-28.vi.2003, MT, leg. Peter Tolleneer; Denderleeuw, De Molenbeekmeersen NR, 9 ♂, 15.vi-27.vii.2002, MT, leg. Joost Mertens; Ename, Bos t'Ename, 1 ♂ 1 ♀, 24.vi.1994, SW; 1 ♀, 25.viii-20.ix.1998, WWT, all leg. Marc Pollet; 1 ♂ 1 ♀, 13-29.vi.2001, PT; 1 ♂ 1 ♀, 13.vi-29.vii.2001, WWT, all

leg. KBIN; 2♀, 26.vi-31.vii.1994, PT, leg. Konjev Desender & Jean-Pierre Maelfait; Geraardsbergen, Boelarebos, 1♂ 1♀, 16.vi.2001, WWT; 1♂, 13.vii.2001, YWT, leg. UA; Neigem, Neigembos, 1♀, 14.vii.2000, SW; Uitbergen, Uitbergenbos, 2♀, 10.vii.2000, SW, all leg. Marc Pollet; VLAAMS BRABANT: Huldenberg (Neerijse), Dijlevallei, 1♀, 16.vi.2001, WWT, leg. UA; Oud-Heverlee, Doode Bemde NR, 1♂, 15.vi.2002, SW, leg. Joris Menten; WEST-VLAANDEREN: Raversijde, Provinciaal Domein Prins Karel, 4♀, 1.viii-19.ix.1987, MT, leg. Guy Haghebaert.

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER05), 1♂ 2♀, 30.v-7.viii.2003, MT; Sint-Pieters-Voeren, Alserbos (site VOER07), 2♂, 30.v-25.vii.2003, MT; (site VOER08), 14♂ 2♀, 30.v-11.vii.2003, MT; (site VOER09), 25♂ 11♀, 14.v-25.vii.2003, (site VOER11), 22♂ 6♀, 14.v-26.vi.2003, MT; (site VOER13), 1♀, 11-25.vii.2003, PT.

Ecology: like its congeners, *A. ilonae* is mostly encountered in humid to fairly dry, canopied but at the same time sunny sites where it prefers humid soil and broad-leaved herbs like *Petasites albus*.

Remarks: this species too is more widespread as proved by the new records. At present it is known from all Flemish provinces.

– *Chrysotimus flaviventris* (VON ROSER, 1840)

Red list status in Flanders: Z – Rare. Notable in GB. Not threatened in DE.

Distribution in Europe: BE, CH (POLLINI & POLLET, 1998), CZ, DE, DK, FR, GB, HU, LU (POLLET, unpubl. data), NL (MEUFFELS, unpubl. data), NO (JONASSEN, 1985), PL (BANKOWSKA, 1981), RO (PARVU, 1987), ?RU-RUC, ?RU-RUE, ?RU-RUN, ?RU-RUS, ?RU-RUW (PARENT, 1938), SE, SK (OLEJNICEK & ROHACEK, 1995).

Distribution in Belgium: *C. flaviventris* seems more common in Wallony than in Flanders. Prior to 1981 it was only recorded from Kapelle-op-den-Bos (1922) in Flanders. Between 1981 and 1997 additional records originated exclusively from West-Vlaanderen and Vlaams Brabant (Zoniënwoud) where it was found in only 4 UTM 5 km squares despite intensive surveys in several forests in West- and Oost-Vlaanderen.

New records: VLAAMS BRABANT: Hoeilaart, Zoniënwoud, 2♀, YWT; 2♂, WWT, all 17.vi-3.vii.1997, leg. KBIN.

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER01), 1♂ 3♀, 14.vi-25.vii.2003, PT; 17♂ 21♀, 14.vi-22.viii.2003, MT; 2♂ 11♀, 26.vi-22.viii.2003; (site VOER02), 1♀, 26.vi-11.vii.2003, PT; (site VOER03), 1♂, 26.vi-11.vii.2003, MT; (site VOER04), 7♀, 11.vii-19.ix.2003, MT; (site VOER05), 2♀, 11.vii-7.viii.2003, WWT; 1♂ 6♀, 26.vi-7.viii.2003, MT; 1♂, 7-22.viii.2003, PT; Sint-Pieters-Voeren, Alserbos (site VOER07), 4♂ 5♀, 26.vi-7.viii.2003, MT; 7♀, 14.vi-7.viii.2003, WWT; (site VOER08), 1♂, 11-25.vii.2003, MT; (site VOER09), 2♂ 2♀, 11.vii-7.viii.2003, WWT; (site VOER09), 5♂ 2♀, 11.vii-22.viii.2003, MT; (site VOER11), 1♀, 25.vii-7.viii.2003, MT; (site VOER13), 1♂ 1♀, 25.vii-22.viii.2003, PT; (site VOER14), 1♂ 5♀, 11.vii-22.viii.2003, PT.

