

# The Danish Xyelidae and Pamphiliidae (Hymenoptera)

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The Danish material of Xyelidae and Pamphiliidae is being revised and eight species appear to be new to the fauna: *Cephalcia alashanica* (Gussakovskij), *C. intermedia* (Hellén), *C. lariciphila* (Wachtl), *C. pallidula* Gussakovskij, *C. fallenii* (Dalman), *Pamphilius fumipennis* (Curtis), *P. albopictus* (Thomson) and *P. varius* (Lepeletier).

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## Introduction

Since the paper by Nielsen & Henriksen (1915), only three articles have been published about the Danish Pamphiliidae: Petersen's (1966) work on spruce defoliators and two records of *Caenolyda reticulata* (L., 1758) (Overgaard Nielsen 1969, Lomholdt 1978).

Up to now 20 species of Pamphiliidae and 1 species of Xyelidae have been reported from Denmark.

During the present investigation 8 additional species were found, bringing the total number of Danish Pamphiliidae species up to 28.

However, several species occurring in the neighbouring countries are to be expected but have not yet been reported from Denmark.

No additional species of Xyelidae were found.

## Material and methods

Material from the Zoological Museum, University of Copenhagen (ZMUC) the Natural History Museum of Århus (NHMA) and the

Agricultural University of Denmark (AU) has been revised.

Most of the material was identified by F. Midtgaard, but some specimens from ZMUC have been determined by Frank Koch. Ole Lomholdt has »interpreted« the often very strongly abbreviated names of the localities in the faunistic regions.

The identifications follow a combination of the works of Benes (1974, 1976a, 1976b), Shinohara (1980, 1985b), Viitasaari (1982) and Achterberg & Aartsen (1986).

Only synonyms used by Nielsen & Henriksen (1915) are mentioned.

## Results and discussion

The distribution of the species in the faunistic regions are listed in Table 1.

## Xyelidae

*Xyela julii* (Brébisson, 1818): Probably overlooked and is so far only known from SJ, LFM, SZ and NEZ.

The larva develops in male flowers of Scots pine (*Pinus sylvestris*) (Benson 1954).

	SJ	EJ	WJ	NWJ	NEJ	F	LFM	SZ	NWZ	NEZ	B
<b>XYELIDAE</b>											
<i>Xyela julii</i> (Brébisson)	●						●	●		●	
<b>PAMPHILIIDAE</b>											
<i>Caenolyda reticulata</i> (L.)	●	●		●							
<i>Acantholyda erythrocephala</i> (L.)	●	●			●					●	
<i>A. hieroglyphica</i> (Christ)									●		
<i>A. posticalis</i> Matsumura		●					●		●	●	
<i>Cephalcia abietis</i> (L.)	●	●	●				●	●		●	●
<i>C. alashanica</i> (Gussakovskij)		●									
<i>C. arvensis</i> Panzer	●	●	●	●	●		●	●		●	●
<i>C. intermedia</i> (Hellén)										●	
<i>C. lariciphila</i> (Wachtl)										●	
<i>C. pallidula</i> Gussakovskij		●									
<i>C. erythrogaster</i> (Hartig)	●	●									
<i>C. fallenii</i> (Dalman)	●	●									
<i>Neurotoma saltuum</i> (L.)		●					●			●	
<i>N. nemoralis</i> (L.)							●			●	
<i>Pamphilius histrio</i> Latreille		●									
<i>P. gyllenhali</i> (Dahlbom)		●			●					●	
<i>P. inanitus</i> (Villers)									●	●	●
<i>P. betulae</i> (L.)	●	●								●	
<i>P. nemorum</i> (Gmelin)		●									
<i>P. sylvaticus</i> (L.)	●	●		●	●	●	●	●		●	
<i>P. fumipennis</i> (Curtis)		●			●		●			●	
<i>P. pallipes</i> (Zetterstedt)		●								●	
<i>P. vafer</i> (L.)	●	●		●			●				●
<i>P. albopictus</i> (Thomson)		●									
<i>P. varius</i> (Lepeletier)		●					●			●	●
<i>P. marginatus</i> (Lepeletier)	●	●				●	●	●		●	
<i>P. hortorum</i> (Klug)	●	●								●	
<i>P. balteatus</i> (Fallén)		●									

Tabel 1. Distribution of the Danish Xyelidae and Pamphiliidae.  
 Tabel 1. Udbredelse af de danske Xyelidae og Pamphiliidae.