Ecology: in Belgium, *C. flaviventris* has thus far only been collected in dry to moderately humid forests and park landscapes on (sandy) loamy soils. It seems to avoid habitats on purely sandy soils. Like the related but much more common *C. molliculus*, this species mainly occurs in the canopy of trees and large shrubs (JONASSEN, 1985; ALLEN, 1991; OLEJNICEK & BARTAK, 1996). It is known from different forest types like birch (EMEIS 1964), beech (MEYER & HEYDEMANN, 1990; FELDMANN, 1992), oak (BANKOWSKA, 1981; MEYER & HEYDEMANN, 1990; OLEJNICEK & BARTAK, 1996) and lime-hornbeam (BANKOWSKA, 1989). FELDMANN (1992) showed that *C. flaviventris* clearly prefers beech forest to mixed forest, and to young and mature coniferous forest.

Remarks: *C. flaviventris* has recently (after 1997) been established only in the southeasternmost Flemish provinces (Vlaams Brabant, Limburg).

– *Dolichophorus kerteszi* LICHTWARDT, 1902

Red list status in Flanders:? – Insufficiently known. Absent in GB. Endangered (RDB 3) in DE.

Distribution in Europe: AT (FRANZ, 1989), BE (POLLET, 2000), CH (POLLINI & POLLET, 1998), CZ, DE, ES (VENTURA *et al.*, 2002), FR, HU, NL (MEUFFELS, unpubl. data), PL, RO (PARVU, 2002), RU-RUC, RU-RUW, SK (OLEJNICEK, 1997); EPA, NRE.

Distribution in Belgium: until 1997 the species had only been recorded from 6 localities in Belgium, 3 of which are situated in Flanders. The most recent localities were Oedelem and Torhout, both in West-Vlaanderen.

New records: ANTWERPEN: Antwerpen, De Kuifeend NR, 1♂, 11-18.vi.1988, MT, leg. Luc De Bruyn; OOST-VLAANDEREN: Beveren-Waas, Natuureducatief Centrum Hof ter Saksen, 1♂, 2-9.vii.1993, MT, leg. Christa Maes.

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER02), 9♂, 30.v-11.vii.2003, MT; (site VOER03), 1♀, 14-26.vi.2003, MT.

Ecology: very little is known on the ecology of *D. kerteszi*. In Belgium it has been collected on tree trunks or with Malaise traps. As the genus *Dolichophorus* belongs to the subfamily Medeterinae which includes predominantly arboreal genera like *Medetera* and *Systenus*, it is very likely that at least part of its life history takes place on trees as well. It is active from the end of May till the beginning of August.

Remarks: at present the species only seems to lack in Vlaams Brabant, but there are no clear indications that it does not occur there.

– *Dolichopus signifer* HALIDAY, 1838

Red List status in Flanders: Z – Rare. Nationally scarce in GB. Endangered (RDB 3) in DE.

Distribution in Europe: AT, BE (POLLET, 2000), BG, CH (POLLINI & POLLET, 1998), CZ, DE (BELLSTEDT *et al.*, 1999), ES, FR, GB, GR, GR-AEG (DYTE, unpubl. data),

HU, IE, IT, NL (MEUFFELS, unpubl. data), NO (JONASSEN, unpubl. data), PL (BANKOWSKA, 1989), PT-AZO, RO, RU-RUC, SE, SK (OLEJNICEK, 1997), UA (GRICHANOV, unpubl. data); EPA, NRE (OLEJNICEK & YADGARI, 1993), NAF.

Distribution in Belgium: until 1997 appeared this species confined in Belgium to the provinces West- and Oost-Vlaanderen, with only one single pre-1981 record (De Panne, 1931). It has been collected in 7 UTM 5 km squares in Flanders in the period 1981-1997.

New records: ANTWERPEN: Brasschaat, Het Groot Schietveld, 1 ♂ 1 ♀, 12-18.vii.1993, YWT, leg. Luc De Bruyn; Brasschaat, tuin Verheyen, 1 ♀, 1-31.v.1997, YWT, leg. Verheyen; Linkeroever, tuin B. Viskens, 1 ♀, 1-31.v.1997, YWT, leg. B. Viskens; Mortsel, Fort III, 1 ♂, 1-31.v.1997, YWT, leg. B. De Boey; LIMBURG: Beringen, langs Albertkanaal, 1 ♀, 22.vi-22.vii.1997, YWT, leg. Nobby Thys; OOST-VLAANDEREN: Denderleeuw, De Wellemeersen NR, 5 ♂, 18.v.2002, SW, leg. Marc Pollet & Anja De Braekeleer; Kalken, Oude Schelde-arm, 1 ♂ 1 ♀, 31.v-15.vi.1997, WWT, leg. Michel Van Malderen; Lokeren, De Daknamse Meersen, 1 ♂, 4-19.v.2000, WWT, leg. KBIN; Lokeren, Molsbergen NR, 1 ♀, 27.iv-10.v.1999, WWT, leg. KBIN; Petegem-aan-de-Schelde, De Langemeersen NR, 1 ♀, 6.vii.1997, SW, leg. Marc Pollet; St-Jan-in-Eremo, 1 ♂ 3 ♀, 16-31.v.1997, WWT, leg. G. Bonamie; St-Jan-in-Eremo, Boerekreek, 1 ♀, 24.viii-7.ix.2000, PT, leg. KBIN; 1 ♂, 1-15.v.1997, WWT, leg. G. Bonamie; St-Jan-in-Eremo, Roeselarepolder, 1 ♂ 1 ♀, 13.v-1.vi.2000, WWT, leg. KBIN; St-Martens-Latem, Latemse Meersen NR, 1 ♂ 1 ♀, 17.vii-15.viii.1999, MT; 2 ♀, 6.v-4.vi.1999, WWT, leg. KBIN; 1 ♂ 3 ♀, 20.iv-4.vi.1999, YWT, all leg. KBIN; Uitbergen, 1 ♀, 15-31.v.1997, WWT, leg. Michel Van Malderen; Zingem, De Weiput NR, 1 ♂, 26.v.1997, WWT, leg. Mark Alderweireldt; WEST-VLAANDEREN: De Panne, De Westhoek NR, 27 ♂ 24 ♀, 26.iv-12.x.2000, WPT, leg. Dries Bonte; Merendree, garden (lawn), 1 ♂, 1-31.viii.1997, WWT, leg. G. Bonamie; Nieuwpoort, De IJzermonding NR, 1 ♂ 2 ♀, 25.iv-12.ix.2003, WiT, leg. KBIN; 18 ♂ 11 ♀, 27.iv.2001-12.ix.2003, WWT, leg. KBIN; 2 ♂ 2 ♀, 17.v.2002-22.v.2003, PT; 6 ♂ 5 ♀, 31.v.2002, WWT, both collector unknown; Uitkerke-Blankenberge, De Uitkerkse Polders NR, 9 ♂ 6 ♀, 4.v-14.vi.2000, PT; 21 ♂ 25 ♀, 4.v-1.ix.2000, WWT, all leg. KBIN.

Records from Voeren: Teuven, Veursbos (site VOER15), 1 ♀, 19.ix-8.x.2003, PT.

Ecology: *D. signifer* is characteristic for humid grasslands and swamps with a short, sparse vegetation and a muddy soil. It also occurs in dune slacks and in this respect, it seems to be bound to sandy soil and might even be considered halophilous. In the other European countries, it has been reported from the banks of ponds (OLEJNICEK & ROZKOSNY, 1975) and sedge marshlands (BESCHOVSKI, 1967). At the coast, it can be found along pools (JONASSEN, 1988) and at seeplings on cliffs (GROVE, 1990; FALK & CROSSLEY, 2005). In the interior, it has been collected in various habitats affected by salt mining (STARK & POLLET, 1993) and along saline rivers like the Saale in Germany (POLLET, pers. obs.).

Remarks: although this species seems more widespread than previously assumed – as shown by the additional records from Antwerpen and Limburg –, it remains most common in the westernmost provinces West- and Oost-Vlaanderen. Particularly in brackish grassland and saltmarsh habitats, it is often found in large numbers. The specimen collected in the forest in Teuven is clearly an occasional migrant as it is not at all typical for this kind of habitat.

– *Hercostomus argentifrons* OLDENBERG, 1916

Status: First record for Belgium! Absent in GB and DE.

Distribution in Europe: FR (only Alps and Pyrenees, BECKER, 1917-1918; PARENT, 1938), IT, SE (GRICHANOV & DANIELSSON, 2001).

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER01), 1 ♂, 26.vi-11.vii.2003, MT; (site VOER05), 1 ♂, 30.v-14.vi.2003, MT; Sint-Pieters-Voeren, Alserbos (site VOER09), 1 ♂, 30.v-14.vi.2003, MT.

Ecology: information on the ecology of this species is totally lacking in the literature, due to its extreme rarity. Phylogenetically it is closely related to *H. nigrilamellatus*, the larvae of which are assumed to breed in rotholes of trees (VAILLANT, 1978; JONASSEN, 1985).

Remarks: no conclusions can be drawn about the habitat affinity of this species due to the restricted number of specimens collected in both an ancient forest, a plantation (close to an old growth forest) and an afforested birch site. The discovery of this extremely rare species in (eastern) Belgium remains enigmatic. *H. nigrilamellatus*, first discovered in Belgium in 1994, has more recently been recorded from 6 other localities (POLLET, unpubl. data).

– *Hercostomus vivax* (LOEW, 1857)

Status: First record for Flanders! Absent in GB. Not threatened in DE.

Distribution in Europe: AT, BE, BY, CH, CZ, DE, DK, EE, ES, FR, HR (Parent, 1938), HU, IT, PL, RO, RU-RUC, ?RU-RUE, RU-RUW, SK (Olejnicek, 1997), UA; EPA.

Distribution in Belgium: until 1997 this species was exclusively known from the southeastern part of the country with a main distribution in the provinces Liège and Luxembourg. Especially in the latter region, it can be encountered abundantly along forest paths.

New records: VLAAMS BRABANT: Bierbeek, MDW – Warande, 1 ♂, 29.vii.2002, SW, leg. Joris Menten (collection J. Menten).

Records from Voeren: Sint-Pieters-Voeren, Alserbos (site VOER12), 1 ♀, 11-25.vii.2005, WWT.

Ecology: *H. vivax* is a typical forest-inhabiting species with a preference for sunny forest paths with a well developed herb and shrub layer. In Austria it is especially abundant at 1200-1300m along wooded edges of mountain dirt roads on the leaves of *Petasites* (POLLET, unpubl. data).

Remarks: this (southern?) species currently seems to extend its range towards the north, although future inventories should confirm this assumption.

– *Medetera tristis* (ZETTERSTEDT, 1838)

Red list status in Flanders: ? – Insufficiently known. Not threatened in GB and DE.