Imagines fly relatively early (April-June) and are easily collected by sweep-netting the vegetation under pine trees or by netting them when they are flying.

A key to the European species is given by Schedl (1978).

Distributed throughout Europe, North Africa and the USSR (Schedl 1978).

### Pamphiliidae

*Caenolyda reticulata* (L., 1758): Recently discovered in Denmark (Overgaard Nielsen 1969, Lomholdt 1978), and so far only reported from Jutland.

Larva on pine (*Pinus* spp.) (Lorenz & Kraus 1957).

Distributed throughout northern and ea-

stern Europe and the USSR (Viitasaari 1982).

*Acantholyda erythrocephala* (L., 1758): Rather abundant, but only known from SJ, EJ, NEJ and NEZ.

Larva on Scots pine (*Pinus sylvestris*) (Kontuniemi 1959) and Weymouth pine (*P. strobus*) (Lorenz & Kraus 1957).

Distributed throughout the Palaearctic region and North America (probably introduced) (Viitasaari 1982).

*A. hieroglyphica* (Christ, 1791): Reported as Danish by Nielsen & Henriksen (1915). We have not seen any specimens from Denmark.

The description of the larval web in Nielsen & Henriksen (1915) fits this species very well, and it is very likely that the species does occur in Denmark. Nielsen & Henriksen (1915) reported a find from NWZ: Bromme Plantage.

The species is a well known pest on small Scots pine (*Pinus sylvestris*) in Fennoscandia.

Distributed throughout Europe and the USSR (Viitasaari 1982).

*A. posticalis* Matsumura, 1912 (*stellata* Christ, 1791): Known from EJ, LFM, NWZ and NEZ. Rather frequent.

Larva on Scots pine (*Pinus sylvestris*) (Kontuniemi 1959).

Distributed throughout Europe, USSR, Japan and China (Viitasaari 1982).

*Cephalcia abietis* (L., 1758): Common in most of the country.

Larva on Norway spruce (*Picea abies*) (Benes 1976a).

Distributed throughout northern and Central Europe, eastwards to Siberia, Sakhalin and China (Viitasaari 1982).

*C. alashanica* (Gussakovskij, 1935): New to Denmark. Only two females from: EJ: Gludsted, 10. and 24.VII.1980, T.S. Jensen leg.. One in coll. F. Midtgaard and one in coll. T.S. Jensen.

The specimens would belong to the subspecies *europaea* Benes, 1976. *C. alashanica europaea* is not regarded to be a valid subspecies by Achterberg & Aartsen (1986).

Larva on Norway spruce in Europe (Achterberg & Aartsen 1986).

Known from Nederland, Finland, Sweden, Czechoslovakia Switzerland, USSR, Mongolia and North China (Achterberg & Aartsen 1986).

*C. arvensis* Panzer, 1815 (*C. signata* Fabricius, 1781): Very common in most of the country. Some very dark specimens resemble *C. intermedia* Hellén, 1948.

However, as there is a wide range of variation in the colouration of *C. arvensis*, see Shinohara (1985c), this character is of limited use. It is difficult to find morphologically distinct characters between dark specimens (*C. intermedia*) and pale specimens (*C. arvensis*).

According to Vikberg (1982) the fully grown larva of *C. intermedia* has infuscated fovea on the anal tergite and differs thus from the larva of *C. arvensis*, which has no infuscation on the anal tergite. The situation in the *Cephalcia arvensis* complex is further complicated by the fact that the larvae of some pale females also have infuscated fovea on the anal tergite. These pale females differ in colour from typical females of *C. arvensis* (Vikberg 1982).

Larva on spruce *Picea* spp. (Benes 1976a). Distributed throughout northern and Central Europe, eastwards to Ussuri and Sakhalin (USSR) (Viitasaari 1982).

*C. intermedia* (Hellén, 1948): New to Denmark.