Distribution in Europe: AT, BE (POLLET, 2000), CH (POLLINI & POLLET, 1998), CZ, DE, DK (POLLET & PETERSEN, 2001), EE, FI, FR (PARENT, 1928), GB, HU (WEBER, 1983), NL (MEUFFELS, unpubl. data), NO, PL (BANKOWSKA, 1989), RU-RUN, ?RU-RUW, SE, SK (OLEJNICEK, 1997); EPA.

Distribution in Belgium: until 1997 the species was recorded from 4 localities in Flanders and 3 in Wallony. All 3 Flemish post-1980 localities are situated in West-Vlaanderen.

New records: LIMBURG: Kinrooi, Het Stamprooiersbroek NR, 2♂, 25.iv-2.vi.1996, MT; LIMBURG: Nieuwenhoven, 1♂, 1-13.vi.1999, MT, all leg. Luc Crévecoeur.

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER04), 1♂, 30.v-14.vi.2003, MT; (site VOER05), 1♂, 3-17.iv.2003, MT.

Ecology: *M. tristis* seems to show an affinity for dry wooded heathland habitats. It is active from the beginning of April until mid June.

Remarks: thus far *M. tristis* is only recorded from West-Vlaanderen and Limburg, although it certainly should occur in suitable habitats in Antwerpen as well.

– *Medetera unisetosa* COLLIN, 1941

Status: First record for Belgium! Near threatened in GB. Absent in DE.

Distribution in Europe: GB, SK (OLEJNICEK, 1997).

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER05), 1♂, 11-25.vii.2003, MT.

Ecology: totally unknown. FALK & CROSSLEY (2005) do not provide information on the ecological demands of this species.

– *Neurigona erichsoni* (ZETTERSTEDT, 1843)

Status: First record for Flanders! Absent in GB. Not threatened in DE.

Distribution in Europe: AT (STROBL, 1893), ?BA, BE (POLLET, 2000), CH, CZ, DE, DK, EE, FR, ?HR, HU, ?MK, NL, NO (JONASSEN, unpubl. data), PL, RO, RU-RUC, ?RU-RUE, SE, ?SI, SK, UA, ?YU; NRE.

Distribution in Belgium: until 1997 this species was recorded from only 4 localities in the provinces Liège and Luxembourg.

New records: only from Voeren (see below).

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER01), 2♂, 25.vii-7.viii.2003, MT; (site VOER05), 1♂, 26.vi-11.vii.2003, WWT; 3♂, 11.vii-7.viii.2003, MT.

Ecology: like other *Neurigona* species, males of *N. erichsoni* are mainly found on tree trunks, whereas females also occur in the upper herb layer. The species has been collected in open rather dry deciduous forest types. Its ecology is otherwise largely unknown.

Remarks: this species might show the same range extension as *H. vivax*, but here too, future inventories should provide more evidence for this statement.

– *Neurigona pallida* (FALLÉN, 1823)

Red list status in Flanders: 0 – [presumed] Extinct in Flanders. Not threatened in GB and DE.

Distribution in Europe: AT, BE, BY, CH, CZ (OLEJNICEK, 1987), DE, DK, EE, FI, FR, GB, HU, IE, IT, NL, NO (JONASSEN, unpubl. data), PL, RO, RU-RUC, ?RU-RUE, RU-RUS, RU-RUW, SE, SK (OLEJNICEK, 1997), UA; EPA.

Distribution in Belgium: this species is considerably more common in Wallony than in Flanders, with its main distribution in the provinces Liège and Namur. POLLET (2000) mentioned a 1898 record from Kontich (prov. Antwerpen) as the only locality of this species in Flanders.

New records: OOST-VLAANDEREN: Aalst, Osbroek N.R., 3-17.vi.2002, 2♀, MT, leg. Peter Tolleneer; LIMBURG: Kinrooi, Het Stamprooiersbroek N.R., 7♀, 2.vi-1.vii.1996; Kleine-Brogel, Blijleven, 1♂ 4♀, 15.vi-1.vii.1995, MT, all leg. Luc Crévecoeur.

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER01), 14-30.v.2003, 1♀; Sint-Pieters-Voeren, Alserbos (site VOER07), 14-30.v.2003, 1♀; (site VOER09), 30.v-14.vi.2003, 1♀, all MT.

Ecologie: *N. pallida* is a species of humid mature forests and forest edges, and is often found in the vicinity of fast running streams. Also in other European countries seems this species to occur particularly in forests. It has been established in both deciduous forests (GERSTÄCKER, 1864) and young coniferous stands (FELDMANN, 1992) and it has even been collected in tree canopies in suburban areas in Poland (BANKOWSKA, 1981).

Remarks: the new records reveal that the species is, in fact, not extinct in Flanders, but occurs at present in Oost-Vlaanderen and at 4 different localities in Limburg.

– *Rhaphium commune* (MEIGEN, 1824)

Red List status in Flanders: 3 – Vulnerable. Not threatened in GB and DE.

Distribution in Europe: AT, ?BA, BE, CH (POLLINI & POLLET, 1998), CZ, DE, DK, ES (VENTURA *et al.*, 2002), FI, FR, GB, ?HR, HU, IE, IT, LU (POLLET, unpubl. data), ?MK, NL, NO (JONASSEN, unpubl. data), PL, RO, RU-RUC, ?RU-RUE, RU-RUN, RU-RUS, ?RU-RUW, SE, ?SI, SK (OLEJNICEK, 1997), UA (NEGROBOV, 1991: Crimea), ?YU; EPA, NEA, NRE.

Distribution in Belgium: *R. commune* seems more widespread in Wallony than in Flanders. Prior to 1981, this species was mainly known from Oost-Vlaanderen and Vlaams Brabant, but it has been established more recently in all Flemish provinces. Between 1981 and 1997 it has been recorded in 9 UTM 5 km squares in Flanders (= 5% of all sampled squares) and shows a decline of 56%.

New records: ANTWERPEN: Antwerpen, De Kuifeend NR, 1♀, 14-21.v.1988, MT, leg. Luc De Bruyn; OOST-VLAANDEREN: Aalst, Het Osbroek NR, 1♀, 27.v.2001, HC; 6♀, 4.vi.2001, SW, all leg. Marc Pollet & Anja De Braekeleer; 2♂ 1♀, 1.v-3.vi.2002, WWT; 10♂ 2♀, 3.vi.2002-21.vi.2003, MT, all leg. Peter Tolleneer; Denderhoutem, De Diepe Straten, 2♂ 3♀, 28.v.2004, SW, leg. Marc Pollet; Denderhoutem, Koekelberg 23, 1♂ 3♀, 21.v.2001, HC, leg. Marc Pollet & Anja De Braekeleer; 1♂ 2♀, 25.v.2003, SW, leg. Marc Pollet; Denderhoutem, Poplar carr along Teerlingstraat, 2♂ 1♀, 5-20.v.2001, WWT; 1♂ 5♀, 25.v.2003, SW, all leg. Marc Pollet; Denderleeuw, De Molenbeekmeersen NR, 4♂ 1♀, 1.vi-24.viii.2002, MT, leg. Joost Mertens; Denderleeuw, De Wellemeersen NR, 1♂ 5♀, 18.iv-14.vi.2003, MT, leg. Eric De Tré; Ename, Bos t'Ename, 1♂ 9♀, 4-24.v.2001, PT, collector unknown; 4♂ 6♀, 24.v-29.vi.2001, PT, leg. KBIN; 2♀, 24.vi.1994, SW, leg. Marc Pollet; 36♂ 15♀, 5.iv.1998-6.vi.1999, WWT, leg. Marc Pollet; 20♂ 4♀, 4-24.v.2001, WWT, collector unknown; 2♂ 2♀, 24.v-13.vi.2001, WWT, leg. KBIN; 1♂ 13♀, 14.v-10.vii.1994, PT, leg. Konjev Desender & Jean-Pierre Maelfait; 6♂ 67♀, 4.vii.2000, SW, leg. Marc Pollet; Geraardsbergen, Boelarebos, 2♂ 5♀, 16.vi.2001, WWT; 3♂ 14♀, 16.vi.2001, YWT; Geraardsbergen, Raspaillebos, 11♂ 11♀, 16.vi.2001, WWT; 28♂ 48♀, 16.vi.2001, YWT, all leg. UA; Neigem, Neigembos, 1♂, 1.vi.2003, SW, leg. Marc Pollet; Sint-Antelinks (Herzele), Duivenbos, 3♀, 31.v-28.vi.2003, YWT, leg. Caroline Souffreau; Welle, Poplar carr, 5♂, 5.v-4.vi.2001, WWT, leg. Marc Pollet; VLAAMS BRABANT: Bertem, Koeheide, 1♀, 25.v.2002, OBS; 2♂, 25.v.2002, SW, all leg. Joris Menten; Huldenberg (Neerijse), Dijlevallei, 1♀, 16.vi.2001, WWT; 2♀, 16.vi.2001, YWT, all leg. UA; Oud-Heverlee, Doode Bemde NR, 1♂ 2♀, 1.ix.2002, SW, leg. Joris Menten (collection J. Menten).

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER01), 1♀, 30.v-14.vi.2003, MT; (site VOER02), 1♀, 30.v-14.vi.2003, WWT; 3♂ 6♀, 1.v-26.vi.2003, MT; 1♂ 8♀, 30.v-26.vi.2003, PT; (site VOER03), 1♀, 30.v-14.vi.2003, MT; (site VOER04), 3♂ 3♀, 14.v-14.vi.2003, MT; 1♀, 30.v-14.vi.2003, PT; (site VOER05), 1♂ 1♀, 30.v.2003-14.vi.2003, MT; Sint-Pieters-Voeren, Alserbos (site VOER07), 2♀, 14.v-14.vi.2003, MT, leg. KBIN; Sint-Pieters-Voeren, Alserbos (site VOER08), 4♂ 2♀, 14.v-14.vi.2003, MT; 6♀, 14.v-11.vii.2003, PT; (site VOER09), 4♂ 5♀, 1.v-7.viii.2003, MT; (site VOER10), 1♂ 2♀, 30.v-26.vi.2003, MT; (site VOER11), 3♀, 14.v-26.vi.2003, PT; 3♂ 6♀, 14.v-7.viii.2003, MT; (site VOER12), 3♀, 30.v-26.vi.2003, PT; 1♂, 11-25.vii.2003, WWT; (site VOER13), 2♀, 30.v-26.vi.2003, PT.