We have only found one specimen dark enough to be a typical *C. intermedia*. The identification is made on the basis of a single character only: the colouration of abdomen. The specimen is from NEZ: Ravnehøj, Nærum, 24.V.1959, B. B. Petersen leg., AU: ♂. The valvae were partly damaged in an old genitalia preparat.

*C. intermedia* is a species living on Norway spruce (*Picea abies*) (Vikberg 1982, Viitasaari 1982). If *C. intermedia* should fall into synonymy, it should be as a synonym of the spruce feeding *C. arvensis* and not as suggested by Achterberg & Aartsen (1986), of the larch (*Larix* spp.) feeding *C. lariciphila*.

Little is known about the distribution, but the species has been found in northern Europe and possibly also in Bulgaria and Rumania (Shinohara 1985c).

*C. lariciphila* (Wachtl, 1898): New to Denmark. Two females (det. F. Koch) labelled: »2.vii.1977, Dania, coll. Kaj Pedersen« (?EJ) and »Geels Skov, 21.v.1964., leg. O. Lomholdt« (NEZ), both in ZMUC.

Larva on larch (*Larix* spp.) (Benes 1976a). Distributed throughout the Central and northern Palaearctic Region (Achterberg & Aartsen 1986).

*C. pallidula* Gussakovskij, 1935: New to Denmark. One male from Donse, 15.vi.1902, C. R. Larsen leg., NHMA and two males from EJ: Gludsted, 26.VI.1980, T.S. Jensen leg., in coll. F. Midtgaard (1) and T.S. Jensen (1).

The larva is reported to feed on Siberian spruce (*Picea abies* ssp. *obovata*), and the biology has been studied by Verzhutskii (1973).

Distributed throughout northern Eurasia, from Fennoscandia across Siberia to Sakhalin (Benes 1976a).

*C. erythrogaster* (hartig, 1837): Only reported from SJ: Bommerlund, 28.v.1955: ♀; 23.v.1956: ♂; 25.v.1956: ♀, all B. B. Petersen leg., AU and EJ: Rye, 25.v.1918, leg.?, NHMA: ♀.

Larva on Norway spruce *Picea abies* (Kontuniemi 1959).

Distributed in Central and northwestern Europe (Achterberg & Aartsen 1986).

*C. fallenii* (Dalman, 1823): New to Denmark. Only known from EJ: Nordsko-

ven, Silkeborg, 20.v.1956, ? leg., NHMA: ♀ and SJ: Bommerlund, 4.vi.1955, 20.v.1955, 22.v.1956, 23.v.1956 and 24.v.1956 B. B. Petersen leg., AU: 9 ♀♀. The specimens from Bommerlund were identified by R. B. Benson, 1966 as members of the *arvensis*-group. The Danish specimens are very variable in colour, whereas Fennoscandian specimens are of the colour-form *annulata* (Hartig).

Larva on Norway spruce *Picea abies* (Benes 1976a).

Distributed throughout northern and Central Europe, and northern USSR (Achterberg & Aartsen 1986).

*Neurotoma saltuum* (L., 1758) (*N. flaviventris* Retzius, 1783): Rare and not collected in Denmark since 1911. Known from EJ: Dyrnæs, LFM: Redsle and NEZ: Strandmøllen.

Larva most commonly reported from pear (*Pirus communis*) but the species has also been reported from hawthorn (*Crataegus*), medlar (*Mespilus*) *Cotoneaster*, wild cherry (*Prunus avium*) apricot (*P. armenica*) and peach (*P. persica*) (Lorenz & Kraus 1957).

Distributed throughout Europe, Asia Minor, Transcaucasia and Japan (Shinohara 1980).

*N. nemoralis* (L., 1758): Rare and not collected since 1887, except a specimen C. R. Larsen leg., 2.v.1918 with no locality.

Found in LFM: Redsle and NEZ: Strandmøllen.

Larva on European bird cherry (*Prunus padus*), blackthorn (*P. spinosa*), apricot (*P. armeniaca*) peach (*P. persica*), wild cherry (*P. avium*) and plum (*P. domestica*) (Lorenz & Kraus 1957).

Distributed throughout West Palaearctic (Shinohara 1980).

*Pamphilus histrio* Latreille, 1812: Only recorded from EJ: Skanderborg, 25.v.1869, O. G. Jensen leg., ZMUC: ♂.