Ecology: *R. commune* is a typical species of rich riparian vegetations along fast running streams in fairly humid to humid forests, less frequently in park landscapes and on river banks. It has also been found in dune swamps. In the other European countries, this species has mainly been observed on low shrubs and on shrubs in humid wooded habitats (LUNDBECK, 1912; humid apple orchards, COUTURIER, 1970; beech forests, EMEIS, 1964).

Remarks: the numerous records and sometimes high abundances of this species observed since 1997 suggest that it is more common than its Red list status indicates. As a consequence, it should no longer be considered threatened.

– *Rhaphium ensicorne* MEIGEN, 1824

Red list status: Z – Rare. Absent in GB. Endangered (RDB 3) in DE.

Distribution in Europe: AT (FRANZ, 1989), BE, CH, CZ (OLEJNICEK, 1987), DE, HU, NL, PL, RO (PARVU, 2002), UA (NEGROBOV, 1991: Chernovtsy region). This species shows a rather restricted distribution in Europe.

Distribution in Belgium: sampling records until 1997 indicate that this species is somewhat more frequently observed in Flanders than in Wallony. It is expected, however, that *R. ensicorne* is considerably more common in the strongly forested southern regions of the country. In the latter period, the species seemed confined in Flanders to the southern hilly region of Oost-Vlaanderen, known as "De Vlaamse Ardennen" and the central Forêt de Soignes, were it was recorded from 5 UTM 5 km squares. POLLET (2000) assumed that this species reaches the northernmost limit of its Belgian distribution range in Flanders.

New records: OOST-VLAANDEREN: Brakel, Brakelbos, 2♀, 14.v-1.vii.1997, WWT; 1♂ 1♀, 14.v-5.vi.1997, YWT; Ename, Bos t'Ename, 2♂ 4♀, 24.v-13.vi.2001, PT, all leg. KBIN; 8♂ 4♀, 20.iv-24.v.2001, WWT, collector unknown; 1♂ 7♀, 24.v-29.vi.2001, WWT, leg. KBIN; 5♀, 28.v-10.vii.1994, PT, leg. Konjev Desender & Jean-Pierre Maelfait; Geraardsbergen, Raspaillebos, 2♀, 16.vi.2001, YWT, leg. UA.

Records from Voeren: Sint-Martens-Voeren, Altenbroek, Kwinten (site VOER06), 1♂ 7♀, 30.v-11.vii.2003, PT; Sint-Pieters-Voeren, Alserbos (site VOER12), 1♀, 14-30.v.2003, MT.

Ecology: *R. ensicorne* is typical for fairly humid mature forest habitats with a well developed herb layer, and for carrs in mature deciduous forests. In Bos t'Ename it has been collected fairly abundant in a rather undisturbed and old growth forest site showing a thick layer of periwinkle (*Vinca minor*). *R. ensicorne* has been considered as a submontane to montane species (STARK & BÄHRMANN, 1992/3). It has been collected along brooks in forests (CASPERS & WAGNER, 1982; BELLSTEDT, 1984; WAGNER, 1982) and in dense herb vegetations in well-lit sites (MEUFFELS, 1978). The results of the Voeren sampling campaign seem to confirm the preference of *R. ensicorne* for mature forest (site VOER06), although its absence in 5 other ancient forest sites remains unexplained.

Remarks: at present no records of *R. ensicorne* are known from West-Vlaanderen or Antwerpen. The species may occur in the far south of the first province, but severe deforestation in this area might endanger its survival or might even have caused its extinction. In contrast, it is not

expected to be found in Antwerp due to the lack of suitable habitats.

– *Systenus bipartitus* (LOEW, 1850) and *Systenus pallipes* (VON ROSER, 1840)

Red List status in Flanders: zZ – Very rare. *S. bipartitus* nationally scarce in GB. Both *S. bipartitus* and *S. pallipes* endangered (RDB 3) in DE.

Distribution in Europe: *Systenus bipartitus*: AT (FRANZ, 1989), ?BA, BE (POLLET, 2000), CZ (OLEJNICEK, 987), DE (BELLSTEDT et al, 1999), DK, EE, FI, GB, HR (BECKER, 1917-18: Dalmatia), ?MK, NL, NO (JONASSEN, 1988), RU-RUW, SE, ?SI, ?YU; EPA.
Systenus pallipes: AT (FRANZ, 1989), BE, CH (POLLINI & POLLET, 1998), CZ (OLEJNICEK, 1987), DE, DK, FI, FR (PARENT, 1928), GB (CHANDLER, 1998: as both "*pallipes*" and "*pallidus*"), IE (SPEIGHT & MEUFFELS, 1989: as "*pallidus*"), NL, NO (JONASSEN, 1988), PL, RU-RUC, ?RU-RUE, RU-RUS, RU-RUW, SE; EPA, NRE.

Distribution in Belgium: of all Belgian *Systenus* species, *S. bipartitus* appears to have (had) the widest distribution with records from 4 and 3 UTM 5 km squares in Flanders and Wallony respectively. *S. pallipes* is recorded from 3 Flemish UTM 5 km squares and one square in Wallony. Both species have been collected in the vicinity of Brussels and the Fôret de Soignes at the beginning of the 20th century. More recent localities (until 1997) were situated in West- and Oost-Vlaanderen.

New records: *S. bipartitus*: ANTWERPEN: Antwerpen, Hobokense Polder N.R., 1 ♀, 24-31.viii.1990, MT, leg. Frank Ven; OOST-VLAANDEREN: Denderhoutem, Koekelberg 23 (indoors), 1 ♀, 3.vi.2001, HC, leg. Marc Pollet & Anja De Braekeleer. *S. pallipes*: OOST-VLAANDEREN: Baasrode, De Vlassenbroekse Meersen, 1 ♀, 10.vii.1995, SW, leg. Marc Pollet.

Records from Voeren: *S. bipartitus*: Sint-Martens-Voeren, Altenbroek (site VOER05), 1 ♀, 7-22.viii.2003, MT; *S. pallipes*: Sint-Martens-Voeren, Altenbroek (site VOER01), 1 ♀, 25.vii-7.viii.2003, WWT.

Ecology: all *Systenus* species are strictly bound to wounds and sapruns on tree trunks and, to a lesser extent, to humid rotholes for the development of the larval stages. BEQUAERT (1955) considered representatives of this genus as fauna elements of mixed primary forest. As a matter of fact, most specimens in old collections were obtained by rearing larvae, collected in sapruns and humid treehole debris. *S. bipartitus* and *S. pallipes* do not seem to be confined to forests as they have been collected in gardens, parkland and dune shrubs as well (see POLLET & GROOTAERT, 1994; FALK & CROSSLEY, 2005). In deciduous forests, they seem to prefer very humid plots (POLLET & GROOTAERT, 1987). Since 1980 both species have been collected with Malaise traps in Belgium and Norway (JONASSEN, 1988), whereas *S. pallipes* has been gathered in blue or green pan traps at 60 cm height during two different sampling campaigns in Belgium. *Systenus* species are possibly more common than generally assumed as is suggested by the observations of DIESTELHORST & LUNAU (2001). In Bünde (Germany), these authors collected no less than 42 specimens of all 5 species thus far recorded in this country, only using two black pan traps, attached to one single beech tree at 9 m and 17 m height. POLLET & GROOTAERT (1987) also proved that blue coloured pan traps are most attractive to arboreal dolichopodid species.

Remarks: at present, *S. bipartitus* is known from all Flemish provinces, whereas records of *S. pallipes* are only lacking from the province Antwerpen (where it most probably occurs). It might be very interesting and highly relevant from a nature conservation perspective to carry out a systematic survey of rotholes and sapruns in Flanders to get a reliable estimate of the rarity of representatives of this genus. As these microhabitats often have a temporary character, it might also be interesting to investigate the vagility of the species.

– *Teuchophorus simplex* MIK, 1880

Red list status in Flanders: Z – Rare. Not threatened in GB and DE.

Distribution in Europe: AT, BE (POLLET, 2000), CZ, DE, FR, GB, GR (GRICHANOV, unpubl. data), HU, NL, PL, ?SE.

Distribution in Belgium: the species seems more common in Flanders than in Wallony. In Flanders, it has been found for the first time in 1987 (POLLET *et al.*, 1992). Until 1997, it has been recorded from 5 UTM 5 km squares in central and southern West- and Oost-Vlaanderen, and Vlaams Brabant.

New records: OOST-VLAANDEREN: Aalst, Het Osbroek NR, 9 ♂, 6.vii.2000, SW, leg. Marc Pollet; 12 ♂ 10 ♀, 22.vii.2002-28.vi.2003, MT; 1 ♂, 27.vii-11.viii.2002, WWT, all leg. Peter Tolleneer; Denderhoutem, poplar carr along Teerlingstraat, 14/♂, 14.vii.2000, SW; 1 ♂ 1 ♀, 29.vii.2001, SW; 2 ♂, 23.vi-19.viii.2001, WWT; Ename, Bos t'Ename, 6 ♂, 16.vi-25.viii.1998, WWT; 2 ♂, 4.vii.2000, SW; Heurne, Het Dal NR, 1 ♂ 1 ♀, 15.viii.1997, SW, all leg. Marc Pollet; Kruishoutem, Vuylbroek NR, 1 ♂, 15.vii-31.vii.1997, WWT, leg. Philip Robben; St-Martens-Latem, Latemse Meersen NR, 1 ♂, 17.vii-1.viii.1999, MT, leg. KBIN; Welle (poplar carr), 14 ♂, 6.vii.2000, SW; 11 ♂, 14.vii-19.viii.2001, WWT, all leg. Marc Pollet.

Records from Voeren: Sint-Martens-Voeren, Altenbroek (site VOER05), 1 ♂, 11-25.vii.2003, MT.

Ecology: *T. simplex* is characteristic for cool and very humid, eutrophic deciduous forests and carrs on loamy soils. It is often encountered on muddy banks or in sparse riparian vegetations of fast running streams in these habitats, sometimes together with the more common *T. calcaratus*. This distinctly hygrophilous species seems to require a good water quality. It has been recorded in the literature only from humid grasslands (BÄHRMANN, 1993) and humid rocky soils (DRAKE, 1987).