A key to the Palaearctic species related to *P. histrio* is given by Benes (1974).

Larva on European aspen (*Populus tremula*) (Chambers 1952).

Distributed throughout Eurasia (Benes 1974).

*P. gyllenhali* (Dahlbom, 1835): Not common, scattered records from EJ, NEJ and NEZ.

Larva on willow (*Salix* spp., mainly *S. aurita* and *S. caprea*) (Zirngiebl 1940).

Distributed throughout Europe (Benes 1974).

*P. inanitus* (Villers, 1789): Only in the eastern parts: NWZ, NEZ and B.

Larva on *Rosa cinnamomea* and *R. pimpinellifolia* (Kontuniemi 1959).

Distributed throughout Europe (Benes 1974).

*P. betulae* (L., 1758): Scattered records from SJ, EJ and NEZ.

Larva on European aspen (*Populus tremula*) (Chambers 1952).

Distributed throughout Eurasia (Benes 1974).

*P. nemorum* (Gmelin, 1788): (*lucorum* Fabricius, 1775): Very rare, only one female from EJ: Horsens, 9.vi.1872, O. G. Jensen leg., ZMUC.

Larva on strawberry (*Fragaria vesca*) (Konow 1897).

Distributed throughout Europe and the European parts of USSR (Shinohara 1985b).

*P. sylvaticus* (L., 1758) (*silvaticus* misspelling): Common, found in most districts.

Larva on rowan (*Sorbus aucuparia*), hawthorn (*Crataegus* spp.), European bird cherry (*Prunus padus*), plum (*P. domestica*) and blackthorn (*P. spinosa*) (Lorenz & Kraus 1957). Nielsen & Henriksen (1915) report the species from poplar (*Populus*) and willow (*Salix*). These reports are undoubtedly based on misidentifications. Distributed throughout Europe and the European parts of the USSR (Shinohara 1985b).

A key to the species of the *sylvaticus*-group is given by Shinohara (1985b).

*P. fumipennis* (Curtis, 1832): New to Denmark. The species has been misidentified as *P. sylvaticus* in the collections. Recorded from EJ: Klattrup, 18.vi.1978, T. Munk leg., NHMA: ♀; NEJ: Bolleskov 26.v.1872, O.G. Jensen leg., ZMUC: ♂; LFM: Lolland, Schiødte, ZMUC: ♀; Madeskov, Lolland, 14.vi.1882, L. Jørgensen leg., ZMUC: ♂; Lolland, O. G. Jensen leg., ZMUC: ♀; NEZ: Geels Skov, 5.vi.1896, C. R. Larsen leg., NHMA: ♀; Nordsjælland, Drewsen, ZMUC: ♂, ♀ and ?NEZ: NS, Schiødte leg. ZMUC: 2 ♂♂, 2 ♀♀.

Larva on hazel (*Corylus avellana*) and gray alder (*Alnus incana*) (Kontuniemi 1959).

Distributed throughout Europe and the European parts of the USSR (Shinohara 1985b).

*P. pallipes* (Zetterstedt, 1838): Not common, only reported from EJ and NEZ.

Larva on birch (*Betula* spp.) (Malaise 1921). Reported to feed on alder (*Alnus viridis*) by Schedl (1975). *Alnus* spp. are also the food-plants in Japan (Shinohara & Okutani 1983).

Distributed throughout Central and northern Europe through the USSR to Japan (Benson 1951).

*P. vafer* (L., 1767): Rather common, found in most regions. For a long time *P. depressus* (Schrank, 1781) was regarded to be a synonym of *P. vafer* (Malaise & Benson 1934), and *P. depressus* was also listed as a synonym for *P. vafer* by Benes (1976b). In Finland it has been customary to distinguish between *P. vafer* and *P. depressus* based on differences in colouration, minor differences in the male genitalia and probably also in the choice of food-plant (Viitasaari 1982). The differentiation is rather easy in Finnish material, but in the approximately 70 specimens examined by FM from Norway and Denmark a number of intermediates occur, and the characters intermingle in these materials. We therefore regard *P. depressus* to be synonymous with *P. vafer*. This is also

the opinion of Achterberg & Aartsen (1986). Larva on alder (*Alnus* spp.). (Kontuniemi 1959).