Remarks: the species is currently known from all Flemish provinces except Antwerpen. Considering the predominantly sandy soils and oligotrophic habitats in the latter province, it is doubtful if *T. simplex* occurs there. In Flanders, it remains most widespread and abundant in southern Oost-Vlaanderen.

– *Thrypticus tarsalis* PARENT, 1932

Red list status in Flanders: Z – Rare. Nationally scarce in GB. Not threatened in DE.

Distribution in Europe: BE (POLLET, 2000), GB, NL (MEUFFELS, unpubl. data), NO (JONASSEN, 1988), RU-RUN, ?RU-RUW, SE (GRICHANOV & DANIELSSON, 2001).

Distribution in Belgium: this species was discovered in 1986 in Lippensgoed-Bulskampveld Provincial Domain at Beernem (West-Vlaanderen) for the first time. By 1997 it had been collected in another 5 Flemish localities, representing 3.6% of the sampled UTM 5 km squares, mainly in West-Vlaanderen and Limburg.

New records: ANTWERPEN: Antwerpen, De Kuifeend NR, 2 ♂ 2 ♀, 21-28.v.1988, MT, leg. Luc De Bruyn; Zevendonk, Sevendonck, 1 ♂, 5-20.v.1997, WWT, leg. KBIN; LIMBURG: Kinrooi, Het Stamprooiersbroek NR, 2 ♂ 2 ♀, 15.v-16.vi.1996, MT, leg. Luc Crévecoeur; OOST-VLAANDEREN: Lokeren, Molsbergen NR, 1 ♀, 25.v-7.vi.1999, PT, leg. KBIN.

Records from Voeren: Sint-Pieters-Voeren, Alserbos (site VOER11), 2 ♂ 1 ♀, 1-14.v.2003, WWT.

Ecology: typical habitats of *T. tarsalis* range from rather dry, heath-like grasslands to moderately humid, oligotrophic swamps with a well developed grass vegetation. FALK & CROSSLEY (2005) mention wetlands of various kinds. The larval stages of *Thrypticus* species are known to live as leafminers in grasses (DYTE, 1959, 1993). *T. tarsalis* is mainly active in spring (May – mid June).

Remarks: the species is currently recorded from all Flemish provinces except southern Vlaams Brabant, where it is expected to occur in suitable habitats.

Discussion

Despite its relatively poor overall species richness as demonstrated with the 2003 sampling campaign, the Voeren region houses a rather high percentage of valuable species. It must be admitted that their discovery has undoubtedly been facilitated by the profoundness of the campaign (collecting period from April until October, large scale, different collecting techniques). Nevertheless, a number of them have not or hardly been recorded from Flanders in the last 25 years which were the scene of the most intensive dolichopodid survey ever conducted in this region. Indeed, in this period of time 460.966 dolichopodid specimens were collected and identified which accounts for 98.8% of all Dolichopodidae ever collected in Flanders (POLLET, unpubl. data).

What makes certain species so much rarer than others? Most importantly of all, a number of Dolichopodidae show very high habitat requirements – which makes them excellent agents for bio-indication (see POLLET & GROOTAERT, 1999; POLLET, 2001). In this respect, the discovery of some rare species of ancient forests (*Chrysotimus flaviventris*, *Neurigona erichsoni*, *N. pallida*, *Rhaphium ensicorne*) and humid forests on loamy soils (*Argyra grata*, *Teuchophorus simplex*) was not surprising. As these species are entirely confined to this type of forests, the scarcity of these habitats explains the rarity of these stenotopic dolichopodid species. It is evident that (further) habitat fragmentation or destruction might ultimately lead to their local extinction.

In some species, a strict habitat affinity does not seem the only reason explaining their current rarity estimate. In *Systenus* species and possibly also *Hercostomus argentifrons*, larval microhabitats (sapruns and rotholes on trees) play an important role in the retrieval of adults in the field. Apparently, adults are usually only active in the vicinity of these microhabitats, which explains their scarcity in continuous sampling devices like Malaise traps and pan traps. However, dispersal must ultimately take place to insure the survival of their populations although it is assumed that this occurs only during favourable climatological conditions. In reality, *Systenus* species might thus be more common than their records suggest but only a systematic survey and monitoring of the larval microhabitats might provide the necessary evidence. Of course, in the light of the protection of these species, wounded trees both in and beyond forests should be maintained.

In yet other species, seasonality might be a key factor for their apparent scarcity. In the past, collectors were mainly active during late spring and summer and only since the introduction of continuous sampling methods have Dolichopodidae been collected at large beyond this period. The fact that species like *Medetera tristis*, *Rhaphium ensicorne* and *Thrypticus tarsalis* show an activity peak during May and early June might in part explain their rarity. This holds true for the bivoltine *Dolichopus signifer* as well, with a main activity in May and a second, smaller generation during August-October.

The present sampling campaign yielded two species (*Hercostomus vivax*, *Neurigona erichsoni*) that were new to Flanders but were previously recorded from the southern Wallon provinces of Liège and Luxembourg. The first species had recently been found in Vlaams Brabant as well. Whether this reflects a recent, northern extension of their distribution range in Belgium as a consequence of global warming is impossible to prove as historical data on Dolichopodidae of the Voeren region are entirely lacking. However, it certainly seems worthwhile to monitor these and other southern species in the near future.

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