*P. vafer* is distributed throughout northern and Central Europe eastwards to Japan (Benes 1976b).

*P. albopictus* (Thomson, 1871): New to Denmark, only one specimen from EJ: Bygholm near Horsens I.vi.1869 O.G. Jensen leg., ZMUC: ♀. The specimen was reported as *P. depressus* by Nielsen & Henriksen (1915).

Larva on European bird cherry (*Prunus padus*) (Kangas 1961, Kangas & Kangas 1963). As food-plants Nielsen & Henriksen (1915) mention alder (*Alnus* spp.) and birch (*Betula* spp.), most likely based on literature records of the food-plants of the species here called *P. vafer* and *P. varius*.

Distributed throughout Eurasia (Benes 1976b).

*P. varius* (Lepelletier, 1823): New to Denmark. The species was previously identified as *P. vafer*. Found in EJ: Hald, Rye, Schiødte, leg. ZMUC: ♂; Klattrup, s. of Vejle, 5.vi.1974, T. Munk, leg. NHMA: ♀; LFM: Falster, Schiødte, leg., ZMUC: 2 ♂♂; NEZ: Tryggerød, NS, vi.1840, Drewsen, leg., ZMUC: ♀; Strandmøllen vi.1860, Drewsen, leg., ZMUC: ♂; Jægerspris Nordskov vi.1862, Løvendal, leg., ZMUC: ♀; København, v.1868 Løvendal, leg., ZMUC: ♀; Bøllemosen, Dyrehaven, v.1868 Drewsen, leg., ZMUC: 3 ♀♀; Ravnehøj, 25.v.1958, B. Bejer Petersen, leg., AU: ♀ and B: Bornholm, v. 1870, ? leg. ZMUC: ♀.

Larva on birch (*Betula* spp.) (Chambers 1952).

Distributed throughout Eurasia (Benes 1976b).

*P. marginatus* (Lepelletier, 1823): Rather common, recorded from the southern and eastern parts of the country.

Larva on hornbeam (*Carpinus betulus*) (Stritt 1937).

Distributed throughout western Palaearctic (Viitasaari 1982).

*P. hortorum* (Klug, 1808): Only reported from SJ, EJ and NEZ.

Larva on raspberry (*Rubus idaeus*) (Kontuniemi 1959).

The species was regarded as comprising two subspecies in northern Europe by Benson (1945). The Danish specimens belong to ssp. *bicinctus* Benson 1945, which is distributed throughout Scotland, Fennoscandia and Denmark; the nominal subspecies, *P. hortorum hortorum* is known from Central Europe and England (Benson 1945).

*P. balteatus* (Fallén, 1808): Only known from EJ: Pamhule Skov, 2.vii.1969, A. Lindebo Hansen, leg. NHMA: ♀; Vejle, 6.vi.1873, O. G. Jensen, leg., ZMUC: ♀; and 2 specimens Schiødte and Wüstnei, leg., respectively, with unreadable labels (ZMUC).

Larva on *Rosa cinnamomea* and *R. pimpinellifolia* (Kontuniemi 1959).

Distributed throughout the Palearctic region (Shinohara 1985a).

## Sammendrag

Ved en gennemgang af det danske materiale af Xyelidae og Pamphiliidae (Hymenoptera), der befinder sig i samlingerne på Zoologisk Museum (ZMUC), Naturhistorisk Museum (NHMA) og Den Kgl. Veterinær- og Landbohøjskole (AU) er der fundet otte arter, der ikke tidligere har været registreret som værende forekommende i Danmark. Det drejer sig om *Cephalcia alashanica* (Gussakovskij, 1935), *C. intermedia* (Hellen, 1948), *C. lariciphila* (Wachtl 1898), *C. pallidula* Gussakovskij, 1935, *C. fallenii* (Dalman, 1823), *Pamphilius fumipennis* (Curtis 1832), *P. albopictus* (Thomson, 1871) og *P. varius* (Lepelletier, 1823). Der gøres i korte træk rede for arternes forekomst og udbredelse samt larvernes foderplanter.

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